Decision support system for volunteer selection for archipelago marine volunteers (RAPALA) using the profile matching method

Hozairi [a,1,*], Juhairiyah [a,2], Masdukil Makruf [a,3], Syariful Alim [b,4]

[a] Madura Islamic University, Jl. Miftahul Ulum Bettet Islamic Boarding School, Pamekasan, 69317, Indonesia

[b] Bhayangkara University Surabaya, Jl. Ahmad Yani Frontage Road Ahmad Yani No.114, Surabaya and 60231, Indonesia

[1] dr.hozairi@gmail.com; [2] juhairiyahdenpas@gmail.com; [3] masdukil.makruf@gmail.com; [4] syalihbara@gmail.com

* corresponding author

ARTICLE INFO

ABSTRACT

This study uses the profile matching method to develop a Decision Support System (DSS) for selecting candidates for Archipelago Sea Rangers Volunteers (RAPALA). Bakamla RI, as an institution responsible for maritime security in Indonesian territorial waters, requires qualified prospective RAPALA volunteers with the appropriate competence to protect the archipelago's seas, which are increasingly threatened. In this study, a decision support system was developed to compare prospective volunteers' profiles with predetermined criteria. This system aims to improve efficiency and accuracy in the selection process for volunteer candidates and strengthen selection criteria and methods based on appropriate profiles. The profile matching method is used to create a decision support system. Profiles of prospective volunteers are assessed based on factors such as intelligence, work attitude, behavior, and domicile. This study shows that the RAPALA-1 candidate is ranked first with a score of 4.76, the RAPALA-2 candidate is ranked second with a score of 4.49, and the RAPALA-3 candidate is ranked third with a score of 4.26. It is hoped that with this decision-support system, the selection process for RAPALA volunteer candidates can be carried out more efficiently and objectively. The selected volunteer candidates are expected to have the right skills and motivation to maintain the security and preservation of the archipelago's seas. This will increase the security and sustainability of marine resources in Indonesia.

1. Introduction

The Indonesian government established BAKAMLA RI to regulate and supervise maritime security in Indonesian waters. The primary mission of BAKAMLA RI is to coordinate patrols carried out by twelve agencies with jurisdiction in Indonesian waters and involve the community in maintaining maritime security by establishing Volunteers to Protect the Archipelago (RAPALA).

Reliable and experienced volunteers are needed to preserve the archipelago's seas, which are increasingly threatened by human activities that damage marine ecosystems. Thus, the procedure for selecting candidates for Archipelago Sea Volunteers (RAPALA) has met the requirements of BAKAMLA. A decision-support system is needed to facilitate this procedure [1].

The objectives of the study, entitled "Decision Support System for Selection of Archipelagic Marine Volunteer Candidates (RAPALA) Using the Profile Matching Method [2]," are as follows: (a) Increase the efficiency and effectiveness of the selection process; (b) Minimize errors in selection; (c) Choose suitable volunteer candidates; (d) Increase the accuracy of the selection; and (e) Increase the safety and sustainability of the sea. This decision support system uses the profile matching method to

compare the profiles of prospective volunteers with predetermined criteria [3]. This is intended to assist in selecting potential volunteers with the best qualifications and potential to join the Indonesian Marine Guard. With this decision support system [4], the volunteer selection process is hoped to be more objective and efficient. Those selected will have the necessary skills and motivation to ensure the safety and sustainability of the archipelago's waters.

Based on previous research, an analysis has been carried out on customers applying for public housing loans using the profile-matching method. The results of the analysis of customers using the profile matching method recommended that customers eligible to be given public housing loans obtain the total value of the eligibility aspect above 2.7 billion. The application of the profile matching method in determining the recipients of the Bidikmisi Scholarship resulted in five people being eligible to receive scholarships based on the ranking criteria set by the government. Implementation of the profile matching method in the Decision Support System for selecting recipients of direct cash assistance and research results show a success rate of 99.5% from the results of the analysis of calculating criteria with Profile Matching. Applying the profile-matching method in vegetable cultivation helps farmers make the right decisions based on specific criteria. Analysis and design of decision support systems for determining promotion at PT. XYZ uses the profile matching method and produces three employees with the highest scores who are entitled to be promoted, namely employees with respective scores of 4.81, 4.62, and 4.49. Analysis of the Decision Support System in determining scholarship acceptance uses the profile matching method at the Bintan Cakrawala Campus Tourism Polytechnic to assist the decision-making process for scholarship recipients.

With the availability of a decision support system (DSS) [5] that allows the selection of Archipelago Sea Ranger Volunteers (RAPALA) using the profile matching method, it is hoped that the organization will be able to increase the efficiency and effectiveness of the sea guard volunteer selection process. The DSS profile matching method [6] allows comparisons between the profiles of volunteer candidates with predetermined criteria [7] so that volunteer candidates who best suit the organization's needs can be selected. This structured and measurable selection [8] procedure will help ensure that the volunteers have the necessary skills, knowledge, and motivation to become marine guardians of the archipelago. Therefore, this research is fundamental to be carried out to select candidates for Archipelago Sea Guard Volunteers so that it will significantly contribute to developing an information system for selecting [9] Archipelago Sea Guard Volunteers that are on target.

