Implementation of Analytic Hierarchy Process Method For Selection of Supplier of Flour Raw Materials In CV. Gangsar In Tulungagung

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ABSTRACT

Purpose: This study also aims to determine suppliers who have the best performance in providing raw material supplies according to analysis and calculations using the Analytical Hierarchy Process method for CV. Gangsar.

Design/methodology/approach: The type of research used in this research is quantitative with the Multi-Criteria Decision Making (MCDM) method, more specifically the Analytic Hierarchy Process method. This research is located in CV. Gangsar which is located on Jl. Demuk No. 37 Ngunut Village, Ngunut District, Tulungagung Regency, East Java. Sampling in this study used a non-probability sampling method with a purposive sampling technique. Data analysis technique using AHP.

Findings: The results of the study indicate the criteria that can be considered to choose the best flour supplier for CV. Gangsar is price, quality, delivery accuracy, quantity accuracy, and customer care. Quality is the most important criterion with a weight of 0.326, then the price criteria with a weight of 0.289, then the criteria for accuracy of delivery with a weight of 0.171, then the criteria for accuracy of quantities with a weight of 0.140, and the last criterion of customer care with a weight of 0.074. Which flour supplier is the most appropriate to support the production performance of CV. Gangsar can be seen from the greatest weight. The highest weight is Indotapioka with a value of 0.378, followed by Sari Bumi with a weight of 0.330, and finally Sungai Budi with a weight of 0.292. Therefore, Indotapioka Jaya is the most appropriate company to support the production performance of CV. Gangsar. The company should use the research results as input when choosing the right supplier.

Paper type: Research paper

Keywords: AHP, Criteria, Sub Criteria, Supplier

I. INTRODUCTION

The food and beverage business continues to thrive, even though people's purchasing power has decreased due to COVID-19. Based on data from the Central Statistics Agency (2021), the food and beverage industry rose 2.95 percent YoY in the second quarter of 2021, up from 2.45 percent in the previous quarter. The Director of the Food, Marine Products, and Fisheries Industry of the Ministry of Industry, Supriadi, is optimistic that the food and beverage industry will grow by 5%, in line with the projected growth expected throughout 2021 by the Ministry of Industry (Lestari, 2021).

The food and beverage industry is still showing a growth trend because this product is still a priority for consumer spending when people's purchasing power declines due to the Covid-19 pandemic. According to research by consumer survey organization NielsenIQ, Indonesian consumer spending on food reached 22 percent in the first quarter of 2021. This figure decreased by 1% when compared to the first quarter of 2021. However, this figure remains the highest when compared to another consumer spending (Yudhistira, 2021). The large portion of consumer spending for food and beverages is because food and beverages are basic human

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needs, even during this pandemic, food also functions as an intake to support the body's resistance to the Covid-19 virus.

The supply chain plays an important role for companies to be able to remain competitive in the industry. As a result, good supply chain management is very important in the company. Supply chain management is the integration between suppliers or suppliers, manufacturers, distributors, wholesalers, retailers and end consumers to increase the smooth flow of goods, increase the accuracy of demand forecasts, increase efficiency in the use of space, vehicles, and other facilities, reducing inventory levels, lowering prices, and improve other services required by end users (Putri & Marbun, 2019).

In terms of supply chain management, suppliers are a very significant aspect of the supply chain that determines the survival of a company. Corporations as a system that carries out industrial activities certainly require raw materials from suppliers. If suppliers are less responsible and pay attention to meeting demand, it will cause problems such as long waiting times for raw materials and even raw material vacancies. Good cooperation with suppliers can improve the company's overall performance. The success of the supply chain in the company depends on the effectiveness of the strategy to improve coordination among partners to continue to be responsive to market changes by optimizing existing resources (Waśniewski, 2017). As a result, organizations with a large number of alternative suppliers have to be picky with whom they work. Supplier selection is an important aspect of a company's purchasing activities because the procurement of components, raw materials, and supplies affects the final quality of the manufacturing process and can bring benefits to the organization (Ayu Ratnasari, 2012).

