

Employee Performance Assessment Model in Survey Service Companies Using Analytical Hierarchy Process and Naïve Bayes

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ABSTRACT

Assessment of the performance of employees of a survey service company produces a final score that is not in accordance with the company's transformation strategy in responding to external challenges and demands. The variable assessment process still uses 180 Degree Feedback which is one-way from superiors to employees. This makes the company's learning and growth activities, especially in the human resources department, not occur. Therefore, companies should improve the assessment model to become a tool for acquiring highly qualified performing employees. This study contributes to obtain a more comprehensive employee performance assessment model proposal and evaluate the model so that it can be implemented. The research limitation lies in the use of data, namely contract employees with the position of Project Manager. This study uses the Analytical Hierarchy Process and Naïve Bayes methods to obtain variable weights. Based on the results of the analysis, it was found that SOE (State Owned Enterprises) AKHLAK was a new variable. The classification of the assessment variables is divided into Performance and Behavioral aspects based on the Minister of SOE Regulation. Changes that occur include formulas, mechanisms, and rating scales. The results of the verification and validation show that the model is in accordance with the design so that it can be implemented. Model trials with 360 DF show that PM's final score has a good chance of being assessed as a full-time employee. This valuation model can change along with company policies in responding to internal and external changes.

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1. Introduction

Companies engaged in services in this research are one of the SOEs (State Owned Enterprises) where employees are obliged and involved in realizing sustainable development (SOE, 2022; DPR, 2013). According to (Peraturan Pemerintah No. 35, 2021) An employee is an individual who performs work to obtain wages or other forms of compensation from the employer according to an employment agreement, agreement in accordance with applicable laws and regulations. Companies that hire employees in contractual bonds are a trend in both private and state-owned companies where employees are known as *Pegawai Perjanjian Kontrak Waktu Tertentu* (PKWT) who work based on the period or completion of a certain job (Peraturan Pemerintah No. 35, 2021). Through the Circular

Letter of the Minister of SOEs Number SE-7/MBU/07/2020 recommends to every SOE employee to apply Core Values AKHLAK which is an acronym for Trustworthy, Competent, Harmonious, Loyal, Adaptive, and Collaborative as part of the company's operations ([Circular Letter of the Minister of SOEs No. 7, 2020](#)). Currently, employee assessment uses three main variables, namely, Behavioral Competency Recapitulation/RKP (by superiors, self, and co-workers), Personnel Administration Records (CAK), and Individual KPIs (KPIs) with sub-variables and their weights as shown in [Fig. 1](#). The final results of the assessment are considered not to support the company's transformation strategy, especially in terms of human resources in responding to external challenges and demands. The Behavioral Competency Recapitulation assessment process still uses 180 Degree Feedback (DF) which is considered inappropriate and is one-way from superiors to employees only. Therefore, companies need to evaluate existing models and improve them in order to obtain an effective employee performance assessment model that is able to meet the needs of quality human resources so that business processes can run and develop properly.

