

Decision Support System Model for The Process of Increase of Position in Hospital Pertamina Bintang Amin (RSPBA), Lampung

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Abstract. Decision making related to property criteria in the office will contribute to both organizational performances. This research intends to construct a model of the support system of the decision making in the process of increasing the performance in the office and to determine the criteria used for an elected employee who be promoted to a new position in the office. Model decision-making are expected to help the decision makers to get the information so that it is easier for the election of worker to be promoted in the organization. Development of decision-making system using an analytic hierarchy process (AHP) were used Hospital Pertamina Bintang Amin, Lampung. This system would yield a weighing criterion that would affects to the decree of the election of workers. An alternative model decision making is also developed in the process of increasing the efficiency within the organization itself. The working principle of the model system is by analysing and deciding the employees who are worth to be promoted. The employee's promotion system model does provide services for effectively analysing and deciding the decent employees. The analytical hierarchy process provides an assessment of criteria that influence the selection of decisions by the alternative decision-making models. The system does compare the interest between the criteria, the intensity and referring to the assessment of employees results in producing the output results by the end of the system process.

1. Introduction

A health care institution in conducting a perfect manner of health care, the decision-making process regarding on promoting a position of a decent worker requires a long time and the decision depends on policy makers. Decision Support System is a system that helps managers to solve a problem [1]. Determining the criteria and choices are some of the problems that delayed many processes especially in the process of promotion of workers. Decision support system developed do runs by the selection of employees that fit the criteria that exist in the specific position. In this case the task of analysing the employees who fit the criteria of employee's assessment are in accordance with the predetermined criteria that facilitate the process of promotion [2]. Decision making related to the right criteria for a position will make a good contribution towards the organizational performance. Plus, Decision Support



System is a system that is able to provide the ability to solve problems and the ability to communicate with problems with semi-structured and unstructured conditions [3]. The research objective is to build a decision support system model for the promotion process and determine the criteria used for the selection of employees to be promoted for promotion. Selection of the best employees for promotion by using the Analytical Hierarchy Process (AHP) method can help companies in selecting the best employees for promotion in accordance with the criteria desired by the company. By using the AHP method, the most appropriate employees in accordance with the criteria which are desired are selected to be promoted [4]

2. Methods

The research conducted was a descriptive analytic qualitative research. The results of data analysis in the form of exposure to the situation under study are presented in the form of narrative descriptions, the tools used, namely the Analytical Hierarchy Process (AHP). The assessment given in the use of the AHP method gives us flexibility in assessing, namely the AHP shows logically personal values and values [5]. Data collection techniques: Observation, Interview, Documentation and Literature.

In solving the problems, for AHP there are several principles [7]. Among them are making a hierarchy, evaluating the criteria and alternatives as well as determining the priorities and logical consistency. AHP procedures are defining the problems, creating a hierarchical structure, forming a pairwise comparison matrix and normalizing the data. The eigenvector value is also calculated and test for its consistency. If it does not meet with $CR \leq 0.100$ then the assessment must be repeated. The calculation of consistency index, $CI = \frac{(\lambda_{max} - n)}{n}$ is to find out either the output value of CI do meet the good level or not, it is compulsory to know the ratio that is considered good, which is $CR \leq 0.1$ and the equation of consistency ratio is $CR = \frac{CI}{IR}$ [7].

3. Result and Discussion

Decision support system that includes the three criteria which are the objectives, criteria and alternatives. The goal in this study is that the selected employees who could fill the positions promoted for the management level would use those criteria as parameters to be used as a benchmark for making decisions. The criteria that become the determining parameters in the selection of employees in order to occupy the important positions of management level are the skills, loyalty, cooperation and honesty. The explanation of these criteria is based on several factors that are considered as follows [8]:

- i. Skills (KP): employee skills in their fields, supported by expertise certificates or workshops.
- ii. Loyalty (LY): loyalty that should be carried out in a variety of conditions and binds employees and companies, therefore loyalty is reflected in how long a person is in the organization and it can be in the form of thoughts or attention.
- iii. Working period (MK): the duration of employee that has worked from the first time they entered until recent working.
- iv. Honesty (KJ): honest behaviour in the workplace by obeying and abiding by applicable rules and ethical standards. The trust of a leader shown to employees in taking risks in relying on people.

The HR department would process the data and provides instructions as well as the selection process. Meanwhile, the assessment team or the leaders are the decision maker. The process begins with filling out forms that match the data that meets the requirements. Then proceed with the initial meeting to discuss and analyse the appropriate data, where the position is needed, then the decision-making system is carried out. The analytical hierarchy process (AHP) proposed in this study aims to provide an

assessment of the criteria that influence the selection decisions of alternative decision-making models for the selection of positions. The choice of methodology is based on the characteristics of the problem and consideration of the advantages and disadvantages of other methodologies. The researcher assessed the importance of each criterion according to the value of the pair of criteria being compared. The result of AHP is a ranking or priority weighting of each alternative model.

In this study the focus is on the formulation of an AHP-based model to assess the three alternative decision-making models for the selection of the proposed position and has the best feasibility among the three. Generally, the promotion is done to carry out the process of filling out the promotion form, continue to elect employees who meet the criteria until the appointment letter is issued [6].