CV. Gangsar is one of the companies that took part in enlivening the snack market in Indonesia. This company produces snacks in the form of atomic beans. To produce quality atomic beans, quality raw materials are needed as well. The main raw materials used to produce atomic beans are peeled peanuts, flour, cooking oil, garlic, sugar, salt, and seasonings. The composition of the raw materials for one recipe can be seen in the table below:

Table 1 Raw Material Composition of Gangsar Brand Atomic Nuts

No	Raw material	Amount	Unit
1	Peeled peanuts	15	Kg
2	Flour	30	Kg
3	Cooking oil	6	Kg
4	Garlic	1,4	Kg
5	Sugar	2,5	Kg
6	Salt	1	Kg
7	Seasonings	0,2	Kg
	Results	52,5	Kg

Flour is the main raw material that is most widely used in the CV production process. Gansar. Its composition reaches 57.14% of the total weight of the raw materials used. The weight of the flour reaches 30 Kg, while the overall weight of the raw materials used is 52.5 Kg. The type of flour used varies.

CV. Gangsar has several suppliers to meet its raw material needs. So far, the criteria used for CV. Gangsar chooses a supplier of flour raw materials only based on the price of flour and flour quality without considering other factors such as timeliness of delivery, the accuracy of delivery quantities, payment due time, ease of information, and the ability of suppliers to offer solutions when there are problems.

Tapioca flour is the largest composition in the manufacture of atomic beans. The need for flour for one year of production takes up some of the storage space in CV. Gangsar, so it must be ensured that the flour

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purchased is of good quality and can be used for production. In addition, tapioca flour is a very important raw material because tapioca flour will determine the coating quality of atomic beans. When the water content in tapioca flour is high, the flour will not bloom so this will have an impact on the crispness and tenderness of the atomic peanut coating.

Flour purchasing activities that run in CV. Gangsar so far, every arrival, the quality of flour sent is different even though it is from the same supplier and brand. The flour spread rate is inconsistent, causing the size and crispness of the atomic bean coating to varying for different production batches. This has several times become the subject of complaints for customers. For this reason, it is very important to enable businesses to be able to choose the best provider that can meet their demands consistently and according to established standards.

Businesses can run well and will thrive if they are supported by good supply chain management. One of the components in supply chain management is the supplier. The supplier is one of the business partners who play a very important and influential role in the survival of the company. Supplier performance that is less than optimal will result in a series of problems within the company, including the length of waiting time for the arrival of raw materials, the incompatibility of raw materials with company standards, resulting in non-standard finished product quality, and even delays in the production process due to vacancies in raw materials. Therefore, as a manufacturing company that works with several suppliers, the company must be able to choose the best supplier to support the company's performance so that it runs effectively, efficiently, and profitably.

Based on the above problems, to get supplier ratings, businesses have to analyze their suppliers. This assessment will be used as a basis for the organization to determine supplier priorities, which suppliers should come first, and whether it is necessary to add or replace suppliers. Priority suppliers will be the priority. It is based on the specified criteria.

Supplier selection is a multi-criteria challenge with quantitative and qualitative components. Several factors that influence the selection of this supplier include quantitative and qualitative. As a result, we need a method that can combine the two into the measurement. The AHP (Analytical Hierarchy Process) approach is one way to select suppliers. This strategy combines qualitative and quantitative data. AHP is a decision-making strategy that helps decision-makers to organize complex situations into an integrated hierarchy or set of levels. This decision support model will use hierarchies to explain complex multifactor or multicriteria situations. According to Afriliansyah et al., 2018, hierarchy is defined as a multi-level description of a complex problem, with the first level being the goal, followed by the level of factors, criteria, sub-criteria, and so on until the final level of alternatives. Hierarchies can be used to break down difficult problems into groups, which are then put into a hierarchical form to make the problem appear more organized and systematic. Several studies have been conducted that discuss the selection of suppliers, namely research by (Yadav & Sharma, 2015).(Greda, 2009; Parinduri, 2018; Sulistiyani et al., 2017; Wulandari, 2017; Yadav & Sharma, 2015)

The formulation of the problem taken in this study are:
1. What criteria can be considered to choose the best flour supplier for CV. Gangsar?
2. Which flour supplier is the most appropriate to support the production performance of CV. Gangsar?

II. METHODOLOGY

A. Types of Research

This research uses quantitative research with the Multi-Criteria Decision Making (MCDM) approach, especially the Analytic Hierarchy Process method. According to Mertler (2016), Quantitative research methods are the collection and examination of numerical data to describe, explain, predict or control variables and phenomena of interest. Meanwhile, according to Apuke (2017) quantitative research is an explanation of a problem or event through the collection and analysis of numerical data using a mathematical approach, especially statistics.

