SELECTION OF EMPLOYEES IN JOB PROMOTION THROUGH THE PROCESS HIERARCHY ANALYSIS APPROACH USING THE EXPERT CHOICE APPLICATION

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ABSTRACT

One of the complex problems in decision making is the existence of a variety of selection criteria that are important to one another. Therefore, the Analytical Hierarchy Process (AHP) is a method that can be used to solve this problem. As in this study, namely in the selection of prospective employees to be promoted in a company at PT ABC, where the resulting data is a CR value of 0.1 and a CI of 0.2037, so that a priority scale is obtained for each criterion of SK 9.67%, KK 9.77%, IS 5.80%, DS 16.31%, TJ 16.69%, MV 3.83%, KS 7.47%, PT 10.45%, KM 8.42% and HD 11.59%. With a comparison of these criteria for selecting employees to be promoted, the following results are obtained; where the first rank is filled by employee B with a percentage of 0.376, the second employee C with a percentage of 0.344 and the last is employee A with a percentage of 0.279.

Keywords: AHP, Expert Choice, Job Promotion

I. INTRODUCTION

Selection of employees to occupy certain positions or positions is one of the essential activities. Selection must be selective by looking at the potential and abilities possessed by employees. A method or method that can be used to overcome this is the application of the Analytic Hierarchy Process (AHP) method. According to Nugeraha (2017: 114) states that "AHP is a concept for multicriteria-based decision making (many criteria). Several criteria that are compared with each other (the level of importance) are the main emphasis on this AHP concept." This system compares the assessment variables between the candidate candidates with one another, so as to get an output priority intensity value that results in the value of each selected candidate. This method helps the selection team to determine the appropriate weighting of each candidate candidate's criteria.

PT ABC is one of the companies with the selection of a promotion that still relies on or emphasizes a close relationship between subordinates and superiors in an organization, therefore the authors took the initiative to apply this method to anticipate these problems, with a clear and measurable hierarchy of the AHP method in To determine the best candidate, the writer hopes to provide a solution to the above problems and as a consideration for making the right decision and can be accounted for consistency.

II. THEORETICAL FOUNDATION

Analytic Hierarchy Process

Definition of Analytic Hierarchy Process (AHP) method is a general theory of measurement. The four kinds of measurement scales that are usually used sequentially are nominal, ordinal, interval and ratio scales. A higher scale can be categorized into a lower scale, but not vice versa. Income per month on a ratio scale can be categorized into income levels on an ordinal scale or categories (high, medium, low) on a nominal scale. Conversely, if at the time of measurement, the data obtained were categorical or ordinal, data on a higher scale could not be obtained. AHP addresses some of these problems (Saaty, 2001). The stages of decision making in the AHP method are basically as follows:
The first step is to define the situation by entering relevant elements (criteria) and alternatives to be selected. Then, compiling a hierarchical model (AHP hierarchical structure chart) The structure in AHP consists of goals which are goals, criteria are important aspects to be considered and alternatives is a solution option.

Creating a pairwise comparison matrix between criteria

The comparison is based on the results of the answers from expert respondents by assessing the level of importance between the criteria, in the relative importance assessment. Criterion (K) applies the reciprocal axiom, the pairwise comparison scale is shown in Table 1.

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Two elements are equally important</td>
<td>Both elements have the same influence</td>
</tr>
<tr>
<td>3</td>
<td>One element is more important than the other</td>
<td>Judgments are a little more in favor of one element than their partner</td>
</tr>
<tr>
<td>5</td>
<td>One element is more important than the other</td>
<td>The assessment is very favorable to one element compared to their partner</td>
</tr>
<tr>
<td>7</td>
<td>One element is clearly more important than the other</td>
<td>One element is very influential and its dominance is evident</td>
</tr>
<tr>
<td>9</td>
<td>One element is absolutely more important than the other</td>
<td>The evidence that one element is more important than its partner is very clear</td>
</tr>
<tr>
<td>2,4,6,8</td>
<td>The midpoint between two adjacent comparison</td>
<td>This score is given when there is doubt between the two adjacent judgments</td>
</tr>
<tr>
<td>Kebalikannya</td>
<td>If the element x has a value above when compared to the element y, then the element y has a value opposite when compared with the element x</td>
<td></td>
</tr>
</tbody>
</table>

