

Application Profile Matching Method for Employees Online Recruitment

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Abstract: Employees is one of the determinant factors of company's success. Thus, reliable human resources are needed to support the survival of the company. This research takes case study at PT. Asuransi Bina Dana Arta, Tbk Pekanbaru Branch. Employee recruitment system at PT. Asuransi Bina Dana Arta, Tbk Pekanbaru Branch still uses manual system as seen in application letter files file so it needs long time to determine accepted and rejected the application. For that it needs to built a system or application that allows companies in determining employees who accepted or rejected easily. Profile Matching Method is a process of competency assessment that is done by comparing the value of written, psychological and interview test between one applicant with other. PT. Asuransi Bina Dana Arta, Tbk Pekanbaru branch set the percentage to calculate NCF (Core Factor Value) by 60% and NSF (Secondary Factor Value) by 40%, and set the percentage to calculate the total value of written test by 40%, the total value of psycho test by 30%, and the total value of interview 30%. The final result of this study is to determine the rank or ranking of each applicant based on the greater value which, the greater that score of final result of an application get, the greater the chance of the applicant occupy a position or vacancy. Online Recruitment application uses profile matching method can help employee selection process and employee acceptance decisions quickly. This system can be viewed by directors or owners anywhere because it is online and used for other company branch

Keywords: *Online Recruitment, Employee, Profile Matching Method, NCF (Core Factor Value), NSF (Secondary Factor Value)*

1. Introduction

Recruitment is a process that generates a number of qualified applicants for employment in a company or organization [7]. Meanwhile, according to other experts mentioned that recruitment is the process of finding, finding, inviting, and setting a number of people, both from within and outside the company as a candidate with certain characteristics as specified in the planning of Human Resources [10]. Recruitment deals with activities that affect the number and type of applicants, whether the applicant then receives the job offered [4]. Selection is the process of collecting and evaluating current and accurate information about individuals who are getting a job offer [2]. PT Asuransi Bina Dana Arta, Tbk (ABDA) is still using manual system in its human resources processing that is on data processing of new employee recruitment. For example, the collection of application files that have been sent applicants who will be selected in the form of documents that will certainly take a long time to select the file one by one manually by the HRD, and will the accumulation of data applicants. The selection process of employee recruitment has not yet been used the appropriate method so that the company gets employees that are not in accordance with the required.



Therefore, this company wants to get qualified employees and in accordance with the field and its ability then, the company must do the selection. The decision-making process for employee recruitment takes a long time for selection. For that reason, it is necessary to design computerized employee acceptance applications, as well as to provide a means to facilitate applicants to send files through upload to the system. Building a decision support system for selecting candidates using profile matching method to improve effectiveness and efficiency as well as accurate in processing test results.

2. Literature Review

Successful companies consider their employees as a key resource necessary for the survival of the company. Companies can work only if they are able to ensure sufficient human resources. Human resources are the heart of the company, as they have the ability, skills and talents. Hence the need for an employee recruitment system. [6]. Recruitment is the process of finding, finding and attracting potential employees to be employed in and by organizations. Recruitment is also a series of activities seeking and attracting job applicants with the motivation, skills, expertise, and knowledge needed to cover the shortcomings identified in personnel planning. The purpose of recruitment is to meet as many offers as possible from prospective employees so that the organization has a greater chance to make choices against prospective applicants who are considered to meet the organization's qualification standards. [9]. Recruitment is the process of finding, finding and attracting capable applicants to be employed within and by an organization. The recruitment process begins when the applicant seeks and ends when applicants apply. In carrying out the recruitment task the labor-seekers base their activities on predetermined human resource planning. It should be emphasized that recruitment activity cannot be based on human resource planning because in the plan has been established various requirements that must be fulfilled by people want to work in organization concerned. [11]

