

Selection of Marketing Staff Using Simple Additive Weight and VIKOR Algorithm

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ABSTRACT

In today's rapidly evolving technological landscape, decision-making processes within organizations are increasingly relying on advanced computational methods to enhance efficiency and accuracy. This is particularly relevant in human resource management, where selecting suitable candidates for key positions is critical. Traditional methods of staff recruitment often rely on subjective assessments, which may lead to biases and inconsistencies. To address these challenges, this study proposes the use of the Simple Additive Weighting (SAW) and VIKOR (Vise Kriterijumska Optimizacija I Kompromisno Resenje) algorithms as multi-criteria decision-making tools for selecting marketing staff. The SAW method offers a straightforward approach by assigning weighted scores to various criteria. In contrast, the VIKOR method provides a ranking system that considers ideal and compromise solutions for candidate selection. Integrating these two algorithms makes the selection process more objective and data-driven, reducing the risk of human error and improving overall decision quality. This paper outlines implementing the combined SAW-VIKOR model in the marketing staff recruitment process, highlighting its potential to optimize candidate evaluation and selection. The results demonstrate that utilizing these algorithms enhances the decision-making process, leading to better alignment of selected staff with organizational goals. This approach is valuable for organizations looking to leverage technology in their recruitment strategies.



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1. Introduction

Multi-Criteria Decision Making (MCDM) is essential in evaluating alternatives against various criteria. The SAW method emphasizes additive scoring, while VIKOR focuses on compromise solutions. Multi-Criteria Decision Making (MCDM) is vital to assessing complex options [1]. Two popular methods, Simple Additive Weighting (SAW) and VIKOR, offer distinct approaches to addressing decision-making challenges. SAW is straightforward and relies on the weighted sum of alternatives, making it easy to implement.

In contrast, VIKOR prioritizes compromise solutions, emphasizing the closest options to an ideal solution [2]. Both methods have advantages and disadvantages, affecting their applicability in different contexts. This analysis evaluates and compares their effectiveness, robustness, and suitability in various decision-making scenarios. By examining case studies and practical applications, this study will illuminate the strengths and weaknesses of each method, guiding practitioners and researchers in selecting the most appropriate methodology for their needs [3]. These methods can enhance decision-making processes across various

domains, including business, environment, and social sciences [2]. This comparative analysis will focus on accuracy, computational efficiency, and user-friendliness criteria.

Furthermore, the implications of each method's outcomes will be explored, providing insights into their impact on decision-making quality and stakeholder satisfaction. This exploration will also address the potential for hybrid approaches that combine strengths from both methods to improve overall decision efficacy [5]. Ultimately, the findings will offer valuable recommendations for practitioners seeking to optimize their multi-criteria decision-making processes.

Additionally, the study aims to contribute to the existing body of knowledge by highlighting the contexts in which each method excels and the scenarios where their limitations may hinder effectiveness [6]. Future research directions will also be suggested to explore advancements in algorithmic development and their implications for enhanced decision support and practical implementation [7]. This will also include a discussion on integrating emerging technologies, such as artificial intelligence and machine learning, to augment the decision-making frameworks of SAW and VIKOR [8]. Emphasizing the role of these technologies can reveal new pathways for improved efficiency and accuracy in multi-criteria decision-making.

2. Research methodology

The research methodology serves as a systematic approach to derive solutions for various issues encountered in research. Numerous theoretical frameworks exist, each applicable to specific problems utilizing corresponding methods [9]. In this phase of the study, the author delineates the process into several distinct stages, as follows:

- a. Define the problem and set objectives.
- b. Review relevant literature to compile existing information.
- c. Choose suitable methodologies and analytical tools.
- d. Collect data.
- e. Analyze the data using the selected methods.
- f. Evaluate the results to assess the outcomes.
- g. Provide recommendations based on the analysis.
- h. Conclude the study.

3. Results and Discussion

Research results and discussion must be concise and clear and contain the implementation of research results.