1. Determine the priority weight of the criteria by determining the Eigen vector

Eigenvector is the weight of each element that is used to determine the priority of elements at the lowest hierarchical level until they reach the goal. The eigenvector formula i.e.

\[
\text{Eigen Vector} = \frac{\text{Cell Criteria } 1,1 + \text{cell criteria } ... + \text{cell criteria } n,n}{\text{Total Criteria}}
\]  

(1)

Total Criteria

2. Measuring logical consistency by testing the Consistency Index (CI) and the Consistency Ratio (CR).

A. Find the value of Eigen

\[
\text{Eigen} = \frac{\text{Total of comparison values}}{\text{Total of each column}}
\]  

(2)

B. Find the weight value

\[
\text{Weight} = \frac{\text{Eigen value} \times 100%}{1}
\]  

(3)

C. Find value of \( \lambda \) (Lambda)

\[
\lambda \text{ (Lambda)} = \text{Eigen values per row x total per column}
\]  

(4)
D. Measurement of Consistency Index (CI)

\[
CI = \frac{\lambda_{\text{max}} - n}{n-1}
\]  

(5)

where

\(\lambda_{\text{max}}\) = maximum Eigen value

\(n\) = total element

E. Random Index (RI)

Here’s the RI table.

**Table 2. RI Table Values**

<table>
<thead>
<tr>
<th>n</th>
<th>R.I.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0.58</td>
</tr>
<tr>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>4</td>
<td>1.12</td>
</tr>
<tr>
<td>5</td>
<td>1.24</td>
</tr>
<tr>
<td>6</td>
<td>1.32</td>
</tr>
<tr>
<td>7</td>
<td>1.41</td>
</tr>
<tr>
<td>8</td>
<td>1.45</td>
</tr>
<tr>
<td>9</td>
<td>1.49</td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

F. Measurement of Consistency Ratio

\[
CR = \frac{CI}{RI}
\]  

(6)

The answers of expert respondents regarding the comparison between elements are considered consistent if the CR value does not exceed 10% (CR \(\leq 0.1\)). If the CR value is > 10%, the assessment that has been made is done randomly and needs to be revised (Suryadi, 1998).

a. Create a matrix of pairwise comparisons and priority weights between alternatives in relation to the criteria and measure their logical consistency. The formula and method of measuring logical consistency (CI and CR) are the same as the respondents' assessment which is stated to be consistent if the CR value is not more than 10% (CR \(\leq 0.1\)).

**Expert Choice**

Expert Choice is a system used to carry out analysis, systematic and consideration of a decision evaluation which aims to organize estimates and intuition in a logical form. Hierarchical approach by analyzing alternative choices for appropriate or effective decision making.

**III. RESEARCH METHODOLOGY**

Research in determining the promotion of this position is carried out at PT. ABC, which is located in the Mekar Mulya Industrial Estate, Gede Bage, Bandung. This company is engaged in plastic manufacturing with a total employee of approximately 220 people consisting of 2 main parts, namely the Administration division and the Technical division. The research data was taken using evaluation data of employees of the Quality Control department in the in Process Quality Control (IPQC) division in promoting the Supervisor position in the division to 3 valued people who came from the leader in each shift.
Flow Chart Research Activities

The research stages are described in the following flow chart at Figure 1.

---

**Description of the Research Activities Flow Chart**

**Study of literature**
Research sources are data from PT. ABC with research conducted, namely promotion using the Analytic Hierarchy Process (AHP) method.

**Determine the problem**
The problem at PT. ABC is a promotion that has not been structured because it still relies on subjectivity towards employees.

**Data collection**
Data collection at PT. ABC is carried out by assessing the criteria for employee evaluation conducted by the head of the Quality Control department. The assessment was carried out on 3 employees in the In Process Control section. Employees who are the object of the assessment are employees who will be proposed for promotion to supervisor in that section.