"Recruitment is the process of searching for prospective employees and stimulating them to apply for job in the organizational". (Withdrawal is the process of searching and binding of prospective employees who are able to work within the organization). [3]. According to Law no. 13 year 2003 article 1, the workforce is any person capable of performing work both inside and outside the employment relationship, in order to produce goods or services to meet the needs of the community. Furthermore, Article 4 states that an employee is a permanent worker who works under the orders of others and receives compensation and guarantees. The employee is the seller of services (mind and energy) and gets compensation that the amount has been determined first. In this case, employees are obliged and bound to do the work given and are entitled to compensation by agreement [3]. Selection is an activity of selecting and determining applicants who are accepted or refused to become company employees. Selection is based on certain specifications of each company concerned. [3] From the definition can be concluded that the selection is to obtain the most appropriate employees in the quality and quantity of candidates to be withdrawn. And can be added back that employee selection is very important if it turns out the employees perform well in accordance with the expected.

The theoretical lens used in this study is the Unified Theory of Acceptance and Use of Technology (UTAUT), extended to include the impact of the recruiters' managerial position and educational level on technology adoption. So essentially must be adjusted positions to be given to prospective employees with the level of education and ability [1]. There are various tests that are used to select employees who apply for a company. One is a psychological test. Such tests are the primary means of measuring the mind and are often used by employers as part of the selection process, to help them obtain accurate assessments of whether an individual is capable of performing the required work and whether one's character matches the job. Profile Matching is a research method that can be used in decision support system, competency appraisal process is done by comparing between one profile value with some profile of other competence value, so that can know the result of difference of requirement of competence needed, the difference of competence is called gap, where The smaller gap has a higher value

According to Kusrini [5] Method profile matching is a frequently used method as a decision-making mechanism by assuming that there is an ideal level of predictor variable that must be met by the subject under study, rather than the minimum level to be met or skipped. In the process of profile matching outline is a process of comparing the actual data value of a profile to be assessed with the expected profile value, so that it can be known the difference of competence (also called gap), the smaller the resulting gap the greater the value. Once the importance of human resources management, especially the process of employee acceptance led to many people doing research on employee acceptance system, among others, [9] the research results are: Competency GAP Mapping Calculations Based on Aspects.

3. Profile Matching Method

The gap in question is the difference between the vacancy profile (position) with the applicant's profile. For the calculation formula gap can be seen below:

$$\text{Gap} = \text{Profile of Applicants} - \text{Position Profile}$$

Before determining the Gap of each aspect, first PT. Asuransi Bina Dana Arta, Tbk Pekanbaru Branch determines the scoring range as a Gap calculation reference, As in the following table:

Table 1. Assessment Range

Assessment Range	Category	Value
$X < 50$	Very less	1
$50 \leq x < 60$	Less	2
$60 \leq x < 70$	Enough	3
$70 \leq x < 85$	Good	4
$X \geq 85$	Very good	5

Range assessment can be adjusted to the needs of the organization concerned, then the next step is to explain each aspect so that gap (difference) in accordance with the formula GAP. After obtaining each GAP of each prospective worker, each profile of the candidate labor (applicants) given the weight of the value in accordance with the benchmark value in the weight table GAP value as can be seen in table 2

Table 2. Table Weight GAP Value

Number	Difference (Gap)	Value Weight	Information
1	0	6	Not GAP (competence as required)
2	1	5,5	The individual competence is excess of 1 level / level
3	-1	5	Individual competence is less than 1 level / level
4	2	4,5	Competence of individual excess 2 levels / level
5	-2	4	Individual competence is less than 2 levels / level
6	3	3,5	The individual competence is 3 levels/ level
7	-3	3	Individual competence is less than 3 levels / level
8	4	2,5	Competence of individual excess 4 levels / level
9	-4	2	Individual competence is less 4 levels / level
10	5	1,5	The individual competence is 5 levels / level
11	-5	1	Individual competence is less 5 levels / level

So, each candidate labor (applicants) will have the weight of the gap value in accordance with table 2.

