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An Assessment of the Survey's Officer Performance Using AHP

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Abstract. *Performance of Human Resources (HR) is one of the factors that can improve the quality of an organization or institution. It is indeed the case in Statistics Indonesia, the national statistical office (NSO) in Indonesia. As an NSO who performs governmental duty on producing the official statistics, Statistics Indonesia has to assure the quality of all the statistical activities the office conducts and manages. The quality of a survey is affected by two main components those are sampling and non-sampling error. The quality of an officer's performance is one of the factors that determines the non-sampling error. This paper will discuss the assessment of the officer's performance using a grading or ranking method. For determining the grade, related indicators will be developed and then will be together used to determine the grade using Analytical Hierarchy Process (AHP). AHP is an effective tool which widely used to find a solution from a complex decision-making process. AHP generates weights by doing a paired comparison from each criterion. The higher the weight, the more important the criteria is.*

To assess the performance of the survey's officer, both the technical and non-technical criteria are used. Each criterion divided into several sub-criteria and arranged into a hierarchy. The weight of each criteria is determined using AHP. After all the weights collected, then an assessment equation model is formed. The equation model will be used to determine the total score of the assessment process. The total score is categorized into grades based on the cut-off point defined in advance. The grade can also be used as a recommendation and consideration for recruiting the officer for the next survey. The grade of the survey's officer can also be used as an evaluation material for the individual performance, and the standard operating procedures.

By developing an assessment indicator which implemented in an easy-to-use information system, the information related to the performance of the survey's officer can be gathered in an accurate, quantitative, and real-time way. As a result, the quality of the conducted survey can be improved.

Keywords: survey's officer, performance assessment, AHP, survey quality, web-based application

1. Introduction

Performance of Human Resources (HR) is one of the factors that influence the quality or quantity of output of an institution or organization. Many ways can be used to measure the quality of human resources, including measuring their competency. It is expected that the higher the competencies possessed, the employee performance will also be high. During this time, in a government organization, the competency of employees is measured by an indicator called the job implementation assessment list which is called DP3. DP3 is a list that contains the results of employee assessments during carrying out their duties within a certain period. But in its implementation, there is still a problem which is related to the performance evaluation of contract employees or contract employees, wherein a government organization, there has not been established a clear method for evaluating or evaluating contract employees. Some considerations such as the limited duration of the contract, to the opinion that the evaluation of contract employees did not significantly affect the productivity of the institution resulted in the assessment to be ruled out. Statistics Indonesia, the national statistical office in Indonesia, as one of the government organization, also, of course, has both permanent employees and contract employees. In maintaining the performance quality of its employees, of course, Statistics Indonesia also makes efforts to assess and evaluate its employees in accordance with

established regulations. But just like the problem mentioned above, that still remains as a problem is the absence of a clear system that can assess the performance of contract employees.

In conducting surveys and censuses conducted, Statistics Indonesia hires officers from outside the institution to conduct field data collecting as well as data processing, commonly referred to as statistical partners. Based on the information from the internal institution, the collaboration with partners was carried out based on a work contract, where the employment contract was valid for one or several activities so that partners who served as field enumerators or processing officers were one example of contract employees owned by Statistics Indonesia. Even though as one of several factors affecting the quality of implementation and survey results, the quality of partner performance is an important thing to consider. However, there are still several problems that need to be resolved related to contracts with these partners, including the process of recruitment of partners carried out by taking into account subjective recommendations from the supervisors or by continuing to use partners who have previously been involved in work contracts with Statistics Indonesia. Furthermore, it is seen from the side of performance assessment and wages, so far the partner's performance assessment is based on the subjective opinion of the field inspector, as well as granting wages to partners based on the contract value for each activity as well as the number of documents collected. The things mentioned above certainly cause several problems including:

- The quality of the data produced cannot be controlled.
- The quality of partner performance cannot be known if only relying on the recommendations of the supervisors and participation in previous activities.
- Partners with poor quality can be continuously included in survey activities, which can affect the data generated.
- There is no clear standard for determining recruitment and job selection requirements for partners.
- No standard can be used as an evaluation if there are partners with poor quality performance.

Therefore, in this study, an indicator will be designed which capable to accommodate contract employee performance evaluation, assessment and recommendation system of Statistics Indonesia's partners. The indicator is developed by implementing the Analytic Hierarchy Process (AHP) algorithm. AHP, introduced by Thomas Saaty [10], is an effective tool in making complex decisions and can help decision-makers to set priorities and make the best decision. AHP produces weights for each evaluation criteria according to a pairwise comparison of the criteria made by the decision-maker. The higher the weight, the more important the criteria correspondence. In determining the appropriate evaluation criteria, in addition to the interview with Statistics Indonesia employees related to the partner recruitment matters, the code of ethics for the statistical officers is also considered, as well as considering the core values of Statistics Indonesia which are professional, integrity and trust. Based on the criteria obtained, it is further developed into sub-criteria along with the appropriate question form. The criteria and sub-criteria are then arranged based on the level of the hierarchy, and weights are determined for each criterion and sub-criteria. The model that is formed, with the appropriate weight, will produce a final value which is further categorized into a recommendation score in accordance with predetermined limits. It is expected that with the right performance assessment, the quality of the performance of enumeration and processing partners can be controlled so that it can be used as a consideration of participation recommendations and evaluations for further activities, which will have an impact on improving the quality of implementation and survey results.