Calculation of SAW Method (*Simple Additive Weight*) and VIKOR method (*Vise Kriterijumska Optimizacija Kompromisno Resenje*)

The steps in completing the steps of normalization using the SAW method are as follows:

- a. Determining Alternatives (A_i)
- b. Determine the criteria that will be used as a reference for decision making, namely the criteria (C_i)
- c. Give a match rating value to each predetermined criterion
- d. Determine the weight value for each preference

$$W_j = \frac{w_j}{\sum w_j} \dots\dots\dots (1)$$

Where: Weight Value so that the total weight $\sum W_j = 1$

- e. Create a rating table to match each alternative on each criterion.
- f. Create a decision matrix (X) and calculate normalization to get a normalized decision matrix with the following formula:

$$R_{ij} = \begin{cases} \frac{X_{ij}}{\text{Max } X_{ij}} \\ \frac{\text{Min } X_{ij}}{X_{ij}} \end{cases} \dots\dots\dots (2)$$

Where

- R_{ij} : Normalization result
 X_{ij} : Value of the row or column
 Max : The largest number
 Min : The smallest number
 $Benefit$: if the largest value of the best
 $Cost$: if smallest value of the best

The VIKOR method really requires the process of finding the S and R values to do the ranking process, and in this research VIKOR only starts from :

- Finding the S Value
- Finding the R Value
- Find the Minimum Alternative value of S and R values
- Find the Maximum Alternative value of S and R
- Until determining the Result Index (Q) value
- Sorting Ranking Results

1. Calculate the value of S and R using the following formula:

$$S_i = \sum_{j=1}^n w_j \left(\frac{x_j^+ - x_{ij}}{x_j^+ - x_{ij}^-} \right) \dots\dots\dots (3)$$

And

$$R_i = \max_j \left[w_j \left(\frac{x_j^+ - x_{ij}}{x_j^+ - x_{ij}^-} \right) \right] \dots\dots\dots (4)$$

Where:

- S_i/R_i : Alternative preferences are analogized as a vector V
 X : Criterion Value
 W : Weight of criteria/subcriteria
 i : Alternative
 j : Criterion
 n : Number criteria
 $*$: The number of criteria that have been assessed in vector S

2. Determine the index with the following formula:

$$Q_i = \left[\frac{S_i - S^+}{S^- - S^+} \right] V + \left[\frac{R_i - R^+}{R^- - R^+} \right] (1 - V) \dots\dots\dots (5)$$

Unknown: 1

$$\frac{1}{S^-} = \frac{1}{\max_i S_i} \text{ and } \frac{1}{S^+} = \frac{1}{\min_i S_i} \quad ; \text{ with } V = 0.5$$

- Hasil perengkingan merupakan hasil pengurutan dari S, R, Q.
- Solusi alternative perengkingan terbaik berdasarkan dengan nilai Q maximal menjadi peringkat terbaik.

Determining the Weight Value

Table 1. Criteria Data

No.	Criteria Code	Criteria Name	Type	W=1
1	K1	Completeness of File	Benefit	15
2	K2	Education	Benefit	20
3	K3	Experience	Benefit	12
4	K4	Problem Test	Benefit	13
5	K5	Teskomputer	Benefit	10
6	K6	Appearance	Benefit	15
7	K7	Age	Benefit	10
8	K8	Gender	Benefit	5