2. Method

The profile matching method, or profile matching, is often used as a mechanism in decision-making by assuming an ideal level of predictor variable [10] that should be met by the subject studied, not just a minimum level to be met or passed [11]. The first step in the profile matching process is to select the required criteria and provide an objective value for each aspect [12]. Furthermore, a person's ability is compared with the qualifications set to find the GAP [13], with the value weight increasing along with the smaller GAP value [14]. Profile matching is comparing the actual data value of a profile to be assessed with the expected profile value so that differences in competence (also known as gaps) can be identified [15]. The smaller the resulting gap, the greater the weighted value, which means the individual has a greater chance of being recommended as a volunteer for the Archipelago's Sea Rangers (RAPALA). The following are several stages and calculation formulations using the profile-matching method [16] :

- Determine the aspects, attributes, and targets used for evaluating RAPALA candidates using the ordinal scale as show in Table 1 [17].

Table.1 Ordinal Scale

1	Very less
2	Not enough
3	Enough
4	Good
5	Very good

- Competency Gap Mapping

    The GAP formula is as follows [18] :

    $$GAP = Attribute\ Value - Target\ Value \tag{1}$$

- Weighing

    After obtaining the GAP for each attribute from the RAPALA candidate, it is given a weight following the provisions in the GAP Value Weighting Table as show Table 2. [19]:

Table.2 GAP Value Weight

Difference	Value Weight	Information
0	5.0	There is no difference.
1	4.5	Individual Competence Level 1
-1	4.0	Lack of one level of competence
2	3.5	Individual competence at two levels
-2	3.0	Lack of two levels of competence
3	2.5	Individual competence at three levels
-3	2.0	Lack of three levels of individual competence
4	1.5	Individual competence at four levels
-4	1.0	Individual competence is lacking at four levels.

- Core Factor and Secondary Factor

    After determining the weight of the gap value for each required aspect, each aspect is grouped into two groups: the core and the secondary factors [20] :

    - Core Factor : a core factor is a position's most prominent or most needed aspect or competence for optimal performance. In calculating the core factor, the following formula is used [21] :

    $$NCF = \frac{\sum NC}{\sum IC} \tag{2}$$

    Information:

    NCF = Average Core Factor

    NC   = Total value of the core factor

    IC   = Number of Core Factors

    - Secondary Facto : a secondary factor is an item or aspect not included in the core factor. These items have a lower level of importance compared to the core factors but still need to be considered in assessing the RAPALA candidate. The following formula is used [22]: A secondary factor is an item or aspect not included in the core factor to calculate the secondary factor. These items have a lower level of importance compared to the core factors but still need to be considered in assessing the RAPALA candidate. The following formula is used to calculate the secondary factor [23] :

    $$NSF = \frac{\sum NS}{\sum IS} \tag{3}$$

    Information:

    NSF = Secondary Factor Average

    NS   = Total value of the secondary factor

    IS   = Number of Secondary Factors

    - Calculate the total value of each aspect

To calculate the total value of each aspect that is expected to affect the performance of each profile, you can use the following formula [24] :

$$N = 60\% \, NC + 40\% \, NS \tag{4}$$

Information:

N = Total value of each aspect

NC = Core factor value

NS = Secondary factor

3. Results and Discussion

3.1. Process Analysis Results

- In this profile-matching method, the first step is weighing each criterion's criteria (value target). Here are the criteria [25]: Very less = 1, not enough = 2, enough = 3, good = 4, very good = 5. Table 3 contains the target value of each criterion that has been determined based on the criteria's value, where the target value becomes the benchmark for weighing gap value in the next step [26].

Table.3 Criteria and Target

Criteria	Target	Criteria	Target
Indonesian citizens	5	Obedience	5
Health	4	Seriousness	4
Non civil servants	4	Independent and Dynamic	3
Domicile	3	Influence	3
Age	3	Creative	5
Discipline	5	Reasoning and Solutions	4
Accuracy	4	Idea Ideas	3
Perseverance	4	Smart Potential	4
Persistence	3	Concentration	3
Working Speed	3	Anticipation	3
Achievement motivation	3		

Based on the results of deposits from the online registration of candidates at RAPALA, the values listed in Table 4, Table 5, Table 6, and Table 7 are obtained [27].

