

Decision Support System for New Employee Selection at PT Selalu Cinta Indonesia through the Analytical Hierarchy Process (AHP) Method

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Abstract

Managing human resources holds significant importance within a company, as it anticipates each employee's effective contribution to fulfilling organizational responsibilities. A decision support system is required to avoid decisions made subjectively. This system is able to help management in selecting the right employees for the company. The existence of this system allows companies to process applicant data quickly, which helps make decisions about recruiting new employees. This decision support system utilized the Analytical Hierarchy Process method (AHP), which can help decision makers in a complex manner. The AHP method sets priorities in a structured process (hierarchy) that comes from decomposed criteria or structure.

Keywords: Decision Support System, Selection, and Analytical Hierarchy Process

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1. Introduction

Human Resources (HR) management holds significant importance within a company as it anticipates each employee's effective contribution to fulfilling organizational responsibilities (Marthalia, 2022a; Tanjung, 2020). Human Resources has a role in the company by creating a productive work environment, helping the organization to achieve its goals, and maintaining good relations between management and employees (Marthalia, 2022b; Valecha, 2022). The main functions of HR or an HR department include recruitment, training, performance management, payroll, benefits, employee relations management, legal compliance, human resource planning, and other aspects related to workforce management. Then, the main goal of HR is to ensure that the company has competent, skilled, and disciplined employees, so that it can achieve company goals. HR also includes several factors, such as company culture, values, ethics, and employee career development. In other words, HR is about managing and optimizing human potential in the company so that it can achieve the long-term success (del-Castillo-Feito, Blanco-González, & Hernández-Perlines, 2022; Kumar Rajbhar, 2017; Xu, 2020).

In the process of recruiting new employees in the company to avoid errors during employee selection, the decision support system helps the human recruitment department select qualified candidates for the position (Barber, 2013; Fanning, Williams, & Williamson, 2021; Shcherbakova, 2021). The information systems intended to help individuals or organizations make decisions called Decision Support Systems (DSS), which combines data, analytical models, and information processing tools in decision making (Holland, 2016; Valcik & Benavides, 2019; van Hoye, 2013). This system is required to address complex, diverse problems, and often more in-depth analysis (Babel'ová, Stareček, Koltnerová, & Cagáňová, 2020; Kulik & Perry, 2023).

This decision support system utilizes the method of Analytical Hierarchy Process (AHP). It is a method of decision making and analysis developed by Thomas L. Saaty in 1970. Analytical Method Hierarchy Process (AHP) is used to handle selection or priority problems. This problem includes a number of different criteria, as well as a number of alternatives that must be ranked or selected based on these criteria. Analytical Methods Hierarchy Process (AHP) is very useful for making decisions for complex and layered situations. In Decision Support System using the AHP

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method, decision makers are able to organize and prioritize criteria, sub-criteria, and alternatives to make more informed decisions (Leal, 2020; Seyedi, Hakimi, Ahmadi, Rezvan, & Izadifar, 2013; Tominanto, 2012).

AHP method can help in considering various relevant aspects in employee selection, and makes it possible to provide appropriate weight to each criterion based on more measurable preferences (Patimah, Marlina, & Andrari, 2022). In this way, employee selection decisions can be more objective and structured, and companies can get employees with better suit based on their needs (Farahani, Momeni, & Amiri, 2016; HARKENI & Syaputra, 2022; S, 2017; Supriadi, Rustandi, Komarlina, & Ardiani, 2018).

PT Selalu Cinta Indonesia produces shoes and sandals, such as Converse and Nike. In fact, the recruitment process for prospective employees at PT Selalu Cinta Indonesia is carried out manually, which takes a lot of time and sometimes causes errors. With this system, the data processing of prospective employee applicants can be carried out quickly and correctly, allowing companies to employ candidates who meet predetermined criteria. This method was used to assist companies in selecting new employees who meet the criteria.

