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Implementing Preference Selection Index for Optimal Employee Ranking in Organizational Decision-Making

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ABSTRACT

The rapid development of information technology has affected various aspects of life, including in the world of work. This research aims to apply the Preference Selection Index (PSI) method in determining the best employees at Bina Karya Utama Company. The assessment is based on four main criteria: Attendance, Tardiness, Overtime, and Length of Service. Data is obtained through observation and interviews, then processed using the PSI method which involves the normalization process and the calculation of preference values. The results showed that employees with alternative code A8 obtained the highest score, followed by A5 and A9. The PSI method proved to be effective in helping companies make objective and fair decisions, as well as motivating employees to improve their performance. This research concludes that a PSI-based decision support system can improve transparency and fairness in employee evaluation at Bina Karya Utama Company.

Keywords: Decision Support System; Preference Selection Index (PSI); Employee Evaluation; Employee Ranking

1. INTRODUCTION

The rapid development of information technology today has reached a point where all aspects are connected very easily, quickly, and efficiently. The world of work has also been significantly impacted by the development of technology, digitalization, and the internet. One of the positive impacts is the change in the way companies assess employee performance, which has now become easier and more structured (Chen et al., 2020).

In the context of a company, work is an activity performed by individuals to help the company achieve its goals, and in return, the company provides salaries or compensation to employees. The best employees are those who are able to help the company achieve its goals well and show high performance. Rewarding the best employees is important as a motivation for other employees to work better(Ali & Anwar, 2021; Asana et al., 2020).

One company that has implemented awards for the best employees is Bina Karya Utama Company. This company gives bonuses to employees who show excellent performance, with the hope of motivating employees to work more optimally and help the company achieve its targets.

However, in practice, the selection of the best employees often experiences problems because the assessment is only carried out by one party, namely the manager, without any relevant supporting data. This often leads to errors and injustice in awarding (Fahri, 2022; Jabid et al., 2023; Sudipa et al., 2021). For this reason, a system is needed that can assist in selecting the best employees using several objective and data-based criteria.

Seeing this problem, the use of a decision support system can be the right solution. A decision support system is a tool that generates information to assist managers in making decisions related to certain problems (Chakraborty et al., 2024; Valentine et al., 2022). The method used in this research is PSI (Preference Selection Index). The PSI method is a

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decision-making tool that does not require computing weights on attributes, where the calculation of each criterion and alternative will produce the largest Preference Index value which will be the best or selected alternative (Fauziyah et al., 2022; Jain et al., 2021).

This research applies the PSI method with four assessment criteria, namely attendance, tardiness, overtime, and tenure. Relevant data will be obtained from the fingerprint system, work schedule, and employee tenure data at Bina Karya Utama Company. With this PSI method, it is expected to help the company in determining the best employees objectively and efficiently. This research aims to help Bina Karya Utama Company determine the best employees who deserve a bonus, so that it can support the achievement of company goals. Knowing the best employees using the Bina Karya Utama Company method This research is expected to help companies determine the best employees who can help companies achieve their targets or goals, as well as provide rewards or bonuses to support the lives of employees.

2. LITERATURE REVIEW

In organizational decision-making, the Preference Selection Index (PSI) method has emerged as a valuable tool for solving multi-criteria decision-making problems (Mahendra et al., 2023). This method aids decision-makers by providing a systematic approach to understanding and ranking alternatives based on various criteria (Cakranegara et al., 2022; Dewantara et al., 2022). The PSI method has been successfully applied in diverse areas such as student scholarship systems, recruitment processes (Asana et al., 2021) , supply chain sustainability risk models (Sutrisno & Kumar, 2022), and even in manufacturing processes such as electrical discharge machining (Huu et al., 2022).

Employee participation in decision-making processes has been shown to have a significant positive impact on organizational productivity (Kaydos, 2020). Studies have highlighted the importance of employee empowerment and involvement in decision-making to increase job satisfaction, organizational commitment, and overall performance (Rustiawan et al., 2023; Sutrisno et al., 2023; Widjaja et al., 2024). Furthermore, research suggests that employee participation in decision-making can enhance corporate social and environmental sustainability, especially when employees identify strongly with their organization (Rony et al., 2023; Wijanarko & Choir, 2023).

