Analysis Method Analitycal Hierarchy Process (AHP) in Taking Decisions on Giving Rewards (Bonuses) Based on Employee Performance

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ABSTRACT

This company is a company engaged in the field of umggas farming, which annually provides rewards (bonuses) to employees who have positive personalities such as being diligent, like being responsible, ambitious in working with the aim of making employees more creative and innovative and maintaining employee performance. In general, rewards are divided into two types, namely extrinsic rewards, which are employees who get rewards (bonuses) in the form of external or tangible rewards, for example money, bonuses, facilities, while intrinsic rewards are employees who get rewards (bonuses) in the form of rewards in the form of heart satisfaction, praise. and awards.

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1. INTRODUCTION

The rapid development of information technology is not only in hardware and software technology, but computing methods are also developing and one of the most developed computing methods today is the decision-making system method (Decision Support Systems). The Decision Support System (DSS) is used as a tool for decision makers to expand the capabilities of decision makers, but not to replace the decisions of decision makers (Dwi Citra Hartini, Endang Lestari Rusan & Ali Ibrahim, 2013).

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In general, rewards are divided into two types, namely extrinsic rewards, which are employees who get rewards (bonuses) in the form of external or tangible rewards, for example money, bonuses, facilities, while intrinsic rewards are employees who get rewards (bonuses) in the form of rewards in the form of heart satisfaction, praise. and awards.

Selection of employees who will get rewards at UD. Edi Farm, is selected manually by conducting deliberations so that the results obtained are less effective and require a long time so

that a system is needed that can help the leadership at UD. Edi Farm in making decisions quickly and accurately with calculations - calculations that are mature according to predetermined criteria.

The method used in this decision support system is the AHP (Analytical Hierarchy Process) method. The Analytical Hierarchy Process (AHP) method is a framework for making decisions effectively on complex problems by simplifying and accelerating the decision-making process by solving the problem into its parts (Adam Faroqi, 2012). By looking at the criteria used to make decisions, it would be very suitable to use the AHP method with multi criteria.

2. RESEARCH METHOD

To help organize this research, it is necessary to have a clear framework in stages. This framework represents the steps that will be taken in solving the problems to be discussed. The research framework used is as shown in Figure 1:
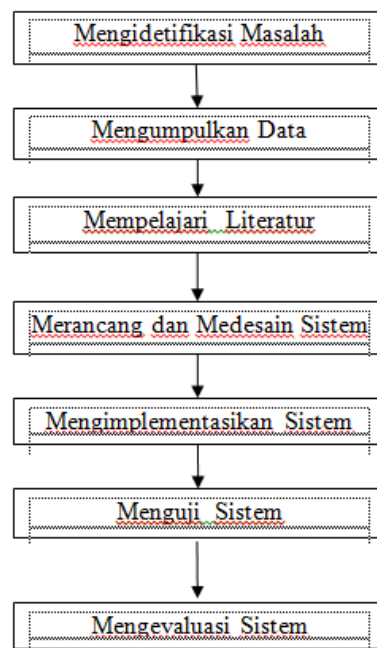

Figure 1. Research Framework

Based on Figure 1 above, the work arrangement in this study can be described as follows:

1. Identify the Problem
   This stage is an initial step in research to describe the problem that occurs and then looks for the problem formulation to continue the next stage.
2. Collecting Data
   This stage is a step where facts from a study are needed by collecting data based on the results of interviews and observations to carry out research and analysis of the decision support system for choosing an Android smartphone based on the specifications of potential buyers in a smartphone store so as to produce the data and information needed in the study.
3. Studying Literature
   This stage is a learning step in research by searching for theories obtained from journals, books, and the internet to complement the sources of study and theoretical concepts in research.
4. System Design and Design
   This stage is the system design that will be designed with context diagrams, DFD, flowcharts, file design, input and output design of the system display as well as system modeling to help the system design process.
5. Implementing the System
   This stage is a step in implementing the new system into the system existing systems (systems that are already running / old systems). At this stage it will created database and existing network.

6. Testing the System
7. This stage is a step in which testing is carried out, where will test to determine whether the system designed already according to user requirements.
8. Evaluating the System
   This stage is a step to measure, assess the system Designed whether the designed system is in accordance with the system design objectives.

3. RESULTS AND DISCUSSION

Analytical Hierarchy Process is a decision-finding method that will produce rational decision results. Rational decisions are defined as the best decisions from the various goals that the decision maker wants to achieve. The main key to a rational decision includes alternatives and criteria that lead to the desired goal and oriented to existing sources. In making this decision the authors carried out several stages, namely:
1. Intelligent.
2. Modeling.
3. Choice.