2. Research Methods

The stages used to solve problems in this research explained the data collection procedures, research location, data analysis, methods used, and method testing. The location of the research was carried out at PT Selalu Cinta Indonesia, which selected new employee candidates held at the T1 building. The decision-making process for selecting new employees at PT Selalu Cinta Indonesia used the Analytical Hierarchy Process (AHP) method.

The following is a flowchart implemented at PT Selalu Cinta Indonesia.

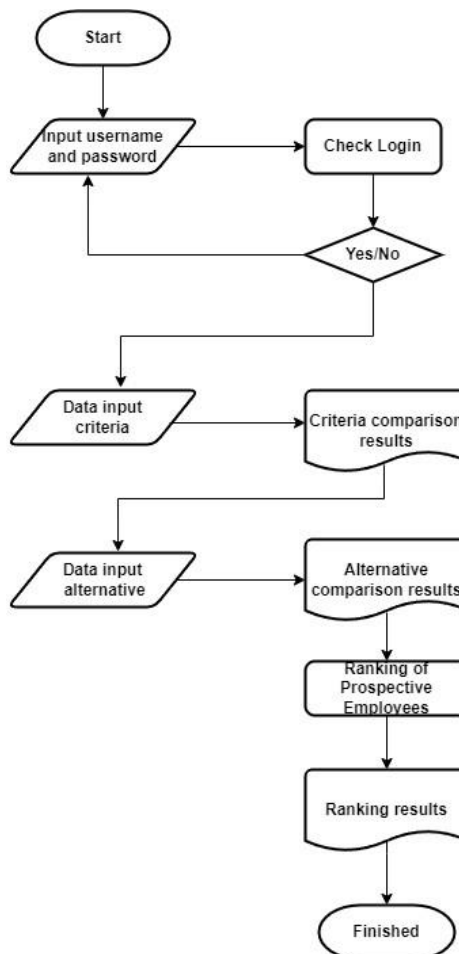


Figure 1. Flow chart

3. Results and Discussion

Analytical Hierarchy Process (AHP) method has the criteria for calculations in this research. This method is used in the process of selecting prospective employees who will be accepted using criteria in the form of interviews, written tests, health tests, and communication.

3.1. Implementation of Manual Calculations through the Analytical Hierarchy Process (AHP) Method

3.1.1. Determining Criteria

In calculating the Analytical Hierarchy Process (AHP) method, the first step was to determine the weighting of the criteria.

Criteria:

- a. Interviews
- b. Written test
- c. Medical check up
- d. Communication

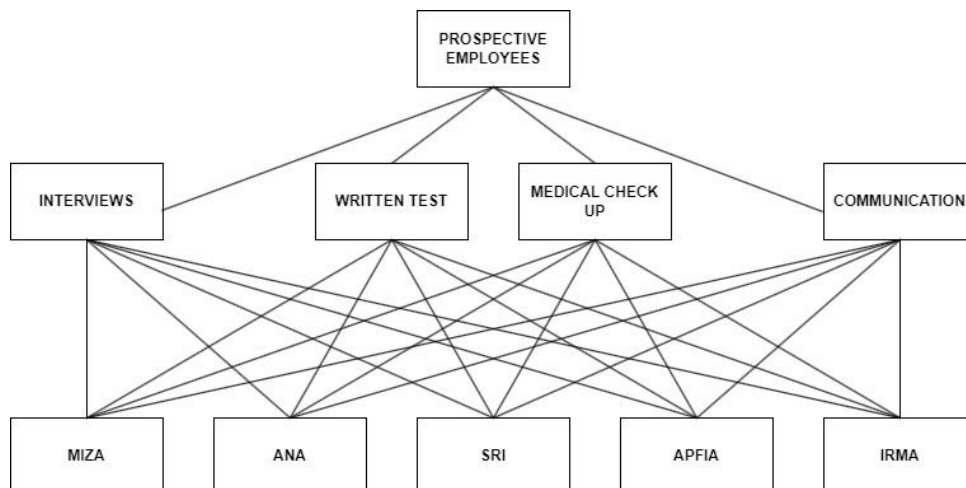


Figure 2. AHP Hierarchy Structure

In the assessment criteria at PT Selalu Cinta Indonesia for employee recruitment selection with the following conditions:

- a. Interviews are 3 times more important than written tests.
- b. Interviews are 2 times more important than medical tests.
- c. Interviews are 2 times more important than communication.
- d. Written tests are 2 times more important than the medical test.
- e. Written tests are 2 times more important than communication.
- f. Health tests are 2 times more important than communication.

3.1.2. Pairwise Comparison Matrix

After assessing the criteria, the values are entered into the criteria comparison matrix table (Table 1).

The table 1 explains the level of importance of 1 value in the interview row. The interview column is equally important. The number 3 in the interview row in the written test column shows that the interview level is 3 times more important than the written test. The number 2 in the interview row and medical test column indicates that the interview level is 2 times more important than the medical test. The number 2 in the interview row in the

communication column shows that the interview level is 2 times more important than communication. Then, the number 1/3 in the written test line in the interview column is produced from the number 1 in the interview line and column divided by the number 3 in the interview line in the written test column. The other figures are obtained from the same calculation process.

Table 1. Criteria Comparison Matrix

Criteria	Interviews	Written test	Medical Check-up	Communication
Interviews	1	3	2	2
Written test	1/3	1	2	2
Medical check-up	1/2	1/2	1	2
Communication	1/2	1/2	1/2	1

Table 2. Results of Simplification Matrix Comparison of Criteria Values

Criteria	Interviews	Written test	Medical Check up	Communication
Interviews	1	3	2	2
Written Test	0.33	1	2	2
Medical Check-up	0.5	0.5	1	2
Communication	0.5	0.5	0.5	1
Amount	2.33	5	5.5	7

Table 2 is a simplification of Table 1 from fractional numbers to decimal. For example, the value of 0.333 in the written test row in the interview column is produced from a value of 1/3 in the written test row and in the interview column in Table 1. Furthermore, the other rows and columns are produced in the same way. Then, after converting to decimal each column is added up.

3.1.3. Criteria Value Matrix

After calculating the pairwise comparison matrix, then calculate the criterion value matrix.

Table 3. Criteria Value Matrix

Criteria	Interviews	Written Test	Medical Check-up	Communication	Amount	Priority
Interviews	0.429	0.6	0.364	0.286	1.678	0.420
Written Test	0.143	0.2	0.364	0.286	0.992	0.248
Medical Check up	0.214	0.1	0.182	0.286	0.782	0.196
Communication	0.214	0.1	0.091	0.143	0.548	0.137

The results from Table 3 are obtained from calculations:

$$= \frac{\text{Column row values of Table 2}}{\text{Total of each column of Table 2}}$$

In Table 3, the value of 0.429 for the interview row in the interview column is obtained from Table 2. the interview column for the interview row is divided by the number of interview columns. The same calculation is used for other numbers.

$$= \frac{1}{2.33}$$

$$= 0.429$$

Total column value in Table 3 is obtained from the sum of each row. The numbers are produced using the same calculation method as in the value 1.678 resulting from the calculation.

Interview:

$$= 0.429+0.6+0.364+0.286$$

$$= 1.678$$

Written test:

$$= 0.143+0.2+0.364+0.286$$

$$= 0.992$$

Medical check up:

$$= 0.214+0.1+0.182+0.286$$

$$= 0.782$$

Communication

$$= 0.214+0.1+0.091+0.143$$

$$= 0.548$$

The amount column divided by the number of criteria produces a value in the Priority column, the following is a calculation of priorities:

Interview:

$$= \frac{1.678}{4}$$

$$= 0.420$$

Written test:

$$= \frac{0.992}{4}$$

$$= 0.248$$

Medical check up:

$$= \frac{0.782}{4}$$

$$= 0.196$$

Communication

$$= \frac{0.548}{4}$$

$$= 0.137$$

3.1.4. Consistency Calculation

At PT Selalu Cinta Indonesia, there are four criteria for employee recruitment selection, including interviews, written tests, health tests, and communication. If the matrix order value is 4 then the random index value is 0.90 according to the random index guideline table.