The rest of this paper is organized as follows. Section 2 describes the related literature including works related to the assessment of work performance. Section 3 describes the analysis of the work performance assessment system and the assessment system we have built and its example. Section 4 describes the web-based application we have built to support the assessment system. Finally, we conclude with remarks in Section 5.

2. Literature Study

2.1 Work Performance Assessment

Assessment of work performance is an employee performance assessment process conducted systematically by the leader of the company based on work assigned to them [5]. According to Handoko [6], performance assessment is a process of evaluating and assessing employee work performance. This activity can improve personnel decisions and provide feedback to employees about their work. According to Stoner et al. [11], work performance assessment is a process that includes: (1) setting work performance standards; (2) assessment of the employee's actual work performance in relation to these standards; and (3) provide feedback to employees with the aim of motivating the person to eliminate deterioration in work performance. According to Nurmianto and Wijaya [8][9], the objectives of performance evaluation are 2 (two) main objectives, namely:

1. For the purpose personnel administration
    a) Be the basis for making management decisions regarding promotion, transfer, demotion, and dismissal of employees.
    b) Become the basis for providing compensation.
    c) Become the basis for establishing Education and training programs to support the effectiveness of organizational work units.
    d) Become the basis for determining criteria for the selection and determination of employees.
    e) Provide data regarding the productivity of the organization as a whole or work units and individual employees specifically.
2. For the guidance and counseling purposes
    a) Is a forum for guidance and counseling between superiors and subordinates to improve or develop employee skills.
    b) Identifying employee’s strength or weakness which is one of the basic considerations in involving employees in employee training and development programs.
    c) As a tool to improve employee work motivation so that good performance can be achieved in the context of achieving the goals of work units and organizations.
    d) As a tool to encourage or familiarize supervisors or assessment officials to observe the work behavior of employees as a totality until known interest interests, abilities, and needs of employees.

In performance assessment, there are several methods, namely: Rating Scales, Critical Incidents, Work Standards, Ranking, Forced Distribution, Forced-choice and Weighted Checklist Performance Report, Behaviorally Anchored Scales, Method of Management By Objective Approach. Performance assessment consists of 3 steps [5].

1. Define the position, namely ensuring that the assessor and the assessee agree on their duties and job standards.
2. Assessing performance, which compares the actual performance with established standards.
3. Feedback session, when discussing the performance and progress of subordinates and making development plans.

2.2 Analytic Hierarchy Process (AHP)

AHP is a decision support model developed by Thomas L Saaty, decision support models to describe complex problem multi-factor or multi-criteria into a hierarchy. According to Saaty [10], hierarchy is defined as a representation of a complex problem in a multi-level structure where the first level is the goal, followed by the level of factors, criteria, sub-criteria, and so on down to the last level of alternatives. With hierarchy,

a complex problem can be broken down into groups which are then organized into a hierarchical form so that the problem will appear more structured and systematic.

AHP has strengths and weaknesses in the analysis system. The advantages of this analysis include:

- Unity
  AHP makes broad and unstructured problems into a model that is flexible and easy to understand.
- Complexity
  AHP solves complex problems through a systems approach and deductive integration.
- Inter Dependence
  AHP can be used on system elements that are free and do not require linear relationships.
- Hierarchy Structuring
  AHP represents natural thinking which tends to group system elements into different levels from each level containing similar elements.
- Measurement
  AHP provides a measurement scale and method for getting priority.
- Consistency
  The AHP considers logical consistency in the judgments used to determine priorities.
- Synthesis
  AHP leads to an overall estimate of how desirable each alternative is.
- Trade-off
  AHP considers the relative priority of factors in the system so that people can choose the best alternative based on their goals.
- Judgment and Consensus
  AHP does not require a consensus but combines different assessment results.
- Process Repetition
  AHP can make people refine the definition of a problem and develop their judgment and understanding through a process of repetition.

While the weaknesses of the AHP method are as follows:

- The AHP model depends on its main input**.** The main input is in the form of an expert's perception so that in this case it involves the subjectivity of the expert, besides that the model becomes meaningless if the expert gives a wrong judgment.
- AHP method is only a mathematical method without statistical testing so there is no confidence limit of the truth of the model formed

In the AHP method the following steps are taken [7]:

1. Define the problem and determine the desired solution.
   In this stage, we try to determine the problem we will solve clearly, in detail and easily understood. From the existing problem, we try to determine a solution that might be suitable for the problem. The solution to the problem may be more than one. We will develop these solutions later in the next stage.
2. Create a hierarchical structure that starts with the main goal.
   After compiling the main objective as the top level, the hierarchy level below it will be arranged, the criteria that are suitable for considering or assessing the alternatives that we provide and determining those alternatives. Each criterion has a different intensity. The hierarchy is continued with sub-criteria (if needed).
3. Make a pairwise comparison matrix that illustrates the relative contribution or influence of each element to the goals or criteria on the level above it.
   The matrix used is simple, has a strong position for a consistency framework, obtains other information that may be needed with all possible comparisons and can analyze the sensitivity of the overall priorities for changing considerations. The matrix approach reflects a dual aspect of

priorities that is dominating and being dominated. Comparisons are made based on the judgment of the decision-maker by assessing the level of importance of an element compared to other elements.