The level of employee involvement in decision-making has been a subject of interest, with findings indicating that the more involved employees are in decision-making processes, the better the outcomes in terms of motivation, performance, and organizational effectiveness (Hasyim et al., 2023; Sudipa et al., 2023). Additionally, factors such as job security, fair compensation, and opportunities for employees to participate in decision-making processes have been identified as crucial for increasing organizational commitment .

Overall, the literature supports the idea that involving employees in decision-making processes through methods like the Preference Selection Index can lead to improved organizational outcomes, employee satisfaction, and overall performance. By considering employees' perspectives and empowering them to participate in decisions, organizations can foster a culture of engagement, commitment, and sustainability.

3. METHOD

Preference Selection Index (PSI) is a method that can be used to solve multi-criteria decision making (Hutahaean et al., 2023). If the relative importance of attributes conflicts, PSI is required. The calculation process in which the information contained in the decision matrix is weighted by criteria, uses standard deviation or entropy to objectively identify criteria weights.

The stages of the PSI method are the calculation steps using the PSI method, namely (Chakraborty et al., 2024):

a. Identify the problem then define the objectives and identify the attributes and options associated with the decision problem.
b. Formulating the decision matrix. This step involves constructing a matrix based on all available information describing the characteristics of the problem. Each row of the decision matrix is reserved for one variant and

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each column for one attribute, Elements Xij of the decision matrix X give the attribute values in the initial values. So if the number of selections is M and the number of attributes is N, then the decision matrix as an N - M matrix can be represented as:

a. $$X_{ij}=\begin{bmatrix} X11 & X12 & \cdots & X1n \\ X21 & X22 & \cdots & x2n \\ \vdots & \vdots & \vdots & \vdots \\ xm1 & xm2 & \cdots & xmn \end{bmatrix} \quad (1)$$

c. Normalize the decision matrix if the attribute is a benefit type, a large desired value can be normalized as follows:

a. $$N_{ij}=\frac{x_{ij}}{x_i^{max}} \quad (2)$$

If the attribute is of type cost, the smaller desired value is normalized as follows:

b. $$N_{ij}=\frac{x_j^{min}}{x_{ij}} \quad (3)$$

Where Xij is the attribute size of (i =1,2,...,N and j = 1,2,....., M).
Calculating the mean value with normalized data
In the following step, the value of the normal data for each attribute will be calculated with the following equation:

$$N=\frac{1}{n}\sum_{i=1}^{n} N_{ij} \quad (4)$$

d. Calculating the perceived variation value
The preference variation value between the values of each attribute is calculated with the following equation:

$$\emptyset_j = \sum_{i=1}^{n}[N_{11} - \quad N]^2 \quad (5)$$

e. Determining the deviation of preference values:

$$\Omega j = 1-\emptyset_j \quad (6)$$

f. Determining criteria weights

$$W_j=\frac{\Omega j}{\sum_{j=1}^{m}\Omega j} \quad (7)$$

The value of all criteria weights for all attributes should be one, for example $\sum_{j=1}^{m}\Omega_j = 1$

g. Calculating PSI (θ_i)
Selection of preference index (θ_1) for each alternative using the following equation:

$$\theta_1 = \sum_{j=1}^{m} X_{ij} \quad W_j \quad (8)$$

h. Choose an alternative that will be suitable for the given application.

4. RESULT

Alternative and Criteria Data

Decision support system makers in determining the best employees of course need alternatives as supporting data in making the system. As many people as shown in Table 1 below:

Table 1

Alternative Code

No.	Alternative Code

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1	A1
2	A2
3	A3
4	A4
5	A5
6	A6
7	A7
8	A8
9	A9
...	...

In the system, to determine the best employee bonus receipt, there are 4 criteria in Table 3.2 below:

Table 2

Criteria Data

Criteria	Criteria Name
C1	Attendance
C2	Delay
C3	Overtime
C4	Length of Service

The weighting of criteria in making the system is based on the importance of the behavioral criteria for Attendance (C1), Tardiness (C2), Overtime (C3), and Length of Service (C4) with the nature of the criteria as can be seen in Table 3.3 below:

Table 3
Nature of Criteria

No.	Criteria Code	Criteria Name	Nature
1	C1	Attendance	Benefit
2	C2	Delay	Cost
3	C3	Overtime	Benefit
4	C4	Length of Service	Benefit

Based on the explanation described above, a level of criteria is made based on the criteria for assessing employee salary bonuses that have been determined into PSI values.

