



Selection of the Best Employees Using the Copras Method at PT. Gosyen Retail Indonesia

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Abstract

The most important asset of a company is its human resources. So that the quality and existence of its people need to be maintained. Therefore, the company has an obligation to always maintain the quality of its employees. One way that companies can maintain the quality of their employees is by giving rewards for their success at work. Rewards are certainly not given to all employees but are given to someone or several employees for their achievements. The purpose of this research is to find the best employee by being influenced by several criteria, namely performance, work attitude, teamwork, accuracy and discipline. The research method used is the Copras (Complex Proportional Assessment) method. The data sources used are secondary type data sources by reviewing articles in journals and secondary data books in supporting this research, all of which are in accordance with the research objectives or research relevance. The results of this study obtained the best employee with alternative U22 with a final result of 100 on behalf of Tasya Qanita.

Keywords: Decision Support System, COPRAS, Employee Selection

1. Introduction

The most important asset of a company is its human resources, so the quality and existence of its people need to be maintained. Therefore, the company has an obligation to always maintain the quality of its employees. One way that companies can take care of their employees is by giving rewards in the form of rewards for their success at work. Rewards are certainly not given to all employees but are given to one or several employees for their achievements [1].

One way to obtain quality human resources is through employee performance assessments. Performance appraisal is a process carried out by a company to evaluate or assess the success of employees in carrying out their duties. Assessment can be done by comparing the work results achieved by employees with job standards. If the work results obtained reach or exceed the work standard, it can be said that an employee's performance is included in the good category. On the other hand, if an employee whose work results do not meet the work standards are included in poor performance or low performance [2]. Performance measurement can serve as a target or objective, as a standard measurement activity and as information that employees can use, in directing their efforts through a specific set of priorities.

PT. Gosyen Retail Indonesia is a company engaged in E-Commerce that markets hair care, facial care, and body care products. PT. Gosyen Retail Indonesia Implement an employee performance appraisal system to find the best employees using rankings/value weights. This is useful for giving contract extensions to the best employees or increasing loyalty to the company so that the company gets positive things from the best employees.

The problem that exists in the employee assessment process is that there is no assessment for the best employees, due to the absence of performance appraisal so that from these problems the author applies a decision support system by using the Copras (Complex Proportional Assessment) method used to solve problems. The Copras method can show shorter calculation times, very basic, good transparency, and a high probability in graphical understanding strategies than other methods by taking into account the dependency of priority factors and the utility level of objects and their opposite attributes [3].

This Copras method can evaluate and assess which criteria are advantageous and unfavorable and superior to other methods because it can calculate the level of alternative utility which shows the extent to which alternatives are taken as a comparison. Based on the above background, the researcher is interested in conducting research with the title "Selection of the Best Employees Using the Copras Method at PT. Gosyen Retail Indonesia".

2. Research Methods

In this study, the method used is the COPRAS or Complex Proportional Assessment method, which is a decision support system method that aims to make a ranking of alternatives based on favorable criteria and adverse criteria.

The research stages of the COPRAS method consist of seven stages and evaluate alternatives in terms of their importance and usefulness. Here are the stages of the COPRAS method:

1. First Stage

Create a decision matrix. Decision matrices are alternative matrix values and attributes [4], [5].

$$D = \begin{matrix} A_1 \\ A_2 \\ A_3 \\ A_4 \\ A_5 \\ A_6 \\ A_7 \\ A_m \end{matrix} \begin{bmatrix} X_{11} & X_{12} & X_{13} & X_{14} & X_{1n} \\ X_{21} & X_{22} & X_{23} & X_{24} & X_{2n} \\ X_{31} & X_{32} & X_{33} & X_{34} & X_{3n} \\ X_{41} & X_{42} & X_{43} & X_{44} & X_{4n} \\ X_{51} & X_{52} & X_{53} & X_{54} & X_{5n} \\ X_{61} & X_{62} & X_{63} & X_{64} & X_{6n} \\ X_{71} & X_{72} & X_{73} & X_{74} & X_{7n} \\ X_{m1} & X_{m2} & X_{m3} & X_{m4} & X_{mn} \end{bmatrix}$$

2. Second Stage

Normalization of the matrix in decision-making. For matrix normalization use the following formula:

$$X_{ij} = \frac{X_{ij}}{\sum_{i=1}^m X_{ij}}$$

Divide each value of a column by the value of the sum of each column in question to get a matrix normalization [6], [7].

3. Third Stage

Determine the weighted normalization matrix retrieval, to determine the weighted normalization using the following formula:

$$D^1 = D_{ij} = X_{ij} \times W_j$$

Where X_{ij} is the normalized value of the alternative and W_j is the weight of the criteria. The number of weighted normalized values of each criterion is always equal to the weight for that criterion [4].

4. Fourth Stage

Calculation of the highest and lowest values on the index for each alternative. Here's the formula to calculate the highest and lowest of each alternative:

$$S_{+i} = \sum_{j=1}^n Y_{+ij}$$

$$S_{-i} = \sum_{j=1}^n Y_{-ij}$$

Where y_{+ij} and y_{-ij} is the weighted normalization value for beneficial (benefit) and unprofitable (cost) attributes. The lower the score S_{-i} the better the alternative. Values S_{+i} and S_{-i} the level of goals achieved by each alternative. However, the number "plus" S_{+i} and "minus" S_{-i} The alternative is always equal to the sum of the weights for the benefit and cost attributes [8].

5. Fifth Stage

Determine the significance of the alternative based on the determination of positive alternatives S_{+i} and negative alternatives S_{-i} calculation of the relative weight of each alternative [4].

6. Sixth Stage

Relative significance value, determine the relative significance or relative priority (Qi) of each alternative.

$$Q_i = S_{+i} + \frac{s_{-i} \min \sum_{i=1}^m s_{-i}}{s_{-i} \sum_{i=1}^m (s_{-min}/s_{-1})} = S_{+i} + \frac{\sum_{i=1}^m S_{-1}}{S_{-1} \sum_{i=1}^m (1/S_{-1})} (i = 1, 2, \dots, m)$$

Where $S_{-1 \min}$ is the minimum value S_{-i} while the larger the value Q_i the higher the priority of the alternative. The relative significance value of an alternative indicates the level of satisfaction achieved by the achieved alternative. The alternative with the highest significance value (Q_{max}) is the best choice among the follower alternatives [9].

