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IMPLEMENTATION OF SIMPLE ADDITIVE WEIGHTING TO DETERMINE THE BEST EMPLOYEES IN THE CAMAT TINGGI RAJA OFFICE

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Abstract

Decision-making for the best employees in Camat Tinggi Raja Tinggi Office requires objective and transparent considerations to select the best employees. This study aimed to apply the Simple Additive Weighting (SAW) method to determine the best employees in Camat Tinggi Raja Tinggi Office. This research method used quantitative methods. The data collected was in the form of employee data of the Raja Tinggi Subdistrict Office in the form of names, attitudes, work discipline, loyalty, responsibilities, and task completion. Data were analyzed using the SAW method based on preference values. The results showed that the employee with the name S had the highest preference value, 0.88. This research concludes that the SAW method decides the best employee in Camat Tinggi Raja Tinggi Office, namely the employee with the name S.

Keywords: employees; decisions support; preference values; simple additive weighting

Abstrak

Pengambilan keputusan pegawai terbaik di lingkungan Kantor Camat Tinggi Raja diperlukan pertimbangan-pertimbangan yang objektif dan transparan sehingga keputusan pemilihan pegawai terbaik dapat diterima. Tujuan penelitian ini adalah menerapkan metode *Simple Additive Weighting* (SAW) untuk memutuskan pegawai terbaik di lingkungan Kantor Camat Tinggi Raja. Metode penelitian ini menggunakan metode kuantitatif. Data yang dikumpulkan berupa data pegawai Kantor Camat Tinggi Raja berupa nama, sikap, disiplin kerja, loyalitas, tanggung jawab, dan penyelesaian tugas. Data dianalisis menggunakan metode SAW berdasarkan nilai preferensi. Hasil penelitian menunjukkan pegawai dengan nama S memiliki nilai preferensi tertinggi, yaitu sebesar 0,88. Penelitian ini disimpulkan bahwa metode SAW memutuskan pegawai terbaik di Kantor Camat Tinggi Raja, yaitu pegawai dengan nama S.

Kata kunci: karyawan; dukungan keputusan; nilai preferensi; pembobotan aditif sederhana

INTRODUCTION

Applying the principles of good governance in government management has become a significant demand because the community has begun to be critical in monitoring and evaluating services from government agencies. Human resources (HR) or labor is the main asset in an organization. Special treatment in workforce management is needed because the workforce can affect the institution's future. A good crew can create an optimal working atmosphere (Akbar, 2018).

Kantor Camat Tinggi Raja is one of the government agencies in North Sumatra. As a government agency, the Office of the District Head of Raja Tinggi is filled by several employees to carry out operational activities. It shows that the success or failure of the Raja High District Office in carrying out its duties depends on the performance of its employees. Performance is a result or level of success achieved by workers or civil servants in their field of work, according to specific criteria that apply to a particular job and are evaluated by certain people. (Hatman, 2019).

Efforts to improve employee performance are needed to enhance agencies' work, such as providing employees with rewards and punishments (Pramesti, Sambul, & Rumawas, 2019). In determining whether employees are entitled to receive tips or can be called the best employees within the Office of the Raja Tinggi District Head, objective and transparent considerations are

needed so that all parties can accept the decision to select the best employee. The solution that can be used is to build a decision-making system with objective parameters. Decision-making (DSS) is a support system in making decisions that can solve problems to achieve mutual desires and benefits and produce accurate information (Witasari & Jumaryadi, 2020).

Simple Additive Weighting (SAW) is a decision-making system through ranking based on predetermined criteria (Abdillah, 2021). (Kurnialensya & Abidin, 2020)research states that the SAW method influences the best customers. (Kurniawan & Santika, 2020) research state that the SAW method can help determine the selection of the best employees (Aisyah, 2021) in gold companies. This research is similar to the study conducted by (Kurniawan & Santika, 2020), but the difference is in the research subject and the criteria used in the SAW method. The issues in this study were employees at di Kantor Camat Tinggi Raja, while the criteria used in the SAW method include attitude, work discipline, loyalty, responsibility, and task completion. The research conducted by (Kurniawan & Santika, 2020) was subjected to employees at the gold company, while the criteria in the SAW method include order, discipline, absenteeism, cooperation, and creativity. The purpose of this study is to use the SAW method in determining the best employees at Kantor Camat Tinggi Raja.

