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Employee Performance Appraisal Analysis with Analytic Network Process (ANP) and Rating Scale Method in Baitul Mall Lhokseumawe

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Abstract. Performance appraisal is an important aspect of effective human resource management. Performance appraisal can help the company to know the working conditions of employees. The purpose of this study is to know how to get the criterion weight with *Analytic Network Process* (ANP) method and result of employee performance appraisal in Baitul Mall Lhokseumawe, as well as to know the criteria needed in employee performance appraisal that can be taken into consideration to make performance improvement in the future. And to get the result of employee performance appraisal with Rating Scale method. The result obtained is the weight of each criterion is technical skill (0,2375), work relationship (0,1612), *soft skills* (0,1554). Result of performance appraisal that is fifteen employees get scale C is performance according to standard counted eleven people with the value of employee 1(2,7480), employee 2 (2,6238), employee 3 (2,7702), employee 4 (2,7245), employee 5 (2,7702), employee 6 (2,7702), employee 7 (2,7702), employee 8 (2,7702), employee 9 (2,6249), employee 10 (2,7245), employee 12 (2,6481), while four other employees get value with scale D that is low performance with the value of employee 11 (2,5223), employee 13 (2,5114), employee 14 (2,5907) and employee 15 (2,5621).

1. Introduction

Zakat is the amount of property issued at a certain level and time determined by shariah. The law of zakat is obligatory for every Muslim. Zakat fitrah issued specifically in the month of Ramadhan while zakat mal is issued once a year if up nisab. While infak is a willing or voluntary donation of donations to others. In addition to zakat and infak, their waqaf is the granting of our property to others to be utilized and managed by the person for the benefit of the public [1].

Baitul mal is derived from Arabic that is temple which means house, dan al mall which means treasure. Baitul mal means a house to collect or store treasure. Baitul mal is an institution or party that has a special task to handle all the wealth of the people who usually in the from of zakat. Baitul mal serves to manage and manage zakat, collecting, distributing and utilizing zakat, and socializing zakat, waqaf and other religious treasures [2].

Seen form the function baitul mall itself, it can be seen that all employees who are in baitul mal have duty and authority in arranging everything about zakat. So far baitul mal has never conducted a performance appraisal of employees and not yet know the criteria weights used or become benchmarks in the assessment of employee performance [1].

Therefore, one way to overcome this is to perform a performance appraisal of baitul mal employee. It is intended that the baitul mal leaders can find out how the benchmark performance of employees baitul mal that can be used as guidelines for the improvement of employee performance [1].

From the description obtained then the author chose the title "employee performance appraisal with Metode *Analytic Network Process* (ANP) and *Rating Scale* Method In Baitul Mall Lhokseumawe.

The purpose of this study is to find out the result of performance appraisal baitul mall lhokseumawe and know the criteria needed in the assessment of employee performance that can be taken into consideration to improve the performance of employees in the future.

2. Theory

Understanding of performance

According to mangkunegara, performance is the result of work achieved by a person within a certain time based on predefined work standards. While the operational variables of the performance are the work achieved within a certain time based on predefined work standards. [3].

Performance assessment

According to Simamora, performance appraisal is the process of evaluating the implementation of individual performance. In modern organizations, performance appraisals provide an important mechanism for management to be used in explaining objectives and performance standards and motivating individual performance at a later time. Every employee in performing obligations or duties feels that their work can not be separated from the superior's assessment either directly or indirectly [4].

Rating Scale Method

According to ti Widoyoko, Rating Scale is one of the scales used in nontest instruments with a structured procedure for obtaining information about a problem and expressed as a particular position in relation to the other. The scale is used to measure performance, customer satisfaction, work productivity, employee motivation and so on. On this scale, the observer is asked to reflect the impression of the past impression into the level. Scale performance appraisal can be seen in Table 1 [5,6].



Table 1 Scale performance appraisal

Scale	Information
1	Not satisfactory/very bad
2	Need improvement/bad
3	Meet expectations/enough
4	Exceed expectations/good
5	Extra ordinary/very good

The scale used in the assessment can be seen in Table 2 the page should be as close to equal length as possible.

Table 2. The scale used in the assessment

Scale	Category	Information
A	Performance is very high	$4,20 < n \leq 5,00$
B	Performance is high	$3,40 < n \leq 4,20$
C	Performance is standards	$2,60 < n \leq 3,40$
D	Performance is low	$1,80 < n \leq 2,60$
E	Ineffective performance	$1 \leq n \leq 1,80$

Analytic Network Process (ANP) method

Analytic Network Process (ANP) is a method used to solve the problem of decision making that can not be made the hierarchical structure. It is because it involves the interaction and dependence of elements of the upper-level elements on the lower level elements and the existence of interrelationship between the different criteria at a certain level [7].

