

Feasibility Analysis of Employee E-Recruitment Application System Social Security Companies Using Analytical Hierarchy Process (AHP) Methods

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Abstract— *Effective and proper recruitment management to be used at the Company, can produce Human Resources (HR) in accordance with the parameters of the requirements set by the company.*

With the existence of Human Resources (HR) who have competencies in accordance with their field of work, it will have a positive effect on individual performance which will ultimately determine the optimal level of company performance. Given that Human Resources (HR) has a strategic role in achieving company goals, Human Resources (HR) must be seen as a key determinant of success and as assets that must be developed through an integrated Human Resources (HR) management system.

Based on the identification of the problem, this study aims to analyze the application of E-records adjusting to business processes and analyzing the needs of the company, whether the application development is in accordance with what is expected and in accordance with the company's business processes. Utilization of the E-Recruitment application so that it is sustainable, effective and suitable for use in the long term.

The results of the identification of problems and solutions can be used as guidelines in the development of E-Recruitment applications, by adjusting business processes and needs that have been set by the company.

The results of the analysis carried out from the identification process of the E-Recruitment application so that it can be used maximally both by business units and prospective employees of the company.

Keywords— *Recruitment, HR, Analytical Hierarchy Process.*

I. INTRODUCTION

To be able to anticipate the development of the business environment and continue to improve services, quality human resources (HR) are needed. With the existence of human resources who have competencies in accordance with their field of work, it will have a positive effect on individual performance which will ultimately determine the optimal level of company performance. Because HR has a strategic role in achieving company goals, HR must be seen as a key determinant of success and as an asset that must be developed through an integrated HR management system.

In carrying out its business processes, the Company requires employees who have capabilities and characteristics in accordance with the specifications of their work. Choosing the right prospective employee in a short time is a difficult task and responsibility, because it takes foresight so that there is no wrong choice or wrong placement. Mistakes in choosing a big impact for the company. This is not only because the

recruitment process itself has taken up time, money and energy, but also because accepting the wrong person in a position will have a negative impact on efficiency, productivity, and can damage the work morale of the employee concerned and those around him.

II. THEORY REVIEW AND REFERENCES

A. System Analysis

According to Stair & Reynolds (2012: 365) the whole of the analysis is collecting data from the running system, determining the needs of the new system, considering various alternatives based on constraints on the company, and investigating the possibility of solutions.

Definition of System Analysis

Decomposition of a complete information system into its component parts with a view to identifying and evaluating problems, opportunities, obstacles that occur and the expected needs so that improvements can be proposed.

The analysis phase is carried out after the system planning stage and before the system design stage. This stage is a critical and very important stage, because mistakes in this stage cause errors in the next stage.

B. Information System

According to Sutabri (2012: 38) information system is a system within an organization that meets the needs of daily transaction processing, supports operations, is managerial with the strategic activities of an organization in order to be able to provide reports needed for outsiders.

Information system components are mentioned by O'brien and Marakas (2014: 33) that information systems consist of human resources, hardware resources, software resources, data resources, and network resources. Information systems depend on human resources, hardware, software, data, and networks to carry out input, processing, output, storage and control activities that convert data sources into information products.

Information systems are tools for producing information that is processed through special analysis. These results are very useful for the needs of the organization, and the decisions taken for each level (level) of management are to make a strategic policy.

According to James Alter, information systems are:

"The combination of work procedures, information, people and information technology that is organized to achieve goals in an organization"

In general, according to Jogiyanto, in his book entitled *Analysis and Design of Information Systems*, the so-called Value is:

"An information that is said to be valuable if the information is more effective than the cost of getting it"

C. Recruitment

The main key to creating reliable and professional Human Resources (HR) lies in the process of recruitment, selection and training, to find qualified and professional Human Resources (HR) a company must conduct a recruitment and screening process, so that Human Resources (HR) needed in accordance with what is needed by the company.

Definition of Recruitment

According to Henry Simamora (1997: 212) Recruitment (Recruitment) is a series of activities to find and attract job applicants with the motivation ability, expertise, and knowledge needed to cover the deficiencies identified in staffing planning.

According to Randall S. Schuler and Susan E. Jackson (1997: 227) in Nanang Nuryanta (2008) Recruitment includes the search for a number of prospective employees who meet certain conditions so that companies can select the most appropriate people to fill existing job openings.

According to Schermerhorn, 1997 Recruitment is the process of withdrawing a group of candidates to fill vacant positions. Effective recruitment will bring job opportunities to the attention of people who have the ability and skills to meet job specifications.

According to Faustino Cardoso Gomes (1995: 105) Recruitment is the process of finding, finding and attracting applicants to be employed in and by an organization.

