DESIGN OF CONTRACT EMPLOYEE PERFORMANCE ASSESSMENT BASED ON SPENCER COMPETENCY WITH METHOD ANALYTICAL HIERARCHY PROCESS AND RATING SCALE (CASE STUDY: RESEARCH AND DEVELOPMENT CENTER FOR ROADS AND BRIDGES OF THE MINISTRY OF PUBLIC WORKS AND PUBLIC HOUSING)

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ABSTRACT.
The assessment of work behavior at the Center for Research and Development of Roads and Bridges (Pusjatan) of the Ministry of Public Works and Public Housing has yet to be carried out thoroughly, especially in assessing the performance of contract employees. Quite a number of contract employees have discontinued the work contract at the center, due to the absence of clear performance appraisal competencies and incentives they did not receive. This study designed a contract employee performance appraisal based on Spencer's competence, with the aim of evaluating employee performance appraisals (particularly contract employees), identifying the priority value or weight of each competency factor and recommending the formulation of profit sharing incentive calculations based on employee performance appraisals. The Analytical Hierarchy Process (AHP) method is used to calculate each criterion according to the rating hierarchy. The results of these calculations produce weights. After obtaining the weight of the general competency criteria, in order to give value to employees more objectively, the rating scale is based on the assessment method Rating Scales. The results of the AHP method and the Rating Scale were tested on 3 employees with high, medium, and low performance categories. This research contributes to the assessment system that needs to be carried out at the Center for Research and Development of Roads and Bridges (Pusjatan) of the Ministry of Public Works and Public Housing based on the total employee performancescore.

Keywords: employee performance appraisal, competence, incentives, analytical hierarchy process and Rating Scales.

I. INTRODUCTION
 Basically, a government agency can progress and develop because human resources are quality, competent and can also work together to achieve the goals of a government agency (Nurmianto, 2006). The Road and Bridge Research Center (Pusjatan) of the Ministry of Public Works and Public Housing is a government agency that operates under the coordination of the Research and Development Agency (Balitbang) of the Ministry of Public Works and Public Housing. Assessment of employee performance at the Center for Research and Development of Roads and Bridges (Pusjatan) of the Ministry of Public Works and Public Housing has not been carried out thoroughly, especially in assessing the performance of contract employees. The absence of clear assessment criteria, and causes many contract employees to discontinue work contracts because they do not get incentives. Therefore, in this study, an assessment of the performance of contract employees will be developed based on competence, so that the distribution is fairer so that it can accommodate the performance of contract employees.
This study designed a Spencer competency-based employee performance appraisal that can assess the characteristics of employees' basic traits of work situations and conditions. So that it can be seen the results of the appropriate incentive system, namely the results of incentives or profit sharing, based on employee performance appraisals. The objectives to be achieved from the research conducted are evaluating the performance of employees (especially contract employees), identifying the priority value or weight of each competency factor and recommending the formulation of calculating incentives or profit sharing, based on employee performance appraisals. This research is a previous research that I have studied when I got my bachelor's degree.

II. LITERATURE REVIEW

Definition of Performance

Employee performance is a very important aspect for the company in order to achieve its goals well. Fast and accurate information related to employee performance can help management determine the right policies so that the goals to be achieved can be achieved more easily, especially those related to employee support (Huda, Nugraha, Ghifari, & Dewangga, 2013).

According to Bernardin and Russel (in Ruky, 2002) the definition of performance is as follows: “performance is defined as the record of outcomes produced on a specified job function or activity during the time period. Achievement or performance is a record of the results obtained from certain job functions or activities during a certain period of time.

According to (Payaman Simanjuntak, 2005) Suggests that performance is the level of achievement of results for the implementation of certain tasks. Company performance is the level of achievement of results in order to achieve company goals. Performance management is the overall activity carried out to improve the performance of a company or organization, including the performance of each individual and work group in the company. Performance relates to the achievement or achievement of certain achievements shown in completing work. Raymond J. Stone (2008:36).

