Jurnal TAM (Technology Acceptance Model) Volume 12, Nomor 1, Juli 2021 **Hal. 59-68**
p-ISSN : 2339-1103
e-ISSN : 2579-4221

PERFORMANCE ASSESSMENT OF VILLAGE APPARATUS "WARINGINSARI TIMUR" WHEN WFH USING WEIGHTED PRODUCT AND SIMPLE ADDITIVE WEIGHTING METHODS

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Article history:
Received: May 21, 2021
Revised: June 22, 2021
Accepted: June 27, 2021

Abstract
One of the ways that the government can improve the quality of village apparatus performance is to conduct a performance assessment. The performance assessment aims to provide morale to village apparatus to continue to improve their performance. The problem that occurs is the number of assessment criteria used in the performance appraisal. The method used in assessing the performance of village apparatus uses the Weighted Product and Simple Additive Weighting methods to provide recommendations for assessing the performance of village apparatus. In accordance with the results of the tests that have been carried out, the calculation results of the preference value of Simple Additive Weighting have a performance that can be said to be better than the Weighted Product because Simple Additive Weighting is able to minimize the preference value on the same alternative. From the results of the comparison between the calculation of Simple Additive Weighting and Weighted Product, the results of testing the application of the Weighted Product (WP) and Simple Additive Weighting (SAW) methods in the decision support system for assessing the performance of village apparatus is that decision support using two methods can produce the best alternative and has accuracy which is high when combined with using a website-based application using criteria that are tailored to the needs of village apparatus, especially during the work period using the current WFH (Work From Home) model. Application Test Results can be used as a basis for structured decision making to support the quality assurance process for Village services in Waringinsari Timur.

Keywords:
Decision Support System;
Simple Additive Weighting;
Weighted Product;
Performance;
WHF;
Village.

I. INTRODUCTION

In Law Number 23 of 2014 concerning Regional Government, it explains that the Village is a collection of legal communities that have territorial boundaries and someone who is authorized to regulate and handle regional government affairs, the interests of the local community, rights of origin or traditional rights that has been recognized and respected in the government system of the Republic of Indonesia [1]. The village government is led by someone called the Village Head with a government system assisted by village apparatus. Usually, the word apparatus is always synonymous with Civil Servants, as well as members of the Indonesian National Police, as well as the TNI, but actually the word apparatus has a fairly broad meaning because it is not only state employees with civil servant status but also employees who are not civil servants owned by the government, and has been involved and carried out activities in every government activity held.

Research conducted by Berlilana (2017) also uses the Weighted Product (WP) and Simple Additive Weighting (SAW) methods in recommending prosperous rice recipients. In this study, many problems were found because of the many conditions that must be considered as recipients of prosperous rice. The calculation of these two methods results in the calculation of the preference value of Simple Additive Weighting (SAW) which has a performance that can be said to be better than the Weighted Product (WP) because the Simple Additive Weighting (SAW) method is able to minimize the value of the same alternative preference. This can be seen from the alternative rankings based on the results of calculations using Simple Additive Weighting (SAW) of 13 ranks and Weighted Product (WP) of 10 ranks [2]. The second study was conducted by Amar (2020) where this researcher discussed the performance appraisal system of village government officials with profile matching which resulted in multi-criteria assessment software that could later be used as a medium in

assessing the performance of village government officials [3]. The third study was conducted by Mulyani et al. (2019). This study used the Simple Additive Weighting (SAW) and Weighted Product (WP) methods in lending. In this study, the author designed an application, a Decision Support System that utilized the Simple Additive Weighting (SAW) method and also the Weighted Product (WP) method with predetermined criteria values. Comparison of these two methods is carried out to choose which is the best method that can be applied to a problem in determining lending so that it is more appropriate [4].

The village "Waringinsari Timur" also has a village apparatus, where every December performance assessment is carried out. It aims to continue and improve services to the community, so it is not disappointing its citizens. The assessment carried out in this village is sometimes still subjective because the system carried out is still conventional or manual so that the current system is considered less effective and efficient.

Based on this, the researcher has the idea of changing the manual system into a more modern system by implementing a decision support system for assessing the performance of village apparatus using the Weighted Product (WP) and Simple Additive Weighting (SAW) methods. With this system, researchers hope to be able to assist the village head in assessing the performance of his village apparatus so that the assessment is not carried out subjectively anymore but really the quality of the village apparatus owned by each village apparatus.