The value in the amount column is produced from the sum of each row in Table 3. the priority column is produced from the priority value in Table 4. The column value resulting from the calculation of the amount is multiplied by the priority value. Then, the three criteria results are added up to find out the value of λ_{max} , the following values can be obtained, as shown in Table 4.

$$\lambda_{max} = 4.253$$

$$n \text{ (number of criteria)} = 4$$

$$CI = \frac{\lambda_{max} - n}{n - 1} = \frac{4.253 - 4}{4 - 1} = \frac{0.253}{3} = 0.084$$

$$CR = \frac{CI}{IR} = \frac{0.084}{0.90} = 0.093$$

Based on the calculation, the consistency ratio is acceptable if $CR < 1$.

Table 4. Consistency Calculation

Criteria	Amount Per Row	Priority	Results
Interviews	2.33	0.419	0.979
Written Test	5	0.248	1.240
Medical Check up	5.5	0.195	1.075
Communication	7	0.137	0.959
Amount			4.253

3.1.5. Comparison of Alternatives

In this research, there are four criteria resulting four alternative calculations. After calculating the priority criteria, then the priority of prospective employees for each alternative is calculated, the following are the calculation stages.

a. Alternative Calculations of Interview Criteria

Table 5. Alternative Comparison Matrix Based on Interview

Interviews	Miza	Ana	Sri	Apfia	Irma
Miza	1	2	2	3	2
Ana	1/2	1	2	2	2
Sri	1/2	1/2	1	2	2
Apphia	1/3	1/2	1/2	1	2
Irma	1/2	1/2	1/2	1/2	1

Comparison values between alternatives in Table 5 of interview results.

Table 6. Simplification of the Alternative Comparison Matrix Based on Interviews

Interviews	Miza	Ana	Sri	Apfia	Irma
Miza	1	2	2	3	2
Ana	0.5	1	2	2	2
Sri	0.5	0.5	1	2	2
Apphia	0.5	0.5	0.5	1	2
Irma	0.333	0.5	0.5	0.5	1
Amount	2.833	4.5	6	8.5	9

Table 6 is a simplification of Table 5 where previously, the fractional values were converted into decimals, as in Table 5 the value 1/2 in the Ana column in the Miza row resulted in a value of 0.5. The other numbers are generated in the same way and then each column is added up.

In table 7. the steps taken are the same as the calculations in Table 3. the value 0.353 in the Miza row, Miza column, is the result of the calculation as follows:

$$= \frac{\text{Column row values of Table 6}}{\text{Total of each column of Table 6}}$$

$$= \frac{1}{2.833}$$

= 0.353

Table 7. Alternative Interview Value Matrix

Interviews	Miza	Ana	Sri	Apfia	Irma	Amount	Priority
Miza	0.353	0.444	0.333	0.353	0.222	1.706	0.341
Ana	0.176	0.222	0.333	0.235	0.222	1.190	0.238
Sri	0.176	0.111	0.167	0.235	0.222	0.912	0.182
Apphia	0.118	0.111	0.083	0.118	0.222	0.652	0.130
Irma	0.176	0.111	0.083	0.059	0.111	0.541	0.108

The value in the total column is then calculated from each alternative row that is added up.