4. Counting and Grouping Core Factor and Secondary Factor

After determining the weight of the gap values for all aspects in the same way, each aspect is subdivided into two groups namely the Core factor (primary factor) and Secondary factor (supporting factor)

a. Core Factor (Main factor)

Core factor is the aspect (competence) that is most prominent or most needed by a position that is expected to produce optimal performance. The core factor calculation can be shown in the following formula [5] :

$$NCF = \frac{\sum IC}{\sum NC}$$

Information:

NCF : The average value of core factor

NC : Total number of core factor values (aspect 1, aspect 2, aspect 3, etc.)

IC : Number of core factor items

b. Secondary factor (Supporting factors)

Secondary factor is the items other than the aspect of the core factor (supporting factor). Calculation of secondary factor can be shown in the following formula [5]:

$$NSF = \frac{\sum NS}{\sum IS}$$

Information:

NSF : Average value of secondary factor

NS : Total number of secondary factors (aspect 1, aspect 2, aspect 3, etc.)

IS : Number of items secondary factor

c. Calculating the Total Value of Each Aspect

From the calculation of these aspects then calculated the total value based on the percentage of core factor and secondary factor which is expected to affect the performance of each profile. The calculations can be seen in the following [5] :

$$Nilai\ Total = 60\% NCF + 40\% NSF$$

Information:

NCF : The average value of core factor

NSF : Average value of secondary factor

d. Counting the Final Results (Ranking)

The final result of the profile matching process is the ranking of the candidate who can be a candidate for the workforce who can fill a certain position. Ranking refers to the results of certain calculations, the calculation can be shown in the following formula [5]:

$$Hasil\ Akhir = (x)\% N1 + (x)\% N2 + (x)\% N3 + (x)\% N4 + \dots$$

Information:

N1 : Total aspect value 1

N2 : Total aspect value 2

N3 : Total aspect value 3

N4 : Total aspect value 4

(x)% : The percent value of the final result formula (100% total)

After each applicant gets the final result, it can be determined the rank or rank of each prospective worker (applicant) based on the greater the final value, the greater it will be to obtain the position or position, and vice versa.

5. Results and Discussion

Explanation of Matching Profile calculation process to be more clear, will be exposed through an example. Research process of employee acceptance selection done at PT. Insurance Bina Dana Arta, Tbk Pekanbaru Branch. Before doing the calculation by using Profile Matching, here is the table of applicant values of each test that has been done by PT. Insurance Bina Dana Arta, Tbk by taking 5 sample applicants, where each test is a variable (criteria) in the process of calculating profile matching and each variable has aspects (sub criteria).

PT. Asuransi Bina Dana Arta, Tbk Pekanbaru branch set the percentage to calculate NCF of 60% and NSF by 40%. And set the percentage to calculate the total write test score of 40%, the total psycho test score of 30%, and the total value of the interview 30%.

a). Define criteria and sub-criteria

Table 3. Criteria and sub criteria

Criteria	sub criteria	Type	Standard Value
Writing test	Field Competencies	Core factor	85
	General knowledge	Secondary Fact	75
Psychology test	Confidence	Core factor	85
	Responsible	Core factor	75
	Achievement motivation	Core factor	80
	Creativity	Core factor	75
	Initiative	Secondary Factor	70
	Accuracy	Core factor	80
	Speed	Secondary Factor	75
	Organizational capability	Secondary Factor	70
	Imagination	Secondary Factor	85
	Cooperation	Core Factor	75
	Leadership	Secondary Factor	80
	Optimistic	Core Factor	75
	Work attitude	Core Factor	80
	Honesty	Secondary Factor	75
Interview test	Knowledge of work	Core Factor	80
	Work experience	Secondary Factor	70
	Character	Core Factor	80

Each applicant will be tested according to predetermined criteria and sub criteria. the value obtained will be processed and compared with the value of other applicants. the highest applicant's value to be accepted as an employee. The are 2 steps in process of competency gap mapping

b). Collection of gaps from each aspect

For the collection of gaps that occur in each aspect have different calculations. Here the researchers cite the written test that is:

Writing test: In this case will be calculated gap between the applicant profile and vacancy profile with the variable (criteria) is a written test that has 2 aspects (subcriteria), can be seen in table 4.

