

Collaboration of Profile Matching and MCDM-AHP Methods on Employee Selection for Promotion

Akmaludin^{1)*}, Erene Gernaria Sihombing²⁾, Linda Sari Dewi³⁾, Rinawati⁴⁾, Ester Arisawati⁵⁾
¹⁾²⁾³⁾⁴⁾⁵⁾Universitas Nusa Mandiri, Jakarta, Indonesia

¹⁾akmaludin.akm@nusamandiri.ac.id, ²⁾erene.egs@nusamandiri.ac.id, ³⁾linda.lrw@nusamandiri.ac.id,
⁴⁾rinawati.rlw@nusamandiri.ac.id, ⁵⁾ester.err@nusamandiri.ac.id

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Abstract: To give appreciation to every employee who has been able to understand the journey of the system in a company, it is appropriate to be given appreciation in the process of changing leadership and as a form of motivation for all employees in the company as a form of promotion. The promotion process must be carried out objectively, so that a good leadership change system can be seen as a strength in the company's survival for each period. The process of changing leadership through promotions is at the forefront of running a sustainable company. With so many employees, the biggest obstacle that often becomes crucial is how to select the leadership relay holder through promotions in the company that can be carried out objectively, thus a method is needed. worthy to be used as a benchmark for selecting employees in terms of promotion. There is a method that can be used for employee selection as a form of promotion, namely the profile matching method through the assessment of the weight of the Aspects and the magnitude of the GAP value with the concept of determining the largest rank as the winner in the selection process for promoted employees. Of the six employees who are appointed as candidates for leadership candidates through promotions, they will be selected consistently with a number of criteria as a barometer of the selection process. The results obtained through the promotion of positions in the leadership change process were the first rank was elected KR02 (4.67), followed by the second rank KR01 (4.65) and the third rank KR05 (4.46). Thus, it can be said that the combination of profile matching and MCDM-AHP methods can be used to carry out the employee selection process as a form of promotion.

Keywords: AHP-MCDM, Objectives, Profile Matching, Promotion, Selections.

INTRODUCTION

To build sustainable certainty in building the leadership process in the company, it is necessary to make wise and fair rules of the game as a form of promotion to all employees in a company. This needs to be done because it is to get around the attitude of appreciation to all employees and also as a form of motivation to all employees in the company (Sudrajat, 2018). Due to the condition that there are so many employees in the company, an appropriate method is needed and can be used to carry out the selection process consistently (Herlambang et al., 2018). The purpose of this research is to encourage all employees in terms of promotion in the company consistently and objectively (Nisa & Sutinah, 2018). The method that can be used for promotion is the profile matching method, this selection process requires a number of criteria, namely 1) Communication which is divided into three namely speaking, listening, and recording 2) Discipline which is divided into three namely Attendance, Work, and Reports, 3) Loyalty is divided into three namely Responsibility, Cooperation, and Craft, 4) Cleanliness which is divided into three namely Action, Treatment, and Ability. These four criteria are used for the selection process of six employees who become candidates for promotion in the company. The profile matching method can be used as an employee selection process which becomes a barometer for determining promotions in the company. It is known that every employee has seen a lot of good work ethic and it is appropriate to be given a reward because it is a form of encouragement at work. However, it is hoped that the leadership change system should be made as good as possible to provide guarantees to all employees in the company no longer using subjective methods or by appointing directly by the leadership, but must be objective. Several related studies in terms of promotion as a form of decision support, namely "Implementation of Profile Matching Methods In a Mobile Based Adolescent Nutritional Assessment Systems" (Herlambang et al., 2018), "Selection of Outstanding Employees Using the Profile Matching Method" (Sudrajat, 2018), "Profile Matching

*name of corresponding author



for Decision Support Systems for Selection of Maintenance Server Vendors" (Nisa & Sutinah, 2018). and Networks", "Decision Support System for Selection of Majors Using the Profile Matching Method at SMK Negeri 2 Sekayu (Allba & Sasmita, 2018)".

In determining the determination of the importance of each criterion, it must be based on research results and not set manually, according to the results of the research, the stages that must be carried out are using instrumentation in the form of a questionnaire from a number of respondents which is obtained by converting the scale from an arithmetic scale to a geometric scale, then converted back to AHP scale. Thus the pairwise multiplication of matrices can be processed through mathematics algebra matrix. The results can be seen in Table 13 and Fig. 2, that the results must be carried out in four iteration stages until no more differences are found against the eigenvector values as shown in Fig 3 and Table 14. This is what every researcher should do. It is very clear that the priority of an eigenvector has a level of accuracy that is in accordance with the application of expert choice and this is often used by research science decision in determining consistency (Lipovetsky, 2020).