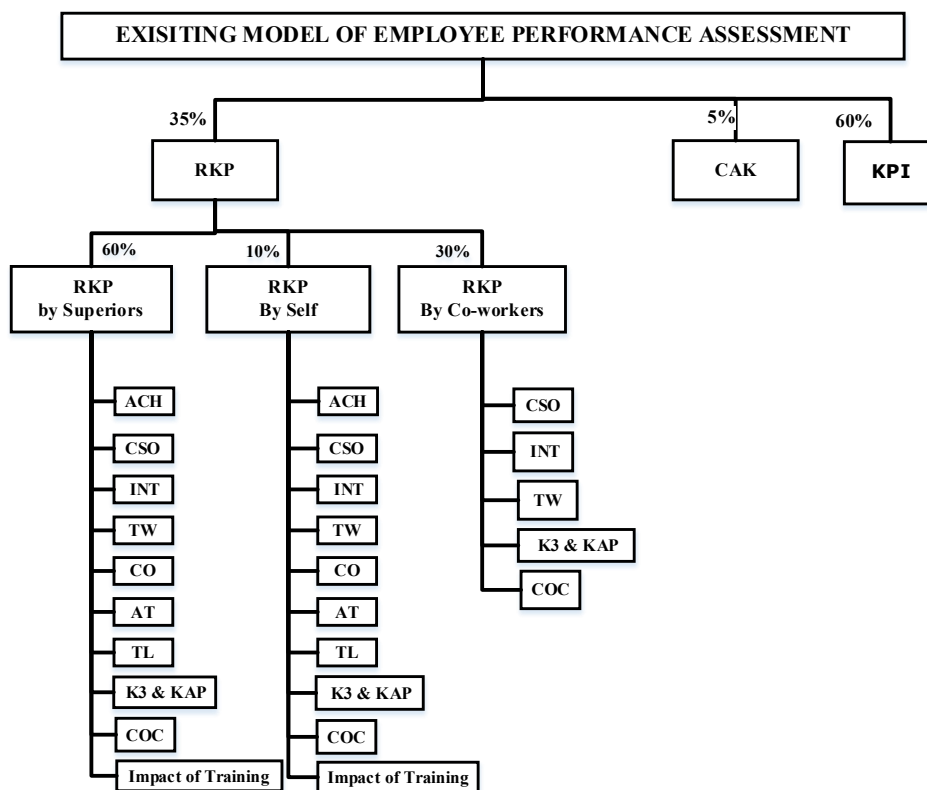


Fig. 1. Existing Model of Employee Performance Assessment

The meaning of abbreviations in [Fig. 1](#) are ACH (Passion for Achievement), CSO (Service quality), INT (Initiative), TW (Group Cooperation), CO (Attention to Clarity of Tasks, Quality and Accuracy of Work), AT (Analytical Power), TL (Leading the Group), K3 & KAP (K3 and Security of Company Assets (Physical and Information Assets)), COC (Compliance with Company Regulations, Code of Conduct and other Applicable Provisions), Impact of Training (Assessment of the impact of education and training on increasing employee competence). According to 2021 data, the company has 4,380 employees, of which PKWT employees with an age range between < 30 - 50 years old are 1,838 people with undergraduate education backgrounds.

The limitation of this research lies in the use of data on PKWT employees who have the position of Project Manager. PKWT employees at this productive age have a great opportunity to be able to contribute more to the company by showing better performance, so that they can be promoted to permanent employees. According to ([Mueller, 1996](#)) Human Resource (HR) is no longer seen as the

main asset, but a valuable asset, can be multiplied and developed in accordance with work standards that have been determined by the company. Therefore, the assessment can be considered as an indicator of the quality of the company's HR and if the assessment is done correctly, it will provide information on how successful HR management is performing (Khristiningrum et al., 2021). This performance assessment illustrates efforts to increase the specific impact that above-average performers can have, by actively investing in the development of their skills and opportunities to contribute in line with the company's vision and mission (Schuller, 2020).

Employee performance assessment must be able to provide two-way benefits, namely for employees and the company towards the development and management of highly qualified HR competencies (Aggarwal et al., 2013; Zayum, 2017). The research analyzes that the current assessment model is no longer relevant to market demands and the dynamism of changes that occur such as competitor competition. In addition, companies need to develop strategies so that the quality of employees who have high competency qualifications can be relied on. By adding new assessment variables accordingly, it is expected that the new assessment model will be more comprehensive and in accordance with the needs of the company. Refer to employee competence (Vantilborgh & Permans, 2013; Daniali et al., 2022; Lou et al., 2019; Marinda, 2021)

Affecting employee performance, this study will add assessment variables to the existing model. According to (Anjomshoae et al., 2019; Pipatprapa et al., 2018) the Analytical Hierarchy Process (AHP) method helps to get the highest weight in getting the best performance assessment. This method has been widely applied in decision making such as site selection, strategy selection, leadership selection, and vendor selection (Jayasena et al., 2020; Laurentia & Septiani, 2021). Research (Zakaria & Putra, 2018) using the AHP method to get the best employee candidates. Performance assessment according to SOE Minister Regulation Number PER-07/MBU/09/2022 is based on performance and behavior (behaviour), so that this study will be classified assessment variables based on employee performance and behavior (SOE Minister Regulation No.7, 2022). Performance and behavior variables can be predicted by weight values using the Naïve Bayes method (Desiani et al., 2019). This method has also been used in research (Kurniawan et al., 2020; Desiani et al., 2019; Shen et al., 2019; Fitri et al., 2020) in obtaining a prediction of the variable weight of the classification result.

The assessment of RKP currently still uses the 180 DF approach which is considered not transparent because superiors assess subordinates and do not exist Feedback Instead. So that this study will use the 360 DF approach so that the assessment that occurs between superiors and subordinates takes place transparently so that communication and constructive input occur between parties (Kanaslan & Iyem, 2016; Lanz et al., 2021; Odyseas Kopsidas, 2021). In designing an assessment model, it is necessary to pay attention to the components that interact with each other to provide solutions, creativity, learning, and meeting company needs (Sanhueza & Nikulin, 2019). The model that has been built requires an examination stage to match the real state of the object of research, namely by verifying the model (Yin & McKay, 2018). The process to ascertain whether the framework prepared for model design is correct and significantly assists the research objectives is called model validation (Sanhueza & Nikulin, 2019; Chen et al., 2021). From the description above, this study will use the AHP and Naïve Bayes methods in obtaining variable weights so that the employee performance assessment model becomes more effective. Thus, the research contributes to produce an assessment model that is expected to be implemented and Project Managers with PKWT status who have competitive value can be considered to become permanent employees.