The purpose of the study is to determine the performance assessment of the Village apparatus "Waringinsari Timur". The Decision Support System in the assessment of this work tool uses the Weighted Product (WP) and Simple Additive Weighting (SAW) methods to make it easier to quickly assess the performance of village apparatus.

II. LITERATURE REVIEW

2.1. Decision Support System

Raymond McLeod in the journal Indrajaya, (2017), Decision Support System or called DSS is a system producing specific information aimed at solving a particular problem that must be solved by managers at various levels. [5] Decision Support System can be regarded as a computer-based information system that can produce all kinds of alternative decisions aimed at assisting a company or management in making decisions or handling and solving various kinds of problems that exist in a structured manner by utilizing a data and also models [6][7].

Decision Support System [8] or DSS is an inseparable part of the totality of an organizational system that is able to provide both problem solving and communication capabilities in a semi-structured manner. The organizational system includes physical systems, decision systems, and information systems. In particular, the Decision Support System is widely interpreted as a system that can support and facilitate the work of a manager in solving problems and making semi-structured decisions in which the steps taken are to provide information or suggestions and suggestions that refer to certain decisions [8] [9].

2.2. *WFH* (Work From Home)

In general, work from home is usually defined by the way employees work outside the office. The Work From Home (WFH) system, or commonly referred to as working from home, is a government recommendation for the Indonesian people in particular[10][11].

2.3. Job Performance

Job performance means the work that can be achieved by a person or group of people in the organization, in accordance with their respective authorities and responsibilities in an effort to achieve the goals of the organization concerned legally, not violating the law and in accordance with moral ethics. The performance of an employee plays an important role for an organization, because the performance of each employee is a contribution to the achievement of the performance of every function of the organization [12]. According to the village law, article 26 paragraph (1), the Village Head is in charge of administering the Village Government, and empowering the village community. In carrying out the duties as referred to in paragraph (1), the village head has the obligations as stated in Article 26 paragraph (4). The village head must carry out his obligations as stated in Article 26 paragraph (4). These include improving the welfare of the village community, maintaining peace and order in the village community, carrying out good village administration, managing village finances and assets, developing the village community economy, fostering and preserving the socio-cultural values of the village community, empowering the community and community institutions in the village, developing potential resources. nature and preserve the environment and provide information to the village community. These are some of the obligations that must be fulfilled by the village head[13][14].

2.4. Simple Additive Weighting (SAW)

The Simple Additive Weighting (SAW) method is a method that really requires normalization steps from a matrix that is poured into a certain scale and can be compared to all available alternative ratings or substitutions [4][15].

$$r_{ij} = \begin{cases} \frac{x_{ij}}{Max_i x_{ij}} \ (Jika\ atribut\ Benefit) \\ \frac{Min_i x_{ij}}{x_{ij}} \ (Jika\ atribut\ Cost) \end{cases} \quad (1)$$

In Equation (1), rij is a normalized performance rating of all alternatives Ai on attributes Cj, i=1, 2, ..., m; and j=1, 2, ..., n. Equation (2) describes the formula for determining the Preference value of each alternative (Vi).

$$V_i = \sum_{j=1}^{n} W_j R_{ij} \quad (2)$$

In Equation (2), Wj is a predetermined weight; while Rij is a normalized matrix.

2.5. Weighted Product (WP)

The approach used in the Weighted Product (WP) is to calculate the multiplication result which aims to correlate each attribute rating. The rating of each attribute is raised to the first power with the corresponding weight specified [4][16]. The process is the same as the normalization process.

$$S_i = \prod_{j=1}^{n} X_{ij}^{W_j}$$

In Equation (3), i=1, 2, ..., m; x represents a criterion value, w represents a criterion weight, and n represents a number of criteria. Wj can be a positive power for the profit attribute and can also be a negative power for the cost attribute.

III. RESEARCH METHOD

3.1. Data collection

a. Observation Method
The method applied by the researcher was by visiting the "Waringinsari Timur" Village office to get data, data on the names of village officials to be assessed.

b. Interview Method
The researcher conducted a question and answer session with one of the "Waringinsari Timur" Village apparatus by asking several questions including:
1. How many people are there from the "Waringinsari Timur" Village officials and explain their respective duties?
2. Is there an assessment of the performance of village officials in "Waringinsari Timur" Village?
3. If a performance assessment is carried out on village officials, how many times is it carried out in 1 year?

c. Library Research
The theories are obtained from books that support and relate to topics taken as comparison materials or the basis for further discussion, as well as to obtain theoretical foundations from the system to be developed related to research related to decision support system theory for evaluating the performance of the East Waringinsari Village apparatus. using the Weighted Product (WP) and Simple Additive Weighting (SAW) methods.