Intelligent Stage

The intelligent stage is to collect and compile selection criteria. In this case the author has determined the criteria, the following criteria are used:
a. Determine which employees are entitled to a reward.
   In determining the selection of employees, the author chooses 3 names of employees who deserve rewards, these employees are in the general section included in the organizational structure, and are located in the staff section, namely:
   1. Syaif
   2. Dika
   3. Eko
b. Determine several criteria for employees who are eligible for rewards.
   The criteria for comparison are as follows:
   Criterion 1: C1 = Discipline
   Criterion 2: C2 = Job Performance
   Criterion 3: C3 = Loyalty
   Criterion 4: C4 = Behavior
c. Determine the weight criteria for employees who are eligible for rewards.
   In the part of determining the weight of this criterion is to find data from each employee as below:
   1. Syaif
      Discipline: C1 = Enough
      Job Performance: C2 = Very Good
      Loyalty: C3 = Enough
      Behavior: C4 = Good
   2. Dika
      Discipline: C1 = Very Good
      Job performance: C2 = Enough
      Loyalty: C3 = Less
      Behavior: C4 = Good
   3. Eko
      Discipline: C1 = Good
      Job Performance: C2 = Very Good
      Loyalty: C3 = Enough
      Behavior: C4 = Good

In accordance with the existing data, the weighting of each criterion is carried out according to its importance value which is in accordance with the provisions of the Analitycal Hierarchy Process method as follows:

a. Discipline Weight

From the Discipline Score criteria the weight will be determined, the weight consists of four Analytical Hierarchy Process numbers as in the following table:

Table 1. Discipline Weights

KEDISIPLINAN	BOBOT	KETERANGAN
Kesadaran	4	Sangat Baik
Sangat Kesadaran	3	Cukup Baik
Kurang Kesadaran	2	Baik
Tidak Kesadaran	1	Kurang

b. Discipline Weight

From the Discipline Score criteria the weight will be determined, the weight consists of four Analytical Hierarchy Process numbers as in the following table:

Table 2. Discipline Weights

PRESTASI KERJA	BOBOT	KETERANGAN
Penguasaan	4	Sangat Baik
Sangat Menguasai	3	Cukup
Kurang Menguasai	2	Baik
Tidak Menguasai	1	Kurang

c. Loyalty Weight

From the loyalty criteria, the weight will be determined, the weight consists of four Analytical Hierarchy Process numbers as in the following table:

Table 3. Loyalty weights

LOYALITAS	BOBOT	KETERANGAN
Loyal	4	Sangat Baik
Sangat Loyal	3	Cukup
Kurang Loyal	2	Baik
Tidak Loyal	1	Kurang

d. Behavior Weights

From the behavioral criteria the weight will be determined, the weight consists of four Analytical Hierarchy Process numbers as in the following table:

Table 4. Behavior Weights

PERILAKU	BOBOT	KETERANGAN
Emosi	4	Sangat Baik
Sangat Emosi	3	Cukup
Kurang Emosi	2	Baik
Tidak Emosi	1	Kurang

From the weights above, we can determine the weight of the employee who gets the reward as follows:

1. Syaif
   a. Discipline = 3
   b. Job Performance = 2
   c. Loyalty = 3
   d. Behavior = 2
2. Dika
   a. Discipline = 3
   b. Job Performance = 2
   c. Loyalty = 3
   d. Behavior = 3
3. Eko
   a. Discipline = 2
   b. Job Performance = 1
   c. Loyalty = 2
   d. Behavior = 2

Modeling Stage

At the modeling stage, the writer chooses the approach model is Analytical Hierarchy Process. At this stage there are several things that must be considered, namely:

a. Describe the Hierarchy of decisions

In the Hierarchy of decisions, there are objects to be discussed, criteria and alternatives. The following is a picture of the Hierarchy Making.

1. Objectives or Objects to be discussed (About Giving Rewards)
2. Criteria (Discipline, Job Performance, Loyalty and Behavior)
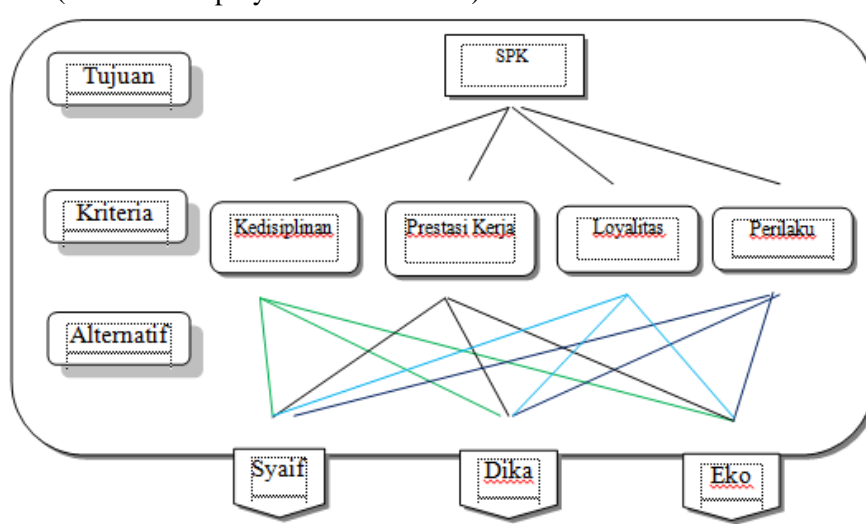3. Alternative (names of employees to be selected)

Figure 2. Hierarchy of employee selection process objectives

b. Determine the criteria weights

Determination of the weight of this criterion is determined by the user or voter, where the weighted value from a scale of 1 to 9 is in accordance with the voter's interest.