2. Method

External challenges and client demand made the company immediately adapt to formulate a strategy in preparing its strengths, especially its employees, so that they are highly qualified and highly competitive. Therefore, the company needs to evaluate the existing assessment system so that repairs and improvements can be made immediately. This study has a frame of mind by analyzing existing models and referring to regulatory changes and external dynamism. With reference to previous

research, it is expected to get references in planning models that are more comprehensive and can provide an overview of position guides.

The AHP method is then used to get the highest weight followed by the determination of the selected new variables. After the variable classification is done, the next step is to determine the weight of the variable using the Naïve Bayes method. The events and attributes to be used were prepared by the researcher with the approval of the management, while the rules were obtained by filling out a questionnaire by the respondents. Model validation is carried out by management who have a better understanding of the company's business functions. Model verification is done by testing whether the model is in accordance with the research design plan. The next step is to compile a final rating scale based on the Minister of SOE Number PER-7/MBU/09/2022 and the assessment mechanism as a result of adding new variables. Model testing is carried out using employee data that has a PKWT Project Manager status. The stages of this research are outlined in Fig. 2.

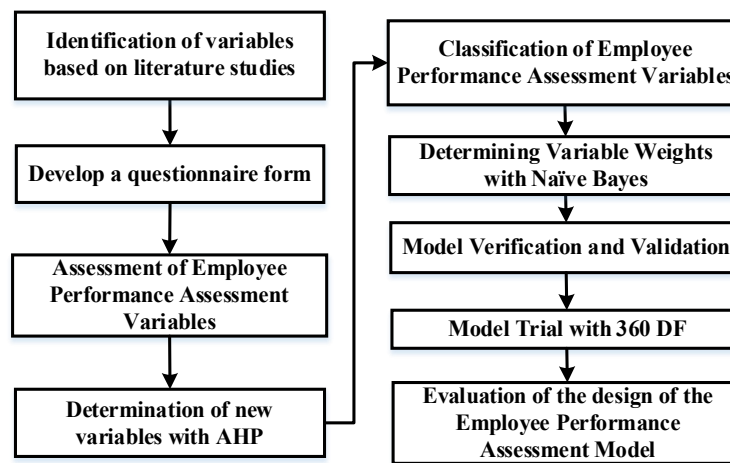


Fig. 2. Stages of Research

Data obtained from the collection of secondary data and primary data. Secondary data is in the form of company vision and mission, existing assessment models, PKWT Project Manager data 2023, government regulations and relevant research journals. Primary data was obtained from filling out questionnaires and interviews with management with the position of Assistant Vice President. Identification of new variables is carried out through a study of previous research literature that is relevant to employee competence and refers to the Circular of the Minister of SOE Number SE-7/MBU/07/2020.

3. Results and Discussion

3.1. Analysis of the Existing Employee Performance Assessment Model

The results of the analysis of the existing employee performance assessment model obtained several points that required additions and changes. Therefore, in this research improvement will be carried out in order to obtain a more comprehensive performance assessment model and can provide improvement solutions for the company. The results of the analysis are presented in Table 1.

3.2. Designing Employee Performance Assessment Model

3.2.1. Identification of Performance Assessment Variables Based on Literature Studies

At this stage, identification of new variables obtained from previous research literature studies and current conditions is carried out. The variables of the results of the literature study include: Learning Agility (LA) (Vantilborgh & Permans, 2013), SOE AKHLAK (AB) (Marinda, 2021), Transversal and Disciplinary Competencie (TDC) (Daniali et al., 2022) and Professional Competencie (PC) (Lou et al., 2019). The results of the identification of the new variable are described along with

the sub-variables in Table 2. Furthermore, these variables will be material for the preparation of questionnaire forms that will be filled out by management as respondents or expert experts who better understand the company's business.

3.2.2. Assessment of Employee Performance Assessment Variables

The assessment was conducted by expert respondents who came from the structural functions of company representatives with the position of Assistant Vice President who had an active service period of more than 20 years. The results of his thoughts will then be used as input and evaluation for the company's employee performance assessment system. Primary data collection is carried out by filling out questionnaires by management by choosing a number scale between 1 to 5.

- 1: Very unimportant
- 2: Not important
- 3: Quite Important
- 4: Important
- 5: Very important

According to management, the proposed new variables are appropriate and represent the needs of the Company's HCD requirements and are relevant to the Company's vision and mission shown in Table 3.

The selection of variables is done using number mode and shows that there are three variables that have high values, namely: LA, AB and TDC as in Table 3. The analysis shows that there is no similarity of the above variables with existing variables, so that the variables can be used for the next stage of determining weights with AHP. The questionnaire was distributed to the 3 expert respondents above and obtained the results in Table 4.

By simplifying the results of the questionnaire into a comparison matrix, then obtained the priority vector value of each variable. Consistency Index (CI) needs to be calculated so that the Consistency Ratio (CR) value can be obtained by Saaty's Random Index (RI). A CR value of 0,05 is less than 10%. Because all assessment weights of all respondents have a CR value of less than 10%, the combination of the weights of all respondents can be done using the mean average on the comparison matrix and the result is that the SOE AKHLAK variable is selected to be a new variable.