LITERATURE REVIEW

Decision Support System (DSS)

Decision Support System (DSS) is a form of computerized solution (computer base) that can be used to solve semi-structured problems. DSS can also be a system used by managers to make computer-assisted decisions through the retrieval process as data collection that can be used as decision support (Kamps & Jassemi-Zargani, 2021). Decision making by managers is to determine the next step in carrying out organizational life . Seeing the understanding of the system which is a collection of a number of elements that interact with each other to achieve a goal (Bellahcene et al., 2020). Many experts define a system in another sense as a collection of a number of boundaries that are interconnected with each other to achieve goals by supporting each other to form an attachment function. Decision support systems have many uses in solving problems with various criteria used as measurement barometers(Dixon-Ogbechi & Adebayo, 2020), one of which can be used in the form of real applications, namely the Analytic Hierarchy Process (AHP), where this AHP was discovered by an expert from the University of Pesburg in America who named Thomas L. Saaty in 1970 and today there are still many who use it as a ranking method with many criteria (Yalcin & Ozturk, 2020).

In its category, AHP is part of the Multi-criteria Decision Making (MCDM) (Topcu & Ozaydin, 2020). Thus, AHP can be used to solve problems from simple problems to even complex problems (Noshad & Asgharipour, 2019)(Ali et al., 2020), the AHP method is applied to problem conditions where the number of barometer criteria from a small number to even a complex barometer of criteria is not a problem. On the other hand, AHP also has extraordinary abilities, namely being able to handle quantitative problems as well as qualitative problems, even problems that are a combination of the two, both quantitative problems combined with qualitative problems (Singh & Singh, 2019). The Decision Support System has a flexible supporting application, namely Expert Choice (Saaty, 2010), this application can be used to determine the optimal value of the eigenvector in its calculation,(The et al., 1936). The calculations contained in the Expert Choice application can also be proven by the mathematical algebra matrices method. So that both can prove each other to the optimal magnitude of the eigenvector value. Several formulas that can be used using AHP, namely (1) are used to determine pairwise matrices with the number of orders determined by the number of criteria and alternatives.

$$M_{(r,s)} = \begin{bmatrix} x_{(1,1)} & x_{(1,2)} & x_{(1,3)} & \dots & x_{(1,s)} \\ x_{(2,1)} & x_{(2,2)} & x_{(2,3)} & \dots & x_{(2,s)} \\ x_{(3,1)} & x_{(3,2)} & x_{(3,4)} & \dots & x_{(3,s)} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ x_{(r,1)} & x_{(r,2)} & x_{(r,3)} & \dots & x_{(r,s)} \end{bmatrix} \tag{1}$$

To perform the calculation of the consistency process there are two consistency that need to be known, the first Consistency Index (CI), the determination of the CI value in (2) is used to find out how long max is generated from the multiplication between pairwise matrices with the optimal eigenvector value generated which is adjusted to the order of the pairwise matrices. Meanwhile, Consistency Ratio (CR) is used to determine whether the decision support is acceptable or not. The standard value of CR in (3) according to Saaty's determination must be less or equal to 10%. If the result of the CR operation is the opposite, the decision support will be rejected, meaning that an error occurred with the entry made when entering data elements in the pairwise matrices.

$$CI = \frac{(\lambda \max - n)}{(n-1)} \tag{2}$$

$$CR = \frac{CI}{RI} \tag{3}$$

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Meanwhile, to determine the CR value, it must be supported by a Random Index (RI) table where the RI table provides a clear reference to the use of a matrix that is adjusted to the number of criteria or alternative orders. How to use it by paying attention to the number of orders used, for example, if the number of orders is 1 or 2, the value of RI used as the denominator is zero, usually researchers use the number of orders above 2, this is very important to do so that the value of the denominator is not worth infinity. The best solution is to determine the value for the criteria and alternatives must have data elements whose number is more than two orders, so that it looks consistent with the results obtained.