3.2. Analysis

a. Data analysis
"Waringinsari Timur" village officials consist of 15 people. They consist of 1 village secretary, 1 head of development, 1 head of general, 1 head of finance, 1 head of economic planning, 4 heads of hamlets, and 6 heads of RT. Based on the results of the interview, the criteria for the best village officials are formed consisting of the following fields: education, age, discipline, presence, work creativity.

b. System analysis
After determining the criteria for the best village apparatus, in accordance with the Decision Support System with the Weighted Product (WP) and Simple Additive Weighting (SAW) methods, the next step is to determine the pairwise comparison matrix of each element against each criterion.

IV. DISCUSSION

4.1. Design

1. Calculation of the Weighted Product Method

a. Determination of Criteria
In determining the performance assessment of village officials, there are several criteria for education, age, discipline, presence, work creativity, which can be seen in the table below:

Table 1. Performance Assessment Criteria

Criteria	Information	Weight
K1	Education	15
K2	Age	10
K3	Presence	15
K4	Years of service	10
K5	Responsibilities and Services	20
K6	Development Level	15
K7	Village Achievement	15

b. Determining Criteria Weight
The following is the stages in determining the weight of the score in the criteria.

Table 2. Criteria Weight Value

Scale	Weight	Information
Very low	1	This has a very good chance of getting a performance appraisal of the village apparatus
Low	2	This has a good opportunity for performance appraisal of village apparatus

Enough	3	This has sufficient opportunities for performance appraisal of village apparatus
High	4	It has a low chance of assessing the performance of village apparatus
Very high	5	It has a very low chance of assessing the performance of village apparatus

The following is a weighting table based on the criteria.

Table 3. Criteria Weighting Table

Criteria	Status	Scale	Weight	Note
Education	Elementary School	Very low	1	Cost
	Middle school/equivalent	Low	2	
	High school/equivalent	Enough	3	
	D 1, D 2, D3	Good	4	
	S 1 – S2	Very good	5	
Age	60 years	Very low	1	Benefits
	40 years – 59 years	Low	2	
	30 years – 39 years	Enough	3	
	26 years – 29 years	Good	4	
	19 years – 25 years	Very good	5	
Presence	16 working days per month	Very low	1	Benefits
	17 working days per month	Low	2	
	18 working days per month	Enough	3	
	19 working days per month	Good	4	
	20 working days per month	Very good	5	
Years of service	0 = X value <= 1 yrs	Very low	1	Benefits
	1 < X value <= 4 yrs	Low	2	
	4 < X value <= 6 yrs	Enough	3	
	6 < X value <= 10 yrs	Good	4	
	11 years old	Very good	5	
Responsibilities and Services	Very low	Very low	1	Benefits
	Low	Low	2	
	Enough	Enough	3	
	Good	Good	4	
	Very good	Very good	5	
Development Level	40% - 45%	Very low	1	Benefits
	50% - 55%	Low	2	
	60 % - 65 %	Enough	3	
	70 % - 79 %	Good	4	
	80 % - 100%	Very good	5	
Village Achievement	40% - 45%	Very low	1	Benefits
	50% - 55%	Low	2	
	60 % - 65 %	Enough	3	
	70 % - 79 %	Good	4	
	80 % - 100%	Very good	5	

c. Collecting Alternative Matrix Data

For data, the researcher took a survey, so that the following data were obtained:
Alternative is symbolized by A1 – A15

Table 4. Compatibility Branch

Alternative	Criteria						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**	**K7**
A1	5	1	2	5	5	4	4
A2	3	1	1	3	2	1	1

A3	4	5	1	3	2	3	3
A4	5	5	2	3	5	4	4
A5	5	5	4	3	2	4	4
A6	4	1	1	3	5	3	3
A7	2	1	1	1	2	2	2
A8	5	5	4	3	2	4	4
A9	5	1	1	3	5	4	4
A10	5	1	4	3	5	5	5
A11	3	3	5	3	3	3	3
A12	2	2	3	4	4	2	2
A13	3	4	4	3	2	4	4
A14	4	5	1	4	3	3	3
A15	2	1	5	3	4	3	3
∑ Max	5	5	5	5	5	5	5