Table 1. Analysis of Existing Assessment Models

Description	Debilitation	Necessity	Improvement
Assessment variables	Currently unable to answer performance needs and external demands	Need to add new employee performance assessment variables	Addition of variables obtained from relevant previous research literature
Classification of assessment variables	There is no current classification of performance assessment variables	Assessment variables need to be classified based on behavior and performance	A classification will be carried out based on the SOE Regulation Number PER-7 / MBU / 09/2022
Final rating scale	Currently still using the number scale	The scale needs to be changed to the Talent Classification scale	The Talent Classification scale refers to the Minister of State-Owned Enterprises Number PER-7/MBU/09/2022
RKP assessment approach	Currently using 180 DF	Transparent change of new approach	The assessment will use 360 DF
Assessment mechanism	Using the current mechanism	Need for new mechanism changes	Changes are made as a result of the presence of new variables

Table 2. Employee Performance Assessment Variables Identification Results of Literature Studies

Identification Results Assessment Variables	Information
Learning Agility (LA)	The ability and speed to learn new things quickly in the form of Willingness to learn and Speeds of learning
SOE AKHLAK (AB)	The core values of SOEs are Trustworthy, Competent, Harmonious, Loyal, Adaptive, and Collaborative
Transversal and Disciplinary Competency (TDC)	Soft skills that can move between jobs in the form of Effective communication, Problem solving, Social emotial Intelligence, Ethical, Compiling reporjt, and Assessment & monitoring harms
Professional Competency (PC)	Ability to utilize knowledge, skills, assessments related to professions and situations undertaken in the implementation of professional practice in the form of Work ethics, Ability and willingness to learn, Obeying supervisors, Initiative, Spoken communication, Customer service orientation, Analytical thinking, Computer literacy, Self confidence, and Personal planning &; organizational skills

Table 3. Variable Model of Employee Performance Assessment

Assessment Variables	AVP1	AVP 2	AVP3	Sum
LA	4	4	4	12
AB	5	5	5	15
TDC	4	4	4	12
PC	3	4	3	10

Table 4. Results of Comparison Questionnaire by First Responders

Criterion 1	Left Scale							Right Scale							Criterion 2			
LA	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	AB
LA	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	TDC
AB	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	TDC

3.2.3. Classification of Employee Performance Assessment Variables

The classification is carried out referring to the SOE Minister Regulation Number PER-7/MBU/09/2022 where performance is assessed based on performance and behavior. By grouping variables through their respective definitions, the results are obtained as in Table 5. RKP and CAK are included in the Behavior category because these aspects reflect how employees behave at work and comply with Company regulations. While KPI and AB are included in the Performance category because the results of KPIs are indicators of employees in achieving the target targets that must be achieved and AKHLAK is based on the acronym, namely Trustworthy, Competent, Harmonious, Loyal, Adaptive, and Collaborative which is applied in daily activities in achieving company targets.

Table 5. Classification of Employee Performance Assessment Variables

Assessment Variables	Performance	Behaviour
RKP		√
CAK		√
KPI	√	
AB	√	

3.2.4. Determination of Variable Weight of Employee Performance Assessment

At this stage, the value of the variable weight will be determined from the results of the previous classification. Weight predictions of two or more variables will be obtained using the Naïve Bayes method. For performance and behavior variable events begin by specifying the event to be selected, that is, performance or behavior. The attributes used are the presence or absence of a certificate of

expertise (A1), position (A2), having competence (A3), and the goal attribute is the decision to choose performance or behavior (A4) as in Table 6.

Table 6. Attribute Value A

Description	Choice	Information
The presence or absence of a certificate of expertise (A1)	Yes/No	Certificate of Inspector/Surveyor/Consultant/Auditor/Verifier/Laboratory Analyst
Position held (A2)	Structural/ Functional/ Operational	A position that shows a person's duties, responsibilities, authority and rights in work
Have competence (A3)	High/Medium/ Low	The work ability of each individual which includes aspects of knowledge, skills and work attitudes
The decision to choose Performance or Behavior (A4)	Performance or Behavior	The decision to choose the decision as Performance or Behavior

After respondents selected the values of each attribute, the results were obtained in Table 7. From the results of the Set Test 6 times, so that the results of weight predictions for performance and behavior variables can be obtained with an average mean of Performance of 63,90% and Behavior of 36.10%. The weight for KPI sub-variables is 68.65% and AB is 31.35%. While the RKP sub-variable is 68.59% and the CAK weight is 31.41%. The weight of the sub-variable AB is obtained using the AHP method. Starting with compiling a comparison matrix between sub-variables by management and obtained the results in Table 8.