**Determination of Criteria**
The determination of criteria in the Analytic Hierarchy Process (AHP) method can determine the proportion of each criterion. The criteria used are 12 soft skills criteria based on employee evaluation standards at PT.ABC, namely work attitude (SK), work quality (KK), initiative (IS), discipline (DS), responsibility (TJ), motivation (MV), cooperation (KS), understanding of the task (PT), the ability to learn new things (KM), relationships with other employees (HD).
AHP computing
The results obtained by the final value are in the form of a Consistency Ratio and a Consistency Index, as a determinant of whether the weighting given can be categorized as consistent or not.

Expert choice application calculations
The appraisal data will be processed with the expert choice application to determine the percentage of each employee based on the specified criteria.

Optimal solution
We can change the data obtained based on the percentage of AHP calculations to rank and determine the optimal solution from the highest to lowest percentage order of the owner then used as a recommendation for the position to be promoted.

Conclusions and suggestions
The conclusion will answer the statement shown on the research objectives. Suggestions made are the submission of the opinion of the researcher in order to smooth the research that will be carried out next.

IV. RESULTS AND DISCUSSION
Head of Quality Control, PT. ABC as an assessor conducts a full assessment of this promotion research.

Step 1. Determine the AHP Hierarchical Structure of Job Promotion
The first step taken is to create a hierarchical structure based on its main objective, namely promotion in Figure 2.

![Figure 2. AHP Hierarchical Structure Job Promotion](image)

Step 2. Determine the Pairwise Criteria Matrix
The following is the rating scale in Table 3.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>SK</th>
<th>KK</th>
<th>IS</th>
<th>DS</th>
<th>TJ</th>
<th>MV</th>
<th>KS</th>
<th>PT</th>
<th>KM</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK</td>
<td>1/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KK</td>
<td>2/1</td>
<td>1/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS</td>
<td>1/2</td>
<td>1/3</td>
<td>1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DS</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TJ</td>
<td>2/1</td>
<td>2/1</td>
<td>1/2</td>
<td>1/2</td>
<td>3/1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MV</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/3</td>
<td>1/3</td>
<td>1/3</td>
<td>1/3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KS</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
<tr>
<td>PT</td>
<td>1/3</td>
<td>2/1</td>
<td>2/1</td>
<td>1/2</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
<td>3/1</td>
</tr>
<tr>
<td>KM</td>
<td>1/5</td>
<td>2/1</td>
<td>2/1</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
</tr>
<tr>
<td>HD</td>
<td>3/1</td>
<td>2/1</td>
<td>2/1</td>
<td>1/2</td>
<td>2/1</td>
<td>2/1</td>
<td>2/1</td>
<td>2/1</td>
<td>2/1</td>
<td>2/1</td>
</tr>
</tbody>
</table>

Changes in form to weighting can be seen in Table 4.
Table 4. Criteria in the Decimal Rating Scale