7. Sixth Stage

Calculate the quantitative utility (U_i) for each alternative.

$$U_i = \left[\frac{Q_i}{Q_{max}} \right] \times 100\%$$

Where Q_{max} is the maximum relative significance value. The value of this utility ranges from 0% to 100%. The alternative with the highest utility value (U_{max}) is the best choice among the follower alternatives [4].

3. Result and Discussion

The following are the results of the research that has been carried out:

3.1. Determination of Criteria

To make decisions in selecting the best employees, data such as criteria data, value weight data, and alternatives are needed. The author uses 5 (five) criteria used to conduct the assessment. Where these criteria have a weighting value using the Complex Proportional Assessment (COPRAS) method.

Table 1: Criteria Data

No	Criteria	Code
1	Performance	C1
2	Work Attitude	C2
3	Teamwork	C3
4	Accuracy	C4
5	Discipline	C5

In the Table 1, you can see the criteria used as an assessment of the criteria in selecting the best employees. After determining the criteria to be used, then make a weight on each criterion, the criterion weight is the weight of the prevalence (weight of importance) used by decision-makers as a consideration of the level of importance of each existing criterion, along with the weight contained in each criterion Table 2.

Table 2: Weight of Criteria

No	Criteria	Weight
1	Performance	45%
2	Work Attitude	10%
3	Teamwork	15%
4	Accuracy	15%
5	Discipline	15%

Table 3 the following are the weights of performance criteria used in data processing using the Complex Proportional Assessment (COPRAS) method.

Table 3: Performance Value Weight

No	Criteria Performance	Weight
1	Sangat Baik	5
2	Baik	4
3	Cukup Baik	3
4	Kurang Baik	2
5	Sangat Kurang Baik	1

Table 4 the following are the weights of the work attitude criteria used in data processing using the Complex Proportional Assessment (COPRAS) method.

Table 4: Weight of Work Attitude Value

No	Criteria Work Attitude	Weight
1	Sangat Baik	5
2	Baik	4
3	Cukup Baik	3
4	Kurang Baik	2
5	Sangat Kurang Baik	1

Table 5 the following are the weights of the teamwork criteria used in data processing using the Complex Proportional Assessment (COPRAS) method.

Table 5: The Weight of Teamwork Value

No	Criteria Teamwork	Weight
1	Sangat Baik	5
2	Baik	4
3	Cukup Baik	3
4	Kurang Baik	2
5	Sangat Kurang Baik	1

Table 6 the following are the weights of accuracy values used in data processing using the Complex proportional Assessment (COPRAS) method.

Table 6: Accuracy Value Weight

No	Criteria Accuracy	Weight
1	Sangat Teliti	5
2	Teliti	4
3	Cukup Teliti	3
4	Kurang Teliti	2
5	Sangat Kurang Teliti	1

The following are the weights of discipline values used in data processing using the Complex Proportional Assessment (COPRAS) method.

Table 7: Weight of Discipline Value

No	Criteria Discipline	Weight
1	Sangat Kurang Disiplin	1
2	Kurang Disiplin	2
3	Cukup Disiplin	3
4	Disiplin	4
5	Sangat Disiplin	5

Table 7. Weights of Discipline Values From the table of normalization of criteria for the alternatives above, data to be used in the problem-solving process is obtained which can be seen in the table below:

Table 8: Alternative Data

No	Employee name	Criteria				
		C1	C2	C3	C4	C5
1	Suci Wulandari	Sangat Baik	Sangat Baik	Sangat Baik	Sangat Teliti	Disiplin
2	Isnayati	Baik	Sangat Baik	Baik	Teliti	Disiplin
3	Nadia Kurnia Sari	Cukup Baik	Baik	Baik	Cukup Teliti	Cukup Disiplin
4	Sari Pitirah	Sangat Baik	Cukup Baik	Baik	Teliti	Cukup Disiplin
5	Nurhasanah	Sangat Baik	Baik	Baik	Teliti	Disiplin
6	Puji Astuti	Cukup Baik	Cukup Baik	Sangat Baik	Cukup Teliti	Cukup Disiplin
7	Purwanti	Baik	Cukup Baik	Baik	Cukup Teliti	Disiplin
8	Siti Aisyah	Sangat Baik	Baik	Sangat Baik	Cukup Teliti	Disiplin
9	Tursina	Cukup Baik	Cukup Baik	Baik	Cukup Teliti	Cukup Disiplin
10	Aulia Apriyanti	Baik	Sangat Baik	Baik	Teliti	Sangat Disiplin
11	Avi Nur	Cukup Baik	Kurang Baik	Cukup Baik	Cukup Teliti	Disiplin
12	Dilla Apriliyani	Baik	Baik	Cukup Baik	Kurang Teliti	Kurang Disiplin
13	Laela Sari	Baik	Cukup Baik	Sangat Baik	Teliti	Cukup Disiplin
14	Fitriyanah	Kurang Baik	Baik	Cukup Baik	Kurang Teliti	Cukup Disiplin
15	Intan	Baik	Baik	Cukup Baik	Cukup Teliti	Cukup Disiplin
16	Tika Maya	Kurang Baik	Kurang Baik	Cukup Baik	Kurang Teliti	Disiplin
17	Noviadis Ayu	Baik	Baik	Baik	Kurang Teliti	Disiplin
18	Sella Saputri	Cukup Baik	Cukup Baik	Baik	Kurang Teliti	Cukup Disiplin
19	Siti	Baik	Cukup Baik	Cukup Baik	Teliti	Disiplin
20	Suci Ulan	Baik	Cukup Baik	Baik	Kurang Teliti	Kurang Disiplin
21	Kania Syahrta	Sangat Baik	Cukup Baik	Cukup Baik	Cukup Teliti	Cukup Disiplin
22	Tasya Qanita	Kurang Baik	Kurang Baik	Baik	Teliti	Disiplin
23	Suhar Tini	Baik	Cukup Baik	Baik	Cukup Teliti	Disiplin
24	Syarifah Alawiyah	Baik	Baik	Cukup Baik	Cukup Teliti	Cukup Disiplin

The following is the data from the assessment of each alternative to the criteria data.