Table 7. Rules for Performance and Behavior Variables with Naive Bayes Method

Rules to	Information	A1	A2	A3	A4
1	AVP Renewable Energy	Yes	Structural	High	Behaviour
2	AVP Operation Migas	Yes	Structural	High	Performance
3	AVP Portfolio Management	Yes	Structural	High	Performance
4	Senior Marketing	Yes	Functional	High	Behaviour
5	Senior Marketing	No	Operational	Low	Behaviour
6	Senior Operation	No	Functional	Medium	Performance
7	Senior Operation	Yes	Operational	Low	Performance
8	Senior Operation	No	Operational	Low	Performance
9	Senior Operation	Yes	Functional	Medium	Performance
10	Junior Management Representative	Already	Operational	Medium	Behaviour

Respondents gave preference to the value 1 on each sub-variable because they considered that the sub-variables were equally important to each other. With the same steps as above, a value of CR=0.000 is obtained which states that the consistency ratio of the combined comparison assessment results is 0.00%, so that the assessment sub-variable by the combined all respondents above is acceptable because it is smaller than 10%. Thus, the sub-variable weight of SOE AKHLAK is 16.7% each.

From the steps above, an employee performance assessment model can be prepared with a formula compiled from Performance values and Behavior Values. Performance value is obtained by the formula:

Table 8. Sub-Variable Comparison Questionnaire by First Responders

Criterion 1	Left Scale									Right Scale									Criterion 2
Trustworthy	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Competent	
Trustworthy	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Harmonious	
Trustworthy	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Loyal	
Trustworthy	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Adaptive	
Trustworthy	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Collaborative	
Competent	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Harmonious	
Competent	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Loyal	
Competent	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Adaptive	
Competent	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Collaborative	
Harmonious	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Loyal	
Harmonious	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Adaptive	
Harmonious	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Collaborative	
Loyal	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Adaptive	
Loyal	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Collaborative	
Adaptive	9	8	7	6	5	4	3	2	1	2	3	4	5	6	7	8	9	Collaborative	

AB Score Semester I/II

$$\begin{aligned}
 &= (31.35\% \times 16,67\% \times \text{Score Trustworthy Semester I}) \\
 &+ (31.35\% \times 16,67\% \times \text{Score Competent Semester I}) \\
 &+ (31.35\% \times 16,67\% \times \text{Score Harmonious Semester I}) \\
 &+ (31.35\% \times 16,67\% \times \text{Score Loyal Semester I}) \\
 &+ (31.35\% \times 16,67\% \times \text{Score Adaptive Semester I}) \\
 &+ (31.35\% \times 16,67\% \times \text{Score Collaborative Semester I})
 \end{aligned} \tag{1}$$

$$\text{Total Score AB} = (\text{Score AB Semester I} + \text{Score AB Semester II})/2 \tag{2}$$

Score Performance

$$\begin{aligned}
 &= \text{Weight Performance} \times ((\text{Weight KPI} \times \text{Score KPI}) \\
 &+ \text{Total Score AB})
 \end{aligned} \tag{3}$$

Score RKP Semester I/II

$$\begin{aligned}
 &= (\text{Weight RKP} \\
 &\times \text{Weight RKP by Superiors} \times \text{Score by Superiors}) \\
 &+ ((\text{Weight RKP} \times \text{Weight RKP by Self} \times \text{Score by Self})) \\
 &+ (\text{Weight RKP} \times \text{Weight RKP by Co-workers} \times \text{Score Co-workers})
 \end{aligned} \tag{4}$$

Score RKP Semester I/II

$$\begin{aligned}
 &= (68.59\% \times 60\% \times \text{Score by Superiors}) \\
 &+ (68.59\% \times 10\% \times \text{Score by Self}) \\
 &+ (68.59\% \times 30\% \times \text{Score Co-workers})
 \end{aligned} \tag{5}$$

$$\text{Total Score RKP} = (\text{Score RKP I} + \text{Score RKP II})/2 \tag{6}$$

$$\text{Score CAK} = (31.41\% \times \text{Score CAK}) \tag{7}$$

$$\text{Score Behaviour} = 36.10\% \times (\text{Score RKP} + \text{Score CAK}) \tag{8}$$

The value of the CAK is obtained from HCD data, because the party has the authority to issue both oral and written reprimands every 1-year period is HCD.

$$\begin{aligned}
 & \text{Final Total of Performance Assessment} \\
 &= \text{Score Performance} + \text{Score Behaviour} \\
 &= 63,90\% \times (\text{Score KPI} + \text{Total Score AB}) \\
 &+ 36,10\% \times (\text{Score RKP} + \text{Score CAK})
 \end{aligned}
 \tag{9}$$

From the employee performance assessment formulation step above, a chart of the company's employee performance assessment model with new variables and weights can be obtained as seen in Fig. 3.