B. Research Location and Time

This research is located in CV. Gangsar which is located on Jl. Demuk No. 37 Ngunut Village, Ngunut District, Tulungagung Regency, East Java. The research period starts from September 2021 to November 2021. Data collection is carried out for 3 months, from September to November 2021.

C. Data Analysis Method

The method of data analysis in this study is to give questions in the form of questionnaires to respondents to determine which is more important than one criterion to the overall goal such as an example of two criteria to get the most optimal supplier of tapioca flour: which criterion is more important, what is the price of flour? or

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flour quality? When one element is much more important than the other, it is given a scale of 3 or higher if it is much more important.

The assessment with pairwise comparison is then continued for other criteria and so on. After that, the data will be processed using excel software to perform mathematical calculations in obtaining the weights of each criterion being compared. The Inconsistency Ratio will be calculated to ensure the quality of the questionnaire data with the rate being kept below 10%.

III. RESULTS AND DISCUSSION

A. Criteria Considered To Choose The Best Supplier Of Flour For CV. Gangsar

The recapitulation table of criteria data shows the findings of the questionnaire given to 6 research participants. Table 2 displays the recapitulation data.

Table 2 AHP Questionnaire Configuration

Criteria	Thomas	Desi	Sri Indarti	Dwi	Asmonah	Indri	Average	Criteria
Price	1	1	1	1	1	1	1	Quality
Price	5	1	0,143	0,333	0,333	5	1,968	Delivery Accuracy
Price	5	0,500	0,143	0,500	0,500	5	1,940	Quantity Accuracy
Price	5	0,500	0,143	5	5	5	3,440	Customer Care
Quality	5	1	0,143	3	3	3	2,524	Quantity Accuracy
Quality	5	0,500	0,143	5	5	1	2,774	Customer Care
Quality	5	1	1	4	4	5	3,333	Customer Care
Delivery Accuracy	5	1	1	1	1	1	1,667	Quantity Accuracy
Delivery Accuracy	5	1	1	2	2	5	2,667	Customer Care
Quantity Accuracy	5	1	1	0,333	0,333	1		Customer Care

The criteria used are five, while the pairwise comparisons that can be formed are 10 comparison items.

After recapitulating the criteria, the next step is to create a paired comparison matrix of criteria where the data obtained is the average of the recapitulation results, namely the number of values in each row divided by the number of respondents in this study totaling 6 respondents.

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Table 3 Criteria Paired Comparison Matrix

Indicator	Price	Quality	Delivery Accuracy	Quantity Accuracy	Customer care	Total
Price	1	1	1,968	1,940	3,440	9,349
Quality	1	1	2,524	2,774	3,333	10,631
Delivery Accuracy	0,508	0,396	1	1,667	2,667	6,238
Quantity Accuracy	0,515	0,361	0,600	1	2,667	5,143
Customer care	0,291	0,300	0,375	0,375	1	2,341
Total	3,314	3,057	6,467	7,756	13,107	33,701

After creating a pairwise comparison matrix, the next step is to create a criterion value matrix by dividing the column value by the number of each column in table 10, which can be seen in table 4.

Table 4 Criteria Weight

Indicator	Price	Quality	Delivery Accuracy	Quantity Accuracy	Customer care	Average (Weight)
Price	0,302	0,327	0,304	0,250	0,262	0,289
Quality	0,302	0,327	0,390	0,358	0,254	0,326
Delivery Accuracy	0,153	0,130	0,155	0,215	0,203	0,171
Quantity Accuracy	0,156	0,118	0,093	0,129	0,203	0,140
Customer care	0,088	0,098	0,058	0,048	0,076	0,074
Total	1	1	1	1	1	1

The criterion weight value is obtained from the sum of the values in each row, 0.302 + 0.327 + 0.304 + 0.250 + 0.262, and then divided by the number of criteria, in this case, there are 5 criteria.

Eigenvector values are obtained from the horizontal sum of the criteria values in one line. The results are shown in Table 5.