Table 9: Data on Alternative Normalization Results

No	Employee name	C1	C2	C3	C4	C5
1	Suci Wulandari	5	5	5	5	4
2	Isnayati	4	5	4	4	4
3	Nadia Kurnia Sari	3	4	4	3	3
4	Sari Pitirah	5	3	4	4	3
5	Nurhasanah	5	4	4	4	4
6	Puji Astuti	3	3	5	3	3
7	Purwanti	4	3	4	3	4
8	Siti Aisyah	5	4	5	3	4
9	Tursina	3	3	4	3	3
10	Aulia Apriyanti	4	5	4	4	5
11	Avi Nur	3	2	3	3	4
12	Dilla Apriliyani	4	4	3	2	2
13	Laela Sari	4	3	5	4	3
14	Fitriyanah	2	4	3	2	3
15	Intan	4	4	3	3	3
16	Tika Maya	2	2	3	2	4
17	Noviadis Ayu	4	4	4	2	3
18	Sella Saputri	3	3	4	2	3
19	Siti	4	3	3	4	4
20	Suci Ulan	4	3	4	2	2
21	Kania Syahrta	5	3	3	3	3
22	Tasya Qanita	2	2	4	4	4
23	Suhar Tini	4	3	4	3	4
24	Syarifah Alawiyah	4	4	3	3	3

3.2. Application of the COPRAS Method

To solve the above problem using the COPRAS method will be carried out in accordance with the steps described in chapter 3.

1. Creating a Decision Matrix

The following is a decision matrix based on data from alternative normalization results:

$$X = \begin{pmatrix} 5 & 5 & 5 & 5 & 4 \\ 4 & 5 & 4 & 4 & 4 \\ 3 & 4 & 4 & 3 & 3 \\ 5 & 3 & 4 & 4 & 3 \\ 5 & 4 & 4 & 4 & 4 \\ 3 & 3 & 5 & 3 & 3 \\ 4 & 3 & 4 & 3 & 4 \\ 5 & 4 & 5 & 3 & 4 \\ 3 & 3 & 4 & 3 & 3 \\ 4 & 5 & 4 & 4 & 5 \\ 3 & 2 & 3 & 3 & 4 \\ 4 & 4 & 3 & 2 & 2 \\ 4 & 3 & 5 & 4 & 3 \\ 2 & 4 & 3 & 2 & 3 \\ 4 & 4 & 3 & 3 & 3 \\ 2 & 2 & 3 & 2 & 4 \\ 4 & 4 & 4 & 2 & 3 \\ 3 & 3 & 4 & 2 & 3 \\ 4 & 3 & 3 & 4 & 4 \\ 4 & 3 & 4 & 2 & 2 \\ 5 & 3 & 3 & 3 & 3 \\ 2 & 2 & 4 & 4 & 4 \\ 4 & 3 & 4 & 3 & 4 \\ 4 & 4 & 3 & 3 & 3 \end{pmatrix}$$

2. Normalization of the Matrix

Matrix normalization is done by adding each column. Then divide each alternative value of the column by the result of the addition of the columns to get the matrix X_{ij} .

a. Performance Criteria (C1)

$$C1 = 5+4+3+5+5+3+4+5+3+4+3+4+4+2+4+2+4+3+4+4+5+2+4+4 = 90$$

- A₁ = 5 : 90 = 0,06
- A₂ = 4 : 90 = 0,04
- A₃ = 3 : 90 = 0,03
- A₄ = 5 : 90 = 0,06
- A₅ = 5 : 90 = 0,06
- A₆ = 3 : 90 = 0,03
- A₇ = 4 : 90 = 0,04
- A₈ = 5 : 90 = 0,06
- A₉ = 3 : 90 = 0,03
- A₁₀ = 4 : 90 = 0,04
- A₁₁ = 3 : 90 = 0,03
- A₁₂ = 4 : 90 = 0,04
- A₁₃ = 4 : 90 = 0,04
- A₁₄ = 2 : 90 = 0,02
- A₁₅ = 4 : 90 = 0,04
- A₁₆ = 2 : 90 = 0,02
- A₁₇ = 4 : 90 = 0,04
- A₁₈ = 3 : 90 = 0,03
- A₁₉ = 4 : 90 = 0,04
- A₂₀ = 4 : 90 = 0,04
- A₂₁ = 5 : 90 = 0,06
- A₂₂ = 2 : 90 = 0,02
- A₂₃ = 4 : 90 = 0,04
- A₂₄ = 4 : 90 = 0,04

b. Work Attitude Criteria (C2)

$$C2 = 5+5+4+3+4+3+3+4+3+5+2+4+3+4+4+2+4+3+3+3+2+3+4 = 83$$

- A₁ = 5 : 83 = 0,06
- A₂ = 5 : 83 = 0,06
- A₃ = 4 : 83 = 0,05
- A₄ = 3 : 83 = 0,04
- A₅ = 4 : 83 = 0,05

A ₆	=	3	:	83	=	0,04
A ₇	=	3	:	83	=	0,04
A ₈	=	4	:	83	=	0,05
A ₉	=	3	:	83	=	0,04
A ₁₀	=	5	:	83	=	0,06
A ₁₁	=	2	:	83	=	0,02
A ₁₂	=	4	:	83	=	0,05
A ₁₃	=	3	:	83	=	0,04
A ₁₄	=	4	:	83	=	0,05
A ₁₅	=	4	:	83	=	0,05
A ₁₆	=	2	:	83	=	0,02
A ₁₇	=	4	:	83	=	0,05
A ₁₈	=	3	:	83	=	0,04
A ₁₉	=	3	:	83	=	0,04
A ₂₀	=	3	:	83	=	0,04
A ₂₁	=	3	:	83	=	0,04
A ₂₂	=	2	:	83	=	0,02
A ₂₃	=	3	:	83	=	0,04
A ₂₄	=	4	:	83	=	0,05

c. Teamwork Criteria (C3)