Miza :

$$= 0.353+0.444+0.333+0.353+0.222$$

$$= 1.706$$

Ana:

$$= 0.176+0.222+0.333+0.235+0.222$$

$$= 1.190$$

Sri :

$$= 0.176+0.111+0.167+0.235+0.222$$

$$= 0.912$$

Apfia :

$$= 0.118+0.111+0.083+0.118+0.222$$

$$= 0.652$$

Irma:

$$=0.176+0.111+0.083+0.059+0.111$$

$$=0.541$$

Then, the priority value is obtained from the sum divided by 5 weights.

Miza:

$$= \frac{1.706}{5}$$

$$= 0.341$$

Ana:

$$= \frac{1.190}{5}$$

$$= 0.238$$

Sri :

$$= \frac{0.912}{5}$$

$$= 0.182$$

Apfia:

$$= \frac{0.652}{5}$$

$$= 0.130$$

Irma:

$$= \frac{0.541}{5}$$

$$= 0.108$$

Consistency Calculation

Table 8. Calculation of Interview Consistency Ratio

Interviews	Amount Per Row	Priority	Results
Miza	2.833	0.341	0.967
Ana	4.5	0.238	1.071
Sri	6	0.182	1.094
Apfia	8.5	0.130	1.108
Irma	9	0.108	0.974
Amount			5.213

In table 8. the calculation steps are carried out the same as in Table 4, the following calculation results can be obtained:

$$\lambda \text{ max} = 5.213$$

$$n \text{ (number of alternatives)} = 5$$

$$CI = \frac{\lambda \text{max}}{n - 1}$$

$$= \frac{5.213 - 5}{5 - 1}$$

$$= \frac{0.213}{4}$$

$$= 0.053$$

$$CR = \frac{CI}{IR}$$

$$= \frac{0.053}{1.12}$$

$$= 0.0476$$

Based on the calculation, the consistency ratio is acceptable if $CR < 1$.

b. Alternative Calculation of Written Test Criteria

The calculation steps for the written test alternative are the same as the interview alternative calculations as in the calculations (Table 9).

In table 10 is a simplification of table 9. which contains fractional numbers converted to decimal. In table 9 rows of Miza column Ana, there is a value of 1/2 which is then simplified in table 10 rows of Miza column Ana to 0.5. The other numbers are produced in the same way and then each column is added up.

Table 9. Alternative Comparison Matrix Based on Written Test

Written test	Miza	Ana	Sri	Apfia	Irma
Miza	1	2	2	2	2
Ana	1/2	1	1/2	1	2
Sri	1/2	2	1	3	2
Apfia	1/2	1	1/3	1	2
Irma	1/2	1/2	1/2	1/2	1

Table 10. Simplification of Alternative Comparison Matrix Based on Written Test

Written test	Miza	Ana	Sri	Apfia	Irma
Miza	1	2	2	2	2
Ana	0.5	1	0.5	1	2
Sri	0.5	2	1	3	2
Apfia	0.5	1	0.333	1	2
Irma	0.5	0.5	0.5	0.5	1
Amount	3	6.5	4.333	7.5	9

Table 11. Alternative Written Test Score Matrix

Written test	Miza	Ana	Sri	Apfia	Irma	Amount	Priority
Miza	0.333	0.308	0.462	0.267	0.222	1.591	0.318
Ana	0.167	0.154	0.115	0.133	0.222	0.791	0.158
Sri	0.167	0.308	0.231	0.400	0.222	1.327	0.265
Apfia	0.167	0.154	0.077	0.133	0.222	0.753	0.151
Irma	0.167	0.077	0.115	0.067	0.111	0.537	0.107

The calculation steps are the same as the calculations in Table 11. The value of 0.333 in the Miza row, the Miza column, is obtained from the calculation results as follows:

$$\begin{aligned}
 &= \frac{\text{Column row values of Table 10}}{\text{Total of each column of Table 10}} \\
 &= \frac{1}{3} \\
 &= 0.333
 \end{aligned}$$

The value in the total column is then calculated from each alternative row that is added up.

