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Implementation of the AHP-SAW Method in the Decision Support System for Selecting the Best Tourism Village

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ABSTRACT

From the perspective of advanced tourism growth, Indonesia's economy is expected to enter the top ten in the world by 2025 before the 2020 COVID-19 pandemic. Balinese workforce absorbs nearly a third of the total population and Balinese are involved in tourism. Garbage and congestion are problems the government must solve in building a better Bali tourism industry in the future. One way to solve this problem is to develop rural ecotourism, which can choose to use a decision support system. In this study, the method used was a combination of AHP-SAW. This manual DSS calculation process can be implemented in web-based software. DSS employs 3 tourists as decision maker. There are 10 alternative tourism villages tested using AHP-SAW, and the tourism villages at Pemuteran are the most popular tourism villages. Pemuteran Tourism Village obtained a score of 0.9241. Jatiluwih Tourism Village obtained a score of 0.9117 in second place; Plaga Tourism Village obtained a score of 0.9115 in third place.

1. Introduction

From the perspective of high-level tourism growth, Indonesia's economy is expected to be in the top ten in the world by 2025 before the COVID-19 pandemic hits the world in 2020[1]. Based on the occupancy rate of hotel rooms and other accommodation, Bali is the third largest city in Indonesia in 2017[2]. Power Absorbed employment in Bali is 760,000 (31.7%) of the total population of Bali engaged in tourism[3]. Garbage and congestion are problems the government must solve in building a better Bali tourism industry in the future[4]. One way to overcome this problem is to develop rural ecotourism, which can choose to use a decision support system (DSS). A DSS is an effective system that uses decision rules, analysis models, comprehensive databases, and decision maker knowledge to help make complex decisions[5].

In this study, the method used was a combination of AHP-SAW. This combination of methods was chosen because AHP is a functional level and the main input of human perception[6]. SAW is a simple method that can analyze existing alternatives to make decisions easily[7]. In previous studies, the AHP method, the SAW method, and the combination of AHP-SAW have been well implemented in the SPK and decision makers can consider standards and greatly influence the results of their recommendations. There is research on determining the quality of cowhide and poor scholarship with AHP[8][9]. The AHP method can also be combined with the MOORA method to determine the selection of tour packages[10]. There is research on the selection of ornamental plants using SAW[11]. AHP and SAW methods can also be combined to determine the best teacher selection or in the case of ATM selection[7][12]. Regarding the selection of tourism villages, several studies have addressed this issue by selecting criteria that can be used for evaluation[13][14]. However, there is no comprehensive analysis on how to make

comparisons between method combinations, it is necessary to take an average of several weighted decision makers and provide advice for decision makers to choose the most favorite tourism villages.

Therefore, this study aims to calculate the AHP-SAW method combination. If we do not immediately realize the urgency of this research, it will hinder the development of DSS, and the researcher can only use methods that are often used for future research. In addition, because policy makers cannot prioritize tourism village development, ecotourism development also risks wasting costs and time, if the normal development of a tourism village is late, the ecosystem will lack guidance from related parties. Based on the above background, it is necessary to conduct a study of the decision support system using AHP- SAW to select favorite tourism villages.

The tourism village is a rural area, and the overall atmosphere reflects the authenticity of the village[20]. Whether it's socio-economic, socio-cultural, customs or everyday life, it has a unique architecture and rural layout structure, or is unique and interesting[21]. Economic activities and potential development to develop various components of the tourism industry, such as attractions, accommodation, food and beverage, and other tourism needs[15][22]. The basic criteria for developing a tourism village include the existence of objects and views. The village has tourist destinations and is close to at least one well-known tourist destination, so it can be linked with existing tour packages [23].

The Analytical Hierarchy Process (AHP) method is one of the most popular pairwise comparison methods for MCDM problem decision making[16]. The AHP method aims to help decision makers combine qualitative and quantitative factors in complex problems [24]. Since AHP can produce solutions from various conflicting factors, the use of AHP in various fields is increasing rapidly. The stages of using the analytic hierarchical process to solve problems include decomposition, comparative evaluation, priority synthesis, and logical consistency[17]. Pairwise comparison matrix will be changed according to Saaty Scale. The Saaty Scale is shown in Table 1.

Table 1
Saaty Scale

Score Interests / Intensity	Information/ Linguistics
1	Just as important (equal)
3	Quite important (moderate)
5	More important (strong)
7	Very important (demonstrated)
9	Absolute is more important (extreme)
2,4,6,8	The middle value between adjacent values (intermediate value)

After the pairwise comparison is carried out, the synthesis process is carried out in the following manner.