The first step is to determine the alternative first with the predetermined criteria value. The alternatives to be researched are as follows:
A1 : Village Apparatus 1
A2 : Village Apparatus 2
A3 : Village Apparatus 3
A4 : Village Apparatus 4
A5 : Village Apparatus 5
A6 : Village Apparatus 6
A7 : Village Apparatus 7
A8 : Village Apparatus 8
A9 : Village Apparatus 9
A10 : Village Apparatus 10
A11 : Village Apparatus 11
A12 : Village Apparatus 12
A13 : Village Apparatus 13
A14 : Village Apparatus 14
A15 : Village Apparatus 15

c. Calculating Vector Value

The third step is to determine the value of the vector S by multiplying all the data for each alternative value of the suitability rating that has a positive power from the weight improvement results. The calculation data for the S vector value can be seen as follows:

1. Device. 1

   S1 : $(5^{-0,15})$ $(1^{0,1})$ $(2^{0,15})$ $(5^{-0,1})$ $(5^{0,2})$ $(4^{-0,15})$ $(4^{-0,15})$

   = 0,814181063

2. Device. 2

   S2 : $(3^{-0,15})$ $(1^{0,1})$ $(1^{0,15})$ $(3^{0,1})$ $(3^{0,2})$ $(1^{0,15})$ $(1^{0,15})$

   = 0,644394015

d. Calculating the Value of Vector V

The fourth step is the result of determining the value of vector S and then used to determine the value of vector V to get the highest alternative value of each value of vector V. The process of searching for vector V on the value of vector V used for ranking is:

$$V1 = \frac{0,814181063}{12,81135561} = 0,062121218$$

$$V2 = \frac{0,644394015}{12,81135561} = 0,047896996$$

From these results it can be concluded that the alternative for village apparatus is V6 = 0.092593613.

The alternative table of village apparatus is a table that contains alternatives or village apparatus that will be assessed based on their respective alternatives.

Table 5. Alternative Village apparatus and Criteria

Alternative	**Criteria**						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**	**K7**
A1	5	1	2	5	5	4	4
A2	3	1	1	3	2	1	1
A3	4	5	1	3	2	3	3
A4	5	5	2	3	5	4	4
A5	5	5	4	3	2	4	4
A6	4	1	1	3	5	3	3
A7	2	1	1	1	2	2	2
A8	5	5	4	3	2	4	4
A9	5	1	1	3	5	4	4
A10	5	1	4	3	5	5	5
A11	3	3	5	3	3	3	3
A12	2	2	3	4	4	2	2
A13	3	4	4	3	2	4	4
A14	4	5	1	4	3	3	3
A15	2	1	5	3	4	3	3

After determining the alternative village apparatus and criteria, the next step is determining the value of S which is the value obtained from multiplying the rank between the criteria and the weights. Calculation of the value of S can be seen the results in the following table:

Table 6. Determination of Vector S

	A1	A2	A3	A4	A5	A6	A7	A8
K1	0,724779664	0,802741562	0,757858283	0,724779664	0,724779664	0,757858283	0,870550563	0,724779664
K2	1	1	0,851339923	0,851339923	0,851339923	1	1	0,851339923
K3	1,071773463	1	1	1,071773463	1,148698355	1	1	1,148698355
K4	0,724779664	0,802741562	0,802741562	0,802741562	0,802741562	1,071773463	1	0,802741562
K5	1,174618943	1	1,071773463	1,174618943	1,071773463	1,231144413	1,071773463	1,071773463
K6	1,231144413	1	1,179147646	1,231144413	1,231144413	1,179147646	1,109569472	1,231144413
K7	1,231144413	1	1,179147646	0,767703899	0,7507628	1,179147646	1,035264924	0,7507628
Total number	**0,814181063**	**0,644394015**	**0,654542631**	**1,64375183**	**1,607478777**	**1,179147646**	**1,035264924**	**1,607478777**

A9	A10	A11	A12	A13	A14	A15
0,724779664	0,724779664	0,802741562	0,870551	0,8027416	0,757858283	0,870550563
1	1	0,89595846	0,933033	0,8705506	0,851339923	1
1	1,148698355	1,174618943	1,116123	1,1486984	1	1,174618943
0,802741562	0,802741562	0,802741562	0,757858	0,8027416	0,757858283	0,802741562
1,174618943	1,174618943	1,116123174	1,148698	1,0717735	1,116123174	1,148698355
1,231144413	1,273050116	1,179147646	1,109569	1,2311444	1,179147646	1,179147646
0,841371404	0,999379067	0,89251739	0,875692	0,850283	0,643515952	1,111836527
1,305678489	**1,550881982**	**1,725398593**	**1,751385**	**1,7411011**	**1,545885466**	**1,725398593**
						= 12,81135561

The weight table is a table that has changed from percentage form to decimal form.