Table 5 Criteria Eigen Vector

Indicator	Price	Quality	Delivery Accuracy	Quantity Accuracy	Customer care	Eigen Vector
Price	0,302	0,327	0,304	0,250	0,262	1,446
Quality	0,302	0,327	0,390	0,358	0,254	1,631

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Indicator	Price	Quality	Delivery Accuracy	Quantity Accuracy	Customer care	Eigen Vector
Delivery Accuracy	0,153	0,130	0,155	0,215	0,203	0,856
Quantity Accuracy	0,156	0,118	0,093	0,129	0,203	0,699
Customer care	0,088	0,098	0,058	0,048	0,076	0,368
Total	1	1	1	1	1	5

The criterion weight value is obtained from the sum of the values in each row, 0.302+0.327+0.304+0.250+0.262, and then divided by the number of criteria, in this case, there are 5 criteria.

The next step is to calculate the consistency ratio, this calculation is used to ensure that the consistency ratio (CR) <= 0.1. The calculation of the consistency ratio begins with calculating the Consistency Index (CI), where CI can be calculated using max (Eigen max). Max Eigen is the sum of the eigenvalues for each criterion. The eigenvalue is obtained by multiplying the number by the average (weight). The results can be seen in Table 6.

Table 6 Calculation of Eigen Values (λ)

Indicator	Amount	Average	Eigen Value
Price	3,314	0,289	0,958
Quality	3,057	0,326	0,997
Delivery Accuracy	6,467	0,171	1,107
Quantity Accuracy	7,756	0,140	1,084
Customer care	13,107	0,074	0,966
Eigen (λ) maks			5,112

The value of max is 5,112. The next step is to calculate the Consistency Index.
Consistensy Index (CI):
CI = (λ maks –n)/n-1
$\quad$ = (5,112 - 5)/5 - 1
$\quad$ = 0,112 / 4
$\quad$ = 0,028

After the CI value is obtained, then the CR calculation is carried out. For the number of criteria 5, the IR value = 1.12.
Consistensy Ratio (CR):
CR = CI/ IR
$\quad$ = 0,028/1,12
$\quad$ = 0,025

The calculation consistency ratio is 0.025; if CR = 0.1, the consistency ratio is acceptable.

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Table 7 Priority Ranking Criteria

Indicator	Weight	Rank
Price	0,289	2
Quality	0,326	1
Delivery Accuracy	0,171	3
Quantity Accuracy	0,140	4
Customer care	0,074	5

Based on table 7, the most important criteria are quality criteria which is a weight of 0.326, followed by price criteria which is a weight of 0.289, delivery accuracy criteria which weigh 0.171, and quantity accuracy criteria, which weights 0.140, and finally the customer care criteria, which weighs 0.074.

B. The Most Appropriate Supplier Of Flour To Support The Production Performance Of CV. Gangsar
    Selection of the most appropriate flour supplier to support the production performance of CV. Gangsar can be identified by combining the results of the analysis of the criteria and sub-criteria that have been obtained previously. The results of the combined analysis of the criteria and sub-criteria can be seen in Table 8.

Table 8 The combination of the results of the analysis of criteria and sub-criteria

Company name	Price 0,289			Quality 0,326	
	Competitive price	Purchase Discount	Item Suitability	Percentage of Defective Items	Quality Consistency
	0,845	0,155	0,356	0,213	0,431
Indotapioka	0,439	0,530	0,439	0,282	0,275
Sari Bumi	0,331	0,304	0,331	0,299	0,325
Sungai Budi	0,230	0,167	0,230	0,418	0,400
Amount	1	1	1	1	1

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Table 8 The combination of the results of the analysis of criteria and sub-criteria (continuation)

Company name	Delivery		Quantity Accuracy		Customer Care	
	0,171		0,140		0,074	
	Punctuality	Transport Handling Ability	Quantity of Packaging Appropriate	Weight per Packaging Appropriate	Quick response	Easy to Contact
	0,906	0,094	0,676	0,324	0,900	0,100
Indotapioka	0,395	0,326	0,330	0,276	0,381	0,252
Sari Bumi	0,374	0,337	0,259	0,311	0,388	0,404
Sungai Budi	0,231	0,337	0,411	0,413	0,230	0,344
Amount	1	1	1	1	1	1

After combining the results of the analysis of criteria and sub-criteria, then calculations are carried out to determine the weights in each cell in the table. The calculation is done by multiplying the weight of the criteria x the weight of the sub-criteria x the weight of the sub-criteria for each supplier. An example of the calculation for the Indotapioka Competitive Price is as follows

Weight = Price Weight x Competitive Price Weight x Competitive Price Weight for Indotapioka
= 0,289 x 0,845 x 0,439
= 0,107

The complete summary results can be seen in Table 9.