1) Add up the values for each column in the matrix
2) Divide each value in the column by the appropriate number of columns to get a normalized matrix.
3) Add up the values for each row and divide by the number of elements to get the average value.

After obtaining comprehensive results, measure the consistency as follows:

1) Multiply each value in the first column by the relative priority of the first element, the value in the second column by the relative priority of the second element, and so on
2) Add up each row
3) Divide the number of rows by the appropriate relative priority element
4) Add the quotient above to the number of elements, and the result is called λmax

Use the following formula to calculate the consistency index.

$$CI = \frac{(\lambda_{max} - n)}{(n-1)} \quad (1)$$

Where:
n = many elements / criteria
Use the following formula to calculate the consistency ratio.

$$CR = \frac{CI}{IR} \quad (2)$$

Where:
CR = Consistency Ratio, CI = Consistency Index, and IR = Index Random Consistency

Index Random Consistency in this study uses Alonso-Lamata RI Values with the values shown in Table 2.

Table 2
Alonso-Lamata RI Values

Number of Element	Alonso-Lamata RI Values
3	0,5245
4	0,8815
5	1,1086
6	1,2479
7	1,3417
8	1,4056

Hierarchy consistency check is done by checking the consistency ratio calculation result. If CR is greater than 10%, the pairwise comparison matrix must be readjusted. If the CR is less than 10%, the consistency of the hierarchical structure is stated to be consistent, and the calculation is correct, and the preference value and ranking calculations at a later stage can be continued.

The Simple Additive Weighting (SAW) method is often also known as a weighted addition method[18]. The SAW method has a basic concept to find the weighted sum of the performance ratings for each alternative on all attributes. The SAW method requires a decision matrix normalization process (X) to a scale that can be compared with all alternative ratings. In this study, the weighting was completed using the AHP method, followed by a ranking calculation using the SAW method starting from the alternative normalization in SAW to getting the preference value. The preference value (V_i) is obtained based on the sum of the normalized matrix row elements (R) with the preference weight (W) corresponding to the matrix column elements (W)

$$V_i = \sum_{j=1}^{n} w_j r_{ij} \quad (3)$$

2. Research Method

The research method used in this study follows the various stages of the CRISP-DM model. Data related problems (such as data mining and DSS) can use the CRISP-DM model, which can analyze problems and ongoing business conditions, provide appropriate data conversion to provide a model that can evaluate effectiveness and record the results obtained[5][25]. CRISP-DM solves this problem by defining a process model related to data mining and DSS, regardless of the problem or technology used[19][26]. Figure 1 shows the stages of the current model associated with CRISP-DM.

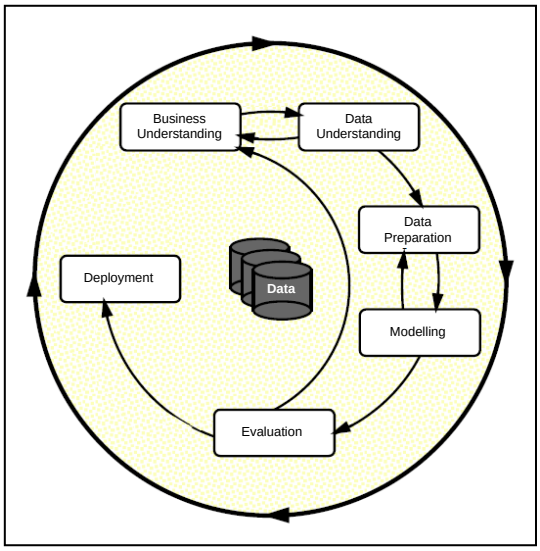

Fig. 1. The Process Model Phase as a Research Flow Diagram Using the CRISP-DM [26]

Business Understanding is the stage used to determine business goals, analyze business conditions, and determine the objectives of DSS. At this stage a thorough understanding is carried out based on analysis of observations, interviews, and supporting documents for the objectives and results of the research. There are several alternatives to choose from when determining your favorite tourism village. Based on this alternative, a calculation will be made for the ranking. The results of this favorite tourism village can be the best choice for tourists to visit the tourism village. When determining the number and criteria for alternative favorite tourism village candidates, refer to the Gianyar Regent Regulation No. 127 of 2016 and come up with 10 alternatives that will be used from 171 tourism villages in Bali, namely Plaga Tourism Village, Penglipuran, Kintamani, Pemuteran, Tegallalang, Tenganan , Sibetan, Besakih, Lembongan and Jatiluwih. The decision maker that will be used are 3 tourists who have experience visiting tourism villages. Standard weights are obtained from decision maker and calculated using AHP. Evaluation of alternative methods using the SAW method. At Data Understanding stage, the data collection process will be carried out followed by data analysis and evaluation of the quality of the data used in the study. To be able to use the AHP-SAW method properly, appropriate data standards and alternative methods are needed. The criteria used in this study include: (C1) Nature, (C2) Environment, (C3) Culture, (C4) Infrastructure, (C5) Institutional, (C6) Human Resources, (C7) Society and (C8) Accessibility. Data Preparation stage includes selecting the data to be used and the data to be published for inclusion in the DSS calculation. At this stage, data cleaning will also be carried out to repair, remove or ignore noise in the data.