Table 4
Definition of Value

No.	Pedefinition	Value
1	Very Bad	1
2	Bad	2
3	Simply	3
4	Good	4
5	Very good	5

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Calculation of Preference Selection Index (PSI) Method

In making a decision support system in awarding the best employee bonuses at Bina Karya Utama Company using the PSI method with data provided by the manager, namely 9 data which will be calculated with a vulnerability of 1 month which can be seen in Table 5 as follows:

Table 5
Alternative Assessment

No.	Alternative Code	Criteria			
		C1	C2	C3	C4
1	A1	26	13	100	26
2	A2	21	8	112	12
3	A3	27	4	118	30
4	A4	17	10	115	36
5	A5	28	3	126	29
6	A6	16	15	120	34
7	A7	22	12	110	40
8	A8	21	7	123	47
9	A9	24	3	125	38

Based on the case described above, it can be defined into the defining values that have been made for system builders using the PSI method in Table 6 below:

Table 6
Defining Alternative Assessment

No.	Alternative Code	Criteria			
		C1	C2	C3	C4
1	A1	5	3	3	3
2	A2	4	4	4	2
3	A3	5	5	4	3
4	A4	3	4	4	4
5	A5	5	5	5	3
6	A6	3	3	4	3
7	A7	4	3	3	4
8	A8	4	4	4	5
9	A9	4	5	5	4

Determine the decision matrix Xij

Based on Table 6 above, the decision matrix X is as follows:

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$$X_{ij} = \begin{vmatrix} 5 & 3 & 3 & 3 \\ 4 & 4 & 4 & 2 \\ 5 & 5 & 4 & 3 \\ 3 & 4 & 4 & 4 \\ 5 & 5 & 5 & 3 \\ 3 & 3 & 4 & 3 \\ 4 & 3 & 3 & 4 \\ 4 & 4 & 4 & 5 \\ 4 & 5 & 5 & 4 \end{vmatrix}$$

Determine the Maximum and Minimum values of each alternative.

The following is a table of maximum and minimum values of each alternative:

Table 7
Maximum and Minimum Value of Alternatives

Maximum and Minimum Value of Alternatives				
Maximum Value	5	5	5	5
Minimum Value	3	3	3	3

Normalize the decision matrix

The following is the normalization matrix of alternative values according to the type of criteria benefit or cost:

Table 8
Decision Normalization Table

C1	C2	C3	C4
$R_{11} = \frac{X_{11}}{X_{1\,max}} = \frac{5}{5} = 1$	$R_{12} = \frac{X_2^{min}}{X_{12}} = \frac{3}{3} = 1$	$R_{13} = \frac{X_{13}}{X_{3\,max}} = \frac{3}{5} = 0{,}6$	$R_{14} = \frac{X_{14}}{X_{4\,max}} = \frac{3}{5} = 0{,}6$
$R_{21} = \frac{X_{21}}{X_{1\,max}} = \frac{4}{5} = 0{,}8$	$R_{22} = \frac{X_2^{min}}{X_{22}} = \frac{3}{4} = 0{,}75$	$R_{23} = \frac{X_{23}}{X_{3\,max}} = \frac{4}{5} = 0{,}8$	$R_{24} = \frac{X_{24}}{X_{4\,max}} = \frac{2}{5} = 0{,}4$
$R_{31} = \frac{X_{31}}{X_{1\,max}} = \frac{5}{5} = 1$	$R_{32} = \frac{X_2^{min}}{X_{32}} = \frac{3}{5} = 0{,}6$	$R_{33} = \frac{X_{33}}{X_{3\,max}} = \frac{4}{5} = 0{,}8$	$R_{34} = \frac{X_{34}}{X_{4\,max}} = \frac{3}{5} = 0{,}6$
$R_{41} = \frac{X_{41}}{X_{1\,max}} = \frac{3}{5} = 0{,}6$	$R_{42} = \frac{X_2^{min}}{X_{42}} = \frac{3}{4} = 0{,}75$	$R_{43} = \frac{X_{43}}{X_{3\,max}} = \frac{4}{5} = 0{,}8$	$R_{44} = \frac{X_{44}}{X_{4\,max}} = \frac{4}{5} = 0{,}8$
$R_{51} = \frac{X_{51}}{X_{1\,max}} = \frac{5}{5} = 1$	$R_{52} = \frac{X_2^{min}}{X_{52}} = \frac{3}{5} = 0{,}6$	$R_{53} = \frac{X_{53}}{X_{3\,max}} = \frac{5}{5} = 1$	$R_{54} = \frac{X_{54}}{X_{4\,max}} = \frac{3}{5} = 0{,}6$
$R_{61} = \frac{X_{61}}{X_{1\,max}} = \frac{3}{5} = 0{,}6$	$R_{62} = \frac{X_2^{min}}{X_{62}} = \frac{3}{3} = 1$	$R_{63} = \frac{X_{63}}{X_{3\,max}} = \frac{4}{5} = 0{,}8$	$R_{64} = \frac{X_{64}}{X_{4\,max}} = \frac{3}{5} = 0{,}6$
$R_{71} = \frac{X_{71}}{X_{1\,max}} = \frac{4}{5} = 0{,}8$	$R_{72} = \frac{X_2^{min}}{X_{72}} = \frac{3}{3} = 1$	$R_{73} = \frac{X_{73}}{X_{3\,max}} = \frac{3}{5} = 0{,}6$	$R_{74} = \frac{X_{74}}{X_{4\,max}} = \frac{4}{5} = 0{,}8$
$R_{81} = \frac{X_{81}}{X_{1\,max}} = \frac{4}{5} = 0{,}8$		$R_{83} = \frac{X_{83}}{X_{3\,max}} = \frac{4}{5} = 0{,}8$	$R_{84} = \frac{X_{84}}{X_{4\,max}} = \frac{5}{5} = 1$

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$R_{91} = \frac{X_{91}}{X_{1\,max}} = \frac{4}{5} = 0{,}8$	$R_{82} = \frac{X_2^{min}}{X_{82}} = \frac{3}{4} = 0{,}75$ $R_{92} = \frac{X_2^{min}}{X_{92}} = \frac{3}{5} = 0{,}6$	$R_{93} = \frac{X_{93}}{X_{3\,max}} = \frac{5}{5} = 1$	$R_{94} = \frac{X_{94}}{X_{4\,max}} = \frac{4}{5} = 0{,}8$

The following are the results of normalizing the overall decision matrix as follows:

$$R_{ij} = \begin{vmatrix} 1 & 1 & 0{,}6 & 0{,}6 \\ 0{,}8 & 0{,}75 & 0{,}8 & 0{,}4 \\ 1 & 0{,}6 & 0{,}8 & 0{,}6 \\ 0{,}6 & 0{,}75 & 0{,}8 & 0{,}8 \\ 1 & 0{,}6 & 1 & 0{,}6 \\ 0{,}6 & 1 & 0{,}8 & 0{,}6 \\ 0{,}8 & 1 & 0{,}6 & 0{,}8 \\ 0{,}8 & 0{,}75 & 0{,}8 & 1 \\ 0{,}8 & 0{,}6 & 1 & 0{,}8 \end{vmatrix}$$

The results obtained from the above calculations are:

$$\sum_{1}^{n} = 1\, N_{ij} = [7{,}4 \quad 7{,}05 \quad 7{,}2 \quad 6{,}2\ ]$$

1.Calculate the mean value of the results obtained above, namely:

$N = \frac{1}{N} \sum_{i=1}^{n} Rij = \frac{1}{9}$ x 7,4= 0,82
$N = \frac{1}{N} \sum_{i=1}^{n} Rij = \frac{1}{9}$ x 7,05= 0,78
$N = \frac{1}{N} \sum_{i=1}^{n} Rij = \frac{1}{9}$ x 7,2= 0,8
$N = \frac{1}{N} \sum_{i=1}^{n} Rij = \frac{1}{9}$ x 6,2= 0,68