<table>
<thead>
<tr>
<th>Criteria</th>
<th>SK</th>
<th>KK</th>
<th>IS</th>
<th>DS</th>
<th>TJ</th>
<th>MV</th>
<th>KS</th>
<th>PT</th>
<th>KM</th>
<th>HD</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK</td>
<td>1.000</td>
<td>0.500</td>
<td>0.500</td>
<td>0.333</td>
<td>0.500</td>
<td>2.000</td>
<td>2.000</td>
<td>3.000</td>
<td>3.000</td>
<td>0.333</td>
</tr>
<tr>
<td>KK</td>
<td>2.000</td>
<td>1.000</td>
<td>3.000</td>
<td>2.000</td>
<td>0.333</td>
<td>2.000</td>
<td>2.000</td>
<td>0.500</td>
<td>0.500</td>
<td>0.333</td>
</tr>
<tr>
<td>IS</td>
<td>0.500</td>
<td>0.333</td>
<td>1.000</td>
<td>0.333</td>
<td>0.500</td>
<td>2.000</td>
<td>2.000</td>
<td>0.500</td>
<td>0.333</td>
<td>0.500</td>
</tr>
<tr>
<td>DS</td>
<td>3.000</td>
<td>0.500</td>
<td>3.000</td>
<td>1.000</td>
<td>2.000</td>
<td>3.000</td>
<td>2.000</td>
<td>2.000</td>
<td>2.000</td>
<td>2.000</td>
</tr>
<tr>
<td>TJ</td>
<td>2.000</td>
<td>3.000</td>
<td>2.000</td>
<td>0.500</td>
<td>1.000</td>
<td>3.000</td>
<td>2.000</td>
<td>3.000</td>
<td>2.000</td>
<td>4.000</td>
</tr>
<tr>
<td>MV</td>
<td>0.500</td>
<td>0.500</td>
<td>0.500</td>
<td>0.333</td>
<td>0.333</td>
<td>1.000</td>
<td>0.500</td>
<td>0.333</td>
<td>0.500</td>
<td>0.500</td>
</tr>
<tr>
<td>KS</td>
<td>0.500</td>
<td>2.000</td>
<td>0.500</td>
<td>0.500</td>
<td>0.500</td>
<td>2.000</td>
<td>1.000</td>
<td>0.500</td>
<td>0.500</td>
<td>2.000</td>
</tr>
<tr>
<td>PT</td>
<td>0.333</td>
<td>2.000</td>
<td>2.000</td>
<td>0.500</td>
<td>0.500</td>
<td>3.000</td>
<td>2.000</td>
<td>1.000</td>
<td>2.000</td>
<td>2.000</td>
</tr>
<tr>
<td>KM</td>
<td>0.333</td>
<td>2.000</td>
<td>3.000</td>
<td>0.500</td>
<td>0.500</td>
<td>2.000</td>
<td>2.000</td>
<td>0.500</td>
<td>1.000</td>
<td>0.250</td>
</tr>
<tr>
<td>HD</td>
<td>3.000</td>
<td>3.000</td>
<td>2.000</td>
<td>0.500</td>
<td>0.250</td>
<td>2.000</td>
<td>2.000</td>
<td>0.500</td>
<td>4.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Total = 13.1667

Step 3. Determine the Weight of the Criteria Pairwise Comparison Matrix

The results of the weighting calculations are listed in Table 5.