The ANP method has many advantages such as the resulting comparison more objective, more accurate predictive ability and more stable results. ANP uses the network approach without having to set the level as in the hierarchy used AHP. On the AHP network, there are levels of goals, criteria, subcriteria, and alternatives that each level has elements. Meanwhile, the level in AHP is called cluster on ANP network which can have criteria and alternatives in it called node. In ANP, the problem can be described using a diagram called a network [7].

The calculation to know the weighting by ANP method following the steps [6]:

- Structure problem structures and develop linkage models
- Create a matrix of criterion comparisons with values already in the input.

Here are the predefined priority values:

Table 3. Setting the priority of the elements by pairwise comparisons

Intensity of interest	Information	Explanation
1	Both elements are equally important	The two elements have the same great effect on the goal
3	One element is slightly more important than the other	Experience and judgment support a little more than any others element
5	One element is more important than the other	Experience and judgment are very strong in favor of one element over the other
7	One element is clearly more important than the other	One strong element in the blank and dominant seen in practice
9	One element is absolutely essential from other elements	Evidence supporting one element to another has the highest possible confirmation level
2,4,6,8	Values between two values	Adjacent considerations

c. Calculates the element weights

d. Calculate the value of ϕ

$$\phi = \frac{\text{sum of result values}}{\text{number of indicators}} \quad (1)$$

e. Looking for *Consistency index* (CI) To find the CI using the formula

$$CI = \frac{\lambda_{\text{maks}} - n}{n - 1} \quad (2)$$

With:

CI = *Consistency index*

λ_{maks} = the largest eigenvalues

n = number of elements compared

f. Looking for *Consistency Ratio* (CR), level of consistency if value CR < 0.1.

To find the CR using the formula:

$$CR = \frac{CI}{RI} \quad (3)$$

With:

CI = *Consistency index*

RI = *Random index*

For the random value of the index can be seen in the following table:

Tabel 4. List of random index consistency (RI)

n	RI
1	0
2	0
3	0,58
4	0,9
5	1,12
6	1,24
7	1,32
8	1,41
9	1,45
10	1,49
11	1,51
12	1,48
13	1,56
14	1,57
15	1,59

g. Make supermatrix

Consists of three stages are unweighted supermatrix, weighted supermatrix, limiting supermatrix.

3. Methode

This research was conducted in their stages, namely the preliminary survey, data collection, and analysis, after the preliminary survey obtained some groups of performance appraisal criteria that can be seen in table 5. The ANP method starts from the modeling stage, weighting, weighted processing and matrix normalization. Weighting criteria are calculated based on a weighted questionnaire filled by the head of the baitul mal. The weights earned from each criterion will be used in assessing employee performance. Assessment is performed using a performance appraisal scale. Rating scale assessment is also done by the head of baitul mal in the form of a questionnaire. So in the study, there are two kinds of questionnaires. The weight of the criteria obtained will be multiplied by the value of each criterion. Then calculated the performance value of employee performance by summing all the weight values of the criteria.

Table 5. Performance Appraisal Criteria

Dimensions	Attribute
Technical skill (X_1)	Works according to the rules set Have knowledge about the technical implementation of work properly and correctly Understand the instructions given Have an attitude of responsibility towards the work done Come and go home on time
Work relationship (X_2)	Able to communicate well and correctly with superiors Able to communicate well and correctly with an equal friend Able to communicate well and correctly with subordinates Able to work with friends of equal and subordinates
Soft Skills (X_3)	Have an honest attitude in working Have a high discipline attitude In appearance always clean and neat

4. Result And Discussion

Weighting values by ANP method

Employee performance appraisal system in Baitul Mal Lhokseumawe is an assessment performed by expert respondents is had of baitul mal to employees based on the level of importance criteria. The whole consistency ratio of the results of the questionnaire filling by the respondent is $< 0,1$. The indicates that the criteria present in the questionnaire are consistent so that they can be used. The next stage is to determine the value of the limiting matrix until the value of the weight is declared stable when the matrix values on each row are the same.

The final stage of weighting ANP is the normalization of the limiting matrix. It is used to determine the importance value or weight value of the final priority of all criteria in each criterion. In the calculation of the value of weight can be used super decision software assistance. The value of weighting for each criterion based on super decisions software can be seen in Table 6.

Table 6. The weighted value of the criteria.