4. Do a pairwise comparison.
   The results of the comparison of each element will be a number from 1 to 9 which shows the comparison of the importance level of an element. If an element in the matrix is compared with itself, the comparison results are given a value of 1. Scale 9 has been proven to be acceptable and can distinguish the intensity between elements. The results of the comparison are filled in cells that correspond to the elements being compared. The pairwise comparison scale and its meaning introduced by Saaty are as follows:
   Scale of Interest
   1 = Both elements are equally important or influence at large,
   3 = One element is somewhat more important than the other elements,
   5 = One element is more important than another,
   7 = One element is more important than another element,
   9 = One absolute element is more important than any other element,
   2,4,6,8 = values between two values of contiguous considerations, This value is given if there are two compromises between 2 choices. Reverse = If for activity *i* get one number compared to activity *j*, then *j* has the inverse value compared to *i*
5. Calculates *eigenvectors* from each pairwise comparison matrix.
   The *eigenvector* of the matrix is the weight of each element to determine the priority of the elements at the lowest level of the hierarchy to reach the goal. The calculation is done by adding up the value of each column of the matrix, dividing each value of the column by the total column concerned to determine the role of matrix normalization, and adding the values of each row and dividing by the number of elements to get the average.
6. Check the consistency of the hierarchy.
   What is measured in AHP is the consistency ratio by looking at the consistency index. Expected consistency is near perfect to produce a nearly valid decision. Although it is difficult to achieve perfection, a consistency ratio is expected to be less than or equal to 10%.

AHP is based on 3 basic principles, namely:

- Decomposition
  With this principle complex problem structures are divided into parts in a hierarchical manner. Objectives are defined from general to specific. In the simplest form, the structure will be decomposed to objectives, criteria, and alternative levels. Each alternative set might be further divided into more detailed levels, including more other criteria. The top-level of the hierarchy is a goal consisting of one element. The next level may contain several elements, where the elements can be compared, have almost the same importance and do not have too striking differences. If the difference is too large a new level must be made.
- Comparative Judgements
  With this principle, a pairwise comparison of all elements will be built with the aim of producing a scale of the relative importance of the elements. Rating produces a rating scale in the form of numbers. Pairwise comparisons in the form of a matrix if combined will produce priority.
- Priority Synthesis
  Priority synthesis is done by multiplying local priorities with the priority of the relevant criteria at the top level and adding them to each element in the level affected by the criteria. The results are combined or known as global priorities which are then used to weight the local priorities of the elements at the lowest level according to the criteria.

3. Assessment System Analysis

Based on the results of interviews with the *subject matter*, information was obtained that there were no stages of activities in the form of assessments that are currently used throughout the entire recruitment process of partners. The partner in charge is not assessed for his performance to be used as material for evaluating or determining the number of wages. At the proposed system, the assessment indicator has been built which will be implemented in the assessment system. The intended assessment indicators are built to capture the quality of the performance of the enumerator and processing partner based on several assessment criteria that are judged by applying the AHP algorithm to represent the work performance. The steps taken in developing the assessment indicators are as follows:

1. Define the problem and determine the desired solution

   In this study, the main objective of the development of indicators is to determine the value of the quality of partner performance. Furthermore, from these main objectives, the problem is broken down into a number of suitable evaluation criteria. The general structure of the assessment hierarchy is shown in Fig. 1. The selected criteria are based on interviews with the subject matter, literature studies on employee assessment criteria in general, literature studies on assessment criteria that have been applied to similar systems that have been built. The proposed criteria are based on the needs and perceptions of the subject matter, taking into account the institutional core values of professional, integrity, and trust, along with the code of ethics for statistical officers. At enumeration partners, the quality of performance is assessed from several criteria grouped into two, namely technical criteria and non-technical criteria.

   Technical criteria consist of:

   - Understanding of concepts and definitions
   - Quality of filled form
   - Quality of hand-writing
   - Timeliness and completeness of file collection
   - Compliance with standards such as standard operating procedures (SOP)
     1. Carry out the stages of activities well
     2. Bring a letter of assignment, a map, an identity
   - Error validity
   - Compliance with contracts
   - Number of documents from the enumeration according to the target

   Non-technical criteria consist of:

   - Honesty
   - Appearance
   - Ability to convey goals
   - Collaboration with other officers (team, supervisors, district or city branch office)
   - Keep secrets
   - Maintain a good name, relationship with the respondent

   At processing partners the proposed evaluation criteria include:

   - Average document editing time
   - Error editing document
   - Average document entry time
   - Document entry error
   - Attitudes towards fellow Statistics Indonesia colleagues and employees

   After describing the problem, the next step is to determine a solution or an alternative solution. The form of solution from partner assessment is in the form of final scores and recommendation scores.

Final scores range from 0 to 1, while recommendation values are categorized into three, i.e. Good, Fair, and Poor.