Table 4. Test Write for grouping gaps

Sub Criteria	Applicant's Number and Applicant's Value					Profile Lowongan
	ID01	ID02	ID03	ID04	ID05	
01	75=4	65=3	60=3	70=4	75=4	85=5
02	70=4	75=4	60=3	70=4	70=4	75=4
Gap						
01	-1	-2	-2	-1	-1	Gap
02	0	0	-1	0	0	

c). Determination of Gap Value Weight

The following is a written test table on competency gap mapping

Table 5. Test Write Competitiveness Gap mapping results

Sub Criteria	Applicant's Number and Applicant's Value				
	ID01	ID02	ID03	ID04	ID05
01	-1	-2	-2	-1	-1
02	0	0	-1	0	0

Table 6 Table of Tests Write Results Weight Gap Value

Sub Criteria	Applicant's Number and Applicant's Value				
	ID01	ID02	ID03	ID04	ID05
01	5	4	4	4	5
02	6	6	5	5	6

Calculation and grouping of Core Factor and Secondary Factor

Table 7. Core Factor Value Written Test

Sub Criteria	Applicant's Number and Applicant's Value				
	ID01	ID02	ID03	ID04	ID05
01	5	4	4	5	5
02	6	6	5	6	6
CF	5	4	4	5	5

Calculation of Total Value of Each Aspect (Value Factor). The calculation of the total score on the written test criteria is as follows:

Table 8. Table Total Tests of Write Tests

Gap Value Weight	Applicant's Number and Applicant's Value				
	ID01	ID02	ID03	ID04	ID05
NCF	5	4	4	5	5
NSF	6	6	5	6	6
Total Value	5,4	4,8	4,4	5,4	5,4

Final Value Calculation (Ranking). The calculation of the final result or ranking is the final stage of the calculation of the profile matching process. The final result can be a ranking of candidates that can be used as labor. The calculation of the final result (ranking) can use the formula:

Table 9 Final Value After Ranking Table

Gap Value Weight	Applicant's Number and Applicant's Value				
	ID01	ID02	ID03	ID04	ID05
NT	5,4	4,8	4,4	5,4	5,4
NP	5,62	5,53	5,46	4,99	5,54
NW	5,85	5,7	6,00	6,00	5,4
Final score					
Nilai Akhir	5,6	5,29	5,20	5,46	5,44

After obtaining the final result as in table 9, it can be determined rank or rank of each applicant based on the greater the value of the end result, the greater the chance of an applicant to occupy a position or vacancy.

Table 10. Rank of Each Applicant

Applicant Number	NT	NP	NW	The final result
ID01	5,4	5,62	5,85	5,60
ID04	4,4	4,99	6,00	5,46
ID05	5,4	5,54	5,4	5,42
ID02	4,8	5,53	5,7	5,29
ID03	4,4	5,46	6,00	5,20

The output generated from the decision support system using the Profile Matching method is the ranking of each applicant according to the registration wave. Based on table 10 there is one of the five applicants that have the highest score, then the ID01 applicant number is the applicant with the highest score. Then Applicants with ID01 are recommended by the system to become employees.

6. Conclusions

Based on the result of the research, it can be concluded; firstly, with a new employee recruitment system to support the decision by using Profile Matching method so it does not require long time in new employee selection. Secondly, the E-Recruitment information system provides convenience to the HRD section in the process of receiving new employees, where in the case of sending the application files have been through the website. So, there is no pile of application files. Thirdly, the decision support system that has been built can help the leadership to determine the applicants who are accepted in the company in accordance with the vacancy he proposed. Fourthly, Web-based E-Recruitment application can support the implementation of online tests conducted at PT. Insurance Bina Dana Arta, Tbk Pekanbaru Branch. We recommend adding the appropriate criteria to each required section in each division

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