



Decision Support Model for User Submission Approval Energy Partners Candidate Using Profile Matching Method and Analytical Hierarchy Process

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Abstract

In the field of services, customer satisfaction is a very important factor and determine the success of an enterprise. In the field of outsourcing, customer satisfaction indicator is the labor required delivery in a timely manner and has a level of quality in accordance with the terms proposed by the customer. To provide the best talent to customers, team recruitment and selection must perform a series of tests with a variety of methods to match the criteria of office given by the user with the criteria owned candidates and in order to support growth in graduation rates force a partner at the stage of user approval. For this purpose, the authors conducted a study with the method of observation, interviews, document reviews the candidate recruitment process, so as to provide recommendations for candidates with the highest quality delivery to the user at the stage of approval. The author put forward a model of decision support that is supported by the method of profile matching and Analytical Hierarchy Process (AHP) in problem solving. The final results of this study can be used to support a decision in order to improve the effectiveness of the delivery of quality candidates, increase customer satisfaction, lower costs and improve gross operational margin of the company.

Keywords: Decision Support Model, recruitment, outsourcing, Analytical Hierarchy Process, Profile Matching.

1. INTRODUCTION

Customer satisfaction is a very important factor and determine the success of an enterprise. This is supported by the statement of K. Douglas Hoffman and John E.G. Beteson, namely: "customers without the service firm has no reason to exist" [1]. In the service business, there are many different types of services one of which is in the form of outsourcing services. For services in the field of labor outsourcing, indicators of customer satisfaction with the delivery of labor is needed in a timely manner and has a level of quality in accordance with the terms proposed by the customer. In determining the candidates to be submitted for approval following the manual process of course is a matter that requires precision, patience and sharpness. But along with the increasing number of jobs offered by the customer, the more the candidates come with a variety of skills, backgrounds and disciplines. This condition can affect less suitability of candidates provided from the customer's criteria. The discrepancy may be negatively affected customer satisfaction. The process of defining a match to bring

the customer's criteria and qualifications of prospective employees become more complex and so we need the help of a model to simplify the process. Based on the foregoing, the author intends to do research. Results from these studies can support decisions in the process of selection of candidates recommended to the customer to be included in the manual approval process.

2. METHODS

2.1. Human Resources

According to Prof. Dr. H. Hadari Nawawi, human understanding is divided into three aspects, namely [2]: people who work and serve as an asset of the organization/company that can count the number, the potential is the driving force of the organization, and creation of Almighty God as the driver of different organizations with resources other power.

2.2. TELOS Factors & PDM Strategy

According to Suryadi Bunawan and D. Suryadi H. S. in the planning stages of information systems, there is a feasibility factor that refers to the possibility of information systems successfully developed and used, and factors relating to support strategic business goals information system which is referred to by TELOS and PDM [3]. TELOS eligibility factors proposed a system must meet the following criteria: technical feasibility, economic feasibility, legal feasibility, operational feasibility, and feasibility of schedule. Factors PDM strategy, in addition to eligibility, a project proposed information system should also support the strategic factors that include: productivity, differentiation, and management.

2.3. Analytical Hierarchy Process (AHP)

According to Saaty [4], a hierarchy is defined as a representation of a complex problem in a multi-level structure where the first level is a goal, followed by level factors, criteria, sub-criteria, and so on down to the last level of the alternatives. In developing the AHP there are some basic principles that must be done, namely: making hierarchy, assessment criteria and alternatives, determine priorities, and logical consistency.

2.4. Unified Modeling Language (UML)

According to Dennis, Unified Modeling Language (UML) is a standard language for visualization, specification, construction and documentation of the artifacts of a

software, and can be used for all stages in the system development process from analysis, design to implementation [5].

2.5. ISO 9126

Testing the quality of decision support models adopting the test model ISO 9126. The aspects of testing adopted are as follows [6]: functionality, reliability, usability, and efficiency.

3. RESULTS AND DISCUSSION

3.1. Data analysis

Grouping the data, findings and identification of needs:

- a) In the absence of business procedures specific to the candidate ranking system resulting in the delivery of candidates to interview less friendly stage in accordance with the desired needs of the user.
- b) Special Ranking of the candidates as the basis for a model requires a comparison. Comparisons include occupational profiles and employee profiles.
- c) Profile positions in accordance with the norms of the company or the customer demand of an administrative nature is worth an absolute and valid as the minimum value of graduation candidates to take the opportunity to stage interview user who accounted for a value of 60% of the total value of three criteria of core intelligence that intellectual, attitude and administrative work. Occupational profiles based on user needs, but not the main aspect as candidates for the capital to carry out its work is divided into three aspects, namely the behavior and properties, physical, and verbal.

In this decision support modeling, decision support components used are:

- a) Database containing information related to the transaction data daily process of recruitment and selection of employees consisting of information about applicant data, FPTK, partners, the results of a psychological test, function, outcome walk in interview, schedule user interviews, the results of user interviews and implementing activities selection.
- b) Knowledge Based Subsystem:
 - Norma results of psychological tests: the provisions of the lower limit of the norm results of psychological tests aspects of intellectual acumen of the company is 3 to functions other than the office boy and security as well as for the provision of the lower limit of the results of psychological tests work attitude of the company is one of the standard unless there is a particular demand value to 3.