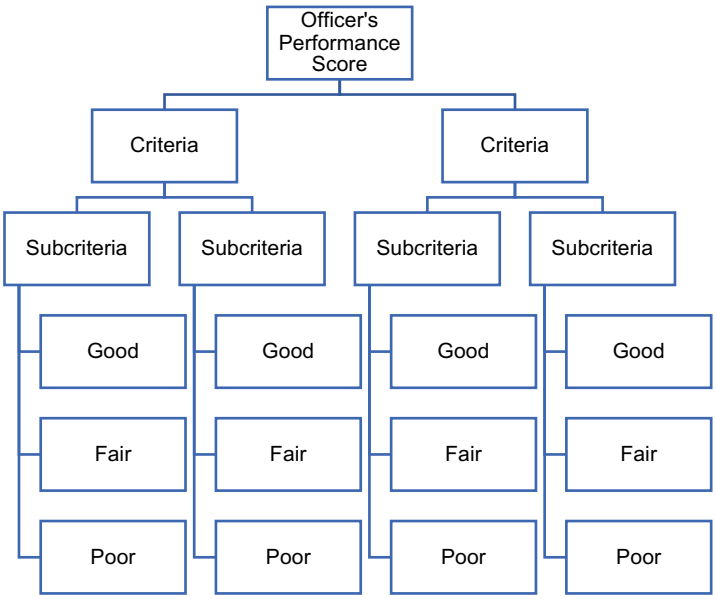

Fig. 1. Composition of the partner performance assessment hierarchy

2. Arrange a hierarchy that starts with the main goal
   After the criteria are formulated and alternative solutions are chosen, the hierarchy is then arranged. As shown in Fig. 2. for the data enumerator and Fig. 3 for the data processing officer, the hierarchy begins with partner performance values as the main objective, followed by assessment criteria, where the criteria for enumeration and processing partners are grouped into two types namely technical and non-technical, then the hierarchical structure below is a sub-criteria that contains a description of each group criteria, or called sub-criteria. The desired alternative or solution is at the bottom of the hierarchy, which is the Good, Fair and Poor categories.

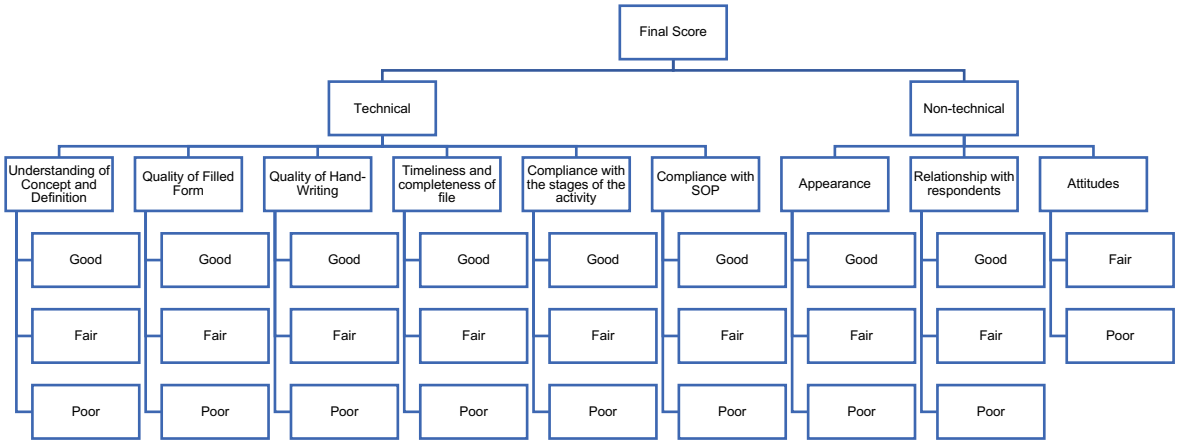

Fig. 2. Composition of the enumeration partner performance assessment hierarchy

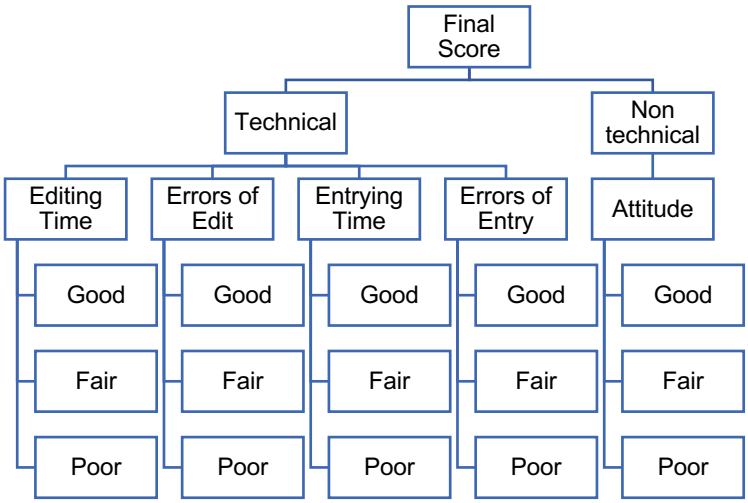

Fig. 3. Composition of the processing partner performance assessment hierarchy

3. Make a pairwise comparison matrix
   AHP algorithm applied to this system applies the absolute method. In determining the weights of each criterion, sub-criteria, and solution, a pairwise comparison matrix is made. The pairwise comparison matrix that is meant is to look for the relative contribution or influence of each element to the objectives or levels of the hierarchy above. The process is carried out as a whole, for criteria, because there are only two criteria, then a comparison is made once. While for the sub-criteria of the partner enumeration and the processing of pairwise comparisons carried out as many as $n\ (n-1)\ /\ 2$ with n that is the number of elements compared. There are three types of solutions which are good, Fair and Poor compared to 3 times. Table 1 shows an example of a pairwise comparison matrix for technical and non-technical criteria.