Table 5. Lambda Calculation Weight

<table>
<thead>
<tr>
<th>Criteria</th>
<th>SK</th>
<th>KK</th>
<th>IS</th>
<th>DS</th>
<th>TJ</th>
<th>MV</th>
<th>KS</th>
<th>PT</th>
<th>KM</th>
<th>HD</th>
<th>Eigen Values</th>
<th>Weight</th>
<th>λ (Lamda)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK</td>
<td>0.0759</td>
<td>0.0337</td>
<td>0.0286</td>
<td>0.0800</td>
<td>0.0909</td>
<td>0.1379</td>
<td>0.2535</td>
<td>0.1895</td>
<td>0.0258</td>
<td>0.0967</td>
<td>9.67%</td>
<td>1.2734</td>
<td></td>
</tr>
<tr>
<td>KK</td>
<td>0.1519</td>
<td>0.0674</td>
<td>0.1714</td>
<td>0.3077</td>
<td>0.0533</td>
<td>0.0909</td>
<td>0.0435</td>
<td>0.0423</td>
<td>0.0316</td>
<td>0.0977</td>
<td>9.77%</td>
<td>1.4489</td>
<td></td>
</tr>
<tr>
<td>IS</td>
<td>0.0380</td>
<td>0.0225</td>
<td>0.0571</td>
<td>0.0513</td>
<td>0.0800</td>
<td>0.0909</td>
<td>0.1379</td>
<td>0.0423</td>
<td>0.0211</td>
<td>0.0387</td>
<td>5.80%</td>
<td>1.0145</td>
<td></td>
</tr>
<tr>
<td>DS</td>
<td>0.2278</td>
<td>0.0337</td>
<td>0.1714</td>
<td>0.3200</td>
<td>0.1364</td>
<td>0.1379</td>
<td>0.1680</td>
<td>0.1263</td>
<td>0.1548</td>
<td>0.1631</td>
<td>16.31%</td>
<td>1.0603</td>
<td></td>
</tr>
<tr>
<td>TJ</td>
<td>0.1519</td>
<td>0.2022</td>
<td>0.1141</td>
<td>0.0769</td>
<td>0.1600</td>
<td>0.1364</td>
<td>0.1379</td>
<td>0.2535</td>
<td>0.1263</td>
<td>0.1669</td>
<td>16.69%</td>
<td>1.0432</td>
<td></td>
</tr>
<tr>
<td>MV</td>
<td>0.0380</td>
<td>0.0337</td>
<td>0.0286</td>
<td>0.0513</td>
<td>0.0533</td>
<td>0.0455</td>
<td>0.0345</td>
<td>0.0282</td>
<td>0.0316</td>
<td>0.0843</td>
<td>3.83%</td>
<td>0.8432</td>
<td></td>
</tr>
<tr>
<td>KS</td>
<td>0.0380</td>
<td>0.1348</td>
<td>0.0286</td>
<td>0.0769</td>
<td>0.0800</td>
<td>0.0909</td>
<td>0.0690</td>
<td>0.0423</td>
<td>0.0316</td>
<td>0.1548</td>
<td>0.0747</td>
<td>7.47%</td>
<td>1.0829</td>
</tr>
<tr>
<td>PT</td>
<td>0.0253</td>
<td>0.1348</td>
<td>0.1141</td>
<td>0.0769</td>
<td>0.0533</td>
<td>0.1364</td>
<td>0.1379</td>
<td>0.0845</td>
<td>0.1263</td>
<td>0.1548</td>
<td>0.1045</td>
<td>10.45%</td>
<td>1.2362</td>
</tr>
<tr>
<td>KM</td>
<td>0.0253</td>
<td>0.1348</td>
<td>0.1141</td>
<td>0.0769</td>
<td>0.0800</td>
<td>0.0909</td>
<td>0.1379</td>
<td>0.0423</td>
<td>0.0632</td>
<td>0.0194</td>
<td>0.0842</td>
<td>8.42%</td>
<td>1.3333</td>
</tr>
<tr>
<td>HD</td>
<td>0.2278</td>
<td>0.2022</td>
<td>0.1141</td>
<td>0.0769</td>
<td>0.0400</td>
<td>0.0909</td>
<td>0.0345</td>
<td>0.0423</td>
<td>0.2526</td>
<td>0.0734</td>
<td>0.1159</td>
<td>11.59%</td>
<td>1.4970</td>
</tr>
<tr>
<td>Total</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>100%</td>
<td>11.833078</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 shows the results of weighting calculations, calculation examples:

a. Calculation of the probability of each cell.

Weighting (SK, SK) = \( \frac{\text{Cell Criteria}}{\text{Total Criteria}} \)

Weighting criteria 1,1 (SK,SK) = \( \frac{1}{13,1667} \)

Weighting criteria 1,1 (SK,SK) = 0.0759

b. Weighting (KK, SK)

Weighting criteria n,n = \( \text{Cell Criteria} \)

Total Criteria

Weighting criteria 2,1 (KK,SK) = \( \frac{2}{13,1667} \)

Weighting criteria 2,1 (KK,SK) = 0.1519
c. Calculation of Eigenvalues

Eigen Vector = \( \frac{\text{Cell Criteria 1,1} + \text{cell criteria} \ldots + \text{cell criteria n,n}}{\text{Total Criteria}} \)

Eigen Vector = 0.0759 + 0.0337 + \ldots + 0.0258

Eigen Vector = 0.0967
d. Weighting calculations

\[
\text{Weight} = \frac{\text{Eigen value} \times 100}{1}
\]

\[
\text{Weight} = 0.0967 \times 100
\]

\[
\text{Weight} = 9.67\%
\]

e. Lambda Calculations

\[
\lambda (\text{Lambda}) = \text{Eigen values per row} \times \text{total per column}
\]

\[
\lambda (\text{Lambda}) = 0.0967 \times 13.1667
\]

\[
\lambda (\text{Lambda}) = 1.2734
\]