$$C3 = 5+4+4+4+4+5+4+5+4+4+3+3+5+3+3+3+4+4+3+4+3+4+4+3 = 92$$

A ₁	=	5	:	92	=	0,05
A ₂	=	4	:	92	=	0,04
A ₃	=	4	:	92	=	0,04
A ₄	=	4	:	92	=	0,04
A ₅	=	4	:	92	=	0,04
A ₆	=	5	:	92	=	0,05
A ₇	=	4	:	92	=	0,04
A ₈	=	5	:	92	=	0,05
A ₉	=	4	:	92	=	0,04
A ₁₀	=	4	:	92	=	0,04
A ₁₁	=	3	:	92	=	0,03
A ₁₂	=	3	:	92	=	0,03
A ₁₃	=	5	:	92	=	0,05
A ₁₄	=	3	:	92	=	0,03
A ₁₅	=	3	:	92	=	0,03
A ₁₆	=	3	:	92	=	0,03
A ₁₇	=	4	:	92	=	0,04
A ₁₈	=	4	:	92	=	0,04
A ₁₉	=	3	:	92	=	0,03
A ₂₀	=	4	:	92	=	0,04
A ₂₁	=	3	:	92	=	0,03
A ₂₂	=	4	:	92	=	0,04
A ₂₃	=	4	:	92	=	0,04
A ₂₄	=	3	:	92	=	0,03

d. Accuracy Criteria (C4)

$$C4 = 5+4+3+4+4+3+3+3+3+4+3+2+4+2+3+2+2+2+4+2+3+4+3+3 = 75$$

A ₁	=	5	:	75	=	0,07
A ₂	=	4	:	75	=	0,05

A ₃	=	3	:	75	=	0,04
A ₄	=	4	:	75	=	0,05
A ₅	=	4	:	75	=	0,05
A ₆	=	3	:	75	=	0,04
A ₇	=	3	:	75	=	0,04
A ₈	=	3	:	75	=	0,04
A ₉	=	3	:	75	=	0,04
A ₁₀	=	4	:	75	=	0,05
A ₁₁	=	3	:	75	=	0,04
A ₁₂	=	2	:	75	=	0,03
A ₁₃	=	4	:	75	=	0,05
A ₁₄	=	2	:	75	=	0,03
A ₁₅	=	3	:	75	=	0,04
A ₁₆	=	2	:	75	=	0,03
A ₁₇	=	2	:	75	=	0,03
A ₁₈	=	2	:	75	=	0,03
A ₁₉	=	4	:	75	=	0,05
A ₂₀	=	2	:	75	=	0,03
A ₂₁	=	3	:	75	=	0,04
A ₂₂	=	4	:	75	=	0,05
A ₂₃	=	3	:	75	=	0,04
A ₂₄	=	3	:	75	=	0,04

e. Disciplinary Criteria (C5)

$$C5 = 4+4+3+3+4+3+4+4+3+5+4+2+3+3+3+4+3+3+4+2+3+4+4+3 = 82$$

A ₁	=	4	:	82	=	0,05
A ₂	=	4	:	82	=	0,05
A ₃	=	3	:	82	=	0,04
A ₄	=	3	:	82	=	0,04
A ₅	=	4	:	82	=	0,05
A ₆	=	3	:	82	=	0,04
A ₇	=	4	:	82	=	0,05
A ₈	=	4	:	82	=	0,05
A ₉	=	3	:	82	=	0,04
A ₁₀	=	5	:	82	=	0,06
A ₁₁	=	4	:	82	=	0,05
A ₁₂	=	2	:	82	=	0,02
A ₁₃	=	3	:	82	=	0,04
A ₁₄	=	3	:	82	=	0,04
A ₁₅	=	3	:	82	=	0,04
A ₁₆	=	4	:	82	=	0,05
A ₁₇	=	3	:	82	=	0,04
A ₁₈	=	3	:	82	=	0,04
A ₁₉	=	4	:	82	=	0,05
A ₂₀	=	2	:	82	=	0,02
A ₂₁	=	3	:	82	=	0,04
A ₂₂	=	4	:	82	=	0,05
A ₂₃	=	4	:	82	=	0,05
A ₂₄	=	3	:	82	=	0,04

From the calculation above, the matrix of X_{ij} , is obtained, which is as follows:

$$X_{ij} = \begin{bmatrix} 0,06 & 0,06 & 0,05 & 0,07 & 0,05 \\ 0,04 & 0,06 & 0,04 & 0,05 & 0,05 \\ 0,03 & 0,05 & 0,04 & 0,04 & 0,04 \\ 0,06 & 0,04 & 0,04 & 0,05 & 0,04 \\ 0,06 & 0,05 & 0,04 & 0,05 & 0,05 \\ 0,03 & 0,04 & 0,05 & 0,04 & 0,04 \\ 0,04 & 0,04 & 0,04 & 0,04 & 0,05 \\ 0,06 & 0,05 & 0,05 & 0,04 & 0,05 \\ 0,03 & 0,04 & 0,04 & 0,4 & 0,04 \\ 0,04 & 0,06 & 0,04 & 0,05 & 0,06 \\ 0,03 & 0,02 & 0,03 & 0,04 & 0,05 \\ 0,04 & 0,05 & 0,03 & 0,03 & 0,02 \\ 0,04 & 0,04 & 0,05 & 0,05 & 0,04 \\ 0,02 & 0,05 & 0,03 & 0,03 & 0,04 \\ 0,04 & 0,05 & 0,03 & 0,04 & 0,04 \\ 0,02 & 0,02 & 0,03 & 0,03 & 0,05 \\ 0,04 & 0,05 & 0,04 & 0,03 & 0,04 \\ 0,03 & 0,04 & 0,04 & 0,03 & 0,04 \\ 0,04 & 0,04 & 0,03 & 0,05 & 0,05 \\ 0,04 & 0,04 & 0,04 & 0,03 & 0,02 \\ 0,06 & 0,04 & 0,03 & 0,04 & 0,04 \\ 0,02 & 0,02 & 0,04 & 0,05 & 0,05 \\ 0,04 & 0,04 & 0,04 & 0,04 & 0,05 \\ 0,04 & 0,05 & 0,03 & 0,04 & 0,04 \end{bmatrix}$$