Table 9 Supplier Weight for all Criteria and Sub Criteria

Company name	Price			Quality		Delivery	
	0,289			0,326		0,171	
	Competitive price	Purchase Discount	Item Suitability	Percentage of Defective Items	Quality Consistency	Punctuality	Transport Handling Ability
	0,845	0,155	0,356	0,213	0,431	0,906	0,094
Indotapioka	0,107	0,024	0,051	0,020	0,039	0,061	0,005
Sari Bumi	0,081	0,014	0,038	0,021	0,046	0,058	0,005
Sungai Budi	0,056	0,007	0,027	0,029	0,056	0,036	0,005
Weight	0,244	0,045	0,116	0,069	0,141	0,155	0,016

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Table 9 Supplier Weight for all Criteria and Sub Criteria (continuation)

Company name	Quantity Accuracy		Customer Care		
	0,140		0,074		Final Weight
	Quantity of Packaging Appropriate	Weight per Packaging Appropriate	Quick response	Easy to Contact	
	0,676	0,324	0,900	0,100	
Indotapioka	0,031	0,012	0,025	0,002	0,378
Sari Bumi	0,024	0,014	0,026	0,003	0,330
Sungai Budi	0,039	0,019	0,015	0,003	0,292
Weight	0,094	0,045	0,066	0,007	1

In the rightmost column, you can see the final weight value. This final weight is the sum of all the weights in one row. It can be seen that the largest weight is Indotapioca with a value of 0.378, followed by Sari Bumi with a weight of 0.330, and finally Sungai Budi with a weight of 0.292. The most appropriate supplier ranking list to support the production performance of CV. Gangsar can be seen in Table 10.

Table 10 The most appropriate supplier to support the production performance of CV. Gangsar

Rank	Company Name	Weight
1	Indotapioka	0,378
2	Sari Bumi	0,330
3	Sungai Budi	0,292

Table 11 Ranking of Sub Criteria for the Three Suppliers

No	Sub-Criteria	Weight	Rank
1	Competitive price	0,244	1
2	Purchase Discount	0,045	8
3	Item Suitability	0,116	4
4	Percentage of Defective Items	0,069	6
5	Quality Consistency	0,141	3

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No	Sub-Criteria	Weight	Rank
6	Punctuality	0,155	2
7	Transport Handling Ability	0,016	10
8	Quantity of Packaging Appropriate	0,094	5
9	Weight per Packaging Appropriate	0,045	9
10	Quick response	0,066	7
11	Easy to Contact	0,007	11

Table 11 shows the ranking for the sub-criteria after being combined for the three existing suppliers. Competitive prices are in the first place, followed by Punctuality in second place. Quality consistency is ranked fourth. Ranking ten is the ability to handle transport, while the sub-criteria for ranking eleven are easy to contact.

C. Discussion

The object of this research is CV. Gansar, is a company engaged in the production and distribution of snacks. One of the products produced is atomic glass. There are several types of raw materials needed in the manufacture of these atomic beans, one of which is flour. The composition of the raw materials used in the production of atomic beans in CV. Gangsar can be seen in Figure 1.
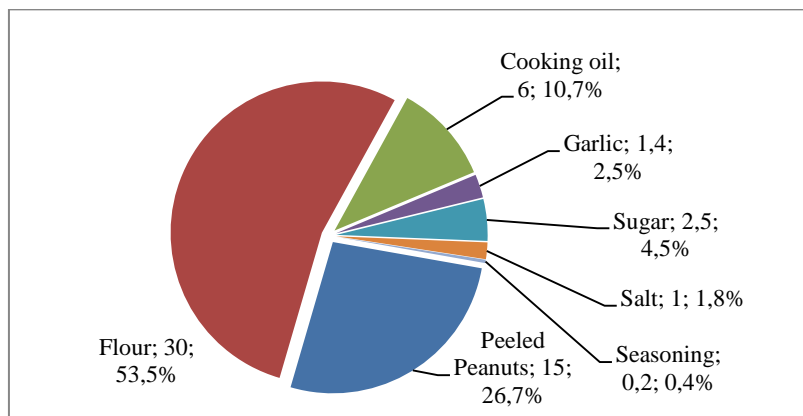

Figure 1 Composition of Raw Materials for Making Atomic Nuts

It can be seen that Flour is the main raw material in the manufacture of atomic beans. The amount reaches 53.5% of the total amount of raw materials needed. Therefore, the research takes flour suppliers as the object of research.