Table.4 Assessment of Domicile and Health Aspects

| No | Name | Domicile And Health | | | | |
		Indonesian citizens	*Health*	*Non civil servants*	*Domicile*	*Age*
1	Candidate RAPALA 1	5	4	4	3	4
2	Candidate RAPALA 2	3	4	5	3	4
3	Candidate RAPALA 3	4	4	4	4	5
4	Candidate RAPALA 4	3	4	4	3	4
5	Candidate RAPALA 5	3	4	4	3	4
6	Candidate RAPALA 6	3	2	4	4	3
7	Candidate RAPALA 7	3	3	3	4	3
8	Candidate RAPALA 8	2	2	2	4	3
9	Candidate RAPALA 9	3	4	3	5	2
10	Candidate RAPALA 10	2	2	3	3	2
11	Candidate RAPALA 11	4	5	3	2	2
	Target	5	4	4	3	3

Table.5 Assessment Of Work Attitude

No	Name	Work Attitude					
		Discipline	Accuracy	Perseverance	Persistence	Working Speed	Achievement motivation
1	Candidate RAPALA 1	5	3	3	3	3	3
2	Candidate RAPALA 2	4	4	4	3	5	3
3	Candidate RAPALA 3	3	4	3	4	3	4
4	Candidate RAPALA 4	3	4	4	4	4	4
5	Candidate RAPALA 5	5	3	3	4	3	2
6	Candidate RAPALA 6	4	2	2	5	2	2
7	Candidate RAPALA 7	4	4	3	3	3	4
8	Candidate RAPALA 8	3	2	3	3	2	3
9	Candidate RAPALA 9	2	2	3	4	2	5
10	Candidate RAPALA 10	3	2	3	4	3	2
11	Candidate RAPALA 11	3	3	3	2	5	2
	Target	5	4	4	3	3	3

Table.6 Aspects of Behavior

No	Name	Behavior			
		Obedience	Seriousness	Independent and Dynamic	Influence
1	Candidate RAPALA 1	5	4	3	2
2	Candidate RAPALA 2	4	3	3	3
3	Candidate RAPALA 3	5	2	3	4
4	Candidate RAPALA 4	3	3	3	2
5	Candidate RAPALA 5	2	4	2	3
6	Candidate RAPALA 6	2	3	2	2
7	Candidate RAPALA 7	3	4	3	3
8	Candidate RAPALA 8	2	3	3	3
9	Candidate RAPALA 9	3	2	2	4
10	Candidate RAPALA 10	3	4	3	5
11	Candidate RAPALA 11	4	3	4	3
	Target	5	4	3	3

Table.7   Assessment of Intelligence Aspects

No	Name	Intelligence					
		Creative	*Reasoning and Solutions*	*Idea Ideas*	*Smart Potential*	*Concentration*	*Anticipation*
1	Candidate RAPALA 1	5	4	4	4	4	4
2	Candidate RAPALA 2	4	4	4	5	4	4
3	Candidate RAPALA 3	3	4	2	3	4	4
4	Candidate RAPALA 4	3	3	3	3	2	2
5	Candidate RAPALA 5	3	5	3	2	2	2
6	Candidate RAPALA 6	4	3	2	3	2	2
7	Candidate RAPALA 7	3	2	5	2	2	3
8	Candidate RAPALA 8	4	3	2	4	3	2
9	Candidate RAPALA 9	3	3	3	3	3	2
10	Candidate RAPALA 10	2	3	2	3	2	3
11	Candidate RAPALA 11	2	3	2	2	3	3
	Target	5	4	3	4	3	3

- Calculating the GAP value

Next, the GAP calculation is performed [28]. The GAP value is calculated by taking the difference between the value of each aspect and the standard value that has been set. Standard or ideal values are based on the level of importance of each aspect of the criteria [29]. The more critical the aspect, the higher the value given. Calculating the GAP value can be seen in Table 8, Table 9, Table 10, and Table 11.

Table.8   GAP Domicile and Health

No	Name	Domicile And Health				
		Indonesian citizens	*Health*	*Non civil servants*	*Domicile*	*Age*
1	Candidate RAPALA 1	0	0	0	0	1
2	Candidate RAPALA 2	-2	0	1	0	1
3	Candidate RAPALA 3	-1	0	0	1	2
4	Candidate RAPALA 4	-2	0	0	0	1
5	Candidate RAPALA 5	-2	0	0	0	1
6	Candidate RAPALA 6	-2	-2	0	1	0
7	Candidate RAPALA 7	-2	-1	-1	1	0
8	Candidate RAPALA 8	-3	-2	-2	1	0
9	Candidate RAPALA 9	-2	0	-1	2	-1
10	Candidate RAPALA 10	-3	-2	-1	0	-1
11	Candidate RAPALA 11	-1	1	-1	-1	-1

Table.9 GAP of Work Attitude

No	Name	Work Attitude					
		Discipline	Accuracy	Perseverance	Persistence	Working Speed	Achievement motivation
1	Candidate RAPALA 1	0	-1	-1	0	0	0
2	Candidate RAPALA 2	-1	0	0	0	2	0
3	Candidate RAPALA 3	-2	0	-1	1	0	1
4	Candidate RAPALA 4	-2	0	0	1	1	1
5	Candidate RAPALA 5	0	-1	-1	1	0	-1
6	Candidate RAPALA 6	-1	-2	-2	2	-1	-1
7	Candidate RAPALA 7	-1	0	-1	0	0	1
8	Candidate RAPALA 8	-2	-2	-1	0	-1	0
9	Candidate RAPALA 9	-3	-2	-1	1	-1	2
10	Candidate RAPALA 10	-2	-2	-1	1	0	-1
11	Candidate RAPALA 11	-2	-1	-1	-1	2	-1

