


DECISION SUPPORT SYSTEM APPLICATION TO DETERMINE THE BEST POLRI MEMBERS OF THE MEDAN POLRESTABES HRD USING THE MULTI FACTOR EVALUATION PROCESS (MFEP) METHOD

Fina Maulidina Alfian¹, Boni Oktaviana², Halim Maulana³
^{1,2,3}Department of Information System, University Harapan Medan, Indonesia

ABSTRACT

Information systems and computer technology are developing rapidly. more and more decision support system applications are being used to make it easier to solve problems using applications. The decision-making for the best Police man at the Medan Polrestabes, especially in human resources department, is currently still done manually. A Decision Support System Application is required for Medan Polrestabes in determining best members at National Police for Human Resources. In the Decision Support System Application to determine the best Polri members, Medan Polrestabes HR, there are five alternatives and five criteria, i.e. Mental, Spiritual, Health, Education, and Position Levels. Multifactor Evaluation Process (MFEP) algorithm method can be used in a decision support system. By using the MFEP method, each criterion that has been determined is given a weight, then each alternative is evaluated based on these consideration factors. The assessment factor is carried out with the Head of the Medan Polrestabes HR Section. The alternative with the highest score deserves to be determined as the best member of the National Police HR Medan Polrestabes. This decision support system application was developed using the waterfall method, namely by analysis, then calculating the MFEP method algorithm then do designing the system after that implementing it into the system and finally testing using blackbox. From this research, the best member of HR is Briпка Eko Wirahman who has a total evaluation weight of 4.25 using a web-based MFEP method decision support application. With this application, it has helped the Medan Polrestabes, especially the HR department, to receive information and make decisions in making the best members of the HR department. It is hoped that this application can minimize the occurrence of errors in determining members of the HR Police at the Medan Polrestabes,

Keyword : Decision Support System, MFEP, HR Police

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Corresponding Author:

Name, Fina Maulidina Alfian
Department of Information System
Universitas Harapan Medan
Jl. HM. Joni No. 70 c
Email : finamaulidinaalfian@gmail.com

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1. INTRODUCTION

In the current era of globalization and information technology, the use of computers as one of the information technology tools is needed in almost every aspect of life [1]. Information systems and computer technology are developing very rapidly in line with the amount of need to information [2]. With the development of this technology, more and more decision support system applications are used to facilitate solving problems using applications (Pratama, 2017). One form of information technology is used as the creation of software/website applications in police institutions [3]. Efforts of police institutions guarantee the quality of their personnel by applying the function of human resource management (HR), thereby increasing the quality of human resources within the police institution [4]. In determining the best Polri members are usually carried out strictly by considering the values of each criterion, namely mental, spiritual, health, education, and position level [5]. These criteria are a reference for the decision holder in determining members of the National Police who are entitled to the title of the best Polri members [6]. With the strict selection of the best Polri members, the assessment must be thorough and careful, especially for the final stage test by considering the quota determined by the National Police Headquarters [7]. Determination of the best Polri members must meet the

requirements and in accordance with the specified quota, it becomes difficult in determining the ranking, because from the results of the calculations carried out so far the same final value is found in each member of the National Police who will be assessed, due to the limitations of the old system in Calculating, therefore it takes a solution to the problem of the assessment of the best Polri members, so that it is ultimately useful for decision stakeholders [7].

With so many alternatives that affect a decision it is difficult to make a decision. One method that can be used in making a decision is to use the Multi Factor Evaluation Process (MFEP) method, namely decision making is done by giving subjective and intuitive considerations to the factors that are considered important so as to obtain a sequence of factors based on their interests [7]. These considerations are in the form of giving weighting (weighting systems) of the multifactor that are involved and considered important. So that with the system of decision makers can see members of the National Police who really have the ability in the field of HR POLRI with criteria that have been determined by the Medan Polrestabes [9]. This research was conducted in one of the police units named the Medan City Police Headquarters (Medan Polrestabes). Based on previous research conducted by [10] entitled "System Supporting Decision Selection of New Polri Candidates in Medan using the Multi Factor Evaluation Process Method". The results of this study successfully implemented the Multi Factor Evaluation Process (MFEP) method so that it can provide information needed in the selection of new Polri. Based on the results of the above study the author wants to lift a study in the form of a thesis with the title "Application of the decision support system to determine the best Polri members of the Medan Polrestabes HR section using the Multi Factor Evaluation Process (MFEP) method.