- Results walk in interview administrative Knowledge: that fall into the category of benefit is education, majors, GPA and work experience. In the assessment of benefit categories can be assumed the higher its value is increasingly recommended. Converting the value used in giving a score to the sub-criteria of education and departments which are non-numerical data is.

Of the applicants who come there are three people who applied to be a technician to the Partner. Having counted and the score obtained, the next step is do a gap analysis between the Employee Profile Position. For sub-aspects will be averaged to get a value Employee Profile per aspect, specifically for the results of fractions will be rounded off in accordance with the rounding, by phasing out as follows:

- Calculate each prospective employees by using gap analysis, using a prospective employee (candidate applicants) Michael, Retnaningsih, and Rayyan as listed in Table 1, Table 2 and Table 3 as follows:

Table 1. Michael prospective employees gap analysis

No	Selection Aspect	Employee Profile	Position Profile	Gap
1	Intellectual Intelligence	4	3	1
2	Work Attitude Aspect	4	3	1
3	Behavior and Personality	4	3	1
4	Administrative Aspects	2	3	-1
		3	3	0
		0	2.75	-3
		21	27	-6
		1	1	0
		2	2	0
		1	2	-1
		2	2	0
5	Physical Aspects	2	1	1
6	Verbal Aspects	3	3	0

Table 2. Retnaningsih prospective employees gap analysis

No	Selection Aspects	Employee Profile	Position Profile	Gap
1	Intellectual Intelligence	5	3	2
2	Work Attitude Aspects	4	3	1
3	Behavior and Personality	7	3	4

Table 3. Rayyan prospective employees gap analysis

No	Selection Aspects	Employee Profile	Position Profile	Gap
1	Intellectual Intelligence	6	3	3
2	Work Attitude Aspects	5	3	2
3	Behavior and Personality	8	3	5

4	Administrative Aspects	3	3	0
		3	3	0
		3,02	2,75	0
		22	27	-5
		1	1	0
		2	2	0
5	Physical Aspects	1	2	-1
		1	2	-1
5	Physical Aspects	3	1	2
6	Verbal Aspects	5	3	2

- b) After being recognized gap between occupational profiles with the employee profile, then we can plot or convert weights of each candidate applicants. Here is the conversion value of the weight of each applicant as listed in Table 4 below:

Table 4. Weighting prospective employees

No	Selection Aspects	Michael	Retna-ningsih	Rayyan
1	Intellectual Intelligence	1,5	2,5	3,5
2	Work Attitude Aspects	1,5	1,5	1,5
3	Behavior and Personality	1,5	4,5	5,5
4	Administrative Aspects	1	12	1
5	Physical Aspects	1,5	1,5	1,5
6	Verbal Aspects	12	12	1,5

In ranking the candidates, the formula that will be used are:

$$TN = (x)\%Nkc + (x)\%Nsk + (x)\%Nps + (x)\%Nsa + (x)\%Nfs + (x)\%Nvb \quad (1)$$

Where:

- Nkc : The total value of intelligence criteria
- Nsk : The total value of the work attitude
- Nps : The total value of the behavior and properties criteria
- Nsa : The total value of the administrative criteria
- Nfs : The total value of the physical criteria
- Nvb : The total value of verbal criteria
- (x)% : Percent value is entered
- TN : Total Value

As it is known in the findings, to the criteria of the standard norms of the company (kc, sk and sa) each have a contribution percentage of 20% as it includes the core factor. Then (x)% of Nkc, Nsk and the Nsa is 20%. So, the

core factor of three criteria accounted for 60% of the overall value of ranking the candidates. However, the criteria ps, fs and vb in which the needs of each partner is different depending on the type of positions are offered, the contribution percentage will certainly be different too. One moment we will see the needs of partners more likely to need a high physical values such as front liners, could be on the other side there is also a function that takes donations values higher than verbal such as call centers are required to communicate well. For that, we need a ranking back from three aspects, but here the author using AHP considerations are wise comparison of each aspect to the others. So, the percentage that will be produced will be better and more consistent.

- c) Here are the stages of AHP applied by the authors to be able to show the percentage for the three secondary factor Pairwise Comparison by showing them as listed in Tables 5 and 6 below:

Table 5. Pairwise comparison

Comparative	Behavior and Personality	Physical Aspects	Verbal Aspects
Behavior and Personality	4/4	4/3	4/3
Physical aspects	3/4	3/3	3/3
Verbal aspects	3/4	3/3	3/3

Table 6. Pairwise comparison results

Comparative	Behavior and Personality	Physical Aspects	Verbal Aspects
Behavior and Personality	1	1.33	1.33
Physical aspects	0.75	1	1
Verbal aspects	0.75	1	1
Total	2.5	3.33	3.33

- d) Proceed with the calculation of normalized as listed in Table 7 and as follows:

Table 7. Normalization

Normalization	Behavior and Personality	Physical aspects	Verbal aspects
Behavior and Personality	1/2.5	1.33/3.33	1.33/3.33
Physical aspects	0.75/2.5	1/3.33	1/3.33
Verbal aspects	0.75/2.5	1/3.33	1/3.33