At the business understanding stage, the tools, techniques or methods used in this study have been selected. Select the AHP-SAW method to determine your favorite tourism village. Before continuing with the research, provisional data can be used to design tests to prove that the method can be used. The first step is to prepare comparative data between the standards provided by the decision maker with alternative data for tourism villages. Starting from determining the pairwise comparison matrix, the AHP method is used to determine the weighted standard data. The realization of the AHP method starts from determining the pairwise comparison matrix, normalizing it, calculating the feature vector and checking the consistency of the hierarchy. In addition, the SAW method is used to normalize surrogate data. Standard weight data calculated using the AHP method and replacement data normalized using the SAW method will be used to perform weighted replacement normalization calculations so that it will produce preference values that can be ranked to determine favorite tourism villages. At Evaluation stage the test will be carried out based on the results recommended by the DSS and the performance of the method used. The calculations must be checked manually, and the results obtained when implemented in the result software must have the same value for the two to be compatible. At Implementation stage, the deployment plan will be executed based on previous assessments. If the test results show good results,

further implementation can be planned. Apart from the implementation plan, a monitoring and maintenance plan can also be planned to produce a final research report.

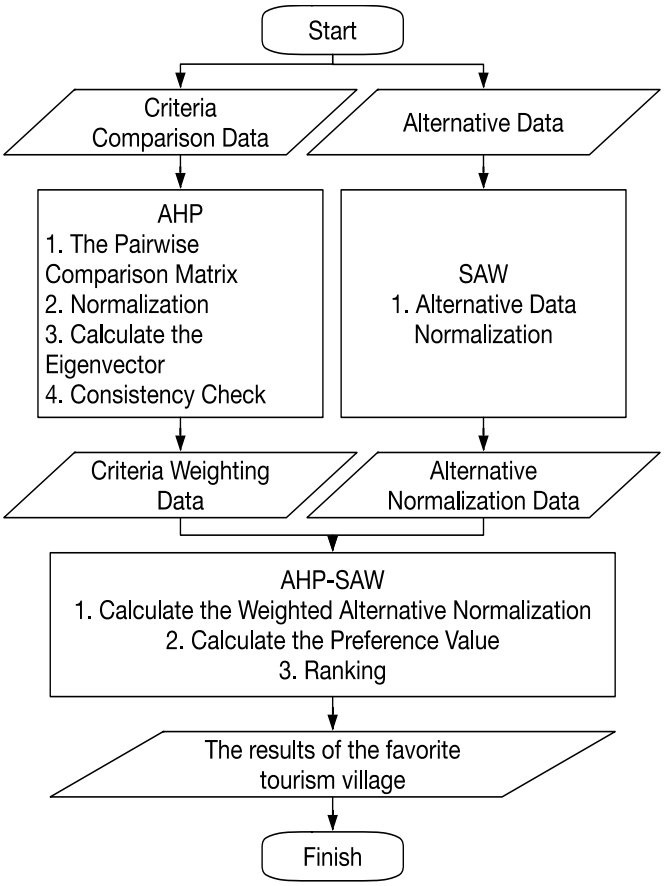

Fig 2. Research Flow Diagram Implementation of the AHP-SAW Method in the Decision Support System for Selecting the Best Tourism Village

3. Result and Discussion

This research is based on questionnaire data from tourists who have visited the tourism village. Convert the results of the questionnaire into a pairwise comparison matrix, and use the AHP method to process them to obtain weighting standards. The number of decision maker used was 3 tourists, and the number of alternative data used was 10 tourism villages.