$$W_j = \frac{w_j}{\sum w_j} \text{ As follows:}$$

$$W_1 = \frac{15}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,15$$

$$W_2 = \frac{20}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,2$$

$$W_3 = \frac{12}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,12$$

$$W_4 = \frac{13}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,13$$

$$W_5 = \frac{10}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,1$$

$$W_6 = \frac{15}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,15$$

$$W_7 = \frac{10}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,1$$

$$W_8 = \frac{5}{15 + 20 + 12 + 13 + 10 + 15 + 10 + 5} = 0,05$$

Table 2. Alternative Data

No.	Alternative Name	K1	K2	K3	K4	K5	K6	K7	K8
1	Sari	80	90	80	63	80	75	100	50
2	Queen	80	85	80	50	80	75	80	50
3	Rahma	100	85	70	63	70	75	50	50
4	Tata	80	75	70	50	80	75	50	50
5	Sarah	80	90	80	58	70	75	100	50
6	Riska	100	85	80	45	85	75	80	50
7	Rasni	80	75	80	55	80	75	80	50
8	Rahmi	100	90	80	50	80	75	80	50
9	Nuar	100	60	70	68	80	85	80	100
10	Rini	100	85	70	78	80	85	50	50
11	Santo	80	85	70	68	70	60	50	100
12	Supri	100	60	80	78	70	60	80	100
13	Randi	80	75	70	45	70	80	80	100
14	Gilang	80	60	70	50	70	60	80	100
15	Dance	100	85	70	55	80	80	100	50

Determining the Decision Matrix

The third step is the formation of a decision matrix (x) formed from a match rating table of each alternative on each criterion as follows:

$$ij = \begin{cases} \frac{X_{ij}}{\max X_{ij}} & \text{Benefit/Cost} \\ \frac{\min X_{ij}}{X_{ij}} & \end{cases}$$

Completeness of files, education, work experience, test scores:

K1 (Max score from A1-15 = 100), K2 (Max score from A1-15 = 90), K3 (Max score from A1-15 = 80), K4 (Max score from A1-15 = 78)

$R_{11} : 80 / 100 = 0.8$ $R_{12} : 90 / 90 = 1$ $R_{13} : 80 / 80 = 1$ $R_{14} : 63 / 78 = 0,80$
 $R_{21} : 80 / 100 = 0.8$ $R_{22} : 85 / 90 = 0.94$ $R_{23} : 80 / 80 = 1$ $R_{24} : 50 / 78 = 0,64$
 $R_{31} : 100 / 100 = 1$ $R_{32} : 85 / 90 = 0.94$ $R_{33} : 70 / 80 = 0.87$ $R_{34} : 63 / 78 = 0,80$
 $R_{41} : 80 / 100 = 0.8$ $R_{42} : 75 / 90 = 0.83$ $R_{43} : 70 / 80 = 0.87$ $R_{44} : 50 / 78 = 0,64$
 $R_{51} : 80 / 100 = 0.8$ $R_{52} : 90 / 90 = 1$ $R_{53} : 80 / 80 = 1$ $R_{54} : 58 / 78 = 0,74$
 $R_{61} : 100 / 100 = 1$ $R_{62} : 85 / 90 = 0.94$ $R_{63} : 80 / 80 = 1$ $R_{64} : 45 / 78 = 0,57$
 $R_{71} : 80 / 100 = 0.8$ $R_{72} : 75 / 90 = 0.83$ $R_{73} : 80 / 80 = 1$ $R_{74} : 55 / 78 = 0,70$
 $R_{81} : 100 / 100 = 1$ $R_{82} : 90 / 90 = 1$ $R_{83} : 80 / 80 = 1$ $R_{84} : 50 / 78 = 0,64$
 $R_{91} : 100 / 100 = 1$ $R_{92} : 60 / 90 = 0.66$ $R_{93} : 70 / 80 = 0.87$ $R_{94} : 68 / 78 = 0,87$
 $R_{101} : 100 / 100 = 1$ $R_{102} : 85 / 90 = 0.94$ $R_{103} : 70 / 80 = 0.87$ $R_{104} : 78 / 78 = 1$
 $R_{111} : 80 / 100 = 0.8$ $R_{112} : 85 / 90 = 0.94$ $R_{113} : 70 / 80 = 0.87$ $R_{114} : 68 / 78 = 0,87$
 $R_{121} : 100 / 100 = 1$ $R_{122} : 60 / 90 = 0.66$ $R_{123} : 80 / 80 = 1$ $R_{124} : 78 / 78 = 1$
 $R_{131} : 80 / 100 = 0.8$ $R_{132} : 75 / 90 = 0.83$ $R_{133} : 70 / 80 = 0.87$ $R_{134} : 45 / 78 = 0,57$
 $R_{141} : 80 / 100 = 0.8$ $R_{142} : 60 / 90 = 0.66$ $R_{143} : 70 / 80 = 0.87$ $R_{144} : 50 / 78 = 0,64$
 $R_{151} : 100 / 100 = 1$ $R_{152} : 85 / 90 = 0.94$ $R_{153} : 70 / 80 = 0.87$ $R_{154} : 55 / 78 = 0,70$