2. RESEARCH METHOD

The following is the calculation of the Multi Factor Evaluation Process (MFEP) method to support the decision to determine the best Polri members in the Medan Polrestabes using several ways, namely:

1. Alternatives used are Iptu M.S Hasibuan, Bripka Ronal A. Situmorang, Aipda Amril Nasution, Bripka Gomgom Nasution, and Bripka Eko Wirahman. Kriteia The determination of members of the National Police consists of mental, spiritual, health, position and level of education.
2. The following ranking on each criterion, assessed with 1 to 5, namely:
 - 1 = very bad,
 - 2 = bad,
 - 3 = Enough,
 - 4 = good,
 - 5 = very good.
3. Evaluate the factors of each alternative to the important factors specified. Assessment of criteria carried out with the Head of the Medan Polrestabes HR Section consists of five members in the table below:

Table 1. Evaluation Factor Police Officer

| Alternatif | Mental | Rohani | Kesehatan | Pendidikan | Jenjang jabatan |
|----------------------------|--------|--------|-----------|------------|-----------------|
| IPTU M.S Hasibuan | 2 | 3 | 5 | 4 | 2 |
| Bripka Ronal A. Situmorang | 2 | 5 | 3 | 1 | 4 |
| Aipda Amril Nasution | 4 | 5 | 4 | 2 | 3 |
| Bripka Gomgom Samosir | 3 | 4 | 3 | 1 | 1 |
| Bripka Eko Wirahman | 5 | 5 | 5 | 2 | 2 |

The value of the shape of the factor weight must be decimal so the result is 1.

Table 2. Weight Factor

| Faktor(Kriteria) | Bobot Faktor |
|------------------|--------------|
| Mental | 0.3 |
| Rohani | 0.25 |

| | |
|--------------------|------|
| Kesehatan | 0.2 |
| Pendidikan | 0.15 |
| Jenjang Jabatan | 0.1 |
| Total Bobot Faktor | 1 |

In Table 2. The first factor is mental with a weight value of 0.3, the second spiritual with a weight value of 0.25, the third health with a weight value of 0.2, fourth education with a weight value of 0.15 and the fifth level of position with a weight value of 0.1 so that when added all it produces a total value Factor weight 1. Conduct an evaluation weight for each alternative, namely: IPTU M.S Hasibuan

$$\begin{aligned}
 BE &= BF \times EF \\
 BE_{(Mental)} &= 0.3 \times 2 = 0.6 \\
 BE_{(Rohani)} &= 0.25 \times 3 = 0.75 \\
 BE_{(Kesehatan)} &= 0.2 \times 5 = 1 \\
 BE_{(Pendidikan)} &= 0.15 \times 4 = 0.6 \\
 BE_{(Jenjang Jabatan)} &= 0.1 \times 2 = 0.2 \\
 TBE &= 0.6 + 0.75 + 1 + 0.6 + 0.2 = 3.15
 \end{aligned}$$

Table 2. Evaluation Weight IPTU M.S Hasibuan

| IPTU M.S Hasibuan | | | |
|----------------------|-------------------|-----------------|----------------|
| Faktor | Bobot Faktor (BF) | Evaluasi Faktor | Bobot Evaluasi |
| Mental | 0.3 | 2 | 0.6 |
| Rohani | 0.25 | 3 | 0.75 |
| Kesehatan | 0.2 | 5 | 1 |
| pendidikan | 0.15 | 4 | 0.6 |
| Jenjang Jabatan | 0.1 | 2 | 0.2 |
| Total Bobot Evaluasi | | | 3.15 |

In Table 2. Iptu M.S Hasibuan gets a total evaluation weight of 3.15 Bripka Ronal A. Situmorang

$$\begin{aligned}
 BE &= BF \times EF \\
 BE_{(Mental)} &= 0.3 \times 2 = 0.6 \\
 BE_{(Rohani)} &= 0.25 \times 5 = 1.25 \\
 BE_{(Kesehatan)} &= 0.2 \times 3 = 0.6 \\
 BE_{(Pendidikan)} &= 0.15 \times 1 = 0.15 \\
 BE_{(Jenjang Jabatan)} &= 0.1 \times 4 = 0.4 \\
 TBE &= 0.6 + 1.25 + 0.6 + 0.15 + 0.4 = 3
 \end{aligned}$$