Miza :

$$\begin{aligned}
 &= 0.333+0.308+0.462+0.267+0.222 \\
 &= 1.591
 \end{aligned}$$

Ana:

$$\begin{aligned}
 &= 0.167+0.154+0.115+0.133+0.222 \\
 &= 0.791
 \end{aligned}$$

Sri :

$$\begin{aligned}
 &= 0.167+0.308+0.231+0.400+0.222 \\
 &= 1.327
 \end{aligned}$$

Apfia :

$$= 0.167+0.154+0.077+0.133+0.222$$

$$= 0.753$$

Irma:

$$= 0.167+0.077+0.115+0.067+0.111$$

$$= 0.537$$

Then, the priority value is obtained from the sum divided by 5 weights.

Miza:

$$= \frac{1.591}{5}$$

$$= 0.318$$

Ana:

$$= \frac{0.791}{5}$$

$$= 0.158$$

Sri :

$$= \frac{1.327}{5}$$

$$= 0.265$$

Apfia :

$$= \frac{0.753}{5}$$

$$= 0.151$$

Irma:

$$= \frac{0.537}{5}$$

$$= 0.107$$

Consistency Calculation

Table 12. Calculation of Written Test Consistency Ratio

Written test	Amount Per Row	Priority	Results
Miza	3	0.318	0.955
Ana	6.5	0.158	1.029
Sri	4.333	0.265	1.150
Apfia	7.5	0.151	1.129
Irma	9	0.107	0.966
Amount			5.230

Based on table 12, the following calculation results can be obtained:

$$\lambda \text{ max} = 5.230$$

$$n \text{ (number of alternatives)} = 5$$

$$\begin{aligned}
 CI &= \frac{\lambda_{max}}{n - 1} \\
 &= \frac{5.230 - 5}{5 - 1} \\
 &= \frac{0.230}{4} \\
 &= 0.057 \\
 CR &= \frac{CI}{IR} \\
 &= \frac{0.047}{1.12} \\
 &= 0.051
 \end{aligned}$$

Based on the calculation above, the consistency ratio is acceptable if $CR < 1$.

c. *Alternative Comparison of Health Test Criteria*

The following are the steps for calculating alternative health tests.

Table 13. Alternative Comparison Matrix Based on Health Tests

Medical Check-up	Miza	Ana	Sri	Apfia	Irma
Miza	1	2	1/2	2	1/2
Ana	1/2	1	1	1/2	1/2
Sri	2	1	1	1/2	1
Apfia	1/2	2	2	1	1
Irma	2	2	1	1	1

Table 14. Simplification of Alternative Comparison Matrix Based on Health tests

Medical Check-up	Miza	Ana	Sri	Apfia	Irma
Miza	1	2	0.5	2	0.5
Ana	0.5	1	1	0.5	0.5
Sri	2	1	1	0.5	1
Apfia	0.5	2	2	1	1
Irma	2	2	1	1	1
Amount	6	8	5.5	5	4

Table 14 is a simplification of Table 13 which contains fractional numbers and then simplifies them to decimal numbers. The other numbers are generated in the same way and then each column is added up.

Table 15. Matrix of Alternative Health Test Values

Medical check up	Miza	Ana	Sri	Apfia	Irma	Amount	Priority
Miza	0.167	0.250	0.091	0.400	0.125	1.033	0.207
Ana	0.083	0.125	0.182	0.100	0.125	0.615	0.123
Sri	0.333	0.125	0.182	0.100	0.250	0.990	0.198
Apfia	0.083	0.250	0.364	0.200	0.250	1.147	0.229
Irma	0.333	0.250	0.182	0.200	0.250	1.215	0.243

In Table 15. the steps taken are the same as the calculations in Table 3. the value of 0.167 in the Miza row, Miza column, is the result of the calculation as follows:

$$\begin{aligned}
 &= \frac{\text{Column row values of Table 15}}{\text{Total of each column of Table 15}} \\
 &= \frac{1}{6} \\
 &= 0.167
 \end{aligned}$$

The value in the total column is then calculated from each alternative row that is added up.