Table 1
Random Index

| Ordo | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------|------|------|------|------|------|------|------|------|------|------|
| RI | 0.00 | 0.00 | 0.58 | 0.90 | 1.12 | 1.24 | 1.32 | 1.41 | 1.45 | 1.48 |

Profile Matching

Profile Matching is used to solve problems in which there is an ideal level of predictor variables and must be met by a number of subjects to be studied. Profile Matching is a process of assuming the level of predictor variables that are ideal for subjects who are ready for the research process (Sitanggang, Rianto dan Sibagariang, 2019), (Sudrajat, 2018). There are several stages in the process of using the Profile Matching method (Nisa & Sutinah, 2018), namely stage 1) Assessment, assessment is a very important aspect in determining two factors, namely the main factor (core factor) and supporting factor (secondary factor). The second stage 2) mapping the competency GAP, which is used to determine the magnitude of the difference between the criteria used, the formula for determining the competency GAP, pay attention to (4). The third step is to determine the amount of weighting. The weighting of the GAP values used for the use of the Profile Matching method can be seen in Table 2. Stage 4) Grouping Core factors and Secondary factors, this is done after the process of determining the weight of GAP values against the required criteria (Allba & Sasmita, 2018), then broken down into main factors (Core factors) with the calculation formula can be seen in (5) and the supporting factor (Secondary factor) with the calculation formula using (6). Step 5) Determine the total value of each aspect that is estimated to affect the performance of each profile, the calculation formula can use (7).

$$GAP = \text{Criteria Value} - \text{Minimum Value} \tag{4}$$

$$NCI = \frac{\sum NC}{\sum IC} \tag{5}$$

$$NSI = \frac{\sum NS}{\sum IS} \tag{6}$$

$$N = (x)\% NCI + (x)\% NS \tag{7}$$

$$R = (x)\% NKI + (x)\% NSK + (x)\% NP \tag{8}$$

The dimension (x)% in the formula (7) is usually set with a ratio of 60-40 because it is based on the priority of the core factor and secondary factor, in contrast to the use of formula (8) on the dimension (x)% can be done manually but this way more subjective in nature, but the best way is with the help of questionnaire instrumentation which is applied using the AHP method because to determine the value of decisions on rankings it must be objective, so that decision support is carried out consistently and naturally. The last step of Stage 6) is to determine a rating that can be calculated using (8).

Table 2.
GAP score weight

| No. | Nilai Bobot | Selisih GAP | Describing |
|-----|-------------|-------------|--|
| 1. | 5 | 0 | Competence as required |
| 2. | 4,5 | 1 | 1 level excess individual competence |
| 3. | 4 | -1 | Individual competence less than 1 level |
| 4. | 3,5 | 2 | Individual competence excess 2 levels |
| 5. | 3 | -2 | Individual competence less than 2 levels |
| 6. | 2,5 | 3 | Individual competence excess 3 levels |
| 7. | 2 | -3 | Individual competence less than 3 levels |

*name of corresponding author



| | | | |
|----|-----|----|--|
| 8. | 1,5 | 4 | Individual competence excess 4 levels |
| 9. | 1 | -4 | Individual competence less than 4 levels |

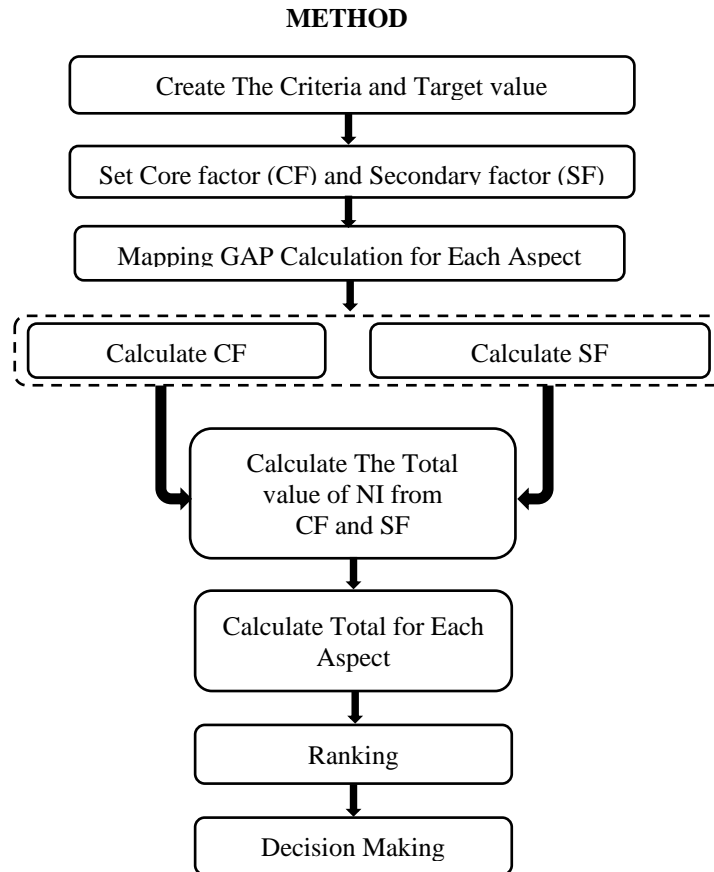


Fig. 1. Profile Matching Algorithm.