Table 8. Normalization results

Normalization	Behavior and Personality	Physical aspects	Verbal aspects
Behavior and Personality	0.4	0.40	0.40
Physical aspects	0.3	0.30	0.30
Verbal aspects	0.3	0.30	0.30

- e) Having in mind the respective percentage of each aspect, then we can begin to calculate the Final Score each candidate by the formula, the calculation results are in Table 9 as follows:

Table 9. Total value calculation of the candidate results

Name	Nkc	Nsk	Nps	Nsa	Nfs	Nvb	TN	Rank
Michael	1.5	1.5	1.5	1	1.5	12	2.66	2
Retnaningsih	2.5	1.5	4.5	12	1.5	12	5.54	1
Rayyan	3.5	1.5	5.5	1	1.5	1.5	2.44	3

So, the results of these calculations, the candidate to the user in the user interview stage are as follows:

- a) Retnaningsih (Priority).
- b) Michael (Priority Backup).

3.2. Testing Model

Stages of testing carried out several stages as follows:

- a) Validity Model as listed in Table 10 as follows:

Table 10. Validity Test Model

No.	Function Needs	Subsystem Module	Respondent Answer		Conclusion
			S	TS	
1.	Managing Data Applicants	Entry FLP	9		Accepted
	Managing Contracts				Do Not
2.	Umbrella	Entry PO		9	Accepted
3.	Managing Data Labor Demand	Entry FPTK	9		Accepted
4.	Managing Data Results of Walk In Interview	Entry Form Interview	9		Accepted
5.	Manage Data File	Upload CV		9	Do Not
	Selection Results Administration				Accepted

6.	Managing Data Psychology Test Results	Posts Psikotest Results	9	Accepted
7.	Seeing The Results Selection Candidate Recommendation TMK	See Candidate Recommendation	9	Accepted
8.	Managing Partner Data (Supplementary)	Partners Entry	9	Accepted
9.	Managing Data Function (Supplement)	Function Entry	9	Accepted
10.	Managing User Interview Schedule (Supplement)	User Schedule Interview Entry	9	Accepted
11.	Managing User Interview Results	User Interview Entry	9	Accepted
12.	May Viewed Candidates Absorption (Supplement)	See Absorption Reports	9	Accepted

- b) Followed by functionality Test, Reliability, Usability, Efficiency Model as listed in Table 11 as follows:

Table 11. ISO 9126 Test

Aspects	Actual Score	Ideal Score	% Actual Score	Criteria
<i>Functionality</i>	315	360	87.5%	Very Good
<i>Reliability</i>	185	225	83.1%	Good
<i>Usability</i>	236	315	74.9%	Good
<i>Efficiency</i>	162	180	90%	Very Good
Total	898	1080	83.87%	Good

- c) The final stage is to carry out the calculation of final test results by implementing the Forum Group Discussion (FGD) and the ISO 9126 test results as listed in Table 12 as follows:

Table 12. Test results

No.	Mechanical Testing	Success	Criteria
1.	<i>Forum Group Discussion</i> (FGD)	83,33%	Well Received With Feedback
2.	ISO 9126	83,87%	Good

Based on test results, the hypothesis in this study proved that the quality of the prototype model of decision support for User Submission Approval Energy

Partners Candidate Profile Matching Method and AHP produced if measured in terms of software quality model of ISO 9126 achieve its original expectations is Good. The final result of the quality of the software according to the respondents is Good with the percentage of respondents amounted to 83.87%.

4. CONCLUSION

Based on the results of the discussion above, it can be concluded as follows:

- a. Making Decision Support Model for User Submission Approval Energy Partners Candidate Profile Matching Method and AHP conducted in the following manner:
 - 1) The analysis with an emphasis on business procedures, review of documents and interviews.
 - 2) The design is based on object oriented among the ERD database design, screen design with wire framing techniques, the order of access to the design sequence diagrams, class diagrams, design of access networks, and the design of the main conceptual models.
 - 3) Preparation of the implementation plan.
- b. Assessment of the implications of Decision Support Model for User Submission Approval Energy Partners Candidate Profile Matching Method and AHP method TELOS and PDM are as follows:
 - 1) With the view of several factors model was developed with a base-line more appropriate order.
 - 2) The efficiency value generated by over 100% for finance companies.
 - 3) In the manufacture and operation of the model will not be caught by the copyright infringement cases or other criminal or civil case.
 - 4) In the operation can improve the ability of users, data can be processed more leverage and the possibility of changing the standard operating procedure.
 - 5) In the scheduling, team recruitment and selection can more easily access and manage data selection results are psychological test and interview user.
 - 6) Employee productivity can be increased three times as productive as large and the company gets the opportunity to increase existing revenue.
 - 7) Differentiation of business processes related to changes in the SOP, is job desk change, mutation, as well as individual work targets.
 - 8) Generate new culture that accelerate the company's business cycle loop.
 - 9) The feasibility of the model's overall score average of 83.87% for the four aspects tested.

5. REFERENCES

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