3. Define a normalized weighted decision matrix

After getting the matrix X_{ij} , then the next is to determine the normalized weighted decision matrix by multiplying the alternative value by the weight of the criteria that have been presented in Table 4.1 Criterion Data.

a. Performance Criteria Weighted Decision Matrix (C1)

$$\begin{aligned} A_1 &= 0,06 \times 0,45 = 0,025 \\ A_2 &= 0,04 \times 0,45 = 0,02 \\ A_3 &= 0,03 \times 0,45 = 0,015 \\ A_4 &= 0,06 \times 0,45 = 0,025 \\ A_5 &= 0,06 \times 0,45 = 0,025 \\ A_6 &= 0,03 \times 0,45 = 0,015 \\ A_7 &= 0,04 \times 0,45 = 0,02 \\ A_8 &= 0,06 \times 0,45 = 0,025 \\ A_9 &= 0,03 \times 0,45 = 0,015 \\ A_{10} &= 0,04 \times 0,45 = 0,02 \\ A_{11} &= 0,03 \times 0,45 = 0,015 \\ A_{12} &= 0,04 \times 0,45 = 0,02 \\ A_{13} &= 0,04 \times 0,45 = 0,02 \\ A_{14} &= 0,02 \times 0,45 = 0,01 \\ A_{15} &= 0,04 \times 0,45 = 0,02 \\ A_{16} &= 0,02 \times 0,45 = 0,01 \\ A_{17} &= 0,04 \times 0,45 = 0,02 \\ A_{18} &= 0,03 \times 0,45 = 0,015 \\ A_{19} &= 0,04 \times 0,45 = 0,02 \\ A_{20} &= 0,04 \times 0,45 = 0,02 \\ A_{21} &= 0,06 \times 0,45 = 0,025 \\ A_{22} &= 0,02 \times 0,45 = 0,01 \\ A_{23} &= 0,04 \times 0,45 = 0,02 \\ A_{24} &= 0,04 \times 0,45 = 0,02 \end{aligned}$$

b. Matrix of Weighted Decision Criteria Work Attitude Criteria (C2)

$$\begin{aligned} A_1 &= 0,06 \times 0,1 = 0,006 \\ A_2 &= 0,06 \times 0,1 = 0,006 \\ A_3 &= 0,05 \times 0,1 = 0,005 \\ A_4 &= 0,04 \times 0,1 = 0,004 \\ A_5 &= 0,05 \times 0,1 = 0,005 \end{aligned}$$

A ₆	=	0,04	x	0,1	=	0,004
A ₇	=	0,04	x	0,1	=	0,004
A ₈	=	0,05	x	0,1	=	0,005
A ₉	=	0,04	x	0,1	=	0,004
A ₁₀	=	0,06	x	0,1	=	0,006
A ₁₁	=	0,02	x	0,1	=	0,002
A ₁₂	=	0,05	x	0,1	=	0,005
A ₁₃	=	0,04	x	0,1	=	0,004
A ₁₄	=	0,05	x	0,1	=	0,005
A ₁₅	=	0,05	x	0,1	=	0,005
A ₁₆	=	0,02	x	0,1	=	0,002
A ₁₇	=	0,05	x	0,1	=	0,005
A ₁₈	=	0,04	x	0,1	=	0,004
A ₁₉	=	0,04	x	0,1	=	0,004
A ₂₀	=	0,04	x	0,1	=	0,004
A ₂₁	=	0,04	x	0,1	=	0,004
A ₂₂	=	0,02	x	0,1	=	0,002
A ₂₃	=	0,04	x	0,1	=	0,004
A ₂₄	=	0,05	x	0,1	=	0,005

c. Teamwork Criteria Weighted Decision Matrix (C3)

A ₁	=	0,05	x	0,15	=	0,008
A ₂	=	0,04	x	0,15	=	0,007
A ₃	=	0,04	x	0,15	=	0,007
A ₄	=	0,04	x	0,15	=	0,007
A ₅	=	0,04	x	0,15	=	0,007
A ₆	=	0,05	x	0,15	=	0,008
A ₇	=	0,04	x	0,15	=	0,007
A ₈	=	0,05	x	0,15	=	0,008
A ₉	=	0,04	x	0,15	=	0,007
A ₁₀	=	0,04	x	0,15	=	0,007
A ₁₁	=	0,03	x	0,15	=	0,005
A ₁₂	=	0,03	x	0,15	=	0,005
A ₁₃	=	0,05	x	0,15	=	0,008
A ₁₄	=	0,03	x	0,15	=	0,005
A ₁₅	=	0,03	x	0,15	=	0,005
A ₁₆	=	0,03	x	0,15	=	0,005
A ₁₇	=	0,04	x	0,15	=	0,007
A ₁₈	=	0,04	x	0,15	=	0,007
A ₁₉	=	0,03	x	0,15	=	0,005
A ₂₀	=	0,04	x	0,15	=	0,007
A ₂₁	=	0,03	x	0,15	=	0,005
A ₂₂	=	0,04	x	0,15	=	0,007
A ₂₃	=	0,04	x	0,15	=	0,007
A ₂₄	=	0,03	x	0,15	=	0,005

d. Matrix of Weighted Decision Criteria Rigor (C4)

A ₁	=	0,07	x	0,15	=	0,01
A ₂	=	0,05	x	0,15	=	0,008
A ₃	=	0,04	x	0,15	=	0,006
A ₄	=	0,05	x	0,15	=	0,008