RESULT

The Profile Matching method is a method that is often used as a mechanism in decision making by assuming that there is an ideal level of predictor variables that must be met by the subjects studied. To build the continuity of the company in a sustainable manner, of course the readiness of employees is needed to act as potential candidates, these candidates can be categorized as very mature in understanding the work processes that exist in the company, on the grounds that they are able to map the journey of the existing system and employees such as it is appropriate to have the opportunity to be given appreciation (Umar et al., 2020) for being a leader in an organization when there is a change in leadership (Lahope et al., 2020). If the leadership selection system is assessed in a good and consistent category, then many employees want to compete to become candidates for leadership candidates. The profile matching method is a method that can be used for the selection process in a company or organization, no longer with a system of pointing at the generation of leadership because it is known by many people that the system is not objective. The profile matching method can be used to consistently apply the leadership selection process based on weighting criteria into every aspect of the assessment. Of the six candidates who come from selected employees who are ready to become the best candidates in the company, they will be selected strictly and consistently with a barometer of four criteria and twelve sub-criteria providing a clear picture and can be seen in Table 3 and equipped with a target value.

Table 3
Aspect criteria and target value

| No. | Criteria | Sub-criteria | Target Value | No. | Criteria | Sub-criteria | Target Value |
|-----|---------------|--------------|--------------|-----|----------|--------------|--------------|
| 1 | Communication | Speech | 5 | 3 | Loyalty | Responsible | 5 |

*name of corresponding author



| | | | | | | |
|---|------------|-----------|---|---|-------------|---|
| | | listening | 3 | | cooperation | 4 |
| | | Recording | 4 | | Assiduity | 3 |
| 2 | Discipline | Presence | 4 | 4 | Cleanliness | 3 |
| | | Working | 3 | | Treatment | 3 |
| | | Reporting | 5 | | Magnificent | 4 |

Next determine the grouping of the Core factor and Secondary factor of each sub-criteria respectively. This is determined according to the priority of each criterion with a comparison value of 60% for the core factor and 40% for the secondary factor. Pay attention to Table 4 as a form of grouping. By carrying out the mapping process, a GAP assessment will be formed for each candidate from the employees to be selected, pay attention to Table 5. Based on the respective criteria and sub-criteria.

Table 4
Grouping of Core factor and secondary factor

| No. | Aspect | Core factor | Secondary factor |
|-----|---------------|--------------------------|------------------|
| 1 | Communication | Speech Recording | Listening |
| 2 | Discipline | Presence Reporting | Working |
| 3 | Loyalitas | Responsible Kerjasama | Assiduity |
| 4 | Cleanliness | Neatness Magnificent | Treatment |

In Table 4, it can be seen that the grouping of each sub-criteria into a Core factor and Secondary factor, each Core factor consists of two criteria and the Secondary factor only takes one sub-criteria which is determined from each criterion.

Table 5
Mapping GAP communication

| No. | ID Karyawan | GAP Sub-Aspect Value | | | Target Value Profile Criteria | | |
|-----|-------------|----------------------|---|---|-------------------------------|----|----|
| | | 1 | 2 | 3 | 5 | 3 | 4 |
| 1 | KR01 | 4 | 3 | 4 | -1 | 0 | 0 |
| 2 | KR02 | 5 | 3 | 4 | 0 | 0 | 0 |
| 3 | KR03 | 5 | 2 | 3 | 0 | -1 | -1 |
| 4 | KR04 | 4 | 2 | 3 | -1 | -1 | -1 |
| 5 | KR05 | 5 | 3 | 4 | 0 | 0 | 0 |
| 6 | KR06 | 3 | 2 | 2 | -2 | -1 | -2 |

In Table 5 it can be seen that the sub-criteria are determined with numbers 1,2, and 3 as GAP Aspect values that have been given an assessment for each candidate in this case employees who are represented by employee codes such as KRY01, KRY02, to KRY06 and for mapping GAP criteria others follow this rule. For Profile Criteria Value, a maximum range rating must be given according to the rules in Table 2. With a maximum rating of 5, while those listed in Table 5 the maximum value is 5.3 and 4 for Profile Criteria Value, respectively. This rule will apply to other Mapping GAP criteria. The next step is to display all other GAP Mappings such as Mapping GAP Disciplines listed in Table 6, Loyalty GAP Mappings listed in Table 7, and Mapping GAP Cleaness listed in Table 8.