Performance Appraisal

According to (Dessler, 1997), said that the usual performance appraisal is defined as any procedure which includes: setting performance standards, appraising the actual performance of employees in relation to standards, and providing feedback to employees with the aim of motivating the person to eliminate a performance slump or continue to perform higher. The evaluation criteria for the performance can be viewed through multiple dimensions, namely functional usage (functional utility), validity (validity), empirical (empirical base), sensitivity (sensitivity), the systematic development (systematic development), and legal feasibility (legal appropriateness). According to Mathis and Jacson (2006), performance appraisal is the process of evaluating how well employees are doing their job when compared to a set of standards, and then communicating that information to employees.

According to Byras and Rue (2006), performance appraisal is the process of evaluating and communicating how employees do work and compiling development plans to the employees themselves.

Competence

According to (Spencer and Spencer, 1993) Competence is part of and is always in a person's personality and can predict behavior and performance in a wide range of situations and job tasks. The definition above can be concluded that competence can be defined as a basic characteristic of an individual who has a casual or causal relationship with the criteria as a reference for effective or superior performance in the place where he works or in certain situations. According to Wibowo (2007: 110) states that competence is the ability to carry out or perform a job or task that is based on skills and knowledge and is supported by the work attitude demanded by the job.

According to Veithzal (2003), competence is ability, skill, ability. The root word itself is competent which means competent, capable, and skilled. Competence refers to the attributes / characteristics of a person that make him successful in his job. "Have a wide range of skills and can apply in the world of work". Competence is the ability that a person has in a job or task in a certain field. Competence is carried out to determine a person's ability which is a reference used in an institution.

Stephen Robbin (2007) competence is the ability or capacity of a person to do various tasks in a job, where this ability is determined by two factors, namely intellectual ability and physical ability. In Law No.13 of 2013,
Decision Making Method
Problems that occur at the Road and Bridge Research Center (Pusjatan) of the Ministry of Public Works and Public Housing in employee performance appraisal using the Analytic Hierarchy Process (AHP) method because the AHP method is able to solve multi-objective and multi-criteria problems based on a comparison of preferences from every element of the hierarchy. So it can be concluded that the AHP method is better at solving problems that occur at the Road and Bridge Research Center (Pusjatan) of the Ministry of Public Works and Public Housing.

Analytic Hierarchy Process (AHP)
According to (Walangare, 2012) Analytical Hierarchy Process (AHP) was introduced by Thomas L. Saaty in the 1970s, to solve complex multi criteria problems into a hierarchy. Three principles must be understood to solve a problem using the AHP method, namely: decomposition, comparative judgment, and logical consistency. AHP is a decision method in which there are criteria that develop a numerical value for alternative decisions, based on alternatives that meet the criteria of the decision maker.

Rating Scales Rating Methods
According to Suharsimi Arikunto (2006), the definition of rating scale is a research data scale with a stratified form so that there are interview statements found by researchers in showing the levels in the research instruments made. This Rating Scale is more flexible, not limited to measuring attitudes only but to measure respondents' perceptions of other phenomenon's, such as a scale to measure socioeconomic status, knowledge, ability, etc. What is important in the Rating Scale is that it must be able to interpret each number given the alternative answers to each instrument item.

Relationship of Priority as Eigen Vector to Consistency
There are many ways to find priority vectors from a matrix x pairwise comparison. But the emphasis on consistency led to the use of the formula Eigen value.

First, if z1, zn are the numbers that satisfy the equation Aw = Zw where Z is the eigenvalue of the matrix A, and if aij = 1 for i, then:

\[ \sum_{j=1}^{n} Z_i = n \]

Therefore, if Aw = Zw is fulfilled, so all eigenvalues are equal to zero, except for one Eigen value, which is equal to n. So it is clear that in the consistent case, n is the Eigen value largest A.