Table.10 GAP Behavior

No	Name	Behavior			
		Obedience	Seriousness	Independent and Dynamic	Influence
1	Candidate RAPALA 1	0	0	0	-1
2	Candidate RAPALA 2	-1	-1	0	0
3	Candidate RAPALA 3	0	-2	0	1
4	Candidate RAPALA 4	-2	-1	0	-1
5	Candidate RAPALA 5	-3	0	-1	0
6	Candidate RAPALA 6	-3	-1	-1	-1
7	Candidate RAPALA 7	-2	0	0	0
8	Candidate RAPALA 8	-3	-1	0	0
9	Candidate RAPALA 9	-2	-2	-1	1
10	Candidate RAPALA 10	-2	0	0	2
11	Candidate RAPALA 11	-1	-1	1	0

Table.11 GAP of Intelligence

No	Name	Intelligence					
		Creative	*Reasoning and Solutions*	*Idea Ideas*	*Smart Potential*	*Concentration*	*Anticipation*
1	Candidate RAPALA 1	0	0	1	0	1	1
2	Candidate RAPALA 2	-1	0	1	1	1	1
3	Candidate RAPALA 3	-2	0	-1	-1	1	1
4	Candidate RAPALA 4	-2	-1	0	-1	-1	-1
5	Candidate RAPALA 5	-2	1	0	-2	-1	-1
6	Candidate RAPALA 6	-1	-1	-1	-1	-1	-1
7	Candidate RAPALA 7	-2	-2	2	-2	-1	0
8	Candidate RAPALA 8	-1	-1	-1	0	0	-1
9	Candidate RAPALA 9	-2	-1	0	-1	0	-1
10	Candidate RAPALA 10	-3	-1	-1	-1	-1	0
11	Candidate RAPALA 11	-3	-1	-1	-2	0	0

The GAP value can be determined using the GAP weight value data [30], as seen in the RAPALA 2 candidate data, where the data for foreigners has an attribute value of 3, while the target value for foreigners is 5, and the difference between the attribute value and the target value is -2. Based on the gap weight value data, the difference with the result of -2 weights 3, meaning a lack of two levels of competence.

- Calculate the value of the weight

After calculating the GAP value, the next step is calculating the weight value for each aspect. The calculation of the value weight is shown in Table 12, Table 13, Table 14, and Table 15.

Table.12 Weight Domicile And Health

No	Name	Domicile And Health				
		Indonesian citizens	*Health*	*Non civil servants*	*Domicile*	*Age*
1	Candidate RAPALA 1	5	5	5	5	4,5
2	Candidate RAPALA 2	3	5	4,5	5	4,5
3	Candidate RAPALA 3	4	5	5	4,5	3,5
4	Candidate RAPALA 4	3	5	5	5	4,5
5	Candidate RAPALA 5	3	5	5	5	4,5
6	Candidate RAPALA 6	3	3	5	4,5	5
7	Candidate RAPALA 7	3	4	4	4,5	5
8	Candidate RAPALA 8	2	3	3	4,5	5
9	Candidate RAPALA 9	3	5	4	3,5	4
10	Candidate RAPALA 10	2	3	4	5	4
11	Candidate RAPALA 11	4	4,5	4	4	4

Table.13 Weight Work Attitude

No	Name	Work Attitude					
		Discipline	Accuracy	Perseverance	Persistence	Working Speed	Achievement motivation
1	Candidate RAPALA 1	5	4	4	5	5	5
2	Candidate RAPALA 2	4	5	5	5	3,5	5
3	Candidate RAPALA 3	3	5	4	4,5	5	4,5
4	Candidate RAPALA 4	3	5	5	4,5	4,5	4,5
5	Candidate RAPALA 5	5	4	4	4,5	5	4
6	Candidate RAPALA 6	4	3	3	3,5	4	4
7	Candidate RAPALA 7	4	5	4	5	5	4,5
8	Candidate RAPALA 8	3	3	4	5	4	5
9	Candidate RAPALA 9	2	3	4	4,5	4	3,5
10	Candidate RAPALA 10	3	3	4	4,5	5	4
11	Candidate RAPALA 11	3	4	4	4	3,5	4

Table.14 Weight Behavior

No	Name	Behavior			
		Obedience	Seriousness	Independent and Dynamic	Influence
1	Candidate RAPALA 1	5	5	5	4
2	Candidate RAPALA 2	4	4	5	5
3	Candidate RAPALA 3	5	3	5	4,5
4	Candidate RAPALA 4	3	4	5	4
5	Candidate RAPALA 5	2	5	4	5
6	Candidate RAPALA 6	2	4	4	4
7	Candidate RAPALA 7	3	5	5	5
8	Candidate RAPALA 8	2	4	5	5
9	Candidate RAPALA 9	3	3	4	4,5
10	Candidate RAPALA 10	3	5	5	3,5
11	Candidate RAPALA 11	4	4	4,5	5