Table 6
Mapping GAP Dicipline

| No. | ID Karyawan | GAP Sub-Aspect Value | | | Target Value Profile Criteria | | |
|-----|-------------|----------------------|---|---|-------------------------------|----|----|
| | | 1 | 2 | 3 | 4 | 3 | 5 |
| 1 | KR01 | 4 | 3 | 4 | 0 | 0 | -1 |
| 2 | KR02 | 3 | 3 | 5 | -1 | 0 | 0 |
| 3 | KR03 | 2 | 2 | 5 | -2 | -1 | 0 |
| 4 | KR04 | 3 | 3 | 4 | -1 | -1 | -1 |

*name of corresponding author



| | | | | | | | |
|---|------|---|---|---|----|----|----|
| 5 | KR05 | 4 | 2 | 4 | 0 | -2 | -1 |
| 6 | KR06 | 2 | 3 | 5 | -2 | 0 | 0 |

Note that Table 6 provides an overview of the Mapping GAB Discipline which is the basis for the assessment of a number of employees from the gains that each employee has based on a thorough assessment that is ready to carry out the selection process.

Table 7
Mapping GAP Loyalty

| No. | ID Karyawan | GAP Sub-Aspect Value | | | Target Value Profile Criteria | | |
|-----|-------------|----------------------|---|---|-------------------------------|----|----|
| | | 1 | 2 | 3 | 5 | 4 | 3 |
| 1 | KR01 | 4 | 4 | 3 | -1 | 0 | 0 |
| 2 | KR02 | 4 | 2 | 3 | -1 | -2 | 0 |
| 3 | KR03 | 5 | 4 | 2 | 0 | 0 | -1 |
| 4 | KR04 | 4 | 3 | 3 | -1 | -1 | 0 |
| 5 | KR05 | 5 | 3 | 2 | 0 | -1 | -1 |
| 6 | KR06 | 4 | 3 | 3 | -1 | -1 | 0 |

Seen in Table 7, it provides an overview of the Mapping GAP Loyalty which is the basis for the assessment of a number of employees from the earnings of each employee based on a thorough assessment that is ready to carry out the selection process.

Table 8
Mapping GAP Cleaness

| No. | ID Karyawan | GAP Sub-Aspect Value | | | Target Value Profile Criteria | | |
|-----|-------------|----------------------|---|---|-------------------------------|----|----|
| | | 1 | 2 | 3 | 3 | 3 | 4 |
| 1 | KR01 | 3 | 1 | 4 | 0 | -2 | 0 |
| 2 | KR02 | 2 | 3 | 3 | -1 | 0 | -1 |
| 3 | KR03 | 3 | 3 | 4 | 0 | 0 | 0 |
| 4 | KR04 | 2 | 3 | 3 | -1 | 0 | -1 |
| 5 | KR05 | 3 | 2 | 3 | 0 | -1 | -1 |
| 6 | KR06 | 3 | 2 | 4 | 0 | -1 | 0 |

The next process is after determining the value of Mapping GAP, thus determining the grouping of Total GAP which is a combination of the Core factor and Secondary factor of each GAP with a weighting of 60% for the Core factor and 40% for the Secondary factor. Each criterion will be calculated the amount of the Total GAP. For Total GAP, the Communication Aspect criteria will be shown in Table 9, for Total GAP Discipline Aspect will be shown in Table 10, for Total GAP Loyalty Aspect will be shown in Table 11, and for Total GAP Cleaness will be shown in Table 12. each of the criteria used.

Table 9
Core factor and Secondary factor Communication Aspect

| No. | Sub-Aspect Alternative | GAB Value | | | CF | SF | Total GAP (60% CF+40%SF) |
|-----|---------------------------|-----------|---|---|-----|----|-----------------------------|
| | | 1 | 2 | 3 | | | |
| 1 | KR01 | 4 | 5 | 5 | 4.5 | 5 | 4.7 |
| 2 | KR02 | 5 | 5 | 5 | 5 | 5 | 5 |
| 3 | KR03 | 5 | 4 | 4 | 4.5 | 4 | 4.3 |
| 4 | KR04 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | KR05 | 5 | 5 | 5 | 5 | 5 | 5 |
| 6 | KR06 | 3 | 4 | 3 | 3 | 4 | 3.4 |

See on Table 9 describes the acquisition of Core Factor and Secondary Factor with the aim of determining the value of the Total Gap on the Communication Aspect with each weight determined by a percentage.