A ₅	=	0,05	x	0,15	=	0,008
A ₆	=	0,04	x	0,15	=	0,006
A ₇	=	0,04	x	0,15	=	0,006
A ₈	=	0,04	x	0,15	=	0,006
A ₉	=	0,04	x	0,15	=	0,006
A ₁₀	=	0,05	x	0,15	=	0,008
A ₁₁	=	0,04	x	0,15	=	0,046
A ₁₂	=	0,03	x	0,15	=	0,057
A ₁₃	=	0,05	x	0,15	=	0,168
A ₁₄	=	0,03	x	0,15	=	0,111
A ₁₅	=	0,04	x	0,15	=	0,206
A ₁₆	=	0,03	x	0,15	=	0,164
A ₁₇	=	0,03	x	0,15	=	0,191
A ₁₈	=	0,03	x	0,15	=	0,217
A ₁₉	=	0,05	x	0,15	=	0,488
A ₂₀	=	0,03	x	0,15	=	0,271
A ₂₁	=	0,04	x	0,15	=	0,446
A ₂₂	=	0,05	x	0,15	=	0,648
A ₂₃	=	0,04	x	0,15	=	0,526
A ₂₄	=	0,04	x	0,15	=	0,566

e. Disciplinary Criteria Weighted Decision Matrix (C5)

$$C5 = 4+4+3+3+4+3+4+4+3+5+4+2+3+3+3+4+3+3+4+2+3+4+4+3 = 82$$

A ₁	=	0,05	x	0,15	=	0,007
A ₂	=	0,05	x	0,15	=	0,007
A ₃	=	0,04	x	0,15	=	0,005
A ₄	=	0,04	x	0,15	=	0,005
A ₅	=	0,05	x	0,15	=	0,007
A ₆	=	0,04	x	0,15	=	0,005
A ₇	=	0,05	x	0,15	=	0,007
A ₈	=	0,05	x	0,15	=	0,007
A ₉	=	0,04	x	0,15	=	0,005
A ₁₀	=	0,06	x	0,15	=	0,009
A ₁₁	=	0,05	x	0,15	=	0,007
A ₁₂	=	0,02	x	0,15	=	0,004
A ₁₃	=	0,04	x	0,15	=	0,005
A ₁₄	=	0,04	x	0,15	=	0,005
A ₁₅	=	0,04	x	0,15	=	0,005
A ₁₆	=	0,05	x	0,15	=	0,007
A ₁₇	=	0,04	x	0,15	=	0,005
A ₁₈	=	0,04	x	0,15	=	0,005
A ₁₉	=	0,05	x	0,15	=	0,007
A ₂₀	=	0,02	x	0,15	=	0,004
A ₂₁	=	0,04	x	0,15	=	0,005
A ₂₂	=	0,05	x	0,15	=	0,007
A ₂₃	=	0,05	x	0,15	=	0,007
A ₂₄	=	0,04	x	0,15	=	0,005

From the calculation above, a matrix is obtained Dij:

$$X_{ij} = \begin{pmatrix} 0,025 & 0,006 & 0,008 & 0,01 & 0,007 \\ 0,02 & 0,006 & 0,007 & 0,008 & 0,007 \\ 0,015 & 0,005 & 0,007 & 0,006 & 0,005 \\ 0,025 & 0,004 & 0,007 & 0,008 & 0,005 \\ 0,025 & 0,005 & 0,007 & 0,008 & 0,007 \\ 0,015 & 0,004 & 0,008 & 0,006 & 0,005 \\ 0,02 & 0,004 & 0,007 & 0,006 & 0,007 \\ 0,025 & 0,005 & 0,008 & 0,006 & 0,007 \\ 0,015 & 0,004 & 0,007 & 0,006 & 0,005 \\ 0,02 & 0,006 & 0,007 & 0,008 & 0,009 \\ 0,015 & 0,002 & 0,005 & 0,46 & 0,007 \\ 0,02 & 0,005 & 0,005 & 0,057 & 0,004 \\ 0,02 & 0,004 & 0,008 & 0,168 & 0,005 \\ 0,01 & 0,005 & 0,005 & 0,111 & 0,005 \\ 0,02 & 0,005 & 0,005 & 0,206 & 0,005 \\ 0,01 & 0,002 & 0,005 & 0,164 & 0,007 \\ 0,02 & 0,005 & 0,007 & 0,191 & 0,005 \\ 0,015 & 0,004 & 0,007 & 0,217 & 0,005 \\ 0,02 & 0,004 & 0,005 & 0,488 & 0,007 \\ 0,02 & 0,004 & 0,007 & 0,271 & 0,004 \\ 0,025 & 0,004 & 0,005 & 0,446 & 0,005 \\ 0,01 & 0,002 & 0,007 & 0,648 & 0,007 \\ 0,02 & 0,004 & 0,007 & 0,526 & 0,007 \\ 0,02 & 0,005 & 0,0055 & 0,566 & 0,005 \end{pmatrix}$$

4. Maximizing and Minimizing the Index for Each Alternative

From the acquisition of the Dij matrix above, then add the value of each criterion based on its type.

$$S_{+i} = (C_1 + C_2 + C_3 + C_4)$$

A ₁	=	0,025	+	0,006		+	0,008	+	0,01	=	0,05
A ₂	=	0,02	+	0,006		+	0,007	+	0,008	=	0,04
A ₃	=	0,015	+	0,005		+	0,007	+	0,006	=	0,03
A ₄	=	0,025	+	0,004		+	0,007	+	0,008	=	0,04
A ₅	=	0,025	+	0,005		+	0,007	+	0,008	=	0,04
A ₆	=	0,015	+	0,004		+	0,008	+	0,006	=	0,03
A ₇	=	0,02	+	0,004		+	0,007	+	0,006	=	0,04
A ₈	=	0,025	+	0,005		+	0,008	+	0,006	=	0,04
A ₉	=	0,015	+	0,004		+	0,007	+	0,006	=	0,03
A ₁₀	=	0,02	+	0,006		+	0,007	+	0,008	=	0,04
A ₁₁	=	0,015	+	0,002		+	0,005	+	0,046	=	0,07
A ₁₂	=	0,02	+	0,005		+	0,005	+	0,057	=	0,09
A ₁₃	=	0,02	+	0,004		+	0,008	+	0,168	=	0,2
A ₁₄	=	0,01	+	0,005		+	0,005	+	0,111	=	0,13
A ₁₅	=	0,02	+	0,005		+	0,005	+	0,206	=	0,24
A ₁₆	=	0,01	+	0,002		+	0,005	+	0,164	=	0,18
A ₁₇	=	0,02	+	0,005		+	0,007	+	0,191	=	0,22
A ₁₈	=	0,015	+	0,004		+	0,007	+	0,217	=	0,24
A ₁₉	=	0,02	+	0,004		+	0,005	+	0,488	=	0,52
A ₂₀	=	0,02	+	0,004		+	0,007	+	0,271	=	0,3
A ₂₁	=	0,025	+	0,004		+	0,005	+	0,446	=	0,48
A ₂₂	=	0,01	+	0,002		+	0,007	+	0,648	=	0,67
A ₂₃	=	0,02	+	0,004		+	0,007	+	0,526	=	0,56
A ₂₄	=	0,02	+	0,005		+	0,005	+	0,566	=	0,6