Table.15 Weight Intelligence

No	Name	Intelligence					
		Creative	*Reasoning and Solutions*	*Idea Ideas*	*Smart Potential*	*Concentration*	*Anticipation*
1	Candidate RAPALA 1	5	5	4,5	5	4,5	4,5
2	Candidate RAPALA 2	4	5	4,5	4,5	4,5	4,5
3	Candidate RAPALA 3	3	5	4	4	4,5	4,5
4	Candidate RAPALA 4	3	4	5	4	4	4
5	Candidate RAPALA 5	3	4,5	5	3	4	4
6	Candidate RAPALA 6	4	4	4	4	4	4
7	Candidate RAPALA 7	3	3	3,5	3	4	5
8	Candidate RAPALA 8	4	4	4	5	5	4
9	Candidate RAPALA 9	3	4	5	4	5	4
10	Candidate RAPALA 10	2	4	4	4	4	5
11	Candidate RAPALA 11	2	4	4	3	5	5

- Calculate the core factor and secondary factor

  After determining the weight of the gap value for each aspect, the next step is to group the criteria into two aspects, namely the "core factor" and the "secondary factor." After separating into two groups, calculations are then performed to calculate the "core factor" value using the following formula:

$$NCF = \frac{5+5+5}{3} \tag{5}$$

$$= \frac{15}{3} = 5 \tag{6}$$

The secondary factor calculation is as follows :

$$NSF = \frac{5+4,5}{2} \tag{7}$$

$$= \frac{9,5}{2} = 4,75 \tag{8}$$

The results of calculating the "core factor" and "secondary factor" using the two formulas above can be seen in Table 16 below:

Table.16 Core Factor and Secondary Factor

No	Name	Domicile And Health		Work Attitude		Behavior		Intelligence	
		NCF	NSF	NCF	NSF	NCF	NSF	NCF	NSF
1	Candidate RAPALA 1	5	4,75	4,3333	5	5	4,5	5	4,5
2	Candidate RAPALA 2	4,1667	4,75	4,6667	4,5	4	5	4,5	4,5
3	Candidate RAPALA 3	4,6667	4	4	4,6667	4	4,75	4	4,3333
4	Candidate RAPALA 4	4,3333	4,75	4,3333	4,5	3,5	4,5	3,6667	4,3333
5	Candidate RAPALA 5	4,3333	4,75	4,3333	4,5	3,5	4,5	3,5	4,3333
6	Candidate RAPALA 6	3,6667	4,75	3,3333	3,8333	3	4	4	4
7	Candidate RAPALA 7	3,6667	4,75	4,3333	4,8333	4	5	3	4,1667
8	Candidate RAPALA 8	2,6667	4,75	3,3333	4,6667	3	5	4,3333	4,3333
9	Candidate RAPALA 9	4	3,75	3	4	3	4,25	3,6667	4,6667
10	Candidate RAPALA 10	3	4,5	3,3333	4,5	4	4,25	3,3333	4,3333
11	Candidate RAPALA 11	4,1667	4	3,6667	3,8333	4	4,75	3	4,6667

- Calculate the total value

From the calculation of each criterion of the four aspects above, the total value is calculated based on the percentage of core and secondary factors expected to influence the RAPALA selection. The following is the calculation of the total score for the domicile and health aspects.

$$N = (60\% \ x \ 5) + (40\% \ x \ 4,75)$$

$$= 2,5998 + 1,9$$

$$= 4,5 \tag{9}$$

The same calculations are performed for the aspects of domicile and health to calculate the total score for the aspects of work attitude, behavior, and intelligence as show in Table 17 :

Table.17 The Total Value

No	Name	Domicile And Health	Work Attitude	Behavior	Intelligence
		N	N	N	N
1	Candidate RAPALA 1	4,9	4,6	4,8	4,8
2	Candidate RAPALA 2	4,4	4,6	4,4	4,5
3	Candidate RAPALA 3	4,4	4,2667	4,3	4,1333
4	Candidate RAPALA 4	4,5	4,4	3,9	3,9333
5	Candidate RAPALA 5	4,5	4,4	3,9	3,8333
6	Candidate RAPALA 6	4,1	3,5333	3,4	4
7	Candidate RAPALA 7	4,1	4,5333	4,4	3,4667
8	Candidate RAPALA 8	3,5	3,8667	3,8	4,3333
9	Candidate RAPALA 9	3,9	3,4	3,5	4,0667
10	Candidate RAPALA 10	3,6	3,8	4,1	3,7333
11	Candidate RAPALA 11	4,1	3,7333	4,3	3,6667

The overall value is computed based on the percentage of core factors and secondary variables that are projected to impact each profile's performance, using the results of the calculations for each of the criteria above:

- Calculation of results and ranking

The result of the profile matching process is ranking the RAPALA selection. The determination of ranking is based on the results of calculations with the percentage value of each aspect: domicile and health by 20%, work attitude by 30%, behavior by 20%, and intelligence by 20%. The following is the ranking calculation based on this percentage and The result of the RAPALA candidate show as Table 18:

$Candidate\ RAPALA\ 1 = (20\%\ x\ 4,9) + (30\%\ x\ 4,6) + (20\%\ x\ 4,8) + (30\%\ x\ 4,8)$

$= 4,76$ (10)

Table.18 The result of the RAPALA candidate selection

No	Name	Results	Rank
1	Candidate RAPALA 1	4,76	1
2	Candidate RAPALA 2	4,49	2
3	Candidate RAPALA 3	4,26	3
4	Candidate RAPALA 4	4,18	4
5	Candidate RAPALA 5	4,15	5
6	Candidate RAPALA 6	3,76	10
7	Candidate RAPALA 7	4,1	6
8	Candidate RAPALA 8	3,92	7
9	Candidate RAPALA 9	3,72	11
10	Candidate RAPALA 10	3,8	9
11	Candidate RAPALA 11	3,9	8

So, from the table, it can be seen that the RAPALA candidate with the highest score is the RAPALA 1 candidate, who has a final score of 4.76.

3.2. Implementation Results

- Calcultaion Page

    Fig. 1 displays the value of the criteria for each aspect of the RAPALA candidate assessment that has been inputted.

Fig. 1. Display of criteria values for each aspect

Fig. 2 shows the results of the GAP calculation for each RAPALA candidate.

Fig. 2. GAP calculation

Fig. 3 shows the weighting results for each RAPALA candidate after obtaining the GAP value.

Fig. 3. Weighthing

Fig. 4 displays the calculated values of the core factor, secondary factor, and total score for each RAPALA candidate.

Nama	WNI	Kesehatan	Non PNS	Domisili	Usia	NCF	NSF	N
calon RAPALA 1	5	5	5	5	4.5	5	4.75	4.9
Calon RAPALA 2	3	5	4.5	5	4.5	4.1666666667	4.75	4.4
Calon RAPALA 3	4	5	5	4.5	3.5	4.6666666667	4	4.4
Calon RAPALA 4	3	5	5	5	4.5	4.3333333333	4.75	4.5
Calon RAPALA 5	3	5	5	5	4.5	4.3333333333	4.75	4.5
Calon RAPALA 6	3	3	5	4.5	5	3.6666666667	4.75	4.1
Calon RAPALA 7	3	4	4	4.5	5	3.6666666667	4.75	4.1
Calon RAPALA 8	2	3	3	4.5	5	2.6666666667	4.75	3.5
Calon RAPALA 9	3	5	4	3.5	4	4	3.75	3.9
Calon RAPALA 10	2	3	4	5	4	3	4.5	3.6
Calon RAPALA 11	4	4.5	4	4	4	4.1666666667	4	4.1
Tipe	**Core**	**Core**	**Core**	**Secondary**	**Secondary**			

Fig. 4. Factor Calculation

Based on Fig. 5, the application's calculation to calculate the final score and give a ranking to RAPALA candidates produces the same value as the manual calculation in Table 18.

Hasil Akhir

Nama	Domisili dan Kesehatan	Sikap Kerja	Perilaku	Kecerdasan	Hasil
calon RAPALA 1	4.9	4.6	4.8	4.8	4.76
Calon RAPALA 2	4.4	4.6	4.4	4.5	4.49
Calon RAPALA 3	4.4	4.2666666666667	4.3	4.1333333333333	4.26
Calon RAPALA 4	4.5	4.4	3.9	3.9333333333333	4.18
Calon RAPALA 5	4.5	4.4	3.9	3.8333333333333	4.15
Calon RAPALA 6	4.1	3.5333333333333	3.4	4	3.76
Calon RAPALA 7	4.1	4.5333333333333	4.4	3.4666666666667	4.1
Calon RAPALA 8	3.5	3.8666666666667	3.8	4.3333333333333	3.92
Calon RAPALA 9	3.9	3.4	3.5	4.0666666666667	3.72
Calon RAPALA 10	3.6	3.8	4.1	3.7333333333333	3.8
Calon RAPALA 11	4.1	3.7333333333333	4.3	3.6666666666667	3.9

Fig. 5. The result

4. Conclusion

The construction of a system that will assist the decision-making process regarding prospective Marine Archipelago Volunteers (RAPALA) using the profile matching method helps make RAPALA selection decisions. Based on the experimental results of the study, aspects of domicile and health, work attitude, behavior, and intelligence were evaluated using the profile-matching method. The evaluation results show that the RAPALA 1 candidate is ranked first with a score of 4.76, the RAPALA 2 candidate is ranked second with a score of 4.49, and the RAPALA 3 candidate is ranked third with a score of 4.26.

Acknowledgment

References

[1]   D. S. Sihombing and A. Simangunsong, "Analysis of Health Equipment Vendor Determination of Amplas Medika Partner Hospital using Profile Matching Method," *Login J. Teknol. Komput.*, vol. 14, no. 2, pp. 47–61, 2020, [Online]. Available at: https://www.neliti.com/publications/500353/analysis-of-health-equipment-vendor-determination-of-amplas-medika-partner-hospi.