Second, if one of the aij of the reciprocal matrix A changes very small, then the diagonal of the matrix A consists of aij = 1 and if A is consistent, then the small change in aij holds the Eigen value largest, Z max, close to n, and the close to n. eigenvalues are remaining zero. Therefore, the problem is if A is a matrix of pairwise comparisons, to find the priority vector, we must find w which satisfies:

\[ Aw = Z_{\text{max}} w \] (2.2)

A small change aij causes a maximum Z change, the maximum Z deviation from n is a measure of consistency. Indicators of consistency are measured through the Consistency Index (CI) which is formulated:

\[ CI = (Z_{\text{max}} - n)/(n-1) \] (2.3)

AHP measures the entire consistency of the assessment using the Consistency Ratio (CR), which is formulated:
A certain level of consistency is required in determining priorities for legitimate results. The CR value should be no more than 10%. If not, the judgments that have been made may be random and need revision. Below is Table 2.2, which is the Random Index (RI).

<table>
<thead>
<tr>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>RI</td>
<td>0.0</td>
<td>0.0</td>
<td>0.58</td>
<td>0.90</td>
<td>1.12</td>
<td>1.24</td>
<td>1.32</td>
<td>1.41</td>
<td>1.45</td>
<td>1.49</td>
</tr>
</tbody>
</table>

Source: Saaty, L 1993

III. RESULTS AND FINDINGS

Research was conducted for the Center for Road Research and Development and Bridges (Pusjatan) of the Ministry of Public Works and Public Housing, which is one of the government agencies engaged in construction services. The research was conducted in February 2017, starting from field surveys to data collection. The object of research regarding the design of employee performance appraisal based on spencer competence using the method Analytical Hierarchy Process AHP at the Center for Research and Development of Roads and Bridges (Pusjatan) of the Ministry of Public Works and Public Housing.

The data required in undergraduate assignments are obtained from primary data and secondary data, namely:

Primary data

Primary data is data obtained from direct observation and research in the field. In this study, the data taken are:

1. Respondent data from preliminary questionnaires.

The data obtained is a questionnaire identifying the competency criteria variable to identify the element indicators of the main competencies needed by an employee in doing his job. The questions given are in the form of a statement of agreeing or disagreeing with the criteria referring to the Spencer and Spencer (1993) competency dictionary which consists of 20 factors of competency criteria.

2. Respondent data from the pairwise comparison questionnaire.

The data obtained is a pairwise comparison questionnaire to provide answers about the criteria that most influence on employee performance appraisals and then weighting is carried out based on the Analytical Hierarchy Process (AHP) method.

Secondary data

namely the Internet journal regarding Employee Performance Appraisal Based on Spencer Competence Using the Analytical Hierarchy Process (AHP) Method, book references relevant to undergraduate assignments, general description and history of the company, organization and company management, job descriptions of company employees.

In processing this data using the method Analytical Hierarchy Process (AHP) where AHP can help the human frame of mind because it includes human perceptions as qualitative input. The data processing process is making a matrix pairwise comparison where the data obtained from the questionnaire is made in the form of pairwise comparisons. Calculation of the weighted average and then the calculation of the average weighting is carried out to obtain the average weight given by the respondents to the proposed performance appraisal indicators. The calculation of the weighted average is carried out using the geometric mean equation. Calculation of the eigenvalue maximum where this calculation is used to find out how much the percentage given by respondents to
the indicators proposed for company performance. **Consistency Index** (CI), namely the calculation of the consistency index used as an indicator of consistency. **Consistency of Ratio** (CR). That is, a certain level of consistency is necessary in determining priorities for legitimate results (<0.1). To calculate the consistency ratio, consistency index and random index were used. If the result of the consistency ratio is > 0.1 then a recalculation of the weighted average is carried out. The **super matrix**, namely the existing linkages, will form the basis for the formation of a super matrix. **Limiting matrix**, it is namely the results of the weighted super matrix that is carried out from the weighted super matrix value, so that a stable weight value is produced.

### Analysis of Weighting Results

In the analysis of the results of this weighting where the weighting is based on the size of the effect of the criteria on the alternative decisions.