The calculation starts with the AHP method. Tables 3 to 5 show the pairwise comparison matrix of decision maker 1, 2, and 3. Equally important weights are not shown in the table. In the table, "MDR" means quite important (moderate), "STR" means more important (strong), "DMS" means very important (demonstrated), and "EXT" means extremely important. In addition, the calculation will focus on Decision Maker 1. The steps for calculating other sources are the same as those for calculating Decision Maker 1. The standard comparison matrix for Decision Maker 1 is changed according to the Saaty scale and is shown in Table 6.

Table 3
Decision maker 1 Pairwise Comparison Matrix

Criteria	C1	C2	C3	C4	C5	C6	C7	C8
C1	-							
C2	MDR	-		MDR	MDR	MDR	MDR	
C3	MDR		-	MDR	MDR	MDR	MDR	

Criteria	C1	C2	C3	C4	C5	C6	C7	C8
C4				-	MDR			
C5					-			
C6						-		
C7							-	
C8	MDR			MDR	MDR	MDR	MDR	-

Table 4
Decision maker 2 Pairwise Comparison Matrix

Criteria	C1	C2	C3	C4	C5	C6	C7	C8
C1	-	MDR	MDR	MDR	MDR	MDR	MDR	MDR
C2		-						
C3			-					
C4				-				
C5					-			
C6						-		
C7							-	
C8								-

Table 5
Decision maker 3 Pairwise Comparison Matrix

Criteria	C1	C2	C3	C4	C5	C6	C7	C8
C1	-	MDR		MDR	MDR	MDR	MDR	MDR
C2		-						
C3	MDR	STR	-	STR	STR	STR	STR	STR
C4				-				
C5					-			
C6						-		
C7							-	
C8								-

Table 6
Decision Maker 1 Pairwise Comparison Matrix Converted By Saaty Scale

Criteria	C1	C2	C3	C4	C5	C6	C7	C8
C1	1	1/3	1/3	1	1	1	1	1/3
C2	3	1	1	3	3	3	3	1
C3	3	1	1	3	3	3	3	1
C4	1	1/3	1/3	1	3	1	1	1/3
C5	1	1/3	1/3	1/3	1	1	1	1/3
C6	1	1/3	1/3	1	1	1	1	1/3
C7	1	1/3	1/3	1	1	1	1	1/3
C8	3	1	1	3	3	3	3	1
SUM	14	4 2/3	4 2/3	13 1/3	16	14	14	4 2/3

Normalization in the AHP method is done by dividing the element values by the number of column values. The eigenvector value is generated based on the number of criteria for each row, as follows.

$C_{11} = \frac{1}{14} = 0{,}071$ $C_{12} = \frac{1/3}{4\,2/3} = 0{,}071$ $C_{13} = \frac{1/3}{4\,2/3} = 0{,}071$ $C_{14} = \frac{1}{13\,1/3} = 0{,}075$

$C_{15} = \frac{1}{16} = 0{,}063$ $C_{16} = \frac{1}{14} = 0{,}071$ $C_{17} = \frac{1}{14} = 0{,}071$ $C_{18} = \frac{1/3}{4\,2/3} = 0{,}071$

$$\text{EV C}_1 = \frac{0{,}071+0{,}071+0{,}071+0{,}075+0{,}063+0{,}071+0{,}071+0{,}071}{8}$$

$$\text{EV C}_1 = \frac{0{,}566}{8} = 0{,}0708$$

For the next standard, use the same formula to produce the eigenvector value. Eigenvectors on resource 1 for criteria C1 is 0,0708, C2 is 0,2123, C3 is 0,2123, C4 is 0,0864, C5 is 0,0645, C6 is 0,0708, C7 is 0,0708 and C8 is 0,2123. After getting the eigenvector for each criterion, λmax can be calculated

from the pairwise comparison matrix multiplied by the eigenvector. Each product yield is divided by the feature vector, and the average value is λmax. Use the following steps to determine the λmax of the resource person 1.