Recruitment can be defined as a process of finding and gathering prospective employees holding positions to occupy a certain position, according to the abilities and skills needed by the company.

D. Analytical Hierarchy Process

Policy evaluation in the flow of the public policy process occupies the last position after policy implementation. Based on public policies that have been made and implemented an evaluation is needed. From the evaluation it can be seen the success or failure of a policy. Evaluation can also assess whether a policy / program provides benefits or not, so that normatively a recommendation will be obtained whether the policy can be continued, or needs to be improved before continuing, or even must be stopped. In the evaluation process, when the decision to be made is simple, evaluators can easily make / make decisions. However, if the decision to be taken is complex (has more than one alternative settlement and each settlement has a large risk) such as policy formulation, in that condition the evaluator needs tools in the form of analysis that is scientific, logical, and structured / consistent. One analytical tool that makes it possible to make decisions for complex problems is the AHP (Analytic Hierarchy Process).

Analytical Hierarchy Process (AHP) method is one of the decision making models developed by Thomas L. Saaty to

overcome complex multi-factor or multi-criteria problems into a hierarchy, according to Saaty (1993), 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 levels 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. In general, by using AHP, the resulting priorities will be consistent with the theory, logical, transparent, and participatory. AHP will be very suitable to be used for prioritizing public policies that demand transparency and participation. AHP is often used as a method of solving problems compared to other methods for the following reasons:

1. The hierarchical structure, as a consequence of the chosen criteria, reaches the deepest sub-criteria.
2. Calculates validity to the extent of the inconsistency tolerance of various criteria and alternatives chosen by decision makers.
3. Take into account the resilience of the decision making sensitivity analysis output.

III. RESEARCH METHOD

A. Research Methods

The method used to analyze the feasibility of the E-Recruitment application using the AHP Analytical Hierarchy Process method was developed by Thomas L. Saaty, a mathematician. According to Saaty in (Sumiati, 2007) the AHP method helps solve complex problems by structuring a hierarchy of criteria, stakeholders, results and by attracting various considerations to develop weights or priorities. This method also combines the power of the 15 feelings and logic involved in various problems, then synthesizes various considerations into results that match our estimates intuitively as presented in the considerations that have been made.

This method is a framework for making effective decisions on complex problems by simplifying and speeding up the decision making process by solving the problem into its parts, organizing parts or variables in a hierarchical arrangement, giving numerical values to subjective considerations of the importance of each variable and synthesize these considerations to establish which variable has the highest priority and act to influence the outcome of the situation.

According to Sudaryono (2010) in solving problems using the AHP (Analytical Hierarchy Process) method must determine priorities. For each criterion and alternative, a pairwise comparison is needed. The relative comparison values of all alternative criteria can be adjusted to the judgment that has been determined to produce weights and priorities. Weights and priorities are calculated by manipulating the comparison matrix or through the completion of mathematical equations, the following is the weighting process for the importance of the attributes:

There are 4 scales used, with the following definitions:

- 1 Score 1 - Poor Utilization Rate
- 2 Score 2 - Sufficient Usability
- 3 Score 3 - Level of Good Benefit

4 Score 4 - High Benefit Rate

When a score for each attribute has been determined, the next is to calculate the average weighting of each attribute so that a single value is represented. In this phase, there are 2 criteria that form the basis for decision making,

1. Score Weight ≤ 2 , then the conclusion: Utilization of Existing Information Systems Low.
2. Score Weight > 2 , then the conclusion: the usefulness of the existing information system is high

IV. DISCUSSION

A. Analysis of the Benefits of E-Recruitment Applications.

Based on the previous understanding of the informatics and recruitment system, the scope to consider in assessing and analyzing the feasibility of the E-Recruitment application is currently divided into 6 sections, namely:

1. In accordance with the Company's business processes

The main benefit obtained from E-Recruitment is that it can integrate business process processes and internal functions in the company in order to carry out the Recruitment process optimally. The management of recruitment management has been arranged in the company's business processes so that web-based recruitment applications can be implemented with consider corporate governance and policies.

2. In accordance with the needs of the user / Business Unit

Basically, the basic function of E-Recruitment is as a tool to improve and improve the existing recruitment process. Recruitment functions in the E-Recruitment application can be in the form of main material or data for decision making in producing company policies.

3. Efficient Use of web-based applications

When a company needs an information system, the considerations due to the problem of time and cost efficiency, mentioned that one of the benefits of using an informatics system is to improve operational efficiency, independent management of web-based recruitment information systems, can release the burden of costs from managing the recruitment process by third parties.