The calculation of the Consistency Index and the Consistency Ratio is as follows:

\[
\text{CI} = \frac{\lambda_{\text{max}} - n}{n - 1}
\]

\[
\text{CI} = \frac{11.8330 - 10}{10 - 1}
\]

\[
\text{CI} = 0.2037
\]

\[
\text{CR} = \frac{\text{CI}}{\text{RI}}
\]

\[
\text{CR} = \frac{0.2037}{1.49}
\]

\[
\text{CR} = 0.1367 \sim 0.1
\]

Step 4. Checking the Consistency of the Hierarchy

CR value ≤ 0.1, this calculation fulfills the requirements. Obtained a priority scale for each criterion SK 9.67%, KK 9.77%, IS 5.80%, DS 16.31%, TJ 16.69%, MV 3.83%, KS 7.47%, PT 10, 45%, KM 8.42%, HD 11.59%.

Step 5. Applying Expert Choice

The fifth step is followed by the application of the expert choice application. The data entered is an assessment based on the criteria for each employee listed in Table 6.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Employee A against B</th>
<th>Employee A against C</th>
<th>Employee B against C</th>
</tr>
</thead>
<tbody>
<tr>
<td>SK</td>
<td>0.3333</td>
<td>0.3333</td>
<td>0.5000</td>
</tr>
<tr>
<td>KK</td>
<td>2.0000</td>
<td>0.5000</td>
<td>0.5000</td>
</tr>
<tr>
<td>IS</td>
<td>2.0000</td>
<td>0.5000</td>
<td>2.0000</td>
</tr>
<tr>
<td>DS</td>
<td>0.5000</td>
<td>2.0000</td>
<td>3.0000</td>
</tr>
<tr>
<td>TJ</td>
<td>2.0000</td>
<td>0.3000</td>
<td>0.5000</td>
</tr>
<tr>
<td>MV</td>
<td>2.0000</td>
<td>3.0000</td>
<td>2.0000</td>
</tr>
<tr>
<td>KS</td>
<td>0.5000</td>
<td>0.3333</td>
<td>2.0000</td>
</tr>
<tr>
<td>PT</td>
<td>0.2500</td>
<td>0.3333</td>
<td>0.5000</td>
</tr>
<tr>
<td>KM</td>
<td>0.5000</td>
<td>2.0000</td>
<td>2.0000</td>
</tr>
<tr>
<td>HD</td>
<td>0.5000</td>
<td>3.0000</td>
<td>0.5000</td>
</tr>
</tbody>
</table>

We then input these values into the expert choice application. The following are the results of applying expert choice that have been accumulated into one diagram for the whole in Figure 3.

Figure 3. Department Promotion Goal
Step 6. Determination of the Optimal Solution

Figure 4 shows the percentage of each employee. The first rank as the optimal solution for employee B is 0.376.

![Job Promotion Goal Graph](image)

**Figure 4.** Department Promotion Goal Stem Diagram

### V. CONCLUSION

Based on research on AHP for job promotion as follows:

a. Based on the use of the formula used in AHP, the value of CR is 0.1 and the CI is 0.2037. CR value meets the requirements so that it is said to be consistent.

b. The level of consistency in this study is 0.1367 ~ 0.1 so that the CR value is at a value less than or equal to 0.1, it is said to be consistent.

c. The percentage for employee A is 0.279, for employee B is 0.376 and for employee C is 0.344. The percentage data is then used as the final result, it can be concluded that employee B is in the first rank and is promoted to promotion.

### Suggestions

Suggestions that can be given in this research include the following:

a. Increase the choice of even more alternatives for a given decision.

b. The AHP method can be used as an alternative in determining a promotion, because the level of consistency has been tested.

c. The support system uses AHP and expert choice as a support system in determining positions, not replacing the entire existing system. Promotion in a company is returned to that company.

### REFERENCES