[2]   Saifulloh, "Decision Support System for Election of Madiunambassadors Using the Profile Matching Method," in *Senatik*, 2020, vol. 1, no. 2, pp. 1–11, [Online]. Available at: http://prosiding.unipma.ac.id/index.php/SENATIK/article/view/1648.

[3]   W. W. Yahya and F. Riandari, "Decision Support System in Determining the Location of Village Health Services (Puskesmas) in Pagar Merbau District Using the Profile Matching Method," *J. Intell. Decis. Support Syst.*, vol. 4, no. 4, pp. 129–139, 2021, doi: 10.35335/idss.v4i4.38.

[4]   Sumiyatun, E. Faizal, and H. Wasiati, "Analysis of Human Resouce Placement Based on Ability and Work Skills using the Profile Matching Method," *Int. J. Eng. Technol. Nat. Sci.*, vol. 1, no. 2, pp. 24–30, 2019, doi: 10.46923/ijets.v1i2.47.

[5]   E. Setyawan, M. Fairuzabadi, and P. H. Putri, "Decision Support System For Selecting Athlete Candidates In Psti Bantul Using Profile Matching," *JTH J. Technol. Heal.*, vol. 1, no. 2, pp. 119–130, 2023, doi: 10.61677/jth.v1i2.104.

[6]   A. P. Lubis, "Analysis of Profile Matching Method for Computer-Based National Assessment Proctor Selection Dss At Sdn 013863 Silo Bonto," *J. Tek. Inform.*, vol. 3, no. 1, pp. 105–112, 2022, [Online]. Available at: https://jutif.if.unsoed.ac.id/index.php/jurnal/article/view/136.

[7]   T. Ramdhany, D. Firmansyah, and Y. Aryanggara, "Operations Research : International Conference Application of the Profile Matching Method in the Selection of Field," *Oper. Res. Int. Conf. Ser.*, vol. 4, no. 1, pp. 28–40, 2023, doi: 10.47194/orics.v4i1.211.

[8]   A. S. Honggowibowo and Astika Ayuningtyas, "Determination of Tutor Rewards Using the Profile Matching Method," *Formosa J. Multidiscip. Res.*, vol. 1, no. 2, pp. 225–244, 2022, doi: 10.55927/fjmr.v1i2.564.

[9]   P. P. Hariani, "Granting Credit In Cooperatives Using Profile Matching Method," *Al'adzkiya Int. Comput. Sci. Inf. Technol. J.*, vol. 2, no. 2, pp. 164–171, 2021, [Online]. Available at: https://aladzkiyajournal.com/index.php/AIoCSIT/article/view/229.

[10]   Suma Dia Syahwani, Y. Maulita, and M. A. Syari, "Application Of The Profile Matching Method In The Selection Of New Students For Batak Karo Bridal Makeup Skills In The PKK Program," *J. Artif. Intell. Eng. Appl.*, vol. 3, no. 1, pp. 228–233, 2023, doi: 10.59934/jaiea.v3i1.293.

[11]   D. Atika Safitri and Nurahman, "Assessment of Tilawati Jilid Promotion at Darul Falah Lamandau Foundation Using the Profile Matching Method," *E-KOMTEK (Elektro-Komputer-Teknik)*, vol. 5, no. 2, pp. 150–164, 2021, [Online]. Availablea at: https://jurnal.politeknik-kebumen.ac.id/E-KOMTEK/article/view/667.

[12]   M. D. Sena and D. Maharani, "Decision Support System Determination Of The Scholarship By The Method Of Profile Matching In The Eif2c Study Course The Range Of Web-Based," in *International Conference on Social Sciences and Information Technology*, 2020, vol. 4509, pp. 291–296, [Online]. Available at: https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT/article/view/693.

[13]   Suparmadi and Santoso, "Application of Profile Matching Method in The Employee Decision Support System in PDAM Tirta Silaupisa Kisaran Web Based," in *International Conference on Social, Sciences and Information Technology*, 2020, vol. 4509, pp. 141–150, [Online]. Available at: https://jurnal.stmikroyal.ac.id/index.php/ICoSSIT/article/view/756.

[14]   I. N. O. Semadi, D. Kristomo, and B. Purnomosidi, "A Decision Model to Support the Selection of SENKOM Personnel Using the Profile Matching Method with the Capability of Cyber Security," *J. Intell. Softw. Syst.*, vol. 2, no. 2, p. 1, 2023, doi: 10.26798/jiss.v2i2.1135.

[15]   G. T. Pranoto, A. Nugroho, and A. T. Zy, "Decision Support System for Determining Department Using the Profile Matching Interpolation Method At Wikrama Vocational School, Bogor," *JISA(Jurnal Inform. dan Sains)*, vol. 6, no. 1, pp. 36–46, 2023, doi: 10.31326/jisa.v6i1.1625.

[16] M. Idham and E. Gautama, "Decision Support System for Determination of Students Prakerin Places in SMK Negeri 3 Bogor Using Profile Matching Method," *Int. J. Progress. Sci. Technol.*, vol. 22, no. 1, pp. 151–167, 2020, [Online]. Available at: https://d1wqtxts1xzle7.cloudfront.net/80379335/2016_4805_1_PB-libre.pdf.