Computer Test, Appearance, Age, Gender:

K1 (Max score from A1-15 = 85), K2 (Max score from A1-15 = 85), K3 (Max score from A1-15 = 100), K4 (Max score from A1-15 = 100)

$R_{15} : 80 / 85 = 0.94$ $R_{16} : 75 / 85 = 0.88$ $R_{17} : 100 / 100 = 1$ $R_{18} : 50 / 100 = 0,5$
 $R_{25} : 80 / 85 = 0.94$ $R_{26} : 75 / 85 = 0.88$ $R_{27} : 80 / 100 = 0.8$ $R_{28} : 50 / 100 = 0,5$
 $R_{35} : 70 / 85 = 0.82$ $R_{36} : 75 / 85 = 0.88$ $R_{37} : 50 / 100 = 0.5$ $R_{38} : 50 / 100 = 0,5$
 $R_{45} : 80 / 85 = 0.94$ $R_{46} : 75 / 85 = 0.88$ $R_{47} : 50 / 100 = 0.5$ $R_{48} : 50 / 100 = 0,5$
 $R_{55} : 70 / 85 = 0.82$ $R_{56} : 75 / 85 = 0.88$ $R_{57} : 100 / 100 = 1$ $R_{58} : 50 / 100 = 0,5$
 $R_{65} : 85 / 85 = 1$ $R_{66} : 75 / 85 = 0.88$ $R_{67} : 80 / 100 = 0.8$ $R_{68} : 50 / 100 = 0,5$
 $R_{75} : 80 / 85 = 0.94$ $R_{76} : 75 / 85 = 0.88$ $R_{77} : 80 / 100 = 0.8$ $R_{78} : 50 / 100 = 0,5$
 $R_{85} : 80 / 85 = 0.94$ $R_{86} : 75 / 85 = 0.88$ $R_{87} : 80 / 100 = 0.8$ $R_{88} : 50 / 100 = 0,5$
 $R_{95} : 80 / 85 = 0.94$ $R_{96} : 85 / 85 = 1$ $R_{97} : 80 / 100 = 0.8$ $R_{98} : 100 / 100 = 1$
 $R_{10} : 80 / 85 = 0.94$ $R_{106} : 85 / 85 = 1$ $R_{107} : 50 / 100 = 0.5$ $R_{108} : 50 / 100 = 0,5$
 $R_{115} : 70 / 85 = 0.82$ $R_{116} : 60 / 85 = 0.70$ $R_{117} : 50 / 100 = 0.5$ $R_{118} : 100 / 100 = 1$
 $R_{125} : 70 / 85 = 0.82$ $R_{126} : 60 / 85 = 0.70$ $R_{127} : 80 / 100 = 0,8$ $R_{128} : 100 / 100 = 1$
 $R_{135} : 70 / 85 = 0.82$ $R_{136} : 80 / 85 = 0.94$ $R_{137} : 80 / 100 = 0.8$ $R_{138} : 100 / 100 = 1$
 $R_{145} : 70 / 85 = 0.82$ $R_{146} : 60 / 85 = 0.70$ $R_{147} : 80 / 100 = 0.8$ $R_{148} : 100 / 100 = 1$
 $R_{155} : 80 / 85 = 0.94$ $R_{156} : 80 / 85 = 0.94$ $R_{157} : 100 / 100 = 1$ $R_{158} : 50 / 100 = 0,5$