Miza:

$$\begin{aligned}
 &= 0.167+0.250+0.091+0.4+0.125 \\
 &= 1.033
 \end{aligned}$$

Ana:

$$\begin{aligned}
 &= 0.083+0.125+0.182+0.1+0.125 \\
 &= 0.615
 \end{aligned}$$

Sri:

$$\begin{aligned}
 &= 0.333+0.125+0.182+0.1+0.25 \\
 &= 0.990
 \end{aligned}$$

Apfia:

$$\begin{aligned}
 &= 0.083+0.250+0.364+0.2+0.25 \\
 &= 1.147
 \end{aligned}$$

Irma:

$$\begin{aligned}
 &= 0.333+0.250+0.182+0.2+0.25 \\
 &= 1.215
 \end{aligned}$$

Then, the priority value is obtained from the sum divided by 5 weights.

Miza:

$$\begin{aligned}
 &= \frac{1.033}{5} \\
 &= 0.207
 \end{aligned}$$

Ana:

$$\begin{aligned}
 &= \frac{0.615}{5} \\
 &= 0.123
 \end{aligned}$$

Sri:

$$\begin{aligned}
 &= \frac{0.990}{5} \\
 &= 0.198
 \end{aligned}$$

Apfia:

$$\begin{aligned}
 &= \frac{1.147}{5} \\
 &= 0.229
 \end{aligned}$$

Irma:

$$= \frac{1.215}{5}$$

$$= 0.243$$

Consistency Calculation

Table 16. Calculation of Health Test Consistency Ratio

Medical Checkup	Amount Per Row	Priority	Results
Miza	6.000	0.207	1.239
Ana	8.000	0.123	0.984
Sri	5.500	0.198	1.089
Apfia	5.000	0.229	1.147
Irma	4.000	0.243	0.972
Amount			5.432

Based on Table 16, the following calculation results can be obtained:

$$\lambda_{max} = 5.432$$

$$n \text{ (number of alternatives)} = 5$$

$$CI = \frac{\lambda_{max}}{n - 1}$$

$$= \frac{5.432 - 5}{5 - 1}$$

$$= \frac{0.432}{4}$$

$$= 0.108$$

$$CR = \frac{CI}{IR}$$

$$= \frac{0.108}{1.12}$$

$$= 0.096$$

Based on the calculation above, the consistency ratio is acceptable if $CR < 1$.

d. Alternative Comparison of Communication Criteria

The following are the steps for calculating communication alternatives.

Table 17. Alternative Comparison Matrix Based on Health Tests

Communication	Miza	Ana	Sri	Apfia	Irma
Miza	1	1	2	3	2
Ana	1	1	1	2	1
Sri	0.5	1	1	3	2
Apfia	0.333	0.5	0.333	1	1
Irma	0.5	1	1	1	1

Table 18 is a simplification of Table 17. which contains fractional numbers and then simplifies them to decimal numbers. The other numbers are generated in the same way and then each column is added up.

Table 18. Simplified Alternative Comparison Matrix Based on Communication

Communication	Miza	Ana	Sri	Apfia	Irma
Miza	1	1	2	3	2
Ana	1	1	1	2	1
Sri	0.5	1	1	3	2
Apfia	0.333	0.5	0.333	1	1
Irma	0.5	1	1	1	1
Amount	3.333	4.5	4.8	10	7

Table 19. Communication Alternative Value Matrix

Communication	Miza	Ana	Sri	Apfia	Irma	Amount	Priority
Miza	0.300	0.222	0.414	0.300	0.286	1.522	0.304
Ana	0.300	0.222	0.207	0.200	0.143	1.072	0.214
Sri	0.150	0.222	0.207	0.300	0.286	1.165	0.233
Apfia	0.100	0.111	0.069	0.100	0.143	0.523	0.105
Irma	0.150	0.222	0.103	0.100	0.143	0.719	0.144

In Table 19. the steps taken are the same as the calculations in Table 3. the value of 0.300 in the Miza row, Miza column, is the result of the calculation as follows:

$$\begin{aligned}
 &= \frac{\text{Column row values of Table 18}}{\text{Total of each column of Table18}} \\
 &= \frac{1}{3.333} \\
 &= 0.300
 \end{aligned}$$

The value in the total column is then calculated from each alternative row that is added up.

