NEW EMPLOYEE SELECTION METHOD WEIGHTED PRODUCT AT PT. XYZ

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Abstract: Weighted Product (WP) Methodology Implementation System for Employee Recruitment at PT. Web-Based XYZ conducted research on decision support systems with a website platform for PT. XYZ. The data collection method was carried out for research using the literature study method from existing theories, interviews, several discussions as well as questions and observations at research sites. Using the Weighted Product (WP) Methodology aims to provide a solution to the problems that exist at PT. XYZ, for the basis of a computational assessment. PT assistant system. XYZ to conduct elections in determining employees who are selected from the best of all existing candidates. As well as the selection presented in the system. Research shows that this website system can make it easier for PT. XYZ to make selections in choosing prospective employees with specifications with the help of the Weighted Product (WP) methodology. So it can be said that the values and results that can be displayed still provide eligibility and suitability of the system that can be applied the same as the manual system that runs for the selection of new PT employees. XYZ.

Keywords: Methodology Weighted Product; SPK; Website; Warehouse

Abstrak: Sistem Penerapan Metodologi Weighted Product (WP) Untuk Penerimaan Karyawan di PT. XYZ Berbasis Web melakukan riset tentang sistem pendukung keputusan dengan platform website untuk PT. XYZ. Metode pengambilan data-data dikerjakan untuk riset memanfaatkan metode studi pustaka dari teori-teori yang ada, wawancara beberapa diskusi serta pertanyaan dan observasi ke tempat riset. Menggunakan Metodologi Weighted Product (WP) bertujuan agar memberikan solusi dari masalah yang ada pada pada PT. XYZ, untuk dasar penilaian secara perhitungan. Sistem pembantu PT. XYZ agar melakukan pemilihan dalam menentukan karyawan yang terpilih dari yang terbaik dari semua kandi-dat yang ada. Serta penseleksian disajikan dalam sistem. Pada riset menampilkan kalua sistem website ini bisa memudahkan PT. XYZ untuk melakukan pemilihan dalam memilih calon karyawan dengan spesifikasi oleh bantuan metodologi Weighted Product (WP). Jadi bisa dikatakan kalau nilai dan hasil dapat ditampilkan masih memberikan kelayakan serta kecocokan sistem dapat diterapkan sama seperti manual sistem yang berjalan untuk seleksi karyawan baru PT. XYZ.

Kata kunci: Metodologi Weighted Product; SPK; Website; Warehouse

INTRODUCTION

The high development of technology in the current era of globalization has provided many benefits for various fields of life. Many problems of people doing their jobs can be solved with the help of technology. Registration of prospective new employees is still standard, go directly to PT. XYZ. According to observations it is very difficult for the recruitment team to review so many documents because there is no online system for recruitment. Therefore, it is argued that the subsequent introduction of decision support systems can facilitate the selection of documents without multiple documents and facilitate the selection with decision support systems. An information system is a systematic way of obtaining, entering and forwarding information, storing, managing, monitoring and reporting so that the results obtained can help a company or organization achieve its goals [1].

This computerized system is implemented to support decision making by utilizing all data and certain models to help solve problems [2]. This research was conducted in order to create a decision-making system that supports decisions with the aim of helping in the selection of new employees at PT. XYZ utilizes one of the Weighted Product (WP) methods. Where the Weighted product (WP) is one of the many methods used to add criteria and weight considerations to the decision system. The Weighted Product method (WP) is used in this research because there are no sub-criteria in making new employee decisions. The weighted product method uses multiplication techniques to aggregate attribute estimates. In this case, the rating of each attribute must first be increased by the weight of the attribute [3]. Therefore we need a method that can assist in making decisions in making various kinds of alternative choices by filling out a questionnaire to find out which alternatives are used [4]. The resulting system uses one of the decision support system methods, namely the weighted product. It is found that it provides objective, effective, efficient calculation results that can also be accurate based on the results of calculations performed manually using Excel software and automatic calculations using a system that generated from this research [5].

A method that can also be used to reduce doubts in assessing the results of calculations because it produces a value that is more than specific according to the interests of stakeholders as a way of making a decision [6]. The Decision Support System or abbreviation of (SPK) can categorize every tourist in Bontang City, East Kalimantan province using five criteria, namely the price of admission, duration, distance, tourist facilities and tourist stars. [7]. Of the many criteria that have been determined. The comparison steps state that the criteria for customer trust and product quality criteria are more important than convenience, both in terms of application, promotion, and display [8].