Table 7. Criteria Weight

K1	K2	K3	K4	K5	K6	K7
-0,2	0,1	0,1	0,2	0,1	0,15	0,15

The table for determining the value of V is the final value in the calculation of the WP method. The value of V is obtained from the number of S values from each alternative divided by the total number of S values from A1 to A15.

Table 8. Determination of V.Value

Vector V (Final Result)		Rank
V1	0,063551515	7
V2	0,05029866	12
V3	0,051090818	11
V4	0,059923705	8
V5	0,058601355	9
V6	0,092039257	1
V7	0,080808382	2
V8	0,058601355	10
V9	0,065673878	6
V10	0,078007285	3
V11	0,069666116	4
V12	0,068352836	5
V13	0,066369479	5
V14	0,050230122	14
V15	0,086785237	2

2. Calculation of the Simple Additive Weighting (SAW) Method

For data, the researcher took a survey, so that the following data were obtained:

Alternatives are symbolized by A1–A15. The suitability rating is the value of each alternative with the criteria.

Table 9. Compatibility Branch

Alternative	Criteria						
	K1	K2	K3	K4	K5	K6	K7
A1	5	1	2	5	5	4	4
A2	3	1	1	3	2	1	1
A3	4	5	1	3	2	3	3
A4	5	5	2	3	5	4	4
A5	5	5	4	3	2	4	4

A6	4	1	1	3	5	3	3
A7	2	1	1	1	2	2	2
A8	5	5	4	3	2	4	4
A9	5	1	1	3	5	4	4
A10	5	1	4	3	5	5	5
A11	3	3	5	3	3	3	3
A12	2	2	3	4	4	2	2
A13	3	4	4	3	2	4	4
A14	4	5	1	4	3	3	3
A15	2	1	5	3	4	3	3
∑ Max	5	5	5	5	5	5	5

Next, the researcher normalizes each alternative. The formula used is as follows:

$$Rij = \begin{cases} \frac{Xij}{maxi\ (xij)} \\ \frac{Min\ i\ xij}{Xij} \end{cases} \text{.....(1)}$$

Where:
If J is a benefit attribute (benefit)
If J is a cost attribute (cost)

4.2. Matrix Normalization

Matrix normalization is a calculation of determining the value of R with each predetermined criteria kriteria.

$$r11 = \frac{5}{Max(5,3,4,5,5,4,2,5,5,5,3,2,3,4,2)} = \frac{5}{5} = 1$$

$$r12 = \frac{1}{Max(1,1,5,5,5,1,1,5,1,1,3,2,4,5,1)} = \frac{1}{5} = 0.2$$

$$r13 = \frac{2}{Max(2,1,1,2,4,1,1,4,1,4,5,3,4,1,5)} = \frac{2}{5} = 0.4$$

$$r14 = \frac{5}{Max(5,3,3,3,3,3,1,3,3,3,3,4,3,4,3)} = \frac{5}{5} = 1$$

$$r15 = \frac{5}{Max(5,2,2,5,2,5,2,2,5,5,3,4,2,3,4,)} = \frac{5}{5} = 1$$

$$r16 = \frac{4}{Max(4,1,3,4,4,3,2,4,4,5,3,2,4,3,3,)} = \frac{4}{5} = 0.8$$

$$r17 = \frac{3}{Max(3,1,2,4,4,3,1,3,3,4,3,2,4,3,2)} = \frac{3}{4} = 0.75$$

From the above calculation, the normalization matrix is obtained as follows:

$$\begin{pmatrix} 1 & 0,2 & 0,4 & 1 & 1 & 0,8 & 0,8 \\ 0,6 & 0,2 & 0,2 & 0,6 & 0,4 & 0,2 & 0,2 \\ 0,8 & 1 & 0,2 & 0,6 & 0,4 & 0,6 & 0,6 \\ 1 & 1 & 0,4 & 0,6 & 1 & 0,8 & 0,8 \\ 1 & 1 & 0,8 & 0,6 & 0,4 & 0,8 & 0,8 \\ 0,8 & 0,2 & 0,2 & 0,6 & 1 & 0,6 & 0,6 \\ 0,4 & 0,2 & 0,2 & 0,2 & 0,4 & 0,4 & 0,4 \\ 1 & 1 & 0,8 & 0,6 & 0,4 & 0,8 & 0,8 \\ 1 & 0,2 & 0,2 & 0,6 & 1 & 0,8 & 0,8 \\ 1 & 0,2 & 0,8 & 0,6 & 1 & 1 & 1 \\ 0,6 & 0,6 & 1 & 0,6 & 0,6 & 0,6 & 0,6 \\ 0,4 & 0,4 & 0,6 & 0,8 & 0,8 & 0,4 & 0,4 \\ 0,6 & 0,8 & 0,8 & 0,6 & 0,4 & 0,8 & 0,8 \\ 0,8 & 1 & 0,2 & 0,8 & 0,6 & 0,6 & 0,6 \\ 0,4 & 0,2 & 1 & 0,6 & 0,8 & 0,6 & 0,6 \end{pmatrix}$$

The R value is obtained from the criterion value divided by the largest value in the criteria column. Then the results of the R value are entered in the following table:

Table 10. Determination of R . Value

Alternative	Criteria						
	K1	**K2**	**K3**	**K4**	**K5**	**K6**	**K7**
A1	1	0,2	0,4	1	1	0,8	0,8
A2	0,6	0,2	0,2	0,6	0,4	0,2	0,2
A3	0,8	1	0,2	0,6	0,4	0,6	0,6
A4	1	1	0,4	0,6	1	0,8	0,8
A5	1	1	0,8	0,6	0,4	0,8	0,8
A6	0,8	0,2	0,2	0,6	1	0,6	0,6
A7	0,4	0,2	0,2	0,2	0,4	0,4	0,4
A8	1	1	0,8	0,6	0,4	0,8	0,8
A9	1	0,2	0,2	0,6	1	0,8	0,8
A10	1	0,2	0,8	0,6	1	1	1
A11	0,6	0,6	1	0,6	0,6	0,6	0,6
A12	0,4	0,4	0,6	0,8	0,8	0,4	0,4
A13	0,6	0,8	0,8	0,6	0,4	0,8	0,8
A14	0,8	1	0,2	0,8	0,6	0,6	0,6
A15	0,4	0,2	1	0,6	0,8	0,6	0,6

Furthermore, the ranking results or the best value for each alternative (Vt) can be calculated by the following formula:

$$V_t = \sum W_j R_{ij} \text{.....(2)}$$

After determining the value of R, then the value of R is entered into equation V. The final value table is obtained from the result of multiplying each R value on each criterion with a weighted value. And the results can be seen in the following table:

Table 11. Final Score Results (V)

Alter	Criteria								Alter	The number	Rank
	K1	**K2**	**K3**	**K4**	**K5**	**K6**	**K6**	**K7**			
A1	0,15	0,02	0,06	0,1	0,2	0,12	0,12	0,12	V1	0,53	3
A2	0,09	0,02	0,03	0,06	0,08	0,03	0,03	0,03	V2	0,28	12
A3	0,12	0,1	0,03	0,06	0,08	0,09	0,09	0,09	V3	0,39	11
A4	0,15	0,1	0,06	0,06	0,2	0,12	0,12	0,12	V4	0,57	1
A5	0,15	0,1	0,12	0,06	0,08	0,12	0,12	0,12	V5	0,51	4
A6	0,12	0,02	0,03	0,06	0,2	0,09	0,09	0,09	V6	0,43	10
A7	0,06	0,02	0,03	0,02	0,08	0,06	0,06	0,06	V7	0,21	13
A8	0,15	0,1	0,12	0,06	0,08	0,12	0,12	0,12	V8	0,51	5
A9	0,15	0,02	0,03	0,06	0,2	0,12	0,12	0,12	V9	0,46	7
A10	0,15	0,02	0,12	0,06	0,2	0,15	0,15	0,15	V10	0,55	2
A11	0,09	0,06	0,15	0,06	0,12	0,09	0,09	0,09	V11	0,48	6
A12	0,06	0,04	0,09	0,08	0,16	0,06	0,06	0,06	V12	0,43	9
A13	0,09	0,08	0,12	0,06	0,08	0,12	0,12	0,12	V13	0,43	10
A14	0,12	0,1	0,03	0,08	0,12	0,09	0,09	0,09	V14	0,45	8
A15	0,06	0,02	0,15	0,06	0,16	0,09	0,09	0,09	V15	0,45	9

The comparison results table is a comparison table between the results of the Simple Additive Weighting (SAW) calculation and the results of the Weighted Product (WP) calculation.