$$\lambda = \begin{bmatrix} 1{,}00 & 0{,}33 & 0{,}33 & 1{,}00 & 1{,}00 & 1{,}00 & 1{,}00 & 0{,}33 \\ 3{,}00 & 1{,}00 & 1{,}00 & 3{,}00 & 3{,}00 & 3{,}00 & 3{,}00 & 1{,}00 \\ 3{,}00 & 1{,}00 & 1{,}00 & 3{,}00 & 3{,}00 & 3{,}00 & 3{,}00 & 1{,}00 \\ 1{,}00 & 0{,}33 & 0{,}33 & 1{,}00 & 3{,}00 & 1{,}00 & 1{,}00 & 0{,}33 \\ 1{,}00 & 0{,}33 & 0{,}33 & 0{,}33 & 1{,}00 & 1{,}00 & 1{,}00 & 0{,}33 \\ 1{,}00 & 0{,}33 & 0{,}33 & 1{,}00 & 1{,}00 & 1{,}00 & 1{,}00 & 0{,}33 \\ 1{,}00 & 0{,}33 & 0{,}33 & 1{,}00 & 1{,}00 & 1{,}00 & 1{,}00 & 0{,}33 \\ 3{,}00 & 1{,}00 & 1{,}00 & 3{,}00 & 3{,}00 & 3{,}00 & 3{,}00 & 1{,}00 \end{bmatrix} \begin{bmatrix} 0{,}0708 \\ 0{,}2123 \\ 0{,}2123 \\ 0{,}0864 \\ 0{,}0645 \\ 0{,}0708 \\ 0{,}0708 \\ 0{,}2123 \end{bmatrix} = \begin{bmatrix} 0{,}5754 \\ 1{,}7263 \\ 1{,}7263 \\ 0{,}7045 \\ 0{,}5179 \\ 0{,}5754 \\ 0{,}5754 \\ 1{,}7263 \end{bmatrix}$$

$$\lambda_{max} = \left(\frac{0{,}5754}{0{,}0708} + \frac{1{,}7263}{0{,}2123} + \frac{1{,}7263}{0{,}2123} + \frac{0{,}7045}{0{,}0864} + \frac{0{,}5179}{0{,}0645} + \frac{0{,}5754}{0{,}0708} + \frac{0{,}5754}{0{,}0708} + \frac{1{,}7263}{0{,}2123}\right)/8$$

$$\lambda_{max} = \frac{(8{,}1325+8{,}1325+8{,}1325+8{,}1550+8{,}0277+8{,}1325+8{,}1325+8{,}1325)}{8}$$

$$\lambda_{max} = 8{,}1222$$

After getting λmax, the following steps can be used to calculate the decision maker 1 consistency index.

$$CI = \frac{(\lambda_{max} - n)}{(n-1)} = \frac{(8{,}1222-8)}{(8-1)} = \frac{0{,}1222}{7} = 0{,}0175$$

After obtaining the CI, then the consistency ratio can be calculated for 1. Based on the Alonso-Lamata RI Values, considering the number of criteria is 8, the IR used is 1.4056. CR can be calculated using the following steps.

$$CR = \frac{CI}{IR} = \frac{0{,}0175}{1{,}4056} = 0{,}0124$$

Because CR is less than 0.1, the hierarchy is considered consistent, so the calculation is correct and can be used as a standard weight. The same steps as resource 1 are also used to calculate the matrix of comparison for all decision maker to get the eigenvector value. To determine the weighted average of all decision maker, the geometric mean calculation is carried out based on the weighted criteria for all decision maker, and the results are presented in Table 7. Equal to 1, the standard weighting of the geometric mean results of all decision maker must be normalized.

Table 7
Weighted Criteria By The Three Speakers And The Geometric Mean

Criteria	DM 1 EV	DM 2 EV	DM 3 EV	EV Geometric Mean	Normalized EV Geometric Mean
C1	0,0708	0,3000	0,1980	0,1614	0,1772
C2	0,2123	0,1000	0,0704	0,1143	0,1255
C3	0,2123	0,1000	0,3797	0,2005	0,2202
C4	0,0864	0,1000	0,0704	0,0847	0,0930
C5	0,0645	0,1000	0,0704	0,0769	0,0844
C6	0,0708	0,1000	0,0704	0,0793	0,0870
C7	0,0708	0,1000	0,0704	0,0793	0,0870
C8	0,2123	0,1000	0,0704	0,1143	0,1255
SUM	1	1	1	0,9106	1

After getting the standard weighted results, continue to use the SAW method to generate priority values and ratings. The SAW method starts from standardization of alternatives, calculating weighted alternative normalization, calculating preference values and ranking. Table 8 lists tourism village data that will be used to calculate preference values.