$$S_{-i} = C_5$$

A ₁	0,007
A ₂	0,007
A ₃	0,005
A ₄	0,005
A ₅	0,007
A ₆	0,005
A ₇	0,007
A ₈	0,007
A ₉	0,005
A ₁₀	0,009
A ₁₁	0,007
A ₁₂	0,004
A ₁₃	0,005
A ₁₄	0,005
A ₁₅	0,005
A ₁₆	0,007
A ₁₇	0,005

A ₁₈	0,005
A ₁₉	0,007
A ₂₀	0,004
A ₂₁	0,005
A ₂₂	0,007
A ₂₃	0,007
A ₂₄	0,005

Total of attributes cost/min = 0,068

5. Calculation of the Relative Weight of Each Alternative

To calculate the relative weight is by looking for the result of the formula $1/S_i$. Which of S_i It is the result of calculating the weight of the discipline criteria value by multiplying the weight of the criterion percentage. Next is to add up the results of the calculation $1/S_i$ with the weight of the discipline criterion value that has been multiplied by the weight of the percentage of criteria.

	$1/S_i$
A ₁	$\frac{1}{0,007} = 136,7$
A ₂	$\frac{1}{0,007} = 136,7$
A ₃	$\frac{1}{0,005} = 182,2$
A ₄	$\frac{1}{0,005} = 182,2$
A ₅	$\frac{1}{0,007} = 136,7$
A ₆	$\frac{1}{0,005} = 182,2$
A ₇	$\frac{1}{0,007} = 136,7$
A ₈	$\frac{1}{0,007} = 136,7$
A ₉	$\frac{1}{0,005} = 182,2$
A ₁₀	$\frac{1}{0,009} = 109,3$
A ₁₁	$\frac{1}{0,007} = 136,7$
A ₁₂	$\frac{1}{0,004} = 273,3$
A ₁₃	$\frac{1}{0,005} = 182,2$
A ₁₄	$\frac{1}{0,005} = 182,2$
A ₁₅	$\frac{1}{0,005} = 182,2$
A ₁₆	$\frac{1}{0,007} = 136,7$
A ₁₇	$\frac{1}{0,005} = 182,2$
A ₁₈	$\frac{1}{0,005} = 182,2$
A ₁₉	$\frac{1}{0,007} = 136,7$
A ₂₀	$\frac{1}{0,004} = 273,3$
A ₂₁	$\frac{1}{0,005} = 182,2$
A ₂₂	$\frac{1}{0,007} = 136,7$
A ₂₃	$\frac{1}{0,007} = 136,7$
A ₂₄	$\frac{1}{0,005} = 182,2$
Total = 4027	

				$S_i \times \text{Total of } 1/S_i$	
A ₁	0,007	x	4027	=	29,5
A ₂	0,007	x	4027	=	29,5
A ₃	0,005	x	4027	=	22,1

A4	0,005	x	4027	=	22,1
A5	0,007	x	4027	=	29,5
A6	0,005	x	4027	=	22,1
A7	0,007	x	4027	=	29,5
A8	0,007	x	4027	=	29,5
A9	0,005	x	4027	=	22,1
A10	0,009	x	4027	=	36,8
A11	0,007	x	4027	=	29,5
A12	0,004	x	4027	=	14,7
A13	0,005	x	4027	=	22,1
A14	0,005	x	4027	=	22,1
A15	0,005	x	4027	=	22,1
A16	0,007	x	4027	=	29,5
A17	0,005	x	4027	=	22,1
A18	0,005	x	4027	=	22,1
A19	0,007	x	4027	=	29,5
A20	0,004	x	4027	=	14,7
A21	0,005	x	4027	=	22,1
A22	0,007	x	4027	=	29,5
A23	0,007	x	4027	=	29,5
A24	0,005	x	4027	=	22,1

6. Relative calculation Qi

After getting the calculation of the relative weight based on the table above, the next step is to determine the relative significance or relative priority Qi. Namely by dividing the minimum result by the result of S-i x total 1/ S-i. After getting the results, then it is added by adding the weight of the work attitude criterion to the accuracy criterion. The next step is to find the maximum value of the total that has been added.

A1	$\frac{0,068}{29,5}$	=	0,002	+	0,0492	=	0,05
A2	$\frac{0,068}{29,5}$	=	0,002	+	0,0405	=	0,04
A3	$\frac{0,068}{22,1}$	=	0,003	+	0,0323	=	0,04
A4	$\frac{0,068}{22,1}$	=	0,003	+	0,0431	=	0,05
A5	$\frac{0,068}{29,5}$	=	0,002	+	0,0443	=	0,05
A6	$\frac{0,068}{22,1}$	=	0,003	+	0,0328	=	0,04
A7	$\frac{0,068}{29,5}$	=	0,002	+	0,0361	=	0,04
A8	$\frac{0,068}{29,5}$	=	0,002	+	0,044	=	0,05
A9	$\frac{0,068}{22,1}$	=	0,003	+	0,0311	=	0,03
A10	$\frac{0,068}{36,8}$	=	0,002	+	0,0405	=	0,04
A11	$\frac{0,068}{29,5}$	=	0,002	+	0,0683	=	0,07
A12	$\frac{0,068}{14,7}$	=	0,005	+	0,087	=	0,09
A13	$\frac{0,068}{22,1}$	=	0,003	+	0,1998	=	0,2
A14	$\frac{0,068}{22,1}$	=	0,003	+	0,1304	=	0,13
A15	$\frac{0,068}{22,1}$	=	0,003	+	0,2357	=	0,24
A16	$\frac{0,068}{29,5}$	=	0,002	+	0,1813	=	0,18
A17	$\frac{0,068}{22,1}$	=	0,003	+	0,222	=	0,23
A18	$\frac{0,068}{22,1}$	=	0,003	+	0,2425	=	0,25
A19	$\frac{0,068}{29,5}$	=	0,002	+	0,5165	=	0,52
A20	$\frac{0,068}{14,7}$	=	0,005	+	0,3008	=	0,31
A21	$\frac{0,068}{22,1}$	=	0,003	+	0,4795	=	0,48
A22	$\frac{0,068}{29,5}$	=	0,002	+	0,6669	=	0,67
A23	$\frac{0,068}{29,5}$	=	0,002	+	0,5561	=	0,56