The WP method has an accuracy rate of 99.998% which is one of the most suitable methods and can be compared with the TOPSIS and SAW methods to select one of the best teachers at SMPIT Rahmatutthoyyibah. As a result, the WP method can evaluate the best teacher selection process [9]. The application of the product weight method can be used to assist in determining the quality selection of coffee beans whose classification results can be divided into the top 3 rankings, namely Sumatra, Ubud and Kenya quality coffee beans [10].

METHOD

In the research carried out, there were several stages in the research flow, starting from identifying the problem by conducting several questions from interviews and observations at the research site, after that it was limited to solving problems in this research. The problems raised are not only at the research site but also the discussion of the problems that have been described in the initial chapter. In this problem identification stage, we try to find problems in the Warehouse division of PT. XYZ by making observations about the acceptance of new employees which is carried out regularly. In addition, it describes the information on applicants who pass the current criteria, which is still being done manually. Next, look for literature that is in accordance with the research topic as a data collection method to find supporting theories. After that, do an analysis of the design of auxiliary systems in making acceptance decisions for employees in the warehouse division of PT. XYZ by using the Weighted Product (WP) method, this method is the most appropriate for choosing the easiest system to understand.

In the next stage of this research using the Weighted Product method to design the planning of the decision support system that will be made. In this scheme, a description of the acceptance of new employees has been carried out, which was obtained from the results of interviews with the recruitment team. Starting from the curriculum vitae (CV), education, work experience, written and physical tests of applicants. Later these criteria will be adjusted to the weight of the assessment. After that, do the design of the decision support system web de-

sign starting from the flowmap, (UCD) stands for Use Case Diagram, (AD) stands for Activity Diagram, (CD) stands for Class Diagram and (SD) stands for Sequence Diagram which aims only on the decision support system for hiring new employees and then coding the web. Finally testing the system using the blackbox method. Flowchart of the research carried out:
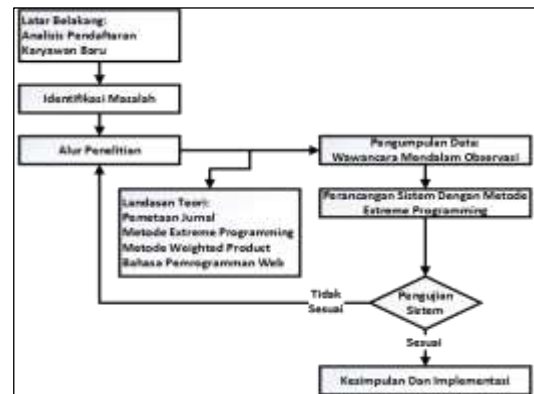

Image 1. Research Flow

The flow of the weighted product shows how the process of calculating this method begins with setting criteria and weights, followed by alternative data, then normalizing the W weights, looking for preference values in vector S, and then obtaining the value of vector V which will become. highest final value to the best choice.

Image 2. Research Flow [11]

Determination of Weight Criteria

Decisions include the determination of criteria and weights as well.

Table 1. Determination of Weight Criteria [12]

Alternatif	Kriteria			
	C1	C2	C3	C4
A1	A1C1	A1C2	A1C3	A1C4
A2	A2C1	A2C2	A2C3	A2C4
A…	A…C1	A…C2	A…C3	A…C4
Am	AmC1	AmC2	AmC3	AmC4

Criteria Weight Normalization

Raising the value of all parts of the alternative with the previously fixed weights shown in formula (1).

$$W_{1(nom)} = \frac{W_1}{jml\ W}$$
$$W_{2(nom)} = \frac{W_2}{jml\ W}$$
$$W_{3(nom)} = \frac{W_3}{jml\ W}$$
$$W_{4(nom)} = \frac{W_4}{jml\ W}$$

(1)

This stage is called weight normalization [13].

Calculating S Vector Preferences

Calculating each preference for each alternative is to do the division stage with the sum of the averages on the calculated value of each multiplication [14].

$$S_i = \prod_{j=1}^{n}(x_{ij})^{wj} \quad i = 1, 2, …$$

n…........……….........................…… (2)

Description of formula (2):
S is the preference part of each alternative which is likened to a vector of the letter S.
X is the value of a criterion.
W is the weight of a criterion.
i is the alternate value.
j is the criterion value.
n is the number of criterion values

Calculating V Vector Preferences

Counts each V preference for ranking [15].

$$V_i = \frac{\prod_j^n x_{ij wj}}{\prod_j^n (x_j)_{wj}}; \quad i = 1, 2, … n$$

(3)

Where in formula (3):
V is an alternative value preference analogous to the vector value V.
X is the value of a criterion.
W is the value of the criteria weight.
i is an alternative.
j is the criterion.
n is the number of criteria.