Table 10
Core factor and Secondary factor Discipline Aspect

*name of corresponding author



| No. | Sub-Aspect Alternative | GAB Value | | | CF | SF | Total GAP (60% CF+40%SF) |
|-----|---------------------------|-----------|---|---|-----|----|-----------------------------|
| | | 1 | 2 | 3 | | | |
| 1 | KR01 | 5 | 5 | 4 | 4.5 | 5 | 4.7 |
| 2 | KR02 | 4 | 5 | 5 | 4.5 | 5 | 4.7 |
| 3 | KR03 | 3 | 4 | 5 | 4 | 4 | 4 |
| 4 | KR04 | 4 | 4 | 4 | 4 | 4 | 4 |
| 5 | KR05 | 5 | 3 | 4 | 4.5 | 3 | 3.9 |
| 6 | KR06 | 3 | 5 | 5 | 4 | 5 | 4.4 |

Pay attention to Table 10 explaining the acquisition of Core Factor and Secondary Factor with the aim of determining the amount of value possessed by the Total Gap against the Discipline Aspect with each weight determined by a percentage.

Table 11
Core factor and Secondary factor Loyalty Aspect

| No. | Sub-Aspect Alternative | GAB Value | | | CF | SF | Total GAP (60% CF+40%SF) |
|-----|---------------------------|-----------|---|---|-----|----|-----------------------------|
| | | 1 | 2 | 3 | | | |
| 1 | KR01 | 4 | 5 | 5 | 4.5 | 5 | 4.7 |
| 2 | KR02 | 4 | 3 | 5 | 3.5 | 5 | 4.1 |
| 3 | KR03 | 5 | 5 | 4 | 5 | 4 | 4.6 |
| 4 | KR04 | 4 | 4 | 5 | 4 | 5 | 4.4 |
| 5 | KR05 | 5 | 4 | 4 | 4.5 | 4 | 4.3 |
| 6 | KR06 | 4 | 4 | 5 | 4 | 5 | 4.4 |

Note Table 11 describes the acquisition of Core Factor and Secondary Factor with the aim of determining the amount of value possessed by the Total Gap against Loyalty Aspect with each weight determined by a percentage.

Table 12
Core factor and Secondary factor Cleanliness Aspect

| No. | Sub-Aspect Alternative | GAB Value | | | CF | SF | Total GAP (60% CF+40%SF) |
|-----|---------------------------|-----------|---|---|-----|----|-----------------------------|
| | | 1 | 2 | 3 | | | |
| 1 | KR01 | 5 | 3 | 5 | 5 | 3 | 4.2 |
| 2 | KR02 | 4 | 5 | 4 | 4 | 5 | 4.4 |
| 3 | KR03 | 5 | 5 | 5 | 5 | 5 | 5 |
| 4 | KR04 | 4 | 5 | 4 | 4 | 5 | 4.4 |
| 5 | KR05 | 5 | 4 | 4 | 4.5 | 4 | 4.3 |
| 6 | KR06 | 5 | 4 | 5 | 5 | 4 | 4.6 |

With the calculation of Total GAP combined from each Aspect criteria by grouping employee ownership from Alternatives as candidates for leadership change in the company, then carry out the merging process for each employee then carry out the total GAP addition process as a whole to determine the ranking of each Candidates in the leadership change process will be determined as soon as possible. The calculation for determining the ranking is carried out with the value (N)% using the help of the Mathematical Algebra Matrices method with the iteration concept in AHP and Expert Choice Applications. As for the calculation using the Mathematical Algebra Matrices method to determine the preference weight of each of the four criteria used, data entry arranged into pairwise matrices is obtained through questionnaire instrumentation from prospective candidates as employees of active status within the company using saturated sampling, which means that all employees have the same share in the formation of the magnitude of the value of interest as the accumulated entry into the pairwise matrices as a comparison value. The first step is to calculate the Eigenvector for the calculation of the Total Profile Matching preference weight using the Expert Choice Application, previously prepared pairwise matrices entries which can be seen in Table 13 obtained from the Expert Choice Application. Operational calculations on the acquisition value of the Eigenvector value are also carried out using the Expert

*name of corresponding author



Choice Application, which results can be seen in Fig. 2 with Table 14 by using algebra matrices which produces four iterations and the result of obtaining the optimal eigenvector value as expected.