Table 8.
Tourism Village Alternative Data

Alternative ID	Alternative	C1	C2	C3	C4	C5	C6	C7	C8
DW-01	Plaga	36	29	56	18	23	16	23	11
DW-02	Penglipuran	39	31	59	19	20	16	22	8
DW-03	Kintamani	33	28	61	19	17	15	21	9
DW-04	Pemuteran	37	28	60	18	21	15	23	12
DW-05	Tegallalang	36	32	58	19	17	14	26	7
DW-06	Tenganan	35	34	55	19	22	15	20	9
DW-07	Sibetan	36	27	62	15	24	15	24	7
DW-08	Besakih	38	32	59	19	20	16	23	8
DW-09	Lembongan	37	22	64	17	23	16	23	9
DW-10	Jatiluwih	38	27	57	17	23	16	23	11
	MAX	39	34	64	19	24	16	26	12

Based on predetermined replacement data, the following calculation shows an example using the following method to calculate the normalized replacement value in Plaga Tourism Village using SAW:

$r_{11} = \frac{36}{39} = 0{,}923;$ $r_{12} = \frac{29}{34} = 0{,}853;$ $r_{13} = \frac{56}{64} = 0{,}875;$ $r_{14} = \frac{18}{19} = 0{,}947;$

$r_{15} = \frac{23}{24} = 0{,}958;$ $r_{16} = \frac{16}{16} = 1{,}000;$ $r_{17} = \frac{23}{26} = 0{,}885;$ $r_{18} = \frac{11}{12} = 0{,}917;$

For the next alternative, you can use the same formula to generate the alternative normalized values shown in Table 9.

Table 9.
Tourism Village Alternative Normalized Values Data

Alternative ID	Alternative	C1	C2	C3	C4	C5	C6	C7	C8
DW-01	Plaga	0,923	0,853	0,875	0,947	0,958	1,000	0,885	0,917
DW-02	Penglipuran	1,000	0,912	0,922	1,000	0,833	1,000	0,846	0,667
DW-03	Kintamani	0,846	0,824	0,953	1,000	0,708	0,938	0,808	0,750
DW-04	Pemuteran	0,949	0,824	0,938	0,947	0,875	0,938	0,885	1,000
DW-05	Tegallalang	0,923	0,941	0,906	1,000	0,708	0,875	1,000	0,583
DW-06	Tenganan	0,897	1,000	0,859	1,000	0,917	0,938	0,769	0,750
DW-07	Sibetan	0,923	0,794	0,969	0,789	1,000	0,938	0,923	0,583
DW-08	Besakih	0,974	0,941	0,922	1,000	0,833	1,000	0,885	0,667
DW-09	Lembongan	0,949	0,647	1,000	0,895	0,958	1,000	0,885	0,750
DW-10	Jatiluwih	0,974	0,794	0,891	0,895	0,958	1,000	0,885	0,917

After getting the alternative normalization value, it is continued with the calculation of the preference value, by adding all the weighted alternative normalizations, where the criteria weights are generated in the AHP method with the alternative normalized values in the SAW method. An example of calculating the preference value using AHP-SAW in alternative 1 is shown in the following calculation:

$V_1 = \sum[(0{,}1772 \times 0{,}923); (0{,}1255 \times 0{,}853); (0{,}2202 \times 0{,}875); (0{,}0930 \times 0{,}947); (0{,}0844 \times 0{,}958); (0{,}0870 \times 1{,}000); (0{,}0870 \times 0{,}885); (0{,}1255 \times 0{,}917)$

$V_1 = \sum(0{,}164; 0{,}107; 0{,}193; 0{,}088; 0{,}081; 0{,}087; 0{,}077; 0{,}115) = 0{,}9115$

For the next alternative, use the same formula to produce the preference and ranking values shown in table 10, as follows:

Table 10
Tourism Village Preference Value and Ranking

No	Alternative ID	Alternative	Preference Value	Ranking
1	DW-01	Plaga	0,9115	3rd Place
2	DW-02	Penglipuran	0,9024	5th Place
3	DW-03	Kintamani	0,8621	10th Place
4	DW-04	Pemuteran	0,9241	1st Place
5	DW-05	Tegallalang	0,8705	8th Place

No	Alternative ID	Alternative	Preference Value	Ranking
6	DW-06	Tenganan	0,8869	7th Place
7	DW-07	Sibetan	0,8696	9th Place
8	DW-08	Besakih	0,9049	4th Place
9	DW-09	Lembongan	0,8919	6th Place
10	DW-10	Jatiluwih	0,9117	2nd Place

Based on previous calculations carried out in 10 tourism villages, it can be seen that Pemuteran is the most popular tourism village for tourists. The second and third place winners were Jatiluwih Village and Plaga Village, respectively. The results of the ranking of tourism villages are closely related to the standard weights given by the decision maker. The weight of the speaker focuses on the cultural standards (C3), then nature (C1) environment (C2) and accessibility (C8), these standards have attracted great attention from tourists. Pemuteran Village is one of the most popular tourism villages, its cultural value is not as high as other tourism villages, but compared to other tourism villages other supporting factors such as nature, environment and the accessibility are relatively high. This makes Pemuteran tourism village better than other tourism villages. The Preference Value of Tourism Village using AHP-SAW can be seen at Figure 3.