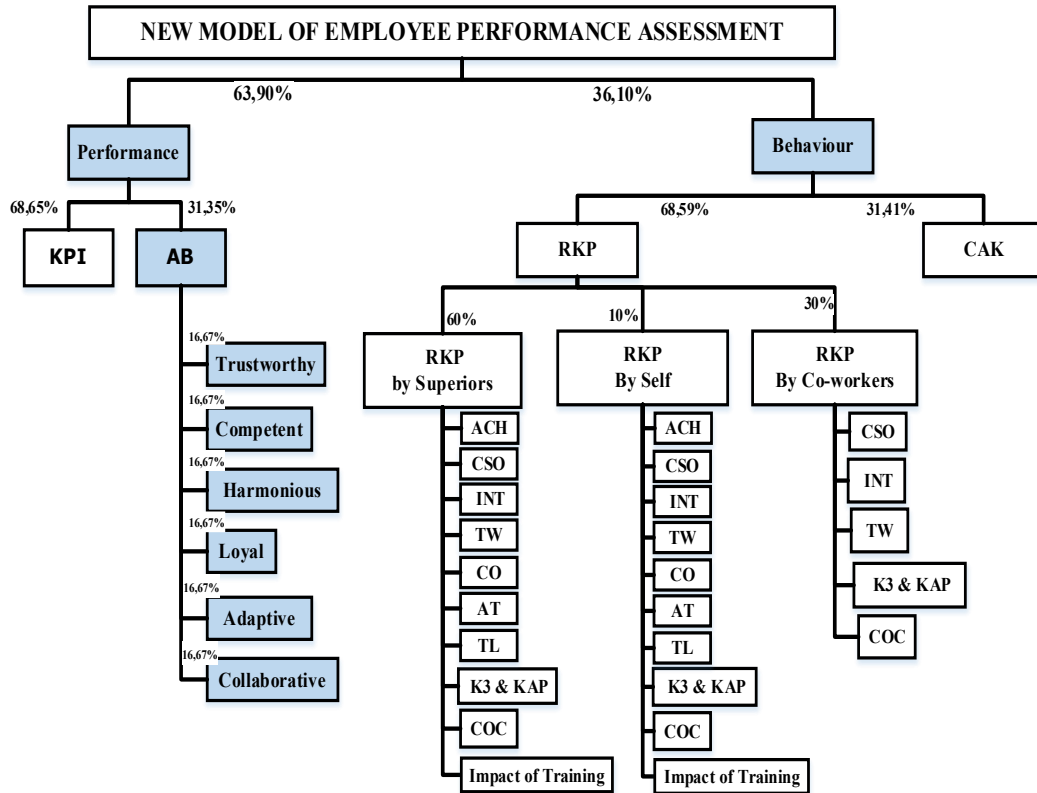


Fig. 3. New Model of Employee Performance Assessment

3.2.5. Determination of Employee Performance Assessment Scale

The variables that use the new scale for assessment are AHKLAK, Performance, Behavior, and the final value of the assessment. The score for the RKP, KPI values and CAK has not changed and the data is obtained from HCD. The assessment of AKHLAK is carried out by providing an assessment of each acronym using an assessment scale with a range of values 1 to 5. The scale was compiled and has received HCD approval. Each scale value is described with a description as in Table 9. so that employees understand the score to be given.

The values for Performance and Behavior depend on the value of the respective variable. Values for performance range from 0 – 3 and behavioral values range from 0 – 2 which can be seen in Table 10.

The final assessment scale refers to the SOE Minister Regulation Number PER-7/MBU/09/2022, with a range of values between 0-5 where categories from A to E are given and defined into Talent Classification in Table 11. The final classification is divided into 5 categories of Talent Management, namely High Potential, Promotable, Solid Contributor, Sleeping Tiger, and Unfit. Each of these final grades will be a recommendation from HCD and superiors to assess employees related to retention, promotion, and bonuses. In addition, making employees more aware of the regulations made by their company to understand and carry out their duties in achieving company targets.