Criteria	Subcriteria	Weight	Ranking
Technical Skill (0,2375)	Works according to the rules set	0,0689	1
	Have knowledge about technical	0,0457	7
	Understand the instructions given	0,0368	12
	responsibility towards	0,0485	4
	on time	0,0376	10

Work Relationship (0,1612)	Communicate with superiors	0,0466	6
	Communicate with an equal friend	0,0390	8
	Communicate with subordinates	0,0368	11
	work with friends of equal and subordinates	0,0388	9
Soft Skills (0,1554)	Have an honest attitude	0,0577	2
	Have a high discipline	0,0498	3
	appearance always clean and neat	0,0479	5

Based on table 6, it can be seen that value or the highest score on the technical skill criteria is to work according to the rules. Work according to the rules is very necessary for employees in Baitul Mal so that all can work with effective and efficient conditions, especially in terms of serving. One example is the payment zakat must be in accordance with the provisions set so as not to arise corruption and other undesirable things. The lowest weight on the technical skill criteria is to understand the instructions. Every employee in Baitul Mal has their own duties so not too much- given instructions by the head or boss to his employees.

The highest weight on the criteria of the employment relationship is communication with superiors. Employment relationship with superiors is very important because a good working relationship to superiors to facilitate the process at work so as to avoid misunderstanding between superiors with the employee. Communication in the work is a liaison between superiors with employees. Weight the lowest on the criteria of employment is communication with subordinates.

The highest weight on the soft skills criteria is to have an honest attitude. Honest attitude is needed at work because it is related to the belief both between superiors and employees as well as among employees. The lowest weight on the soft skill criteria is clean and neat in appearance. This is no too important because every employee is certain to wear the clothes that have been established in accordance with the rules.

Table 7. Performance value of employees

Name	Value	Scale	Information
Employee 1	2,7480	C	Performance is standards
Employee 2	2,6238	C	Performance is standards
Employee 3	2,7702	C	Performance is standards
Employee 4	2,7245	C	Performance is standards
Employee 5	2,7702	C	Performance is standards
Employee 6	2,7702	C	Performance is standards
Employee 7	2,7702	C	Performance is standards
Employee 8	2,7702	C	Performance is standards
Employee 9	2,6249	C	Performance is standards
Employee 10	2,7245	C	Performance is standards
Employee 11	2,5223	D	Performance is low
Employee 12	2,6481	C	Performance is standards
Employee 13	2,5114	D	Performance is low
Employee 14	2,5907	D	Performance is low
Employee 15	2,5621	D	Performance is low

Based on the results of the assessment in Table 7, it can be concluded that baitul MLA employees have a performance that standards and some people who have low performance. This is because the value of employees consisting of C and D. Southeast that has a value of C means the performance of employees are classified on the performance according to the standard whereas employees are valued D means the performance of employees are classified on low performance. From the assessment results can be seen that no workforce who got the value A that is very high performance, and E is performance is not effective.

5. Conclusion

Based on research that has been done then it can be concluded that:

1. Weights the performance appraisal criteria obtained for technical skill criteria (0,2375), work relationship (0,1612) dan *soft skills* (0,1554).
2. Based on the results of the assessment of 15 employees found the results that 11 employees have performance according to the standard with C scale that scores ranged between $2,60 < n \leq 3,40$ while 4 other employees have a low performance with D scale that scores ranged between $1,80 < n \leq 2,60$.

References

- [1]. Anwar, (2017). The Law of Productive Zakat and Its Impact Towards Economy, International Journal of Engineering Technologies and Management Research, Malikussaleh University
- [2]. Anwar, (2017). Performance Analysis Using the Balance Scorecard (Case Study: Baitul Mal Kota Lhoseumawe), Journal of National Engineering Industry Seminar, Malikussaleh University
- [3]. Mangkunegara, A.P, (2009). Human Resource Management Company, Bandung: PT. Remaja Rosdakarya
- [4]. Simamora, Henry, (1997). Human Resource Management, Yogyakarta
- [5]. Sylvia, Teny, dkk (2013). Assessment of personnel performance based on competence using the ANP and Rating Scale Method (Case Study Di PG Pesantren Baru), Agricultural Industry Technology Journals, University of Brawijaya
- [6]. Widoyoko, E. Putro, (2012). The technique of Preparation Of Research Instrument, Yogyakarta: Student Libraries
- [7]. Yulianti, Mega, (2013). Application of Analytical Network Process (ANP) Method and Technique For Order Preference By Similarity To Ideal Solution (TOPSIS) In Supplier Selection, Mathematic Education Thesis, University of

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