Table 12. Table of Comparison Results

Alternative	SAW Results	WP Results
A1	0,53	0,069284895
A2	0,28	0,044702269
A3	0,39	0,062648403
A4	0,57	0,073479436

A5	0,51	0,071857948
A6	0,43	0,052710575
A7	0,21	0,046278691
A8	0,51	0,071857948
A9	0,46	0,058366791
A10	0,55	0,069327943
A11	0,48	0,077129231
A12	0,43	0,078290882
A13	0,43	0,077831170
A14	0,45	0,069104587
A15	0,45	0,077129231

Source: Data processed

4.3. System Implementation

After obtaining the results of the manual test system with a comparative value of the Simple Additive Weighting (SAW) Method and the Weighted Product (WP) Method, then this is tested using a website programming language with the following system design :

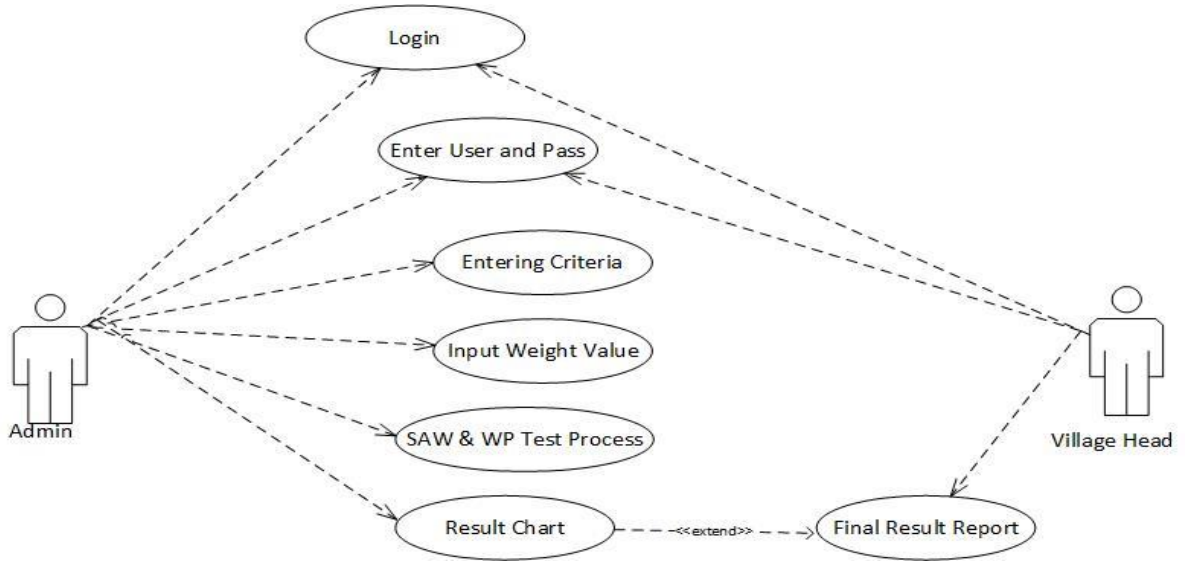

Figure 1. Flow of testing the application system performance of Village Apparatus

From the picture above, the admin inputs the data from the manual test results into the system so that it produces a graph of the results and figures for the performance test results of the Village apparatus. The final results will be distributed to the Village Head and displayed on the website page to become information for the community and village apparatus whose performance is measured. This can be seen in the following system design :