RESEARCH METHODS

Types of Research

This research is a quantitative method where this method is systematic and uses mathematical models.

Research Place and Time

This research was conducted at the Office of the Tinggi Raja Sub-District Head, which is located on Jalan Besar, Padang Sari Village, Tinggi Raja District, Asahan Regency, North Sumatra Province. The research was conducted from April 2022 to August 2022.

Prosedur

1. Problem Identification

Problem identification is the first step in the application of the SAW method. Problem identification aims to determine the appropriate data to be analyzed using the SAW method to select the best employees.

2. Methods, Sources, and Data Collection

This research method is qualitative. The data used in this study is the Raja Tinggi District Office employees in the form of names, attitudes, work discipline, loyalty, responsibility, and task completion. The techniques used for data collection include the following:

a) *Field Research*

In field research, researchers directly visit the research site and take the data needed for research. The field research was conducted by direct interviews with the Raja Tinggi District Head to obtain the required employee information.

b) Literature Research

Penelitian kepustakaan dilakukan dengan cara mengumpulkan referensi dari jurnal atau buku - buku teori yang berkaitan dengan permasalahan yang dibahas.

3. Data Processing

Pada tahap ini, data yang telah diperoleh diolah menjadi informasi baru yang lebih mudah dipahami.

4. Data Analysis

Setelah data diolah, sistem dianalisis menggunakan metode SAW dengan berdasarkan pada nilai preferensi.

RESULTS AND DISCUSSION

The Simple Additive Weighting (SAW) method is often also known as the weighted addition method. The basic concept of the SAW method is to find the weighted sum of the performance ratings for each alternative on all attributes (Bukori, Pujiono, & Suharnawi, 2015). The Simple Additive Weighting (SAW) method is recommended to solve the selection problem in a multi-process decision-making system. The Simple Additive Weight (SAW) method is a method that is widely used in decision making that has many attributes (Frieyadie, 2016).

In this study, the problems identified were complaints from the public regarding services at the sub-district office, the lack of employee motivation in providing services due to the absence of determining the best employees, and the process of determining the best employees. They still use estimates so that errors often occur in the selection. The rationale of the SAW method is to determine the weight value for each attribute and then proceed with a ranking process that will select the best alternative ((Witasari & Jumaryadi, 2020). Criteria are used as a reference in decision-making (Primahudi, Suciono, & Widodo, 2016). The criteria set for selecting the best employees are shown in Table 1.

Table 1. Criteria for Selection of the Best Employees

No	Code	Criteria
1	C1	Attitude
2	C2	Discipline
3	C3	Loyalty
4	C4	Responsibility
5	C5	Task Completion

The District Head of Tinggi Raja submitted weight data. The weight values are ordered based on a scale of importance. The weight value is determined based on the decision makers' subjectivity, so several factors in the alternative ranking process can be determined (Mulyati, 2016). Furthermore, the weight of the criteria is determined for each measure. The criteria weight value data are shown in Tables 2, 3, 4, 5, 6, and 7.

Table 2. Criteria Weight Value

No	Factor	Weight
1	Attitude	0,2
2	Discipline	0,25
3	Loyalty	0,25
4	Responsibility	0,2
5	Task Completion	0,1

Table 3. Attitude Weight Value

Criteria	Scale	Weight
Attitude (C1)	Good	5
	Moderate	3
	Poor	1

Table 4. Value of Work Discipline Weight

Criteria	Scale	Weight
Discipline (C2)	Come late, come home early	2
	Came home late according to schedule	3
	Come early and leave early	4
	Come and go according to working hours	5

Table 5. Loyalty Weight Value

Criteria	Scale	Weight
Loyalty (C3)	Good	5
	Moderate	3
	Poor	1

Table 6. Responsibility

Criteria	Scale	Weight
Responsibility (C4)	Good	5
	Moderate	3
	Poor	1

Table 7. Weight Value of Task Completion Criteria

Criteria	Scale	Weight
Task Completion(C5)	Baik	5
	Sedang	3
	Kurang	1

Research shows that the criteria were evaluated in a match rating table on the respondent's name (Frieyadie, 2016). The scoring of the criteria weights on the employees of the Raja Tinggi Sub-District Office can be seen in Table 8. After the weighting of the criteria, the employees are related to the weight of the criteria based on the assessment of the Raja Tinggi District Head.