Table 3. Evaluation Weight Bripka Ronal A. Situmorang

| Bripka Ronal A. Situmorang | | | |
|----------------------------|-------------------|-----------------|----------------|
| Faktor | Bobot Faktor (BF) | Evaluasi Faktor | Bobot Evaluasi |
| Mental | 0.3 | 2 | 0.6 |
| Rohani | 0.25 | 5 | 1.25 |
| Kesehatan | 0.2 | 3 | 0.6 |
| pendidikan | 0.15 | 1 | 0.15 |
| Jenjang Jabatan | 0.1 | 4 | 0.4 |
| Total Bobot Evaluasi | | | 3 |

In Table 3. Briпка Ronal A. Situmorang gets a total evaluation weight worth 3Aipda Amril Nasution

$$BE = BF \times EF$$

$$BE_{(Mental)} = 0.3 \times 4 = 1.2$$

$$BE_{(Rohani)} = 0.25 \times 5 = 1.25$$

$$BE_{(Kesehatan)} = 0.2 \times 4 = 0.8$$

$$BE_{(Pendidikan)} = 0.15 \times 2 = 0.3$$

$$BE_{(Jenjang Jabatan)} = 0.1 \times 3 = 0.3$$

$$TBE = 1.2 + 1.25 + 0.8 + 0.3 + 0.3 = 3.85$$

Table 4. Evaluation Weight Aipda Amril Nasution

| Aipda Amril Nasution | | | |
|----------------------|-------------------|-----------------|----------------|
| Faktor | Bobot Faktor (BF) | Evaluasi Faktor | Bobot Evaluasi |
| Mental | 0.3 | 4 | 1.2 |
| Rohani | 0.25 | 5 | 1.25 |
| Kesehatan | 0.2 | 4 | 0.8 |
| pendidikan | 0.15 | 2 | 0.3 |
| Jenjang Jabatan | 0.1 | 3 | 0.3 |
| Total Bobot Evaluasi | | | 3.85 |

In Table 4. Aipda Amril Nasution gets a total evaluation weight of 3.85

a. Briпка Gomgom Nasution

$$BE = BF \times EF$$

$$BE_{(Mental)} = 0.3 \times 3 = 0.9$$

$$BE_{(Rohani)} = 0.25 \times 4 = 1$$

$$BE_{(Kesehatan)} = 0.2 \times 3 = 0.6$$

$$BE_{(Pendidikan)} = 0.15 \times 1 = 0.15$$

$$BE_{(Jenjang Jabatan)} = 0.1 \times 1 = 0.1$$

$$TBE = 0.9 + 1 + 0.6 + 0.15 + 0.1 = 2.75$$

Table 5. Weight Evaluation Briпка Gomgom Nasution

| . Briпка Gomgom Nasution | | | |
|--------------------------|-------------------|-----------------|----------------|
| Faktor | Bobot Faktor (BF) | Evaluasi Faktor | Bobot Evaluasi |
| Mental | 0.3 | 3 | 0.9 |
| Rohani | 0.25 | 4 | 1 |
| Kesehatan | 0.2 | 3 | 0.6 |
| pendidikan | 0.15 | 1 | 0.15 |
| Jenjang Jabatan | 0.1 | 1 | 0.1 |
| Total Bobot Evaluasi | | | 2.75 |

b. In Table 5. Briпка Gomgom Nasution gets a total evaluation weight of 2.75Briпка Eko wirahman

$$BE = BF \times EF$$

$$\begin{aligned}
 BE_{(Mental)} &= 0.3 \times 5 = 1.5 \\
 BE_{(Rohani)} &= 0.25 \times 5 = 1.25 \\
 BE_{(Kesehatan)} &= 0.2 \times 5 = 1 \\
 BE_{(Pendidikan)} &= 0.15 \times 2 = 0.3 \\
 BE_{(Jenjang Jabatan)} &= 0.1 \times 2 = 0.2 \\
 TBE &= 1.5 + 1.25 + 1 + 0.3 + 0.2 = 4.25
 \end{aligned}$$