Creating a matrix
$N = [\ 0{,}82 \quad 0{,}78 \quad 0{,}8 \quad 0{,}68]$

2.Determining the variation value of the Preference relation on each criterion using the following equation:

$\emptyset_{j1}$
$\emptyset_{j11} = \sum_{i=1}^{n}[1 - 0{,}82]^2 = 0{,}0324$
$\emptyset_{j21} = \sum_{i=1}^{n}[0{,}8 - 0{,}82]^2 = 0{,}0004$
$\emptyset_{j31} = \sum_{i=1}^{n}[1 - 0{,}82]^2 = 0{,}0324$
$\emptyset_{j41} = \sum_{i=1}^{n}[0{,}6 - 0{,}82]^2 = 0{,}0484$
$\emptyset_{j51} = \sum_{i=1}^{n}[1 - 0{,}82]^2 = 0{,}0324$
$\emptyset_{j61} = \sum_{i=1}^{n}[0{,}6 - 0{,}82]^2 = 0{,}0484$
$\emptyset_{j71} = \sum_{i=1}^{n}[0{,}8 - 0{,}82]^2 = 0{,}0004$
$\emptyset_{j81} = \sum_{i=1}^{n}[0{,}8 - 0{,}82]^2 = 0{,}0004$

$\emptyset_{j2}$
$\emptyset_{j12} = \sum_{i=1}^{n}[1 - 0{,}78]^2 = 0{,}0484$
$\emptyset_{j22} = \sum_{i=1}^{n}[0{,}75 - 0{,}78]^2 = 0{,}0009$
$\emptyset_{j32} = \sum_{i=1}^{n}[0{,}6 - 0{,}78]^2 = 0{,}0324$
$\emptyset_{j42} = \sum_{i=1}^{n}[0{,}75 - 0{,}78]^2 = 0{,}0009$
$\emptyset_{j52} = \sum_{i=1}^{n}[0{,}6 - 0{,}78]^2 = 0{,}0324$
$\emptyset_{j62} = \sum_{i=1}^{n}[1 - 0{,}78]^2 = 0{,}0484$
$\emptyset_{j72} = \sum_{i=1}^{n}[1 - 0{,}78]^2 = 0{,}0484$
$\emptyset_{j82} = \sum_{i=1}^{n}[0{,}75 - 0{,}78]^2 = 0{,}0009$

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$\emptyset_{j91} = \sum_{i=1}^{n}[0,8 - 0,82]^2 = 0,0004$

$\emptyset_{j92} = \sum_{i=1}^{n}[0,6 - 0,78]^2 = 0,0324$

$\emptyset_{j3}$

$\emptyset_{j13} = \sum_{i=1}^{n}[0,6 - 0,8]^2 = 0,04$
$\emptyset_{j23} = \sum_{i=1}^{n}[0,8 - 0,8]^2 = 0$
$\emptyset_{j33} = \sum_{i=1}^{n}[0,8 - 0,8]^2 = 0$
$\emptyset_{j43} = \sum_{i=1}^{n}[0,8 - 0,8]^2 = 0$
$\emptyset_{j53} = \sum_{i=1}^{n}[1 - 0,8]^2 = 0,04$
$\emptyset_{j63} = \sum_{i=1}^{n}[0,8 - 0,8]^2 = 0$
$\emptyset_{j73} = \sum_{i=1}^{n}[0,6 - 0,8]^2 = 0,04$
$\emptyset_{j83} = \sum_{i=1}^{n}[0,8 - 0,8]^2 = 0$
$\emptyset_{j93} = \sum_{i=1}^{n}[1 - 0,8]^2 = 0,04$