$$A_{24} \quad \frac{0,068}{22,1} = 0,003 + 0,5957 = 0,6$$

7. UI utility calculation for each alternative

The final step is to calculate the utility for each alternative value ranging from 0 to 100. Namely by dividing the maximum value by the sum of the results of the calculation above, then the result will be multiplied by 100.

$$\begin{aligned}
 U_1 &= \left(\frac{0,05}{0,67} \right) = 0,08 \times 100 = 7,69 \\
 U_2 &= \left(\frac{0,04}{0,67} \right) = 0,06 \times 100 = 6,4 \\
 U_3 &= \left(\frac{0,04}{0,067} \right) = 0,05 \times 100 = 5,29 \\
 U_4 &= \left(\frac{0,05}{0,67} \right) = 0,07 \times 100 = 6,9 \\
 U_5 &= \left(\frac{0,05}{0,67} \right) = 0,07 \times 100 = 6,97 \\
 U_6 &= \left(\frac{0,04}{0,67} \right) = 0,05 \times 100 = 5,35 \\
 U_7 &= \left(\frac{0,04}{0,67} \right) = 0,06 \times 100 = 5,74 \\
 U_8 &= \left(\frac{0,05}{0,67} \right) = 0,07 \times 100 = 6,91 \\
 U_9 &= \left(\frac{0,03}{0,67} \right) = 0,05 \times 100 = 5,11 \\
 U_{10} &= \left(\frac{0,04}{0,67} \right) = 0,06 \times 100 = 6,33 \\
 U_{11} &= \left(\frac{0,07}{0,67} \right) = 0,11 \times 100 = 10,5 \\
 U_{12} &= \left(\frac{0,09}{0,67} \right) = 0,14 \times 100 = 13,7 \\
 U_{13} &= \left(\frac{0,2}{0,67} \right) = 0,3 \times 100 = 30,3 \\
 U_{14} &= \left(\frac{0,13}{0,67} \right) = 0,2 \times 100 = 19,9 \\
 U_{15} &= \left(\frac{0,24}{0,67} \right) = 0,36 \times 100 = 35,7 \\
 U_{16} &= \left(\frac{0,18}{0,67} \right) = 0,27 \times 100 = 27,4 \\
 U_{17} &= \left(\frac{0,23}{0,67} \right) = 0,34 \times 100 = 33,6 \\
 U_{18} &= \left(\frac{0,25}{0,67} \right) = 0,37 \times 100 = 36,7 \\
 U_{19} &= \left(\frac{0,52}{0,67} \right) = 0,78 \times 100 = 77,5 \\
 U_{20} &= \left(\frac{0,31}{0,67} \right) = 0,46 \times 100 = 45,6 \\
 U_{21} &= \left(\frac{0,48}{0,67} \right) = 0,72 \times 100 = 72,1 \\
 U_{22} &= \left(\frac{0,67}{0,67} \right) = 1 \times 100 = 100 \\
 U_{23} &= \left(\frac{0,56}{0,67} \right) = 0,83 \times 100 = 83,4 \\
 U_{24} &= \left(\frac{0,6}{0,67} \right) = 0,89 \times 100 = 89,5
 \end{aligned}$$

Based on the results of the calculation using the Copras method, the final results of the ranking can be seen in the table below:

Table 10: Ranking Results

Code	Employee name	Final score	Ranking
U ₁	Suci Wulandari	7,69	15
U ₂	Isnayati	6,4	19
U ₃	Nadia Kurnia Sari	5,29	23
U ₄	Sari Pitirah	6,9	18
U ₅	Nurhasanah	6,97	16
U ₆	Puji Astuti	5,35	22
U ₇	Purwanti	5,74	21
U ₈	Siti Aisyah	6,91	17
U ₉	Tursina	5,11	24
U ₁₀	Aulia Apriyanti	6,33	20

U ₁₁	Avi Nur Wafiroh	10,5	14
U ₁₂	Dilla Apriliyani	13,7	13
U ₁₃	Laela Sari	30,3	10
U ₁₄	Fitriyanah	19,9	12
U ₁₅	Intan Nur Aini	35,7	8
U ₁₆	Tika Maya Sari	27,4	11
U ₁₇	Noviadis Ayu Salsabila	33,6	9
U ₁₈	Sella Saputri	36,7	7
U ₁₉	Siti Maimunah	77,5	4
U ₂₀	Suci Ulan Dari	45,6	6
U ₂₁	Kania Syahrta	72,1	5
U ₂₂	Tasya Qanita	100	1
U ₂₃	Suhar Tini	83,4	3
U ₂₄	Syarifah Alawiyah	89,5	2

From the results of the ranking, a decision can be made that deserves to be selected as the best employee at PT. Gosyen Retail Indonesia is Tasya Qanita with a final score of 100.

4. Conclusion

Based on the results of the research that has been carried out, it can be concluded from this study that:

1. The COPRAS method is a multi-criteria decision-making method based on outranking, which means that it can sort and rank the best employees, so that it can provide better and more accurate results.
2. By using the COPRAS method, the steps taken are to provide solutions to problems in PT. Gosyen Retail Indonesia in determining the best employees.
3. The process of determining the best employees using the criteria that have been set by PT. Gosyen Retail Indonesia is Performance, Work Attitude, Teamwork, Meticulousness and Discipline.
4. The results obtained from the calculation of this system are only a tool for users to solve the problem of Best Employee Selection.

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