4. Application Management

Management rights in the recruitment process that are not managed independently can affect the costs incurred, because management is imposed on third parties, the cost burden must be used efficiently, because it affects the company's cost burden

5. Application System Reliability

E-Recruitment Application is to support the company's operations, especially in the business units of the Human Resources Division (HR) at present until in the future. Analysis of the benefits of the reliability of the application system is very necessary because to measure the reliability and consistency of the application in supporting the company's business. One measure of the success of the E-Recruitment application is to improve good performance to the maximum.

6. Application User Satisfaction of Modules (Features)

Benefit analysis refers to the satisfaction of the use of the application user, based on how many modules (features) have been implemented. This affects the implementation of

recruitment processes. E-Recruitment application user satisfaction is very important to be directly related to the performance of the business units and to create continuity of the recruitment process in order to obtain maximum results as expected

B. Assessment and Feasibility Measurement

To assess and measure the usefulness of the E-Recruitment application, which is identified into 6 (six) Information System benefit variables, the Analytical Hierarchy Process (AHP) method will be used.

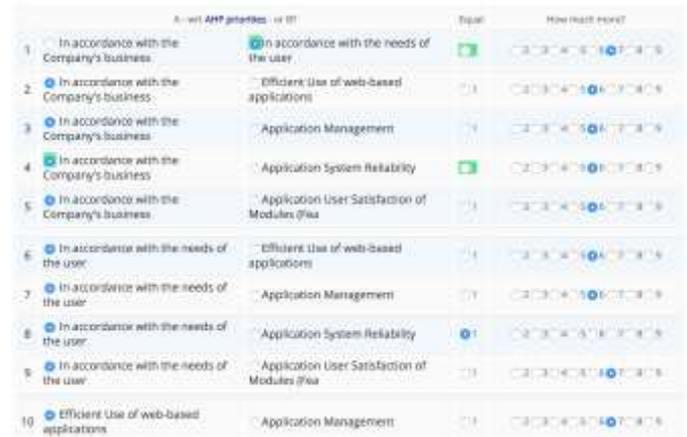


Figure 1. The Weighting Process Value of Importance

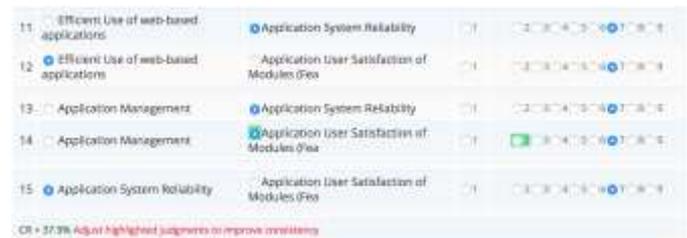


Figure 2. The Weighting Process Value of Importance (continued)

Here are the results of weighting for each attribute based on pairwise comparisons and their decision matrix:

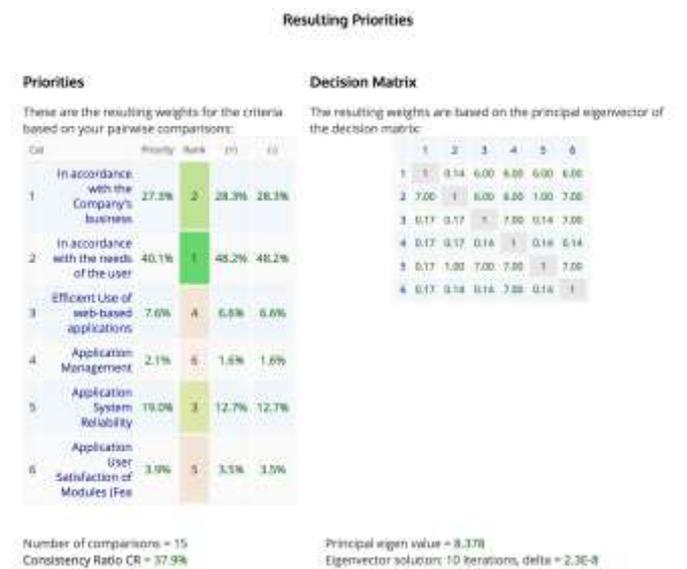


Figure 3. Priority Attributes and Decision Matrix

Consistency Ratio of 37.9% is an acceptable ratio so that AHP analysis can be continued.

C. Results of Decision Making using AHP Method

Based on the results of decision the weighted score obtained is 2.83, so it can be concluded that the application of E-Recruitment is very beneficial for the company.