Table 6. Weight Evaluation Bripka Eko Wirahman

| Bripka Eko wirahman | | | |
|----------------------|-------------------|-----------------|----------------|
| Faktor | Bobot Faktor (BF) | Evaluasi Faktor | Bobot Evaluasi |
| Mental | 0.3 | 5 | 1.5 |
| Rohani | 0.25 | 5 | 1.25 |
| Kesehatan | 0.2 | 5 | 1 |
| pendidikan | 0.15 | 2 | 0.3 |
| Jenjang Jabatan | 0.1 | 2 | 0.2 |
| Total Bobot Evaluasi | | | 4.25 |

3. RESULTS AND DISCUSSION (10 PT)

In accordance with the analysis and design as explained in the previous chapter, namely the research method, this section will present the results of the system that was built using the design that was carried out in the previous chapter. In this chapter the discussion will be carried out on the results built and the functional system.

1. Login Page Interface

The login page is the initial display of the system when a user or users access a decision support system application to determine the best police officer. On this login page there is an email and password input menu. The following shows the login page for the application

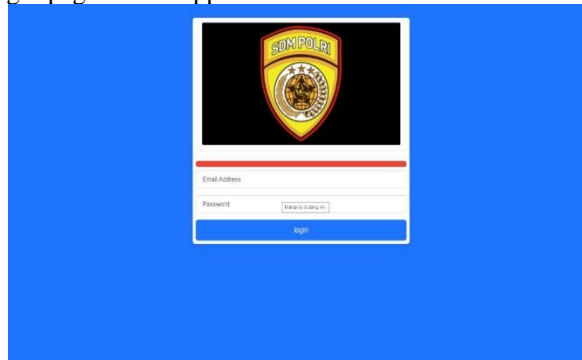


Figure 1. Halaman Login

Caption:

In Figure 1. explains a user or users who have access rights, can enter login data, namely email and password. If the data entered is valid, then it can enter on the next page. However, if the login is invalid, the system will notify the message "An error occurred, repeat".

2. Main Page Interface

This page will appear when the user or users have successfully logged in. The following is the main page interface for the decision support system application to determine the best police officers. The following is the main page view of the application:

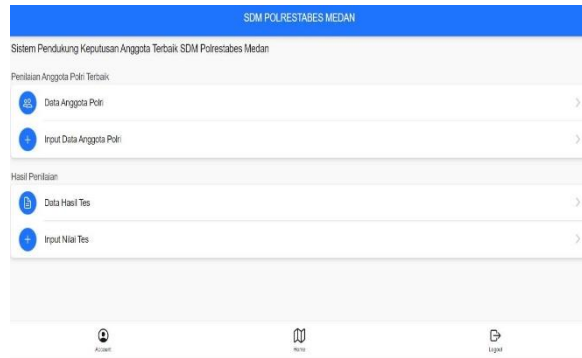


Figure 2. Home Login Main Screen

Caption:

In figure 2. This page is the main page of the application. This page contains all the information available on the Medan Polrestabes HR Best Member Decision Support System Application. On this page, users can view data for members of the National Police, users can input data for members of the National Police, users can view data on the results of tests for members of the Indonesian National Police, and users can input test scores for members of the Indonesian National Police.

3. Polri Member Data

This page will appear if the user or users click on the data menu for members of the National Police which is on the main page of the application. The following shows the data page for members of the Indonesian National Police in the application:

| No | NRP/Polri | Nama | Alamat | Nomor Hp | Aksi |
|----|-----------|-----------------------------|---|-------------|-------------|
| 1 | 811103078 | Bipika Elio Wirawan | Jl. Selajo, Kel. Selajo, Kec. Medan Petisah | 08137843555 | Delete Edit |
| 2 | 821105643 | Apda Arini Naulian | Jl. Karya, Gg. Seiata, Kec. Medan Barat, Kota Medan | 08785412412 | Delete Edit |
| 3 | 83000288 | IPTU M.S Hasbuan | Jl. Kelambir V, Gg. Sekata, Kel. Tanjung Kuala, Kec. Medan Helvella | 08138182505 | Delete Edit |
| 4 | 85010280 | Bipika Rivald A. Situmorang | Jl. Medan Kabanjaha, Kec. Berastagi, Kab. Karo | 08158745080 | Delete Edit |
| 5 | 98078723 | Bipika Genggon Samosir | Jl. Kapten Muslim, Medan | 08195433543 | Delete Edit |

Gambar 3. Halaman Data Anggota Polri

Caption:

On the Polri member data page, the user can see the serial number of the Polri members, the primary registration number of the POLRI members, the names of the POLRI members, the addresses of the POLRI members, and the cellphone numbers of the POLRI members. And on the right the user can delete or edit. For the next page the user needs to click on home below the application.