Calculate the S and R values using the following formula:

$$S_i = \sum_{j=1}^n w_j \left(\frac{x_{j+} - x_{ij}}{x_{j+} - x_{ij-}} \right) \& R_i = \text{Max } j \left[w_j \left(\frac{x_{j+} - x_{ij}}{x_{j+} - x_{ij-}} \right) \right]$$

$$S_1 = \sum (0.15*0.12) + (0.2*0.2) + (0.12*0.12) + (0.13*0.10) + (0.1*0.09) + (0.15*0.13) + (0.1*0.1) + (0.05*0.025) = 0.89$$

$$S_2 = \sum 0.15*0.12) + (0.2*0.1) + (0.12*0.12) + (0.13*0.08) + (0.1*0.09) + (0.15*0.13) + (0.1*0.08) + (0.05*0.025) = 0.84$$

$$S_3 = \sum (0.15*0.15) + (0.2*0.1) + (0.12*0.10) + (0.13*0.1) + (0.1*0.08) + (0.15*0.13) + (0.1*0.05) + (0.05*0.025) = 0.83$$

$$S_4 = \sum (0.15*0.12) + (0.2*0.1) + (0.12*0.10) + (0.13*0.08) + (0.1*0.09) + (0.15*0.13) + (0.1*0.05) + (0.05*0.025) = 0.77$$

$$S_5 = \sum (0.15*0.12) + (0.2*0.2) + (0.12*0.12) + (0.13*0.09) + (0.1*0.08) + (0.15*0.13) + (0.1*0.1) + (0.05*0.025) = 0.87$$

$$S_6 = \sum (0.15*0.15) + (0.2*0.1) + (0.12*0.12) + (0.13*0.07) + (0.1*0.1) + (0.15*0.13) + (0.1*0.08) + (0.05*0.025) = 0.87$$

$$\begin{aligned}
S_7 &= \sum (0.15*0.12) + (0.2*0.1) + (0.12*0.12) + (0.13*0.09) + (0.1*0.09) + (0.15*0.13) + (0.1*0.08) + (0.05*0.025) = 0.82 \\
S_8 &= \sum (0.15*0.15) + (0.2*0.2) + (0.12*0.12) + (0.13*0.08) + (0.1*0.09) + (0.15*0.13) + (0.1*0.08) + (0.05*0.025) = 0.88 \\
S_9 &= \sum (0.15*0.15) + (0.2*0.1) + (0.12*0.10) + (0.13*0.1) + (0.1*0.09) + (0.15*0.15) + (0.1*0.08) + (0.05*0.05) = 0.88 \\
S_{10} &= \sum (0.15*0.15) + (0.2*0.1) + (0.12*0.10) + (0.13*0.1) + (0.1*0.09) + (0.15*0.15) + (0.1*0.5) + (0.05*0.025) = 0.89 \\
S_{11} &= \sum (0.15*0.12) + (0.2*0.1) + (0.12*0.10) + (0.13*0.1) + (0.1*0.08) + (0.15*0.10) + (0.1*0.05) + (0.05*0.05) = 0.81 \\
S_{12} &= \sum (0.15*0.15) + (0.2*0.1) + (0.12*0.12) + (0.13*0.01) + (0.1*0.08) + (0.15*0.10) + (0.1*0.08) + (0.05*0.05) = 0.85 \\
S_{13} &= \sum (0.15*0.12) + (0.2*0.1) + (0.12*0.10) + (0.13*0.07) + (0.1*0.08) + (0.15*0.14) + (0.1*0.08) + (0.05*0.05) = 0.82 \\
S_{14} &= \sum (0.15*0.12) + (0.2*0.1) + (0.12*0.10) + (0.13*0.08) + (0.1*0.08) + (0.15*0.10) + (0.1*0.08) + (0.05*0.05) = 0.75 \\
S_{15} &= \sum (0.15*0.15) + (0.2*0.1) + (0.12*0.10) + (0.13*0.09) + (0.1*0.09) + (0.15*0.14) + (0.1*0.1) + (0.05*0.025) = 0.89
\end{aligned}$$