Miza :

$$\begin{aligned}
 &= 0.300+0.222+0.414+0.300+0.286 \\
 &= 1.522
 \end{aligned}$$

Ana:

$$\begin{aligned}
 &= 0.300+0.222+0.207+0.200+0.143 \\
 &= 1.072
 \end{aligned}$$

Sri :

$$\begin{aligned}
 &= 0.150+0.222+0.207+0.300+0.286 \\
 &= 1.165
 \end{aligned}$$

Apfia :

$$\begin{aligned}
 &= 0.100+0.111+0.069+0.100+0.143 \\
 &= 0.523
 \end{aligned}$$

Irma:

$$\begin{aligned}
 &= 0.150+0.222+0.103+0.100+0.143 \\
 &= 0.719
 \end{aligned}$$

Then, the priority value is obtained from the sum divided by 5 weights.

Miza:

$$= \frac{1.522}{5}$$

$$= 0.304$$

Ana:

$$= \frac{1.072}{5}$$

$$= 0.214$$

Sri:

$$= \frac{1.165}{5}$$

$$= 0.233$$

Apfia:

$$= \frac{0.523}{5}$$

$$= 0.105$$

Irma:

$$= \frac{0.719}{5}$$

$$= 0.144$$

Consistency Calculation

Table 20. Calculation of Health Test Consistency Ratio

Medical Check-up	Amount Per Row	Priority	Results
Miza	3.333	0.304	1.014
Ana	4.5	0.214	0.965
Sri	4.833	0.233	1.126
Apfia	10	0.105	1.046
Irma	7	0.144	1.006
Amount			5.157

Based on Table 20, the following calculation results can be obtained:

$$\lambda_{\max} = 5.157$$

$$n \text{ (number of alternatives)} = 5$$

$$CI = \frac{\lambda_{\max}}{n - 1}$$

$$= \frac{5.157 - 5}{5 - 1}$$

$$= \frac{0.157}{4}$$

$$= 0.039$$

$$CR = \frac{CI}{IR}$$

$$= \frac{0.039}{1.12}$$

$$= 0.035$$

Based on the calculation above, the consistency ratio is acceptable if $CR < 1$.

3.1.6. Ranking Results

After calculating the criteria and alternatives, then ranking the data, the following is the ranking calculation for new employee acceptance.

Table 21. Ranking Results

Alternative name	Mark	Rank
Miza	0.3041	1
Sri	0.2130	2
Ana	0.1925	3
Apfia	0.1512	4
Irma	0.1392	5

4. Conclusion

Four criteria are used for data processing, namely interviews, written tests, health tests, and communication and five alternatives, namely Miza Sekar Azizah, Ana Nissa Yuliana, Sri Daryanti, Apfia Rosana, and Irma Setyani. After processing the data the results are Miza SekarAzizah has the highest weight of 0.304 ranked first, Sri Daryanti has a weight of 0.212 ranked second, Ana Nissa Yuliana has a weight of 0.192 ranked third, Apfia Rosana has a weight of 0.151 ranked fourth, and Irma Setyani has a weight of 0.139 ranked fifth or lowest. Therefore, it can be said that Analytical Hierarchy Process (AHP) has the ability to make decisions in the selection process for accepting new employees. This decision support system aims to help HRD process applicant data for selecting new employees using analytical methods Hierarchy Process (AHP).

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