4. Police Member Input Page Interface

After the user sees the Police Member Input Page Interface data for police member data, the next page is the input page for police members. This page will appear if the user or users click on the National Police member ata input menu on the main page of the application. The following shows the input page for members of the Indonesian National Police:

Figure 4. Member Polri Page Interface

On the National Police member data input page, users or users can input data for Indonesian National Police members such as National Police member Main Register Numbers, Full Names of Indonesian National Police members, Addresses of Indonesian National Police members, and Mobile Numbers of Indonesian National Police members. If everything is filled in, the user or users click submit and the system will save the data into the database.

5. Polri Member Input Test Value

This page appears when the user or users click on the input menu for the police member's test scores on the application's main page. The following shows the input page for the police member's test scores:

Figure 5. Input Test Member Polri

Caption:

On the Input page, the value of the user's police member or the user selects the basic register number for a member of the Indonesian National Police, the user inputs mental values, the user inputs spiritual values, the user inputs health values, the user inputs educational values, the user inputs position level values. Then the user clicks submit then the system will automatically save the data into the database

6. Result Test

This page appears when the user clicks on the test results data menu which is on the main page of the application. The following is a page of test results data on the application:

| No. | NRP | Nama | Nilai Mental | Nilai Rohani | Nilai Kesehatan | Nilai Pendidikan | Nilai Aspek Lain | Total Nilai | Ranking | Keputusan | Aksi |
|-----|----------|-------------------------|--------------|--------------|-----------------|------------------|------------------|-------------|---------|-----------|----------------|
| 1 | 02720613 | Andi Rizki Nurhidayah | 4 | 5 | 4 | 2 | 3 | 1,25 | 4 | GAGAL | Detail / Hapus |
| 2 | 02720614 | Andi Rizki Nurhidayah | 5 | 5 | 5 | 3 | 4 | 4,25 | 1 | LAGU | Detail / Hapus |
| 3 | 02720723 | Erika Damayanti Sembel | 3 | 4 | 3 | 1 | 1 | 2,75 | 4 | GAGAL | Detail / Hapus |
| 4 | 02720209 | Erika Rizki A. Silalahi | 2 | 5 | 3 | 1 | 4 | 3 | 4 | GAGAL | Detail / Hapus |
| 5 | 02720220 | PFFOR M31 Hudaib | 2 | 5 | 5 | 4 | 2 | 3,5 | 4 | GAGAL | Detail / Hapus |

Figure 6. Interface Result Tes

Caption:

In Figure 4.6 it is explained that after the user inputs the criteria values on the previous page, the system automatically processes the calculation of the criteria values using the Multi Factor Evaluation Process (MFEP) method so that the system will display the results of the best National Police member scores. On this page the researcher enters data that has been calculated using the Multi Factor Evaluation Process (MFEP) method in the previous chapter, namely the research methods chapter.

4. CONCLUSION

The conclusions of this study are:

1. The results of this study can determine the best Polri members in the HR section, Bripka Eko Wirahman, have a total evaluation weight of 4.24 using the Multi Factor Evaluation Process (MFEP) method.
2. Application of decision support systems to determine the best Polri members of the Medan Polrestabes HR section using the Multi Factor Evaluation Process (MFEP) method that has helped




the Medan Polrestabes, especially the HR section in making decisions in determining the best Polri members of the HR.

- It is hoped that this application can minimize the occurrence of errors in the determination of members of the SDM Polri in Medan Polrestabes.

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BIOGRAPHIES OF AUTHORS (Optional, 10 PT)

| | |
|---|---|
|  | Fina Maulidina Alfian Bachelor of Information System Universitas Harapan Medan |
|  | Boni Oktaviana Lecturer at Department of Information System Universitas Harapan Medan |
|  | Halim Maulana Lecturer of Department of Information System Universitas Muhammadiyah Sumatera Utara |

