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IMPLEMENTATION OF MULTI FACTOR EVALUATION PROCESS (MFEP) METHOD IN DECISION SUPPORT SYSTEM FOR SELECTION OF BEST LABORANT.

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ABSTRACT

Laboratory assistant is one of the resources owned by a campus. Management of human resources (HR) of an organization greatly influences many aspects of the determinants of work success of the agency. One of the most important aspects of HR management is the periodic selection of the best laboratory assistant so that those selected will be given an award in the form of a bonus to motivate the laboratory assistant to improve their performance and loyalty. The large number of laboratory assistants makes the selection process of the best laboratory less effective if done manually. This is due to the comparison between many criteria with many alternatives. The MFEP method is one method that can solve the problem in the best laboratory selection process. The highest TBE value is TBE4 is an alternative value that will be recommended to be the best laboratory assistant, 3.19.
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INTRODUCTION

The development of technology and information is very important to support daily activities, both in the fields of business, entertainment, education, government and so forth. Information can be used to help decision making (Decision Support System) starting from identifying problems, selecting relevant data, determining the approach used in the decision making process, and evaluating alternative choices, assessments, changing criteria and changing weight values.

One of the resources possessed by a campus is a laboratory assistant. One of the most important aspects of HR management is the periodic selection of the best laboratory assistant so that the chosen ones will be given an award in the form of a bonus to motivate them to improve their performance and loyalty. The large number of laboratory assistants is considered to make the process of selecting the best laboratory assistant less effective if done manually.

To overcome this problem, it is necessary to update the laboratory performance appraisal system. One step to simplify the process of calculating the criteria of each alternative to be chosen then used a method that can help the

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management in the process of selecting the best laboratory assistant. One method that can help in the process of selecting the best laboratory assistant is the Multi Factor Evaluation Process (MFEP) method. An important factor in making consideration is given the appropriate weighting. The same steps are also taken for the alternatives to be chosen, which can then be evacuated in relation to these factors. The MFEP method is also called a scale score that requires a comparison norm in order to be presented quantitatively.[1]

METHOD

To be able to obtain an optimal result from a planning of important activities, an appropriate system is needed to achieve the expected goals. The existence of a system is very important to process data in an organization to help the decision making process. The system is an order (integration) consisting of a number of functional components (with one special function or task) which work together and achieve the ultimate goal together. [2]

In a system, there are sub-systems that interact with each other and work together to achieve a desired goal. Decision is the process of tracing a problem that starts from the background of the problem, identifies the problem until the conclusion or recommendation is formed. [3] Decision Support System is a specific information system that is used to help decision makers in solving semi-structured and unstructured problems by utilizing existing data and then processed into information in the form of proposals towards a particular decision [4],[5].

SPK has the following characteristics: supports all organizational activities, supports multiple decisions that interact with each other, can be used repeatedly and is constant, there are two main components namely data and models, using internal and external data, has the ability what-if analysis and goal seeking analysis and using several quantitative models. DSS is built to support the solution of a problem or evaluate an opportunity [6],[7].

The objectives of the Decision Support System are as follows:

a. Helps speed up and simplify the decision making process and increase the effectiveness of decisions taken by managers more than improving efficiency.
b. To help decision making choose a variety of alternative decisions that are the results of processing information obtained / available using decision making models [8].

In multi-factor decision making, decision makers subjectively and intuitively weigh a variety of factors that have an important influence on the alternatives they choose. For decisions that influence strategically, it is advisable to use a quantitative approach such as MFEP. The use of a method to support a decision making will certainly be very helpful in making the right decision, besides the use of a decision support method can also minimize subjective decision making [9].

In MFEP, all criteria that are important factors in making considerations are weighted. The steps of the calculation process using the MFEP method are as follows:

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a. First define the criteria or factors that cause problems and their weights
b. Calculating Evaluation Weight (NBE)
c. Calculating Total Evaluation Weight (TBE)
d. Rank to get a decision [10].

The use of the MFEP model can be realized with the following formula:
$NBE = NBF * NEF$ (1)
Where :
NBE = Evaluation Weight Weight
NBF = Factor Weight Value
NEF = Factor Evaluation Value

And to calculate the TBE value in the MFEP Method, namely:
$TBE = NBE_1 + NBE_2 + NBE_3 + ...NBE_n$ (2)
Where:
TBE = Total Evaluation Weight
NBE = Evaluation Weight Weight

RESULT AND DISCUSSION

There is a lot of data that is processed in determining the best laboratory assistant. The laboratory data and criteria in selecting the best laboratory assistant can be seen in the following table:

Table 1. Criteria Rating Data for Each Factor

Factor	Criteria				
	C1	C2	C3	C4	C5
A1	1	0,75	0,75	0,5	0,75
A2	0,75	0,25	1	1	1
A3	1	0,25	0,75	0,75	0,75
A4	0,75	1	1	0,75	0,75
A5	0,75	0,25	0,75	0,75	0,75
A6	0,75	0,75	0,75	0,75	0,75
A7	0,75	1	0,75	0,75	0,75
A8	1	0,75	0,75	0,75	0,75
A9	1	0,5	0,75	0,75	0,75
A10	1	0,25	0,75	0,75	0,75
Weight	1	0,5	1	0,75	0,5

The results of the implementation of the MFEP method in selecting the best laboratory assistant can be seen in each table of Evaluation Weight (NBE) and Total Evaluation Weight (TBE) of each alternative are as follows:

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Table 2. TBE-A1 Values

FACTOR	NBF	NEF	NBE	TBE-A1
C1	1	1	1,00	2,88
C2	0,5	0,75	0,38	
C3	1	0,75	0,75	
C4	0,75	0,5	0,38	
C5	0,5	0,75	0,38	

Table 3. TBE-A2 Values

FACTOR	NBF	NEF	NBE	TBE-A2
C1	1	0,75	0,75	3,13
C2	0,5	0,25	0,13	
C3	1	1	1,00	
C4	0,75	1	0,75	
C5	0,5	1	0,50	

Table 4. TBE-A3 Values

FACTOR	NBF	NEF	NBE	TBE-A3
C1	1	1	1,00	2,81
C2	0,5	0,25	0,13	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

Table 5. TBE-A4 Values

FACTOR	NBF	NEF	NBE	TBE-A4
C1	1	0,75	0,75	**3,19**
C2	0,5	1	0,50	
C3	1	1	1,00	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

Table 6. TBE-A5 Values

FACTOR	NBF	NEF	NBE	TBE-A5
C1	1	0,75	0,75	2,56
C2	0,5	0,25	0,13	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

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Table 7. TBE-A6 Values

FACTOR	NBF	NEF	NBE	TBE-A6
C1	1	0,75	0,75	2,81
C2	0,5	0,75	0,38	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

Table 8. TBE-A7 Values

FACTOR	NBF	NEF	NBE	TBE-A7
C1	1	0,75	0,75	2,94
C2	0,5	1	0,50	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

Table 9. TBE-A8 Values

FACTOR	NBF	NEF	NBE	TBE-A8
C1	1	1	1,00	3,06
C2	0,5	0,75	0,38	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

Table 10. TBE-A9 Values

FACTOR	NBF	NEF	NBE	TBE-A9
C1	1	1	1,00	2,94
C2	0,5	0,5	0,25	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

Table 11. TBE-A10 Values

FACTOR	NBF	NEF	NBE	TBE-A10
C1	1	1	1,00	2,81
C2	0,5	0,25	0,13	
C3	1	0,75	0,75	
C4	0,75	0,75	0,56	
C5	0,5	0,75	0,38	

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Based on the TBE value calculation table for each factor, then by looking at the TBE value A4 is the highest value, then Alternative A4 is the recommended alternative recommended to be the best laboratory assistant with a TBE value of 3.19.

CONCLUSION

Based on the results that have been done, it can be concluded that there are 5 criteria used in the selection process of the best laboratory assistant namely discipline, years of service, expertise competencies, personality competencies and social competencies. By using the MFEP method, the process of selecting the best laboratory can streamline and streamline the time in selecting the best laboratory assistant.

BIBLIOGRAPHY

[1] T. Aningke, Y. Pradana, N. I. Facharaini, M. R. Gukguk, and A. Perdana, "Merekomendasikan Mode Hijab Terbaik," vol. 18, no. 1, pp. 1–8, 2018.
[2] D. Y. N. Sri Wahyuni, "Sistem Pendukung Keputusan Pemilihan Pegawai Berprestasi Menggunakan Metode Multifactor Evolution Process (Mfep) (Studi Kasus : Rsup H . Adam Malik Medan)," vol. 3, no. 2, 2019.
[3] A. Djunaedi, A. Subiyakto, and E. Fetrina, "SISTEM PENDUKUNG KEPUTUSAN PENILAIAN KINERJA PEGAWAI (Studi Kasus : PT . PLN (Persero Distribusi Jakarta Raya Area Pondok Gede))," *J. Sist. Inf.*, vol. 10, no. 1, pp. 37–44, 2017.
[4] I. S. T. Henny Febriana Harumy, "Sistem Penunjang Keputusan Penentuan Jabatan Manager," *Semin. Nas. Teknol. Inf. dan Multimed. 2016*, pp. 6–7, 2016.
[5] M. M. ALLIY HAFIZ, "SISTEM PENDUKUNG KEPUTUSAN PEMILIHAN KARYAWAN TERBAIK DENGAN PENDEKATAN WEIGHTED PRODUCT (Studi Kasus : PT . Telkom Cab . Lampung)," *J. Ris. komputer(JURIKOM)*, vol. 6, no. April, pp. 470–476, 2019.
[6] M. Handayani and N. Marpaung, "Implementasi Metode Weight Aggregated Sum Product Assesment (Waspas) Dalam Pemilihan Kepala Laboratorium," *Semin. Nas. R. 2018 ISSN 2622-9986 STMIK R. R. ISSN 2622-6510* , vol. 9986, no. September, pp. 253 – 258, 2018.
[7] I. AFRISAWATI, "DOI : https://doi.org/10.33330/jurteksi.v6i1.392 METODE AHP DAN METODE MFEP Sekolah Tinggi Manajemen Infromatika dan Komputer Royal DOI : https://doi.org/10.33330/jurteksi.v6i1.392 PENDAHULUAN Daging sapi merupakan salah satu produk pangan yang memiliki n," vol. VI, no. 1, pp. 43–50, 2019, doi: 10.33330/jurteksi.v6i1.392.
[8] A. K. VADREAS, R. TURAINA, and S. ARDIANSYAH, "Sistem Penunjang Keputusan Penentuan (Spk) Bantuan Dana Pembangunan Rumah Tidak Layak Huni (Rtlh) Dengan Metode Multi Factor Evoluation Process (Mfep)," *J. Teknoif*, vol. 6, no. 1, pp. 18–23, 2018, doi: 10.21063/jtif.2018.v6.1.18-23.