Table 1. Calculation calculations for pairwise criteria

Criteria	MS	LY	KP	KJ	Weight Normalization
MS	1.00	3.00	5.00	9.00	0.54
LY	0.33	1.00	5.00	5.00	0.28
KP	0.20	0.20	1.00	5.00	0.12
KJ	0.11	0.20	0.20	1.00	0.04
Total	1.64	4.40	11.20	20.00	0.98

$$\lambda_{\max} = 4.25$$

$$CI = 0.08$$

$$CR = 0.08 \text{ (accepted)}$$

A consistency ratio of 0.08 is less than the tolerance limit of 0.1. Then the pairwise comparison matrix is said to be consistent For the AHP model, the comparison matrix can be accepted if the ratio value is consistent lesser than 0.1. The value of CR is greater than 0.1 thus it is a good level of consistency and could be accounted for.

3.1. Pairwise Comparison Matrix For alternatives or choices.

Make a pairwise comparison matrix that illustrates the relative contribution of the influence of each element to each of the objectives of the same level above [5].

3.1.1. Years of Service

First, the researcher will assess who of the three alternatives has the longest working period.

Table 2. Computational calculation of alternative MS criteria in pairs

Alternative	KY 1	KY 2	KY3	Weight Normalization
KY 1	1.00	2.00	3.00	0.54
KY 2	0.50	1.00	2.00	0.29
KY 3	0.33	0.50	1.00	0.16

Total	1.83	3.50	6.00	0.99
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 $\lambda_{\max} = 2.96$

CI = 0.02

CR = 0.03 (accepted)

*3.1.2. Loyalty Criteria***Table 3.** Comparative calculation of alternative LY criteria in pairs

Alternative	KY 1	KY 2	KY 3	Weight Normalization
KY 1	1.00	2.00	2.00	0.49
KY 2	0.50	1.00	2.00	0.31
KY 3	0.50	0.50	1.00	0.19
Total	2.00	3.50	5.00	0.99

 $\lambda_{\max} = 3.043$

CI = 0.022

CR = 0.04 (accepted)

*3.1.3. Skill Criteria***Table 4.** Calculation of alternative comparison of paired KP criteria

Alternative	KY 1	KY2	KY 3	Weight Normalization
KY 1	1.00	2.00	2.00	0.47
KY 2	0.50	1.00	3.00	0.38
KY 3	0.50	0.33	1.00	0.18
Total	2.00	3.33	6.00	1.03

 $\lambda_{\max} = 3.22$

CI = 0.11

CR = 0.1 (accepted)

*3.1.4. Honesty Criteria***Table 5.** Calculation comparison of alternative LY criteria in pairs

Alternative	KY 1	KY 2	KY 3	Weight Normalization
KY 1	1.00	3.00	2.00	0.54
KY 2	0.33	1.00	2.00	0.27

KY 3	0.5	0.50	1.00	0.19
Total	1.83	4.50	5.00	1.00

$\lambda_{\max} = 3.145$

CI = 007

CR = 0.1 (accepted).

Table 6. Calculation of pairwise comparisons for each alternative criterion

Criteria / Alternative	Weight Normalization		
	KY 1	KY 2	KY 3
MS (0.54)	0.54	0.29	0.16
LY (0.28)	0.49	0.31	0.19
KP (0.12)	0.47	0.38	0.18
KJ (0.04)	0.54	0.27	0.19

Alternative criteria weight:

- i. KY 1 = $0.54 (0.54) + 0.28 (0.49) + 0.12 (0.47) + 0.04 (0.54) = 0.51$.
- ii. KY 2 = $0.54 (0.29) + 0.28 (0.31) + 0.12 (0.38) + 0.04 (0.27) = 0.29$.
- iii. KY 3 = $0.54 (0.16) + 0.28 (0.19) + 0.12 (0.18) + 0.04 (0.19) = 0.17$

From the above table it can be concluded that KY 1 has the highest score of 0.51, followed by KY 2 with a score of 0.29 and most recently KY 3 with a score of 0.17. Finally, researchers will choose KY 1 as the best employee who will occupy the position. The highest alternative weight is used as a material for consideration for promotion to employees. The results of the AHP calculation that is applied will produce the highest priority intensity employee output so that the employee who has the highest value (KY1) is eligible to get the promoted position.

This decision support system provides only a decisive alternative that can serve as a leader's reference in the promotion of the office, while the decision itself is held by the decision maker. The results of the assessment in this case by doing the type of face validity, which is related to what appears in measuring something and not to what should be measured [6]. Job promotions must be based on existing provisions, which can meet the needs of institutions and provide satisfaction to employees. This rationale for promotion promotes accuracy and objectivity in evaluating employees. The requirements for promotion are fulfilling the service period and the assessment requirements for the employee concerned, also having other criteria, namely loyalty, skills and honesty. Job promotion as one of the elements that can cause employee job satisfaction, therefore the implementation must be mature.

4.0 Conclusion

The employee promotion system model provides services for effectively analysing and deciding decent employees. The analytical hierarchy process provides an assessment of the criteria that influence the selection decisions of alternative decision-making models for the selection of positions.

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