Table 1. Pair comparison matrices of enumeration partner criteria

	Technical	Non technical
Technical		
Non technical		

The prepared pairwise comparison matrix is filled in with the value of the scale of interests performed by the subject matter, using the Saaty scale of interest, as in Table 2.

Table 2. Paired comparison matrices for enumeration partner criteria filled

	Technical	Non technical
Technical	1	1/3
Non technical	3	1

4. Look for *eigenvectors* from each paired comparison matrix
   After creating a pairwise comparison matrix for each level of the hierarchy, from criteria, sub-criteria, and solutions. The next step there are seek vector of each *eigenvalues* of the matrix, wherein the vector *eigen* is who will act as weights or *weight* of the element in question. As seen in Fig. 5, *weight* or the weight of each element in one level of the hierarchy if added together will produce the number 1.

Table 3. The weight of the elements resulting from the AHP calculation

Technical	Non technical
0.75	0.25

5. Check the consistency of the hierarchy
   After the entire stage is carried out, the final step of the AHP stage is to check the consistency of the hierarchy. If it is not consistent, then the contents of the scale of importance can be improved**.**

In the development of the assessment system, the assessment indicators are formed from a number of criteria which are proposed, selected, and then selected that are considered to represent and allow to be implemented. Indicators formed are as follows:

For the data enumerator partners

- Technical:
  a) Understanding of concepts and definitions
  b) Quality of Filled Form
  c) Quality of hand-writing
  d) Timeliness and completeness of file collection
  e) Compliance with the stages of the activity
  f) Compliance with SOP
- Non- technical:
  a) Relationship with respondents
  b) Appearance
  c) Attitudes towards colleagues, Statistics Indonesia employees

For the data processing partners

- Technical
  a) Average document editing time
  b) Errors of editing document
  c) Average document entry time
  d) Errors of document entry
- Non- technical:
  a) Attitudes towards Statistics Indonesia staff and employees

The criteria and sub-criteria are displayed in the hierarchy as shown in Fig. 5 and 6 below:

Next, the criteria and sub-criteria are then broken down into questions and answer choices for each of the following categories:

For the data enumerator partners:

- Understanding of the concepts and definitions
  How good officials' understanding of the concepts and definitions?
  Good = training score > 8
  Fair = training score 6 – 8
  Poor = training score < 5
- Quality of Filled Form
  How good the quality of officers filled the form?
  Good = fill error rate < 5%
  Fair = fill error rate 5 – 10%
  Poor = fill error rate > 10%
- Timeliness and completeness of file
  Is the officers on time and delivered the file in complete form?
  Good = rarely late but collect complete files
  Fair = sometimes late and incomplete files
  Poor = always late and incomplete files
- Appropriateness of the stages of activity
  Does the officer carry out activities according to the stages well?
  Good = participating in all stages of activities

Fair = rarely present in activities
Poor = never participating in activities

- Quality of hand-writing
  How is the quality of the officer's handwriting?
  Good = writing clear, easy to read
  Fair = writing can be read
  Poor = writing difficult to read, giving errors
- Compliance with standards such as standard operating procedures (SOP)
  Does the officer do things according to the employment contract? (attendant duties and obligations, do not commit violations to resign unilaterally)
  Good = do the whole thing corresponding employment contracts
  Fair = never do things that are not following the employment contract, but lightweight
  Poor = often violate the employment contract or breach weight
- Appearance
  Does the officer dressed polite and appropriate?
  Good = dressed polite, neat
  Fair = dressed fairly
  Poor = less neatly dressed, does not fit
- Relationship the respondent
  How is the attitude of the officer to the respondents?
  Good = friendly to the respondent, explain the purpose of the activity well
  Fair = behave appropriately to the respondent
  Poor = act less friendly and cause conflict with the respondent
- Attitudes toward fellow enumerators, supervisors, and employees of Statistics Indonesia
  Does the officer being good and able to cooperate with other officers, supervisors, and employees of the organizations? (personnel communicate well, implementing the regulatory directives, no less appropriate action against employees)
  Good = friendly, be nice
  Fair = behave appropriately
  Poor = behave poorly

Table 4 shows the example of the calculation.

Table 4. The weight of the elements resulting from the AHP calculation

Sub-criteria	Question	Answer Choice		
		Good	Fair	Poor
Understanding of the consepts and definitions	How good officers understanding of the concepts and definitions?	Training score >8	Training score 6-8	Training score <5
Quality of Filled Form	How good the quality of officers filled the form?	Fill error rate < 5%	fill error rate 5-10%	fill error rate > 10%
Timeliness and completeness of file	Is the officers on time and delivered the file in complete form?	Rarely late but collect complete files	sometimes late and incomplete files	always late and incomplete files
Appropriateness of the stages of activity	Does the officer carry out activities according to the stages well?	Participating in all stages of activities	rarely present in activities	never participating in activities