[17] D. Juhana, A. V. Duarisah, M. A. Saputra, S. Irawan, H. M. Ramadhani, and N. Khoeruddin, "Acceptance Of New Maksa Adventure Community Members Using The Profile Matching Method," *J. TEKNOINFO*, vol. 17, no. 2, pp. 371–378, 2023, [Online]. Available at: https://ejurnal.teknokrat.ac.id/index.php/teknoinfo/article/view/2422.

[18] J. Mantik, M. Daheri, P. Adi Cakranegara, G. Al Haddar, and I. Curup, "Determination of Smart and Accurate Contest Participants at the Elementary School Level Using Profile Matching Method," *J. Mantik*, vol. 6, no. 3, pp. 2685–4236, 2022, [Online]. Available at: http://iocscience.org/ejournal/index.php/mantik/article/view/3202.

[19] I. P. Sari, F. S. Hutagalung, and B. K. Hutasuhut, "Determination of Campus Promotion Policy Strategy Applied The Profile Matching Method," *J. Comput. Sci. Inf. Technol. Telecommun. Eng.*, vol. 1, no. 1, pp. 17–23, 2020, doi: 10.30596/jcositte.v1i1.4357.

[20] S. Aisyah, W. Purba, M. Harahap, and A. M. Husein, "Application for Employee Performance Assessment Using Profile Matching Method," *SinkrOn*, vol. 4, no. 1, p. 83, 2019, doi: 10.33395/sinkron.v4i1.10225.

[21] R. I. Handayani, T. Triningsih, and M. Putri, "Decision Support System for Achieving Scholarship Selection by Using Profile Matching Method," *SinkrOn*, vol. 4, no. 2, p. 92, 2020, doi: 10.33395/sinkron.v4i2.10530.

[22] K. Mariskhana, I. D. Sintawati, W. Widiarina, and R. Rusdiansyah, "Decision Support System for increasing position of Office at PT. Gramedia Asri Media using Profile Matching Method," *SinkrOn*, vol. 5, no. 2, pp. 221–228, 2021, doi: 10.33395/sinkron.v5i2.10867.

[23] O. L. Sari, Basyaruddin, and U. Khasanah, "Building Maintenance Priority Decision Support System Using the Method Profile Matching," *ASTONJADRO*, vol. 13, no. 1, pp. 125–137, 2024, doi: 10.32832/astonjadro.v13i1.14495.

[24] N. Nandara, R. Rahman, and A. Rizaldy, "Decision Support System For Selection Of Productive At Sahabat Sampulo Foundation Using The Profile Matching Method," *J. Comput. Eng. Electron. Inf. Technol.*, vol. 2, no. 2, pp. 99–110, 2023, doi: 10.17509/coelite.v2i1.57092.

[25] A. F. Negarawan, M. U. Siregar, A. Fatwanto, and M. D. R. Wahyudi, "An Implementation of Profile Matching Method to Determine Agricultural Crops that Suit the Land," *Proc. Int. Conf. Sci. Eng. (ICSE-UIN-SUKA 2021)*, vol. 211, pp. 124–129, 2022, doi: 10.2991/aer.k.211222.020.

[26] I. M. Dwiyanto, A. S. Kristanto, M. D. Anggraeni, and J. P. Anggraeni, "Decision Support System of Employee Election Recommendation According To Personality Using Profile Matching Method," *Sci. Res. J.*, vol. VII, no. I, pp. 83–93, 2019, doi: 10.31364/scirj/v7.i1.2019.p0119608.

[27] D. Saputra, F. Akbar, Lisnawanty, Martias, and A. Rahman, "Decision Support System For Providing Customer Reward Using Profile Matching Method," *Comput. Sci. Electr. Eng.*, vol. 2, no. 1, pp. 28–37, 2021, [Online]. Available at: http://www.bcsee.org/index.php/bcsee/article/view/1142.

[28] R. S. Simbolon and H. T. Sihotang, "Decision Support System for Determination of Land Suitability of Andaliman Plants Using the Profile Matching Method in Merdeka District, Karo Regency," *J. Tek. Inform. CIT Medicom*, vol. 12, no. 2, pp. 64–71, 2020, [Online]. Available at: http://medikom.iocspublisher.org/index.php/JTI/article/view/31.

[29] N. Putra, C. Nas, Alwendi, K. Samosir, and D. Aldo, "Identification of Intelligent Participants Using Profile Matching Method (Case Study at Senior High School 1 Sungai Aur)," *J. Phys. Conf. Ser.*, vol. 1842, no. 1, 2021, doi: 10.1088/1742-6596/1842/1/012005.

[30] L. Siagian, T. Limbong, and P. Siagian, "Implementation Of Profile Matching Method For Selection Of The Best Student," *J. Suluh Pendidik.*, vol. 8, no. 1, pp. 37-42, 2020, doi: 10.36655/jsp.v8i1.176.