S and R values

Table 3. Table of S and R values

Alternative	S value	R value
Danur	0,896471	0,2
Fanisa	0,843693	0,188889
Grace	0,838595	0,188889
Nova	0,776471	0,166667
Nazla	0,876373	0,2
Sofia	0,871242	0,188889
Ummi	0,829804	0,166667
Lia	0,884804	0,2
Siti	0,875784	0,15
Sri	0,893007	0,188889
Rifandi	0,815458	0,188889
Astika	0,851569	0,15
Nanda	0,820196	0,166667
Darul	0,759902	0,133333
Agustian	0,89585	0,188889
Nurul	0,896471	0,2
Annisa	0,759902	0,133333
Kartika	0,896471	0,2
Supfriyo	0,843693	0,188889
Winda	0,838595	0,188889
NIM	0,776471	0,166667
MAX	0,876373	0,2

Ranking (Q)

$$\begin{aligned}
Q_i &= \left[\frac{S_i - S^+}{S^- - S^+} \right] V + \left[\frac{R_i - R^+}{R^- - R^+} \right] (1 - V) \\
Q_1 &= \left[\frac{0,896 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,2 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0 \\
Q_2 &= \left[\frac{0,843 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,18 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,27656 \\
Q_3 &= \left[\frac{0,838 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,18 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,295225 \\
Q_4 &= \left[\frac{0,776 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,16 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,689335 \\
Q_5 &= \left[\frac{0,876 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,2 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,073582
\end{aligned}$$

$$\begin{aligned}
Q_6 &= \left[\frac{0,871 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,18 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,175699 \\
Q_7 &= \left[\frac{0,829 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,16 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,494074 \\
Q_8 &= \left[\frac{0,884 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,2 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,042715 \\
Q_9 &= \left[\frac{0,875 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,15 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,460736 \\
Q_{10} &= \left[\frac{0,893 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,18 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,096014 \\
Q_{11} &= \left[\frac{0,815 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,18 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,379933 \\
Q_{12} &= \left[\frac{0,851 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,15 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,539391 \\
Q_{13} &= \left[\frac{0,820 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,16 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,529251 \\
Q_{14} &= \left[\frac{0,759 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,13 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 1 \\
Q_{15} &= \left[\frac{0,895 - 0,776}{0,87 - 0,776} \right] (0,5) + \left[\frac{0,18 - 0,166}{0,2 - 0,166} \right] (1 - 0,5) = 0,085606
\end{aligned}$$

Final Result Data (Q)

Table 4. Rank

Alternative	Value	Rank
Gilang	1	1
Tata	0,689335	2
Supri	0,539391	3
Randi	0,529251	4
Rasni	0,494074	5
Nuar	0,450736	6
Santo	0,379933	7
Rahma	0,295225	8
Queen	0,27656	9
Riska	0,175699	10
Rini	0,096014	11
Dance	0,85606	12
Sarah	0,073582	13
Rahmi	0,042715	14
Sari	0	15

Then the index value or rank 1 is A14 with a result of 1, and rank 2 is A4 with a value of 0.68.

4. Conclusion

Integrating the Simple Additive Weighting (SAW) and VIKOR algorithms has proven to be an effective method for selecting marketing staff candidates. By combining these two multi-criteria decision-making techniques, we created a structured and objective selection process that minimized the influence of subjective biases commonly associated with traditional recruitment methods. The SAW algorithm efficiently assigned weighted scores to the criteria relevant to the role, while the VIKOR method allowed us to rank candidates by considering both ideal and compromise solutions. The results of the study demonstrate the effectiveness of this combined approach. After analyzing all the candidates based on the selected criteria, it became evident that Gilang emerged as the best candidate for the marketing staff position. This outcome was based on a comprehensive evaluation that assessed individual performance across multiple criteria and considered how closely the candidates met the organization's ideal expectations. Using both SAW and VIKOR provided a well-rounded assessment of the candidates, allowing us to identify the most suitable individual transparently and objectively. The algorithms' ability to systematically evaluate the strengths and weaknesses of each candidate against the set criteria ensures that the final decision is data-driven, reducing the likelihood of errors in judgment or bias. This approach proves that the combined application of SAW and VIKOR algorithms is a robust and reliable tool for human resource selection, especially in complex decision-making scenarios such as marketing staff recruitment. Organizations can benefit from incorporating these advanced algorithms into their recruitment processes to enhance decision quality and ensure alignment with business objectives.

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