The results of manual calculations using AHP-SAW to determine favorite tourism villages have also been applied to web-based software, and the results are in accordance with manual calculations previously tested with Microsoft Excel. Figure 2 shows the implementation AHP using software, including pairwise comparison using AHP, normalization and eigen vector calculation. Figure 3 shows the implementation SAW using software, including tourism village data values and tourism village ranking using AHP-SAW.

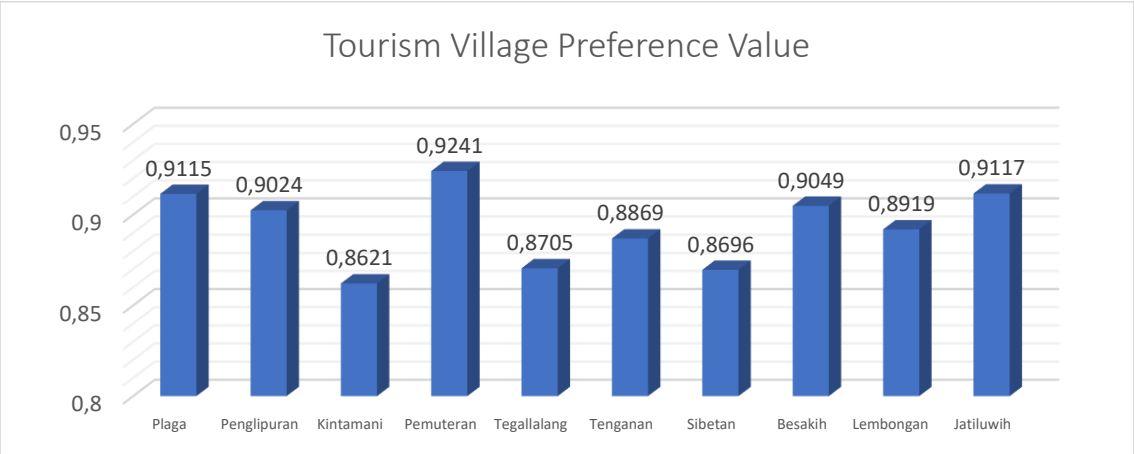

Fig. 3. Preference Value of Tourism Village using AHP-SAW

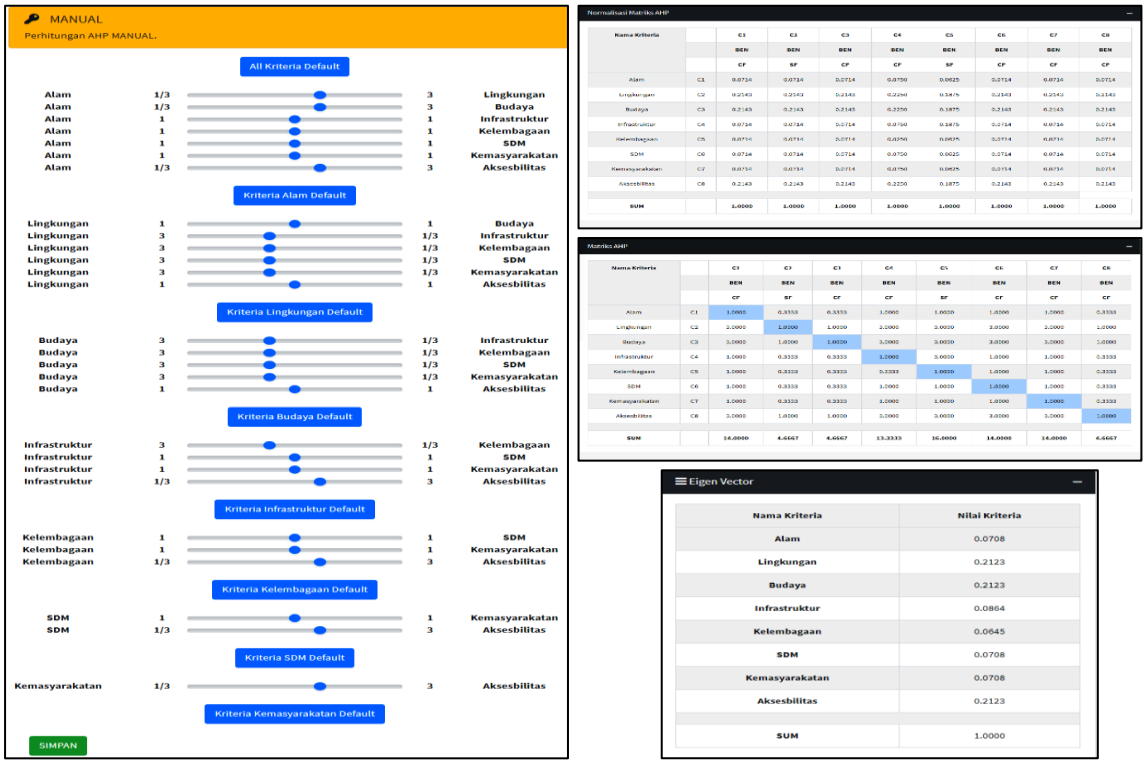

Fig. 4. AHP Implementation on Software

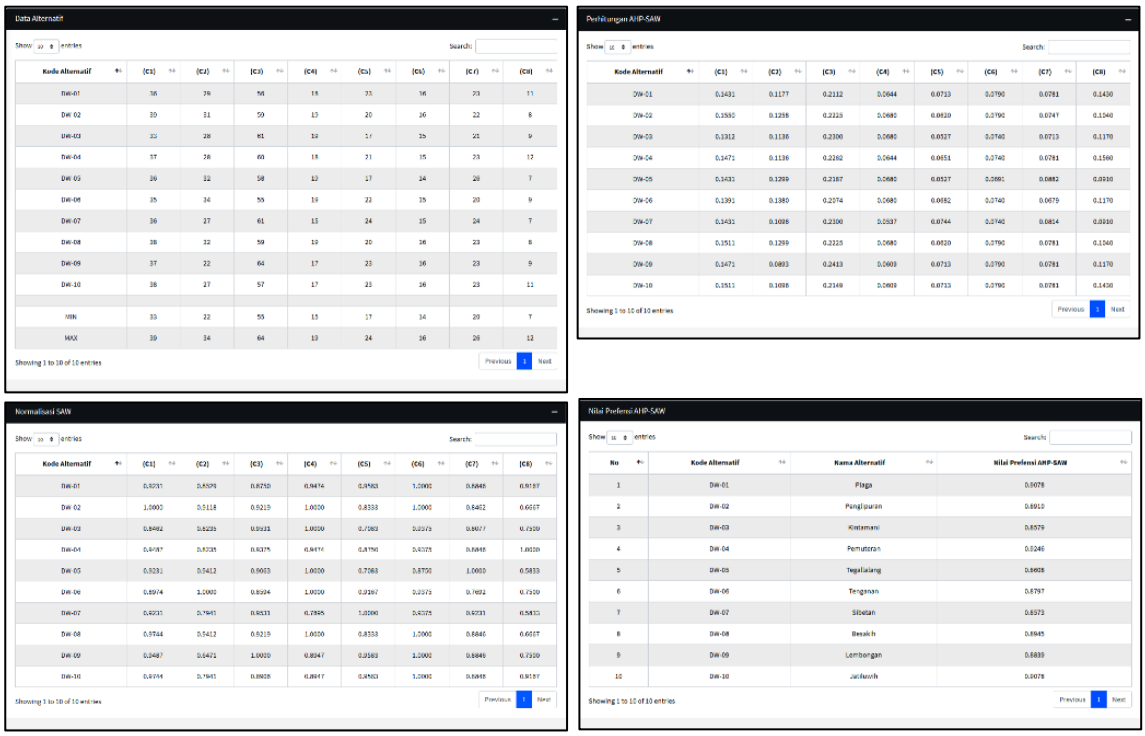

Fig. 5. SAW Implementation on Software

4. Conclusion

Through DSS research on AHP- SAW choosing favorite tourism villages, it can be concluded that the AHP-SAW method can be used to determine favorite tourism villages. This manual DSS calculation process can be implemented in web-based software. DSS employs 3 tourists as decision maker. There are 10 alternative tourism villages tested using AHP- SAW, and the tourism villages produced by Pemuteran are the most popular tourism villages. Pemuteran Tourism Village obtained a score of 0.9241. Jatiluwih Tourism Village obtained a score of 0.9117 in second place; Plaga Tourism Village obtained a score of 0.9115 in third place. The preference value of each alternative has a very small difference. The main selection criteria for favorite tourism villages are cultural criteria, followed by nature, environment and accessibility criteria. It is hoped that future studies can use more alternatives, standard statistical testing, more methods and more objective evaluation. The results of this study are expected to help manage tourism villages, so that traditional media and social media can be used to promote and market tourist destinations with better coverage and quality than before.

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