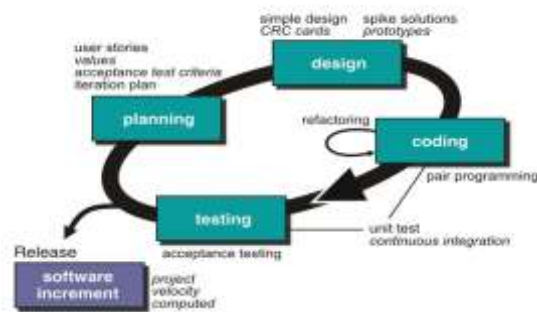## System Development with Extreme Programming

Image 3. Extreme Programming [16]

a. Planning
   Planning is about a general description of the functions and features of the software created. The design begins with the creation of a set of drawings or explanations provided by the source, functioning as a fundamental description of the software. A set of pictures or explanations arranged into a key, each item has its own importance. The software development group must work out the estimates and prices of each key. Once all requirements are met, the XP group ensures the flow of software development before executing development tasks.

b. Design

The drawing phase in the Extreme Programming process model is a guide for building software based on past customer stories collected during the design phase. In XP, the design process occurs before and after the coding activity. In other words, design activity continues throughout software development.

c. Coding

Funda-mental software description and application general design, XP recommends that the group initially create a unit test module that intends to test each explanation and description submitted by the customer. Various unit tests were created, the team started writing system code. XP uses the concept of pair programming, where two programmers develop the work of each module.

d. Testing

In this case the black box method is used during testing, where the program is tested from each existing module.

RESULT AND DISCUSSION

The first step is to get an alternative, namely the subject of the prospective employee.

Table 2. Alternatif

No.	Code	Alternatif
1	R1	Adlin
2	R2	Rifqi
3	R3	Andryan
4	R4	Fitri

After the alternatives are obtained, determine the criteria.

Table 3. Kriteria

No.	Code	Criteria	Type	Weight
1	C1	Experi-ence	Increase	4
2	C2	Absence	De-crease	5
3	C3	Study	Increase	2
4	C4	Psycotest	Increase	3
5	C5	Mistakes	De-crease	3

Next determine the weight of each criterion in each alternative.

Table 4. Criteria Weight

Alternative	Criteria				
	C1	C2	C3	C4	C5
R1	7	10,000	6	9	150
R2	9	11,000	8	8	250
R3	6	9,000	5	7	120
R4	9	6,000	7	8	100

The weight is still in data that has not been normalized. Therefore it must be normalized on each weight.

Table 5. Weight Normalization

Criteria	Wj	Wj normalized
C1	0.235	0.235
C2	0.294	-0.294
C3	0.118	0.118
C4	0.176	0.176
C5	0.176	-0.176

Then look for the value in vector S. After the process of normalizing the weights, the next step is to find the value in vector S which is needed for the calculation of the last vector V step in terms of ranking.

Table 6. Vector S

Alternative	C1^Wj	C2^Wj	C3^Wj	C4^Wj	C5^Wj	Si

R1	1.5807	0.0666	1.2347	1.4737	0.4130	0.0791
R2	1.6770	0.0648	1.2772	1.4433	0.3774	0.0756
R3	1.5244	0.0687	1.2085	1.4097	0.4296	0.0767
R4	1.6770	0.0774	1.2573	1.4433	0.4437	0.1045

Table 7. Vector V

Alternatif	Nama Alternatif	Vi	Urutan
R1	Adlin	0.2356	2
R2	Rifqi	0.2250	4
R3	Andryan	0.2282	3
R4	Fitri	0.3112	1

Finally, the search stage for the value of vector V in table 7.

CONCLUSION

This decision support system can be implemented by accepting new employees according to existing criteria and weighting. Thanks to decision support when recruiting new employees, it is easier for the warehouse department to select employees who meet the criteria, without having to select many documents. This decision support system can select the best candidate based on the information processed by the decision support system.

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