Table 13
 Input pairwise matrices using Expert Choice Apps.

| | Communication | Discipline | Loyalty | Cleanliness |
|---------------|---------------|------------|---------|-------------|
| Communication | | 1.636 | 1.895 | 2.437 |
| Discipline | | | 1.745 | 2.039 |
| Loyalty | | | | 1.798 |
| Cleanliness | Incon: 0.01 | | | |

In Table 13 describes the pairwise matrices from the results of the arithmetic scale conversion to the geometric scale, then converted back to the AHP scale to be ready to be used as entry pairwise matrices that are ready to be processed both with mathematical algebra matrices and expert choice apps and the result we can see Fig. 2.



Fig. 2. Eigenvector Optimal using Expert Choice Apps.

To get the Optimal Eigenvector value, it can also be done with Mathematical Algebra Matrices, before carrying out the calculation process, first set the pairwise matrices as initial Pairwise Matrices and the result of the multiplication of matrices occurs four times the multiplication iteration process. Pay attention to the process of multiplying pairwise matrices using Mathematical Algebra Matrices in the iteration steps listed in Fig. 3 with clear stages.

*name of corresponding author



| | | | | |
|---|----------------|----------------|----------------|----------------|
| Initial Pairwise Matrices AxA=B | | | | |
| Communication (CO) | 1.000 | 1.636 | 1.895 | 2.437 |
| Discipline (DC) | 0.611 | 1.000 | 1.745 | 2.039 |
| Loyalty (LY) | 0.528 | 0.573 | 1.000 | 1.798 |
| Cleanness (CL) | 0.410 | 0.490 | 0.556 | 1.000 |
| The First Iteration Pairwise Matrices BxB=C | | | | |
| Communication (CO) | 4.000 | 5.554 | 8.002 | 11.617 |
| Discipline (DC) | 2.980 | 4.000 | 5.783 | 8.704 |
| Loyalty (LY) | 2.143 | 2.891 | 4.000 | 6.049 |
| Cleanness (CL) | 1.414 | 1.971 | 2.746 | 4.000 |
| The Second Iteration Pairwise Matrices CxC=D | | | | |
| Communication (CO) | 66.124 | 90.469 | 128.036 | 189.691 |
| Discipline (DC) | 48.536 | 66.426 | 94.006 | 139.230 |
| Loyalty (LY) | 34.313 | 46.958 | 66.481 | 98.459 |
| Cleanness (CL) | 23.070 | 31.562 | 44.682 | 66.196 |
| The Third Iteration Pairwise Matrices DxD=E | | | | |
| Communication (CO) | 17532.862 | 23990.949 | 33958.483 | 50302.101 |
| Discipline (DC) | 12871.149 | 17612.133 | 24929.456 | 36927.562 |
| Loyalty (LY) | 9100.648 | 12452.798 | 17626.570 | 26109.926 |
| Cleanness (CL) | 6117.700 | 8371.105 | 11849.053 | 17551.794 |
| The Fourth Iteration Pairwise Matrices ExE=F | | | | |
| Communication (CO) | 1232969732.134 | 1687124099.173 | 2388074559.726 | 3537412675.160 |
| Discipline (DC) | 905142439.032 | 1238544290.485 | 1753123029.094 | 2596870185.219 |
| Loyalty (LY) | 639988149.912 | 875722576.768 | 1239559560.546 | 1836137688.095 |
| Cleanness (CL) | 430217222.949 | 588684235.955 | 833265228.258 | 1234301068.283 |

Fig. 3. The Initial and Iteration Process Eigenvector Optimal using Mathematic Algebra Matrices

To prove the truth of the eigenvector value, it can be seen by knowing the difference between the last eigenvector acquisition and the previous eigenvector value, which is indicated on the decimal side, whether the difference is found or not. If there is no then it is true that the eigenvector value is said to be optimal.

Table 14
 Eigenvector value difference

*name of corresponding author



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Before Last Iteration in Third iteration

| Category | Row Count | Normalization and Eigenvector | Eigenvector in difference |
|--------------------|---------------------------|-------------------------------|---------------------------------|
| Communication (CO) | 8845581066.19181000000000 | 0.384 | -0.000000000215569506690 |
| Discipline (DC) | 6493679943.82893000000000 | 0.282 | -0.000000000574915892670 |
| Loyalty (LY) | 4591407975.32121000000000 | 0.199 | 0.000000000431810670554 |
| Cleaness (CL) | 3086467755.44574000000000 | 0.134 | 0.000000000358674701051 |
| Total | 23017136740.7877 | 1.000 | -0.000000000000000027756 |