$\emptyset_{j4}$

$\emptyset_{j14} = \sum_{i=1}^{n}[0,6 - 0,68]^2 = 0,0064$
$\emptyset_{j24} = \sum_{i=1}^{n}[0,4 - 0,68]^2 = 0,0784$
$\emptyset_{j34} = \sum_{i=1}^{n}[0,6 - 0,68]^2 = 0,0064$
$\emptyset_{j44} = \sum_{i=1}^{n}[0,8 - 0,68]^2 = 0,0144$
$\emptyset_{j54} = \sum_{i=1}^{n}[0,6 - 0,68]^2 = 0,0064$
$\emptyset_{j64} = \sum_{i=1}^{n}[0,6 - 0,68]^2 = 0,0064$
$\emptyset_{j74} = \sum_{i=1}^{n}[0,8 - 0,68]^2 = 0,0144$
$\emptyset_{j84} = \sum_{i=1}^{n}[1 - 0,68]^2 = 0,1024$
$\emptyset_{j94} = \sum_{i=1}^{n}[0,8 - 0,68]^2 = 0,0144$

The results obtained from the Preference variation value are:
$\emptyset_j$= [0,20 0,24 0,16 0,25]

3.Determining the deviation of preference values:
$\Omega j = 1-\emptyset_j$
Ω_1 = 1- 0,20 =0,8
Ω_2 = 1- 0,24 =0,76
Ω_3 = 1- 0,16 =0,84
Ω_4 = 1- 0,09 =0,75

Ω_1= [0,8 0,76 0,84 0,75]

Calculating the overall preference value
$\sum \Omega_j$= 0,8 +0,76 + 0,84 + 0,75 = 3,15

4.Determining criteria weights

$W_j = \frac{\Omega j}{\sum_{1=1}^{n} \Omega j} = \frac{0,8}{3,15} = 0,25$

$W_j = \frac{\Omega j}{\sum_{1=1}^{n} \Omega j} = \frac{0,76}{3,15} = 0,24$

$W_j = \frac{\Omega j}{\sum_{1=1}^{n} \Omega j} = \frac{0,84}{3,15} = 0,27$

$W_j = \frac{\Omega j}{\sum_{1=1}^{n} \Omega j} = \frac{0,75}{3,15} = 0,24$

W_j= [0,25 0,24 0,27 0,24]

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5.Calculating PSI (θ_i)

Selection of preference index (θ_1) for each alternative using the following equation:

θ_1
θ_i= (1 x 0,25) = 0,25
θ_i= (0,8 x 0,25) = 0,2
θ_i= (1 x 0,25) = 0,25
θ_i= (0,6 x 0,25) = 0,15
θ_i= (1 x 0,25) = 0,25
θ_i= (0,6 x 0,25) = 0,15
θ_i= (0,8 x 0,25) = 0,2
θ_i= (0,8 x 0,25) = 0,2
θ_i= (0,8 x 0,25) = 0,2

θ_2
θ_i= (1 x 0,24) = 0,24
θ_i= (0,75 x 0,24) = 0,18
θ_i= (0,6 x 0,24) = 0,144
θ_i= (0,75 x 0,24) = 0,18
θ_i= (0,6x 0,24) = 0,144
θ_i= (1 x 0,24) = 0,24
θ_i= (1 x 0,24) = 0,24
θ_i= (0,75 x 0,24) = 0,18
θ_i= (0,6 x 0,24) = 0,144

θ_3
θ_i= (0,6 x 0,27) = 0,162
θ_i= (0,8 x 0,27) = 0,216
θ_i= (0,8 x 0,27) = 0,216
θ_i= (0,8 x 0,27) = 0,216
θ_i= (1x 0,27) = 0,27
θ_i= (0,8 x 0,27) = 0,216
θ_i= (0,6x 0,27) = 0,162
θ_i= (0,8 x 0,27) = 0,216
θ_i= (1 x 0,27) = 0,27

θ_4
θ_i= (0,6 x 0,24) = 0,144
θ_i= (0,4 x 0,24) = 0,096
θ_i= (0,6 x 0,24) = 0,144
θ_i= (0,8 x 0,24) = 0,192
θ_i= (0,6 x 0,24) = 0,144
θ_i= (0,6 x 0,24) = 0,144
θ_i= (0,8 x 0,24) = 0,192
θ_i= (1 x 0,24) = 0,24
θ_i= (0,8 x 0,24) = 0,192