The results show that quality has the greatest weight of the five supplier selection criteria, followed by price. These two criteria are indeed the main considerations for a CV. Gangsar when making supplier selection. The results showed that if the weights of price and quality were added, it was found that Indotapioka Jaya had the greatest value, which was 0.240. Next is Sari Bumi with a value of 0.199, and the last is Sungai Budi with a value of 0.176. These results indicate that Indotapioka can supply flour products with the best price and quality.

The company's purchasing data for the last three years can be seen in Figure 2. Existing data indicate that there is a large purchase fluctuation in CV Gangsar Suppliers. For Indotapioka Jaya, the number of purchases of flour has decreased over the last three years. In 2019, the number of raw material purchases made to the company's three main suppliers increased. The largest increase occurred at Sari Bumi so in 2019 the number of purchases made reached 2,083,050 Kg. In 2020, the number of purchases made at Indotapioka Jaya and Sari

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Bumi decreased, meanwhile purchases made at Sungai Budi increased so that the number reached 1,070,920. In 2020, the purchase of flour at Indotapioka Jaya has the smallest amount compared to the other two suppliers. Its value only reaches 92,050 Kg.
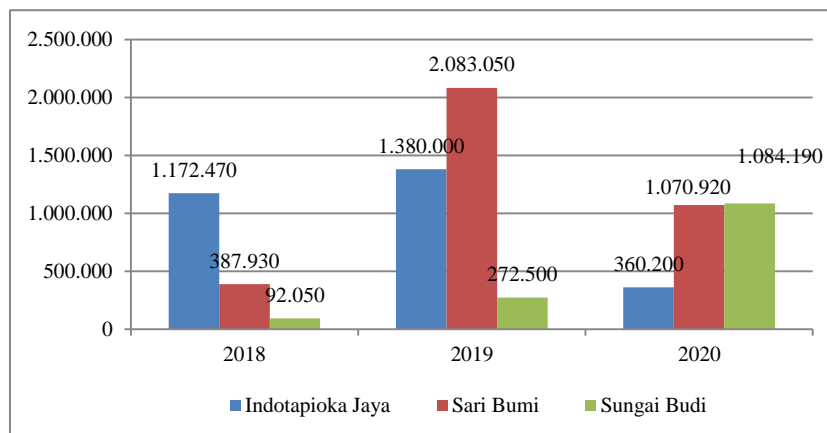

Figure 2 Purchase of Flour CV. Gangsar from Three Suppliers for the Last Three Years

This condition is not in line with the research results. The company should buy the most flour from Indotapioka Jaya because this supplier can provide the best price and quality weight scores. Sungai Budi, which has the lowest combined value of price and quality, actually provided the largest supply of flour in 2020, reaching 1,084,190 Kg. In the future, the company needs to evaluate the flour raw material purchasing system that has been done so far so that the supplier with the highest weight value should be the company's main supplier.

The results of this study are also supported by the final weight for each supplier. This final weight is a combination of the existing eleven sub-criteria. Indotapioka Jaya has the largest weight value, which is 0.378, followed by Sari Bumi with a value of 0.330, and finally Sungai Budi with a weight value of 0.292. The final result also confirms that Indotapioka Jaya should be the company's main supplier, but the available data shows that in 2020, Indotapioka Jaya will supply flour to CV. Gangsar with the smallest amount compared to the other two suppliers.

Several previous studies have been carried out to determine the right supplier for the company. Research that has been done by Wulandari (2017) with the title "Selection of Particle Raw Material Suppliers With AHP and Promethee Methods". In research Wulandari (2017) price has the greatest weight, while in this study price has a weight value in the second rank, while the first rank is quality. Price is one of the main considerations in choosing a supplier because the purchase price is a cost variable that greatly determines the number of production costs. The greater the cost of production, the lower the competitiveness of the products produced by the company.