Criterion 1: C1: Discipline = 1

Criterion 2: C2: Job Performance = 2

Criteria 3: C3: Loyalty = 2

Criterion 4: C4: Behavior = 3

c. Creating a criterion comparison matrix of voters' perceptions.

To create a comparison matrix that is suitable for input by voters, it is done in the following way:

Creating a pairwise comparison matrix

At this stage, a comparative assessment is carried out between one criterion and another. The results of the assessment can be seen in table 5.

Table 5. Pairwise Comparison Matrix

	Kedisiplinan	Pres. Kerja	Loyalitas	Perilaku
Kedisiplinan	1	2	2	3
Pres. Kerja	0.5	1	2	2
Loyalitas	0.5	0.5	1	2
Perilaku	0.33	0.5	0.5	1
Jumlah	2.33	4	5.5	8

Number 1 in the discipline column in the discipline row illustrates the same level of importance between the same interests between discipline and discipline, while number 2 in the discipline column shows work performance is slightly more important than discipline. The number 0.5 in the discipline column in the line of work performance is the result of the calculation of 1 / value in the discipline column of work achievement (2). The other figures are obtained in the same way.

Creating a criterion value matrix

Table 6. Criteria Value Matrix

	Kedisiplinan	Pres. Kerja	Loyalitas	Perilaku	Jumlah	Bobot Prioritas
Kedisiplinan	0.43	0.50	0.36	0.38	1.67	0.42
Pres. Kerja	0.21	0.25	0.36	0.25	1.08	0.27
Loyalitas	0.21	0.13	0.18	0.25	0.77	0.19
Perilaku	0.14	0.13	0.09	0.13	0.48	0.12

This criterion value matrix is obtained from dividing each column element according to the total as follows:

For C1:

1 / 2.33 = 0.43

0.5 / 2.33 = 0.21

0.5 / 2.33 = 0.21

0.33 / 2.33 = 0.14

To find the value of the sum column is done by adding each element to the column in each row as follows:

0.43 + 0.50 + 0.36 + 0.38 = 1.67

And to get the value of the priority weight by dividing the value from the number column by the number of elements as follows:

1.67 / 4 = 0.42

The value of four is taken from the number of elements.

Creating a consistency index (CI) λmaks –n / n-1

λmaks = Number of elements in the Y matrix/N

λmaks = (2.33 * 0.42) + (4 * 0.27) + (5.5 * 0.19) + (8 * 0.12) = 116

CI = 116-4 / 4-1 = 28

Make a consistency ratio (CR) CR = CI / RI

RI is taken from a random value generator.

Table 7. Random Index Values

Ukuran Matrik	1,2	3	4	5	6	7	8	9	10
Index Random	0,0	0,58	0,9	1,12	1,24	1,32	1,42	1,45	1,49

Because the matrix is ordered 4, the value of RI = 0.9 Then CR = 28 / 0.9 = 31.1

Creating a comparison matrix of rewarded employees

To create a reward matrix, it is done by calculating the weight of all existing criteria.

1. Syaif

Creating a criteria comparison matrix

Table 8. Pairwise Comparison Matrix

	Kedisiplinan	Pres. Kerja	Loyalitas	Perilaku
Kedisiplinan	3	2	3	2
Pres. Kerja	1.5	3	2	3
Loyalitas	1	1.5	3	2
Perilaku	1.5	1	1.5	3
Jumlah	7	7.5	9.5	10

The number 3 in the discipline column in the discipline row describes the same level of importance between the same interests between discipline and discipline, while number 2 in the discipline column of work achievement shows that work performance is slightly less important than discipline. The number 1.5 in the discipline column in the line of work performance is the result of the calculation of 3 / value in the discipline column of work achievement (2). The other figures are obtained in the same way.

At the choice stage, a comparison of each existing criterion will be carried out by multiplying the priority weight value from the perceptions of voters with the priority weight of each employee in the following manner:

Table 9. Global Priorities

KRITERIA	C1	C2	C3	C4	Prioritas Global
Persepsi pemilih	**0.42**	**0.27**	**0.9**	**0.12**	
Syaif	0.3	0.28	0.21	0.9	0.5
Dika	0.32	0.27	0.21	0.18	0.4
Eko	0.29	0.29	0.24	0.24	0.4

The value of global priority is obtained from multiplying the company criteria column with the corresponding voter perception column as follows:

$(0.3 * 0.42) + (0.28 * 0.27) + (0.21 * 0.9) + (0.9 * 0.12) = 0.5$

So, according to the results of calculations carried out from beginning to end, and supported by the determination of predetermined criteria, it is advisable to choose Syaif as the main choice with the highest value, namely 0.5 as the recipient of the best choice reward (best choice).

4. CONCLUSION

In determining employee rewards (bonus) recipients at PT. Inti Cakrawala Citra can be applied with the criteria of discipline, work performance, loyalty and behavior because based on these criteria it can be used as material for determining employee performance. By applying the AHP method it can be applied very well and in its implementation, AHP is able to show that one of the alternatives is a priority of the decision.

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