Sub-criteria	Question	Answer Choice		
		Good	Fair	Poor
Quality of hand-writing	How is the quality of the officer's handwriting?	Writing clear, easy to read	writing can be read	writing difficult to read, giving errors
Compliance with standards such as standard operating procedures (SOP)	Does the officer do things according to the employment contract? (attendant duties and obligations, do not commit violations to resign unilaterally)	do the whole thing corresponding employment contracts	never do things that are not following the employment contract, but lightweight	often violate the employment contract or breach weight
Appearance	Does the officer dressed polite and appropriate?	Dressed polite, neat	dressed fairly	less neatly dressed, does not fit
Relationship the respondent	How is the attitude of the officer to the respondents?	Friendly to the respondent, explain the purpose of the activity well	behave appropriately to the respondent	act less friendly and cause conflict with the respondent
Attitudes toward fellow enumerators, supervisors, and employees of Statistics Indonesia	Does the officer being good and able to cooperate with other officers, supervisors, and employees of the organizations? (personnel communicate well, implementing the regulatory directives, no less appropriate action against employees)	friendly, be nice	behave appropriately	behave poorly

For the data processing partners:

- Average time editing the document
  How long it takes to edit a document?
  Good = fast
  Fair = normal
  Poor = slow
- Errors of edit documents
  From the results of the validation of data, the average number of errors per document editing?
  Good = results of the validation, error < 5%
  Fair = results of the validation, error 5 - 10%
  Poor = results of the validation, error > 10%
- Average time entry document
  How long it takes to entry one document?
  Good = fast
  Fair = normal
  Poor = slow
- Errors of entry documents

From pick-test, the average number of entry errors per document?
Good = quotation test results, errors < 5%
Fair = quotation test results , errors 5 - 10%
Poor = quotation test results, errors > 10%

- Attitudes towards supervisors, other employees
  Employees are the officers behaving well and able to work together with other officers, supervisors, or Statistics Indonesia employees? (Officers communicate well, implementing the regulatory directives, no less appropriate action against employees)
  Good = friendly, be nice
  Fair = behave appropriately
  Poor = behave poorly

Table 5 shows the example of the calculation.

Table 5. The weight of the elements resulting from the AHP calculation

Sub-criteria	Question	Answer Choice		
		Good	Fair	Poor
Average time editing the document	How long it takes to edit a document?	fast	normal	slow
Errors of edit documents	From the results of the validation of data, the average number of errors per document editing?	results of the validation, error < 5%	results of the validation, error 5 - 10%	results of the validation, error > 10%
Average time entry document	How long it takes to entry one document?	fast	normal	slow
Errors of entry documents	From pick-test, the average number of entry errors per document?	quotation test results, errors < 5%	quotation test results , errors 5 - 10%	quotation test results, errors > 10%
Attitudes towards supervisors, other employees	Employees are the officers behaving well and able to work together with other officers, supervisors, or Statistics Indonesia employees? (Officers communicate well, implementing the regulatory directives, no less appropriate action against employees)	friendly, be nice	behave appropriately	behave poorly

The steps are then performed according to the AHP stage and produce an *eigenvector* which acts as a weight and the results of the consistency test of each paired comparison matrix, the following is an example of the pairwise comparison between technical and non-technical criteria for enumeration partners:

Result of Calculation of Weight of Non-Technical Technical Criteria for Enumeration Partners:

Step 1

Table 6. Pairwise Comparison Matrix of Importance Criteria

1	3.000003000003
0.33333300000000000000	1

Step 2

Table 7. Amount of Value for Each Column

1.333333	4.000003000003

Step 3

Table 8. Normalization Result

0.75000018750005	0.75000018750005
0.24999981249995	0.24999981249995

Step 4

Table 9. Result Weight of Each Criteria

0.75000018750005	0.24999981249995

Step 5

Table 10. Matrix For Calculating Consistency

2	2

Step 6 - Calculation of Consistency

CI: 0 RI: 1 CR: 0

Consistency: Consistent

From the overall process produced, each hierarchy of assessments obtained for enumeration partners and processing partners is shown as follows:

Final scores and recommendations are arranged based on a hierarchy, taking into account the weights and assessment questionnaires that are filled out by the supervisor and the work unit implementing the activity at the end of each activity.

4. Implementation on the Web-based Assessment Application

As a tool that is used in the assessment of the survey officer's work performance, a web-based application has been developed which implements the assessment indicators that have been made with some advantages, such as :

- To make the assessment process become easier because the partner's performance assessment process is carried out at the end of every survey and census activity.
- With this web application can be accessed in various devices without the need to be installed first.
- Online web applications make it easy to be accessed simultaneously by several users with their respective privileges.
- The data needed can be stored properly and always updated.

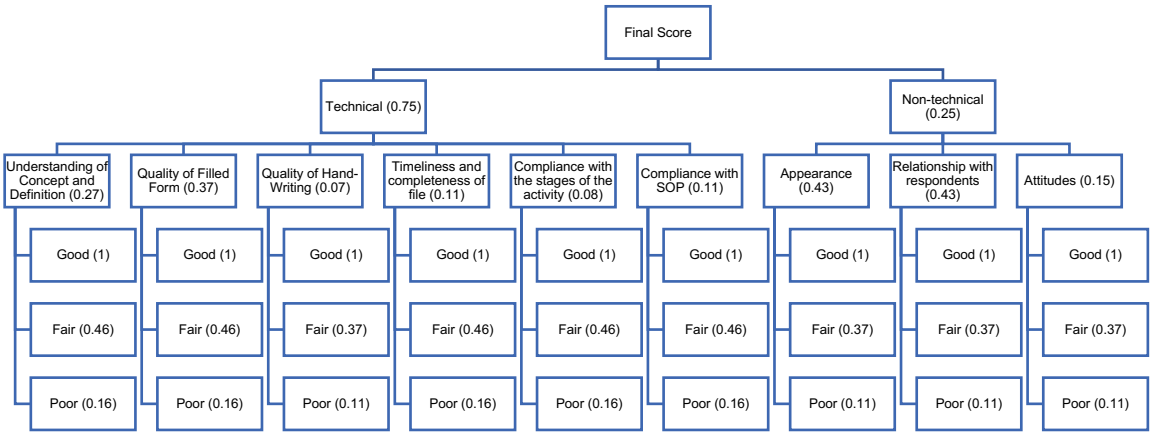

Fig. 4. Composition of the enumeration partner performance appraisal hierarchy with weight