![Figure 4.1 Weights of the Hierarchy of Appraisal Results Data source: Data processed.](image)

#### Analysis of the design of company Performance Appraisal used method of Rating Scale.

After obtaining the weight of the general competency criteria, an employee performance appraisal format is designed that is able to reduce weaknesses and provide convenience when compared to the assessment scale in the previous employee performance appraisal. This will make it easier for appraisers to provide value to employees more objectively. The proposed rating scale based on the assessment method **Rating Scales** can be seen in Table 4.1

<table>
<thead>
<tr>
<th>Scale</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Unsatisfactory Performance</strong> (Not Satisfactory)</td>
</tr>
<tr>
<td>2</td>
<td><strong>Improvement Desired</strong> (Needs Improvement)</td>
</tr>
<tr>
<td>3</td>
<td><strong>Meets Expectation</strong> (Meeting Expectations)</td>
</tr>
<tr>
<td>4</td>
<td><strong>Exceeds Expectation</strong> (Exceeding Expectations)</td>
</tr>
<tr>
<td>5</td>
<td><strong>Outstanding performance</strong> (Extraordinary)</td>
</tr>
</tbody>
</table>

The rating scale has been determined in Table 4.1. Above is multiplied by the weight of the Spencer competency criteria that have been obtained. An example of an employee performance appraisal format can be seen in Table 4.2

<table>
<thead>
<tr>
<th>Criteria for Assessment Factors</th>
<th>Weight x Value</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competency Criteria:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention to clarity of assignment</td>
<td>0.6496x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Proactive / Initiative</td>
<td>0.6496x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Technical Skills</td>
<td>0.6496x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Commitment to Organization</td>
<td>0.6496x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Affects</td>
<td>0.3504x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Self-control</td>
<td>0.3504x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Cooperation</td>
<td>0.3504x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Confidence</td>
<td>0.3504x… x…</td>
<td>………</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>………</td>
</tr>
</tbody>
</table>

Data sources: Processed data

Table 4.2 above shows that to get the score of each employee, it can be obtained by multiplying each of the weighted values of the main competencies by the weight values of each competency criterion and rating scale. Then from the results of the achievement value can be used to calculate the amount of incentives for each employee in a month according to the Pusjatan budget funds. An example can be given to employees, namely employees with high competence. An example for employees with high competence uses a performance appraisal scale of 4 to 5. The results of the weighted competency criteria are as shown in Table 5.6. As below:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Assessment Factors Competent Competency Criteria:</th>
<th>Weight x Value</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>For Attention to clarity of tasks</td>
<td>Highly0.6496 x 0.0898 x 5</td>
<td>0.2916</td>
</tr>
<tr>
<td></td>
<td>Proactive / Initiative</td>
<td>0.6496 x 0.1100 x 5</td>
<td>0.3572</td>
</tr>
<tr>
<td></td>
<td>Technical Expertise</td>
<td>0.6496 x 0.1466 x 5</td>
<td>0.4761</td>
</tr>
<tr>
<td></td>
<td>commitment to Organizational</td>
<td>0.6496 x 0.3032 x 4</td>
<td>0.7878</td>
</tr>
</tbody>
</table>
in the example of performance appraisal in Employees with high competence above, namely the sum of each score of the competency criteria, which is generated (2.4371), which this value will later be included in the calculation of the number of employee incentives.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusion
The results of the calculated competency weights, namely technical competence produce the largest weight, namely 64.96%, and managerial ability of 35.04%. The Analytical Hierarchy Process (AHP) method is used to calculate each criterion according to the rating hierarchy. The method is Rating Scale used so that the assessment is more objective with the available format. The results of calculations using these two methods produce weights. The results of the weighting were tested on 3 employees with the high, medium, and low performance categories. The results of the total score for each employee will be included in the calculation of the employee's incentive amount. This research contributes to the assessment system that needs to be carried out at the Center for Research and Development of Roads and Bridges (Pusjatan) of the Ministry of Public Works and Public Housing based on the total employee performance score.

REFERENCES