Other research which also aims to conduct supplier selection has been carried out by Sulistiyani et al. (2017) with the title "Implementation of the Analytical Hierarchy Process (AHP) Method as an Alternative Solution in the Selection of Apple Raw Material Suppliers at PT. Mannasatra Kusumajaya". Research result Sulistiyani et al. (2017) is in line with this research, namely quality is a top priority in choosing suppliers. The quality of raw materials is very important for the company because the quality of these raw materials will determine the quality of the goods produced by the company. Therefore, in both studies, quality is the main criterion considered by companies when choosing suppliers.

C. Research Implication and Limitation

The results of this study can provide research implications, both theoretical implications, and practical implications. The description of the theoretical implications and practical implications of the research is as follows:

1. Theoretical Implications
   a. The results of this study can be used as additional literature and reading material, both for researchers, students, and practitioners about making decisions about choosing the right supplier to support business performance.
   b. The results of this study are expected to come from relevant literature review sources in determining several criteria and sub-criteria that can be used to evaluate suppliers.

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2. Practical Implications
    a. This research can be used as a guide for CV. Gangsar to get a good, adequate, easy to use, and fast decision-making technique in supplier selection decisions.
    b. Research can be used as a consideration for a CV. Gangsar in operating the company effectively and efficiently.
    c. This research can facilitate CV. Gangsar to choose the right supplier who can support the company's production activities.

Based on the results of the description of the practical implications that have been carried out, a comparison table can be made between the current conditions and the conditions that are expected to be carried out in the future.

Table 12 Research Managerial Implications

Concept	Present condition	Future conditions
SOP Purchasing	*No SOP yet*	*The company should make an SOP (Operational Standards and Procedures) that contains the purchasing rules. One of the purchases made is the purchase of raw materials.*
Supplier Selection SOP	*There is no supplier selection SOP yet*	*The company should make a supplier selection SOP. SOPs can be used to evaluate and select the right supplier for the company.*

There are several limitations to this study. The selection of research respondents was felt to be not optimal. Research respondents should know well the company's supplier selection process and also make direct contact with suppliers. This study involved six research respondents. All research respondents know the supplier selection process, but only three research respondents have direct contact with company suppliers. Meanwhile, the other three research respondents did not make direct contact with the company's suppliers.

Another limitation of the study is that research data collection was carried out during the Covid 19 pandemic. Based on the documentation of purchasing raw materials from suppliers, over the last two years, in general, purchases of goods from suppliers have decreased. This decline is not due to the poor quality of suppliers but is due to the company's production experiencing a decline. In addition, the performance of suppliers during the pandemic, in general, is also not good so the ability of suppliers to supply goods to companies is also limited.

IV. CONCLUSION

The conclusions that can be drawn in this study are:
1. Criteria that can be considered for choosing the best flour supplier for CV. Gangsar is price, quality, delivery accuracy, quantity accuracy, and customer care. Quality is the most important criterion with a weight of 0.326, then the price criterion with a weight of 0.289, then the criteria for accuracy of delivery with a weight of 0.171, then the criteria for accuracy of quantities with a weight of 0.140, and the last criterion of customer care with a weight of 0.074.
2. Which flour supplier is the most appropriate to support the production performance of CV. Gangsar can be seen from the greatest weight. The highest weight is Indotapioka with a value of 0.378, followed by Sari Bumi with a weight of 0.330, and finally Sungai Budi with a weight of 0.292. Therefore, Indotapioka Jaya is the most appropriate company to support the production performance of CV. Gangsar.

Suggestions that can be given are:
1. Advice for Companies
    a. The company should use the research results as input for the selection of suppliers that have been carried out so far. The supplier that should be the first choice is Indotapioka Jaya, followed by Sari Bumi, and finally Sungai Budi.
    b. The quality aspect should always be the company's first consideration in choosing a supplier. The quality of the selected raw materials will affect the resulting product. After quality, after that, the price becomes a secondary consideration.

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2. Suggestions for Further Researchers
   a. This study uses five criteria and three alternatives. In practice in the field, there are often more than three alternatives, therefore other researchers can conduct research with more than three alternatives.
   b. The number of respondents in the study was six people. Three people have direct contact with procurement activities (GM, Head of Production, and Owner), while the other three respondents do not have direct contact with goods procurement activities, but know the technical procurement of goods. The selection of the three respondents who were not in direct contact with the procurement activities was due to the limited number of respondents, so they had to be included. For further researchers, when selecting research respondents, it is hoped that they can ensure that research respondents are in direct contact with the research object being studied.

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