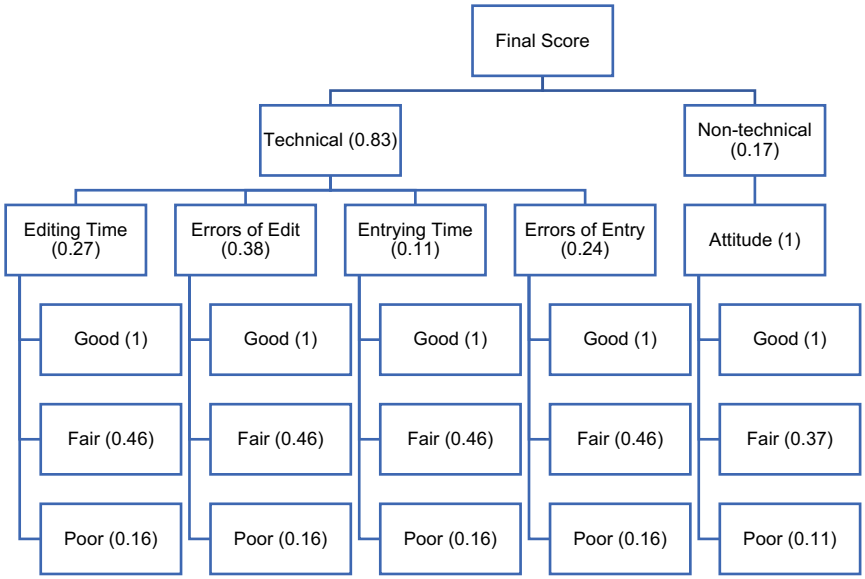

Fig. 5. The hierarchy of processing partners performance appraisal with weight

Steps of assessment:

1. Login into the application
2. Create a database of registered partners
3. Create a database of activities to be carried out
4. Allocate partners to specified activities
5. Assess the performance of partners who have finished his work
6. Reallocate partners for the next activities based on recommendations of previous activities
7. Evaluate partners' performance

The following figures are some interfaces of the implementation of the assessment application. The application uses Bahasa Indonesia (Indonesian language) as the user interface.

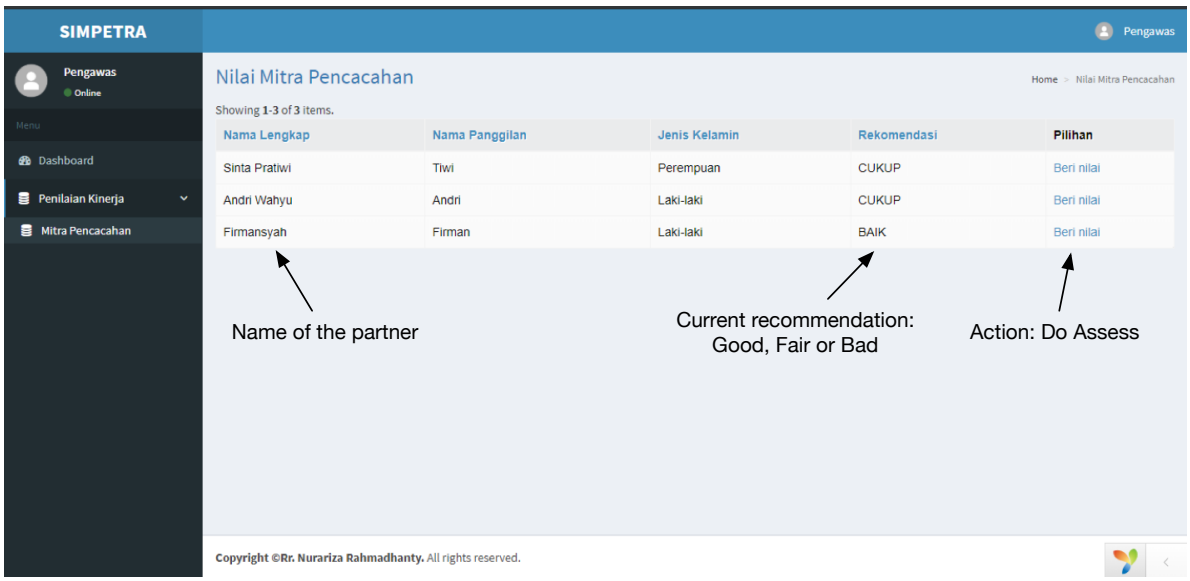

Fig. 6. Interface of the page to choose which partners will be assessed

Before assessing the performance of partners, the assessor must choose the name of partners to be assessed first, by clicking the link next to the name.