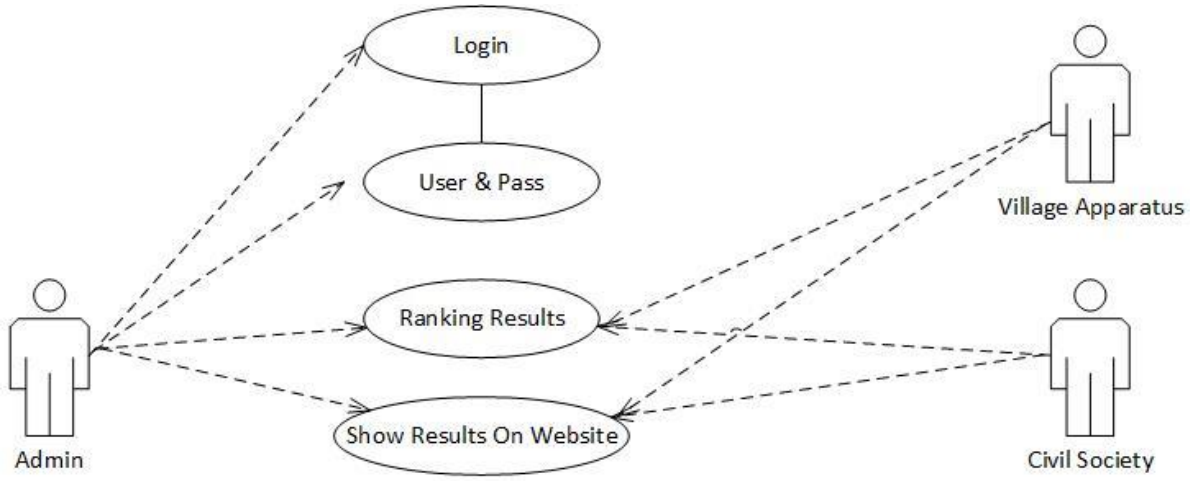

Figure 2. Flow of the announcement of the results of the village apparatus performance assessment

After the system flow is formed, the next step is to test the village apparatus performance system which can be seen on the following website menu:

p-ISSN : 2339-1103
e-ISSN : 2579-4221

Figure 3. Display of the Main Menu of the DSS Application

Figure 4. Performance Test Page of Village Apparatus

In the Decision Support System Program with the Simple Additive Weighting (SAW) Method and the Weighted Product (WP) Method, which measures the Performance of Village Apparatus in Waringin Sari Timur, there is a user selection menu to be able to view data into the application. Application menu is a menu where we can choose a menu to be viewed. The test results using the application can be seen in the following image:

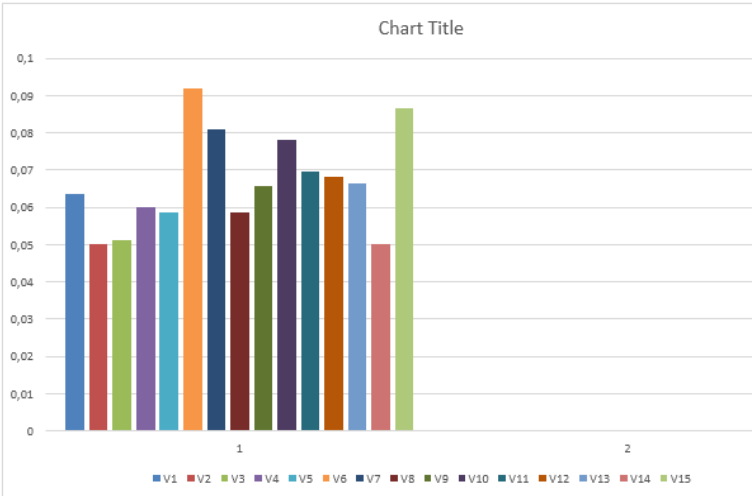

Figure 5. Final Result Graph

4.4. Result Analysis

Based on the calculations that have been carried out using two methods, Weighted Product and Simple Additive Weighting, it can be seen that both methods can be used as a decision support method for assessing the performance of village apparatus in

the Work From Home (WFH) period, from calculations using the Simple Additive Weighting method (SAW) and the Weighted Product (WP) method tested using a manual system that has the same level of suitability and accuracy. Furthermore, the results of the manual test are compared with the programming test where the accuracy and speed of the assessment of the performance of the Waringin Sari Timur apartment obtains an accuracy rate of 97% compared to the manual test.

V. CONCLUSION

The application of a Decision Support System for assessing the performance of village officials using the Simple Additive Weighting (SAW) and Weighted Product (WP) method built can assist in making assessments according to predetermined criteria, so that there are no exact final scores. The results of the comparison between the calculation of Simple Additive Weighting (SAW) and Weighted Product (WP) have very good accuracy. After the results of the comparison test with the manual system, then this is tested with a website-based application with the results of the application being declared good in measurements using the Simple Additive Weighting and Weighted Product (WP) method based on the website. Application for measuring the performance of Village Apparatus quickly, accurately, and in accordance with the actual situation. Application Test Results can be used as a basis for structured decision making to support the village service quality assurance process in the village of Waringin Sari Timur.

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