Table 8. Criteria Weight Value for Employees

Code	Name	Criteria				
		C1	C2	C3	C4	C5
A01	SR	5	5	3	3	5
A02	ZL	5	4	3	5	5
A03	ES	5	3	5	3	5
A04	S	5	3	5	5	3
A05	MH	5	4	5	3	5
A06	S	3	5	5	5	3
A07	A	5	3	5	3	3
A08	WW	3	5	5	3	3
A09	NN	3	2	3	5	3
A10	K	5	4	3	3	3

Employee Criteria Weight Assessment Matrix. Furthermore, the weight value of the employee criteria in Table 8 is transformed into a matrix. The matrix formed is carried out by normalizing the matrix. It can be seen in Figure 1.

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

Figure 1. Matrix of Employee Criteria Weight Value

The normalized matrix is necessary for determining the ranking using the SAW method. The final result is obtained from the ranking process, namely the normalized matrix multiplication R sum with the preference weight vector, so that the most significant value is chosen as the best alternative (Subagio *et al*., 2017). The normalized matrix values can be seen in Table 9.

Table 9. Normalized Matrix

Code	Name	Criteria				
		C1	C2	C3	C4	C5
A01	SR	1	1	0,6	0,6	1
A02	ZL	1	0,8	0,6	1	1
A03	ES	1	0,6	1	0,6	1
A04	S	1	0,6	1	1	0,6
A05	MH	1	0,8	1	0,6	1
A06	S	0,6	1	1	1	0,6
A07	A	1	0,6	1	0,6	0,6
A08	WW	0,6	1	1	0,6	0,6
A09	NN	0,6	0,4	0,6	1	0,6
A10	K	1	0,8	0,6	0,6	0,6

The preference value (V) is obtained by adding the normalized matrix results multiplied by each criterion. Determination of preference value is carried out in the SAW. method (Setiadi *et al*., 2018; Manullang *et al*., 2018). Decision makers give preference weights based on the level of importance of each bar (Refiza, 2019). The results of the calculation of the preference value can be seen in Table 10.

Table 10. Preference Value

Code	Name	Preference
A01	SR	0,82
A02	ZL	0,85
A03	ES	0,82
A04	S	0,86
A05	MH	0,87
A06	S	0,88
A07	A	0,78
A08	WW	0,8
A09	NN	0,63
A10	K	0,73

After calculating the Preference value (V), the most significant weight is obtained, which is the best alternative. The rankings are arranged based on the highest to the lowest preference values. The order of the Raja Tinggi Sub-District Office employees can be seen in Table 11.

Table 11. Ranking of Raja Tinggi Sub-District Office Employees

Code	Name	Preferences	Ranking
A06	S	0,88	1
A05	MH	0,87	2
A04	S	0,86	3
A02	ZL	0,85	4
A01	SR	0,82	5
A03	ES	0,82	5
A08	WW	0,8	7
A07	A	0,78	8
A10	K	0,73	9
A09	NN	0,63	10

Based on Table 11, the employee with the name S has the highest preference value, 0.88. Research conducted by Refiza (2019) showed that the determination of the best employees is based on the highest preference value. The solution to the simple additive weight method consists of (Frieyadie, 2016)

1. Determine the criteria used as a reference in decision support, namely Ci.
2. Determine the suitability rating of each alternative on each bar.
3. Make a decision matrix based on the criteria (Ci).
4. Normalize the matrix based on the equation adjusted to the type of attribute (profit attribute and cost attribute) to obtain a normalized matrix R.
5. The final result is obtained from the ranking process, namely, the addition of the normalized matrix multiplication R with the weight vector so that the most significant value is chosen as the best alternative (Ai) solution.

The preference value as the final result becomes a benchmark in determining the solution. In this study, employee assessment has the highest preference value. S is the best employee in the King's High District Head Office. However, validation needs to be done so that the decision results from the SAW method can be declared accurate or not (Witasari & Jumaryadi, 2020).

CONCLUSION AND SUGGESTION

Conclusion

The Simple Additive Weighting (SAW) method decides the best employee in the Office of the Tinggi Raja Camat based on the highest preference value. The decision-making results using the SAW method stated that the best employee in the Office of the High King Sub-District Head, namely the employee with the name S (Nilai preference = 0,88).

Suggestion

The SAW method should also be compared to other approaches to make decisions more accurate. The validation of the SAW method needs to be done so that the results obtained can be declared valid or not.

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