Matrix N_{ij}

$$\begin{vmatrix} 0,25 & 0,24 & 0,162 & 0,144 \\ 0,2 & 0,18 & 0,216 & 0,096 \\ 0,25 & 0,144 & 0,216 & 0,144 \\ 0,15 & 0,18 & 0,216 & 0,192 \\ 0,25 & 0,144 & 0,27 & 0,144 \\ 0,15 & 0,24 & 0,216 & 0,144 \\ 0,2 & 0,24 & 0,162 & 0,192 \\ 0,2 & 0,18 & 0,216 & 0,24 \\ 0,2 & 0,144 & 0,27 & 0,192 \end{vmatrix}$$

Find the ranking value:

θ_1= 0,25 + 0,24 + 0,162 + 0,144 = 0,796
θ_2= 0,2 + 0,18 + 0,216 + 0,096 = 0,692
θ_3= 0,25 + 0,144 + 0,216 + 0,144 = 0,754
θ_4 = 0,15 + 0,18 + 0,216 + 0,192= 0,738
θ_5= 0,25 + 0,144 + 0,27 + 0,144 = 0,808
θ_6 = 0,15 + 0,24+ 0,216 + 0,144 = 0,75
θ_7= 0,2 + 0,24 + 0,162 + 0,192= 0,794
θ_8= 0,2 + 0,18 + 0,216 + 0,24 = 0,836

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θ_9= 0,2 + 0,144 + 0,27 + 0,192= 0,806

6. The final results of each alternative can be seen in Table 9 below:

Table 9
Value of Each Alternative

No.	Alternative Code	Value
1	A1	0,796
2	A2	0,692
3	A3	0,754
4	A4	0,738
5	A5	0,808
6	A6	0,75
7	A7	0,794
8	A8	0,836
9	A9	0,806

The final result in the matrix after calculating using the preference selection index (PSI) method, a ranking is carried out to get the value needed to determine the best employee of Bina Karya Utama Company which can be seen in Table 10 below:

Table 10
Alternative Ranking Value

No.	Alternative Code	Value	Ranking
1	A8	0,836	1
2	A5	0,808	2
3	A9	0,806	3
4	A1	0,796	4
5	A7	0,794	5
6	A3	0,754	6
7	A6	0,75	7
8	A4	0,738	8
9	A2	0,692	9

In the research above, it can be seen that the best employee of Bina Karya Utama Company falls to Alternative 8 which has been completed using the Preference Selection Index (PSI) method.

4. DISCUSSION

In the decision support system to determine the best employee at Bina Karya Utama Company, alternative data and criteria are used as the basis for calculation. Table 1 shows the alternative codes for the nine evaluated employees (A1 to A9). The assessment is done based on four criteria listed in Table 2: Absenteeism (C1), Tardiness (C2), Overtime (C3), and Length of Service (C4). Each criterion has certain properties, where Attendance, Overtime, and Tenure are benefit criteria, while Tardiness is a cost criterion (Table 3). Each criterion is rated based on the employee's performance level on a scale of 1 to 5, where 1 is "Very Poor" and 5 is "Very Good" (Table 4). Alternative assessment is done using the Preference Selection Index (PSI) method, which involves normalizing the decision matrix for each criterion (Table 6). Normalization is done by comparing each criterion value with the maximum value (for benefit criteria) or minimum value

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(for cost criteria). After normalization, preference values are calculated for each criterion and alternative, resulting in a decision normalization matrix (Table 8). The overall preference value is calculated by summing the product of the normalized value and the criteria weights, giving the final result for each alternative (Table 9). The final results show that the employee with alternative code A8 obtained the highest score (0.836), making him the best employee for the month. The rest of the ranking order is followed by A5, A9, A1, A7, A3, A6, A4, and A2 (Table 10). Thus, the PSI method proved to be effective in evaluating employee performance objectively and helped the company in making fair and data-based decisions.

5. CONCLUSION

The conclusion of the research is that this study has successfully implemented the Preference Selection Index (PSI) method in determining the best employees at Bina Karya Utama Company. By using four main criteria namely Attendance, Tardiness, Overtime, and Length of Service, the PSI method allows an objective and structured assessment. The analysis results show that employees with alternative code A8 get the highest score, followed by A5 and A9. The PSI method proves to be effective in helping companies identify employees who deserve rewards based on their performance. Thus, the implementation of this PSI-based decision support system can increase fairness and transparency in the employee evaluation process, as well as motivate employees to improve employee performance.

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