Table 9. SOE AKHLAK Scale

AKHLAK	Rating Scale
Trustworthy	1: Know the duties and responsibilities you have at work. 2: Understand the benefits of carrying out responsibilities with integrity 3: Willing to carry out the duties and responsibilities given and their changes 4: Actively contribute to the duties assigned in accordance with the provisions, codes of ethics and rules applicable in the Company 5: Be an example for his colleagues in carrying out their duties and responsibilities with integrity, consistency and sincerity
Competent	1: Know the standards and competencies needed to complete the work. 2: Understand the usefulness and benefits of competency standards for the work carried out 3: Have the willingness to continue to develop themselves to have competencies that support the completion of their duties and responsibilities 4: Actively develop themselves both formally and informally to optimize capabilities 5: Able to develop others, become mentors or mentor others to continue to develop competencies that support work
Harmonious	1: Be aware of differences in the work environment, such as background (ethnicity, race, religion, education, gender), views, etc. 2: Understand the importance of caring and respecting differences in the work environment 3: Willing to appreciate differences or maintain harmony in the team 4: Demonstrate caring behavior towards the team, respect differences, or efforts to keep the situation conducive in the event of conflict 5: Able to inspire others to help maintain harmony, respect differences and conducive situations in the team
Loyal	1: Aware of the Company's expectations of him at work 2: Understand the importance of having work commitments in carrying out duties and responsibilities 3: Willing to prioritize the interests of the Company above personal interests in doing work 4: Exert energy, time and thought to contribute more in doing tasks and responsibilities 5: Consistently demonstrate its dedication to the Company to continue to make the best contribution beyond expectations
Adaptive	1: Able to identify areas that need to be developed in the area of their work environment. 2: Understand the benefits of being proactive and flexible in the face of change 3: Show an open attitude towards change or move agilely, quickly, and actively in every change for the better 4: Actively engaged in improvement and innovation in work following technological developments 5: Proactively initiate innovation and drive change in their work environment
Collaborative	1: Know the goals and targets that must be achieved by himself and the team 2: Understand their roles and tasks within the group to achieve targets. 3: Willing to work with various parties to build synergy 4: Actively participate making constructive contributions to achieving team goals and targets 5: Able to encourage synergy to get benefits and added value in achieving team targets and goals

Table 10. Performance and Behavior Values

Performance Value	Category	Behavioral Value	Category
2.1 - 3	Tall	1.1 - 2	Good
1.1 - 2	Middle	0-1	Bad
0-1	Low		

Table 11. Employee Performance Assessment Scale

Talent Classification	Score	Definition
High Potential	4.1-5.0	A candidate spinner or leader
Promotable	3.1-4.0	A person who has competence and performance in accordance with company standards
Solid Contributor	2.1-3.0	Someone who is able to show performance exceeding targets consistently but still requires increased competence
Sleeping Tiger	1.1-2.0	Someone who has competence according to or exceeds standards but has not been able to optimize in work
Unfit	0-1.0	Someone who has not met the competency standards so that they are unable to meet the needs of the company

Based on the assessment in [Table 11](#), SOE AKHLAK is carried out by providing an assessment of each acronym using an assessment scale with a range of values 1 to 5. The scale was compiled and has received HCD approval. So that employees understand the score to be given.

3.2.6. Preparation of Employee Performance Assessment Mechanism

Assessment activities are started by HCD by compiling work programs, assessment guidelines, questionnaires, determining the facilities and infrastructure to be used, and the duration of the assessment. After obtaining BOD approval, HCD will communicate to each work unit and branch to assign their representatives to carry out assessment I activities on the performance of their employees. The first semester is calculated from January to June, so employees who have more than 6 months of service will be the object of assessment.

Assessment of the Behavioral Competency Recapitulation is carried out by superiors, assessed employees, and colleagues who are given a time limit of two weeks in July and January of the following year. The supervisor will give approval to the results of the employee assessment as a form of implementing 360 DF where the assessed employees can communicate the results and can evaluate each other for further improvement. The Personnel Administration Record and SOE AKHLAK are assessed in January of the following year by the employees themselves as a manifestation of the employee's sense of responsibility, professionalism, and confidence.

Individual KPIs are assessed in January of the following year where all employees are the object of assessment including superiors at the AVP level. HCD will prepare an assessment report every semester and the results will be submitted to each work unit and branch to be evaluated together in order to find the best solution for the continuity of the quality of the Company's employees.

The assessment is carried out for a one-year period where the Behavioral Competency Recapitulation and SOE AKHLAK are calculated every semester, Personnel Administration Records and Individual KPIs are assessed once a year. The assessment mechanism can be seen in [Table 12](#)

Employee performance assessments are the sole responsibility of HCD. Starting from compiling work programs, compiling SOPs, preparing Personnel Administration Record data, to compiling final reports on employee performance assessments and submitting them to the company's BOD. HCD will assign its teams in each business unit and branch to carry out assessments of employee performance. The assessment for the 1-year period takes 19 weeks.

3.2.7. Model Verification and Validation

The implementation of verification is carried out to ensure that the employee performance assessment model is in accordance with the desired model design. Verification is carried out by entering values on assessment variables using scales and scores in the previous stage. The value entered into each variable must follow the given numerical scale/score, otherwise it is considered that the assessment results cannot be used. The values entered are the lowest, middle, and highest scales/scores. The values are then fed into a scoring formula and produce for the lowest, middle, and highest values respectively as in [Table 13](#).






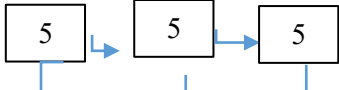



From the verification results, the final score at the lowest value, middle value, and largest value is still included in the final assessment scale range. Because the verification stage provides results that are in accordance with the model design, this assessment model can then be continued with the model validation stage.