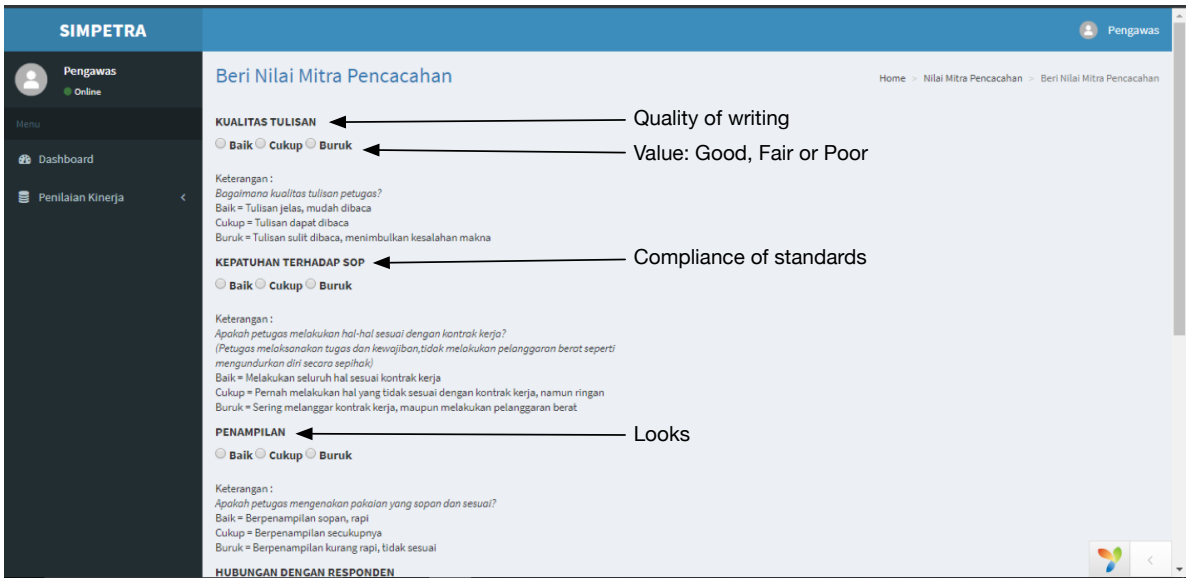

Fig. 6. Interface of the page for the assessment by the survey's officer

Assessment is done by filling out a questionnaire consisting of several questions that have been described previously.

After all the questions have been filled, each value converted to a value and then entered into the assessment indicator formula that has been built. Furthermore, the final score is produced which is then converted into recommendations.

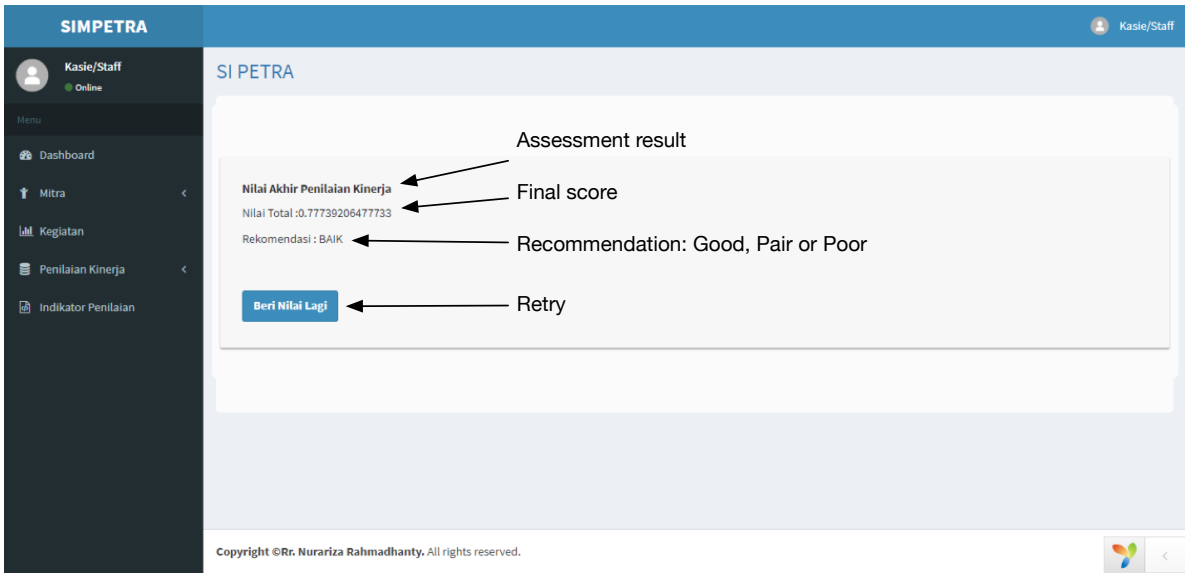

Fig. 7. Interface of page which shows final score and recommendation

5. Conclusion

Based on the preliminary analysis, we found that there are still problems with the current system of recruiting partners as the current contract employees in Statistics Indonesia. In this study, we propose an assessment system using AHP to assess the work performance of the survey or census officer. The system provides the result as a recommendation for the assessed personnel. We also build a web-based application that can be used by the assessing officer to assess the performance of the data enumerator partners and data processing partners using an assessment indicator that can be accounted for. The system can provide a recommendation based on the value of the quality of the partner's work performance which can be used as a consideration in determining the allocation of partners to certain activities. For future works, each criterion or sub-criteria can be updated depends on the organization's need so it can always relate and up to date.

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