Table 4.1 Score Rating Criteria

| NO | attribute | weight | assessment criteria | | | | rate | weight value |
|--------------|--|-------------|--|--|--|--|------|--------------|
| | | | 1 | 2 | 3 | 4 | | |
| 1 | In accordance with the Company's business process | 23.88% | the application is not very much in line | the application is not in line | the application is quite in line | the application is very much in line | 3 | 0.713% |
| 2 | In accordance with the needs of the user / Business Unit | 48.00% | the application is not very much in line | the application is not in line | the application is quite in line | the application is very much in line | 3 | 1.44% |
| 3 | Efficient Use of web-based applications | 7.68% | function is very inefficient | inefficient application | the application is quite efficient | very efficient application | 3 | 0.23% |
| 4 | application management rights | 2.10% | there is absolutely no application management rights | There are no application management rights | there are enough application management rights | there are really application management rights | 2 | 0.04% |
| 5 | Application System Reliability | 14.58% | the application is very unreliable | the application is not reliable | the application is quite reliable | the application is very reliable | 2 | 0.29% |
| 6 | Application User Satisfaction of Modules (Features) | 3.90% | user is very dissatisfied | user is not satisfied | user is quite satisfied | user very satisfied | 3 | 0.12% |
| TOTAL | | 100% | ≤ 2 Not Feasible > 2 Feasible | | | | | 2.83% |

D. Analysis of the Solution

From the results of the feasibility analysis of the application it can be concluded that the E-Recruitment application is feasible to be implemented and used by the company provided that shortcomings that are a priority in each attribute can be resolved immediately.

Based on the results of the analysis, it can be seen what attributes and modules will be prioritized for improvement. The attributes and modules that are the priority for development are:

1. Application that suits the needs of the business unit
 - a. Reporting on recruitment registration data, not yet done automatically, still retrieves data manually from the database
 - b. There is no Content Management System (CMS) facility to update the E-Recruitment application conducted by business units as administrators,
2. Applications that are in line with the company's business processes
 - a. There is no Content Management System (CMS) facility to update recruitment management, the management carried out by business units to update applications, cannot be done independently, still relying on Information Technology staff to update
 - b. here is no Reporting The results of the recruitment selection automatically, still retrieving and processing data in the database.
 - c. Because the reporting is still manual, the documentation is also done manually
3. Application System Reliability
 - a. There are still frequent incidents of operational disruptions in the application, if more than 1000 users are logged in
4. Efficient Use of web-based applications

- a. Management of recruitment selection is still carried out by third parties, recruitment results are limited to the registration of job applicant participants
 - b. The recruitment data report for admin has not been accommodated.
5. Application User Satisfaction of Modules (Features)
 - a. The application cannot fully accommodate the needs of the business unit.
 6. Application Management Rights
 - a. a. The recruitment and selection management process has not been fully carried out independently

E. Priority for Improvement and Development of E-Recruitment Applications

From the results of the analysis of the solution, it can be seen which modules are the priorities in each attribute to make improvements in the development of E-Recruitment applications.

From the priority attributes in the grouping of modules which will be the priority and become a project to work on the improvement of E-Recruitment application development. Priorities for improvement in the E-Recruitment application are:

1. Making a Content Management System (CMS)
 - a. Making the Content Management System (CMS) menu for the admin menu for managing the E-Recruitment application
 - b. Creation of a recruitment data reporting menu in the Content Management System (CMS) module for administrators or business units as the owner of the E-Recruitment application
 - c. Making a menu to update information data on the E-Recruitment application, both general information and vacancy information.
2. Add bandwidth and server data capacity
 - a. Addition of hard drive to accommodate prospective employee data
 - b. Making load balancer mechanism on the E-Recruitment server to organize the entry of data to the server.
 - c. Increase bandwidth capacity.
3. E-Selection application development
 - a. E-Selection application development as a continuation of the E-Recruitment application, so that the employee selection process can be done independently, not relying on third parties

V. CONCLUSIONS AND SUGGESTIONS

A. Conclusion

E-Recruitment Application is a supporting application for company operations, especially in the Human Resources Division, the implementation of the E-Recruitment application is a problem solver of the operational process in the Human Resources Division (HR) to create competent human resources and in accordance with company criteria with more practical and efficient management.

From the results of the feasibility analysis it can be concluded that the E-Recruitment application is feasible to be

used in the company and becomes an operational support application in the Human Resources Division (HR), even though the application still needs a lot of improvement, improvement and development, so that it becomes an application that is in accordance with needs and supports the company's operations and can answer the challenges of the company's business competition.

B. Suggestions

Improvement and development of E-Recruitment Applications that have been set in the process period and targets so that they can be realized immediately, in order to accelerate the process of eligibility for E-Recruitment applications to become applications that are suitable for use in effective, efficient and operational.

All parties involved, both from the Company's Board of Directors, the Business Unit of the Human Resources (HR) Division and the Information Technology Division, in order to support and support its implementation in the Improvement and development of the E-Recruitment Application so that the process can run smoothly, because without support from that party the process of repairing and developing the E-Recruitment application is very impossible to be able to do the repair and development process in the near future

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