The validation stage is carried out through Focus Group Discussions with management representatives to convey the results of the employee performance assessment model design. The result of validation with management is that a new model of employee performance assessment can basically be implemented.

Table 13. Model Verification

Employee Performance Assessment Variables	Lowest Value	Middle Value	Highest Value
AB	0.314	0.941	1.568
KPI	0.687	2.060	3.433
RKP	0.6859	2.058	3.430
CAK	0	0.942	1.571
Performance Value	0.639	1.917	3.195
Behavioral Value	0.248	1.083	1.805
Total Final Value of Performance Assessment	0.887	3.000	5.000

Table 12. Employee Performance Assessment Mechanism

No	Activity Description	Assessment Executor				Implementation Time	Information
		DHC	Superior	Assessed Employees	Co workers		
0	Start						
1	Develop employee performance appraisal work programs					2 weeks	Employee performance appraisal work program
2	Develop assessment guidelines					2 weeks	Employee performance appraisal guidelines
3	Drawing up a questionnaire					2 weeks	Questionnaire
4	Develop assessment facilities/infrastructure					2 weeks	Assessment facilities/infrastructure
5	Assessment of Behavioral Competency Recapitulation					1 week of July and January of the following year	Recapitulation of Behavioral Competencies
6	Approve Assessments by Employees and Their Coworkers					1 weeks	Approval
7	Prepare a Behavioral Competency Recapitulation Assessment Report					1 weeks	Behavioral Competency Recapitulation Report
8	SOE AKHLAK Assessment					1 week of July and January of the following year	Results of the assessment of SOE AKHLAK

3.3. Implementation of Employee Performance Assessment Model

Model implementation in the form of trials on the assessment model was carried out using data from 3 PKWT employees with the position of Project Manager. The employee is of productive age, has a bachelor's degree and has more than five years of experience. Employee data is obtained from HCD and has received approval from superiors.

Individual KPI data and Personnel Administration Records are obtained from HCD. SOE AKHLAK data is obtained from the assessment by the employees themselves. Behavioral Competency Recapitulation data is obtained by distributing assessment forms to superiors, then continued by assessed employees, and finally by colleagues by applying the 360 DF approach so that the results are obtained as in Table 14.

Table 14. Trial Results of Employee Performance Assessment Model

PM	KPI	AB	Performance Value	RKP	CAK	Behavioral Value	Final Grades
PM 1	3.433	1.254	2.995	2.750	1.2564	1.446	4.441
PM 2	3.433	1.254	2.995	2.730	1.2564	1.439	4.434
PM 3	3.433	1.254	2.995	2.792	1.2564	1.461	4.456

From these results, information was obtained that the three Operations Staff are prospective leaders or leaders who have a superior / high level of competence and are able to apply and optimize in work activities. Therefore, management can consider that such staff can be applied for promotion as permanent employees, get training skills certificates, and company benefits such as more decent bonuses.

3.4. Evaluation of Employee Performance Assessment Model

The new model of employee performance assessment that is prepared has assessment variables based on management preferences that are in accordance with company needs. The model can only be implemented in the company where the research is conducted and cannot be used in other similar companies for the reason that each company has its own policies in assessing the performance of its employees.

This assessment variable is dynamic which can change along with the company's needs to respond to changes. In the future, these variables can increase or change with other variables. The characteristics of the assessment variables tend to follow the desired objectives of the company.

4. Conclusion

Based on research with the title Employee Performance Assessment Model at Survey Services Company with Using the Analytical Hierarchy Process and Naïve Bayes obtained that conclusion are results of the analysis of the performance assessment model existing employees obtained that variable is required new, classification aspects of assessment, change in final rating scale, changes in the assessment mechanism, and changes in the assessment approach to Behavioral Competency Recapitulation. The limitations of this research lie in the parties involved, the colleagues who assess have the same position as those assessed. Coworkers are determined by AVP level superiors. This model can be implemented from staff level to vice president. This assessment variable is dynamic in nature and can change along with the company's needs in response to developments in business dynamism and government regulations. Stages of assessment variable assessment employee performance produces a new variable, namely SOE AKHLAK. Classification results in an assessment focused on two aspects, namely performance and behavior. Performance consists of individual KPI variables and SOE AKHLAK, Behavior consists of Behavioral Competency Recapitulation variables and Personnel Administration Records. The results of the addition of new variables and the classification of variables resulted in a new performance assessment formulation and mechanism that was applied to the new form of employee performance assessment. The results of the verification and validation of the model show that the new model of employee performance assessment is in accordance with the research objectives. The results of testing the model with real data and the application of the 360 Degree Feedback Approach to the Behavioral Competency Recapitulation assessment show results that can be used for recommendations by HCD to see employee competence, so that the new model of employee performance assessment can be implemented by companies. The next research proposal is that the model will become more effective with the support of variable

assessment by the company's directors and new phenomena can be studied that can influence the assessment variables in accordance with the company's needs.

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