Last Iteration in Fourt Iteration

| Category | Row Count | Normalization and Eigenvector | Eigenvector in difference |
|--------------------|-----------------------------------|-------------------------------|-----------------------------------|
| Communication (CO) | 43744712382069600000.0000 | 0.384 | 0.000000000000000000000000 |
| Discipline (DC) | 32113680188825100000.0000 | 0.282 | 0.000000000000000000000000 |
| Loyalty (LY) | 22706232615607700000.0000 | 0.199 | 0.000000000000000000000000 |
| Cleaness (CL) | 15263739400291600000.0000 | 0.134 | 0.000000000000000000000000 |
| Total | 113828364586794000000.0000 | 1.000 | 0.000000000000000000000000 |

Thus the Optimal Eigenvector value has been obtained, by subtracting the last eigenvector value and the previous eigenvector value being zero, pay attention to Table 14 in the eigenvector in difference column, or by paying attention to the eigenvector value obtained in Fig. 2, so that the Eigenvector value can be used as a preference. for the weighting of each criterion used by the Profile Matching method, with each weighting as a weight of criteria for the ranking process which can be seen in Table 15 in the Weight of Criteria to Profile Matching column.

Table 15
Criteria weight of Profile Matching

| No. | Criteria | Sub-criteria | Target Value | Weight of Criteria to Profile Matching |
|-----|---------------|--------------|--------------|--|
| 1 | Communication | Speech | 5 | 0,384 |
| | | listening | 3 | |
| | | Recording | 4 | |
| 2 | Discipline | Presence | 4 | 0,282 |
| | | Working | 3 | |
| | | Reporting | 5 | |
| 3 | Loyalty | Responsible | 5 | 0,199 |
| | | cooperation | 4 | |
| | | Assiduity | 3 | |
| 4 | Cleanliness | Neatness | 3 | 0,134 |
| | | Treatment | 3 | |
| | | Magnificent | 4 | |

The final total result with profile matching can be calculated with the value of N% obtained from Table 15 in the Weigh of Criteria to Profile Matching column with the weight criteria of each Communication 38.4%, Disciline 28.2%, Loyalty 19.9%, and Cleanliness 13.4%. Then the total value of Profile Matching will be obtained as shown in Table 16.

Table 16
Ranking Order

| No. | Sub-Aspect | Nilai Total GAP for each Aspect | | | | Total GAP | Ranking |
|-----|------------|---------------------------------|----------------------|--------------------|------------------------|-----------|----------|
| | | Communication (38,4%) | Dicipline (28,2%) | Loyalty (19,9%) | Cleanliness (13,4%) | | |
| 2 | KR02 | 5 | 4.7 | 4.1 | 4.4 | 4.65 | 1 |
| 1 | KR01 | 4.7 | 4.7 | 4.7 | 4.2 | 4.63 | 2 |
| 5 | KR05 | 5 | 3.9 | 4.3 | 4.3 | 4.45 | 3 |
| 3 | KR03 | 4.3 | 4 | 4.6 | 5 | 4.36 | 4 |
| 4 | KR04 | 4 | 4 | 4.4 | 4.4 | 4.13 | 5 |
| 6 | KR06 | 3.4 | 4.4 | 4.4 | 4.6 | 4.04 | 6 |

*name of corresponding author



DISCUSSIONS

To determine the value of the criteria, it is better to use an expert choice application, because the results obtained are based on the results of research conducted from a number of respondents who know more logically and the parameters set are also known by a number of respondents. Many research results in determining the comparative value of each criterion are only set subjectively, this does not provide good consistency because it is subjective which is known by one person without paying attention to the interests of other people's judgments which allow different assessments.

CONCLUSION

From the discussion obtained based on the Profile Matching and Multi-Criteria Decision Making-Analytic Hierarchy Process (MCDM-AHP) methods for the selection process for job promotions, it turns out that it can be done objectively with the collaboration of these two methods. By involving people who do know the process of selecting a promotion, it can be felt by all employees and other leadership ranks, it can be used as a standard of assessment as a promotion according to the ability of potential replacement leaders in an organization. The results of promotions obtained from six candidates in the company objectively, the first rank is held by KR02 with a total GAP score of 4.65, the second rank is held by KR01 with a total GAP score of 4.63 and the third rank is held by KR05 with a total GAP score. 4.45; The ranking system used is to determine the weighting value of the total GAP generated by using the Profile Matching method collaboration with the Analytic Hierarchy Process (AHP). Thus the combination of these two methods can be used for the promotion process objectively for all organizations that require leadership regeneration with support for decision making and optimal results. seen from the results of the study, it is suggested that the application of the value of importance should use research results and not from manual determination, use applications such as Expert Choce Apps or using Mathematic Algebra Matrices.

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*name of corresponding author



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