

IMPLEMENTATION OF WEIGHTED PRODUCT METHOD OF RECRUITMENT MANAGEMENT INFORMATION SYSTEM PT ADHI MITRA DINAMIKA

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ABSTRACT

PT Adhi Mitra Dinamika is a company that manufactures denim fabrics. Because the company produces denim fabric, human resources are an important factor in achieving the denim fabric production target. The company has a problem when recruiting prospective new employees who apply to PT Adhi Mitra Dinamika not in accordance with the specified qualifications. This if left unchecked can be detrimental to the company because they have to incur additional costs to re-recruit so that it takes a very long time. Based on the current problem description at PT Adhi Mitra Dinamika, it is necessary to apply the Weighted Product (WP) method to the PT Adhi Mitra Dinamika recruitment management information system. The purpose of applying the weight product (WP) method in PT Adhi Mitra Dinamika's recruitment management information system is as follows to facilitate the Head of HRD in determining applicants in accordance with the specified qualifications. Based on the results of research and testing it can be concluded that the system built can facilitate the HRD & GA in determining applicants in accordance with the qualifications that have been set in accordance with their respective sections.

Keywords : Management information systems, recruitment, weighted product

1. PRELIMINARY

PT Adhi Mitra Dinamika is a company that manufactures denim fabrics. PT Adhi Mitra Dinamika has 52 sections, one of which is the HRD (Human Resource Development) & GA (General Affairs) section. The general task of the HRD & GA section is to manage human resources and support all the company's operational needs. Because the company produces denim fabric, human resources are an important factor in achieving the denim fabric production target. Based on interviews with Mr.

Rustani as the Head of HRD & GA it is known that in 2017 the number of employees in PT Adhi Mitra Dinamik totaled 172 people, consisting of permanent employees and contract employees.

The results of interviews conducted with Mr. Rustani as the Head of HRD & GA who are part of the recruitment process, it is known that in the selection stage in the recruitment process occurs when there is a request for new employees from each division head and states that currently the recruitment process occurs 2 types of applicants are local residents and non-local residents, because the location of the company is in a densely populated environment so that many residents who want to work in the company have an impact on the recruitment process, which in the process of recruiting new prospective employees who apply for PT Adhi Mitra Dinamika is less suitable with qualifications that have been set. PT Adhi Mitra Dinamika, based on available data, 51% of employees are not in accordance with the qualifications as in the 2017 employee data, qualification mismatches occur as in applicant data for 2016 and 2017, where after the recruitment process takes place there are conditions that should not be selected but should still be accepted as a new employee, because there is an element of closeness without considering established qualifications. This causes the employee's performance is not in accordance with what is expected by the company as in 2017 data, where there are employees who have been working for some time and have resigned from the company, because the employee is less able to carry out their duties, so the company must re-recruit employees new. This if left unchecked can be detrimental to the company because they have to incur additional costs to re-recruit so that it takes a very long time

The purpose of this research is as follows:

Assist the Head of HRD & GA in determining applicants in accordance with the specified qualifications in accordance with their respective sections.

2. RESEARCH CONTENTS

2.1 Understanding of Management Information System

Management information system is a group of interconnected subsystems, gathered together and form a single unit, interacting and working together between parts of one another with certain ways to perform data processing functions, receive input (input) in the form of data / facts, then process it (processing), and produce outputs (output) in the form of information as a basis for decision making that is useful and has tangible value that can be felt both immediately and in the future, supporting operational, managerial, and strategic activities of the organization, by utilizing various available resources and available for the function to achieve the goal [4]

2.2 Understanding of Decision Support System

Decision support system is also an interactive computer-based information system in helping decision makers to assist management in dealing with various structured or unstructured problems using data or models [5].

Decision support system (Decision Support System) is an interactive computer-based system in assisting decision makers by utilizing data and models to solve unstructured problems [5].

2.3 Understanding of Weighted Product Method

The Weighted Product (WP) method uses multiplication to link attribute ratings, where the rating of each attribute must be raised first with the corresponding attribute weights. The process is the same as normalization.

Weighted Product Method can help in making decisions but calculations using the weighted product method only produce the greatest value that will be selected as the best alternative. The calculation will be in accordance with this method if the chosen alternative meets the specified criteria. This weighted product method is more efficient because the time required in calculations is shorter [6].

The completion steps for using it are:

1. Determine the criteria - criteria that will be used as a reference in making decisions, namely C_i .
2. Determine the initial weights for each criterion, using the formula:

$$\sum_{j=1}^n w_j = 1. \quad (1)$$

Figure 1. Weighted Product (WP) Weight Value Formula

3. Determine the S Vector Value, with the formula:

$$S_i = \prod_{j=1}^n x_{ij}^{w_j}, \quad i=1,2,\dots,n$$

Keterangan:

- S : menyatakan preferensi alternatif yang dianalogikan
- x : menyatakan nilai kriteria
- w : menyatakan bobot kriteria
- i : menyatakan alternatif
- j : menyatakan kriteria
- n : menyatakan banyaknya kriteria

Figure 2. S Weighted Product (WP) Vector Formula

4. Determine the V Vectors Value, with the formula:

$$V_i = \frac{\prod_{j=1}^n x_{ij}^{w_j}}{\prod_{j=1}^n (X_j)^{w_j}}; \quad i=1,2,\dots,n$$

Keterangan:

- V : menyatakan preferensi alternatif yang dianalogikan sebagai
- x : menyatakan nilai kriteria
- w : menyatakan bobot kriteria
- i : menyatakan alternatif
- j : menyatakan kriteria
- n : menyatakan banyaknya kriteria

Figure 3. V Weighted Product (WP) V Formula

2.7 Problem Analysis

Based on the results of interviews conducted at PT Adhi Mitra Dinamika to Mr. Rustani as the head of HRD & GA stated that at present the company still has the following constraints: The Head of HRD & GA has difficulty in determining applicants in accordance with the qualifications that have been set according to their respective sections.

The head of HR has difficulty in recruiting because there is a mismatch of acceptance that occurs from prospective employees applying for the criteria and the amount needed by the company.

2.7.1 Analysis of Management Information System for Recruitment Sources PT Adhi Mitra Dinamika

The recruitment management information system uses this model in accordance with the conditions in PT Adhi Mitra Dinamika, as an objective to provide an overview of the management processes that exist in the recruitment management information system at PT Adhi Mitra Dinamika.

Stages of Sim will be illustrated in Figure 4 SIM Model :

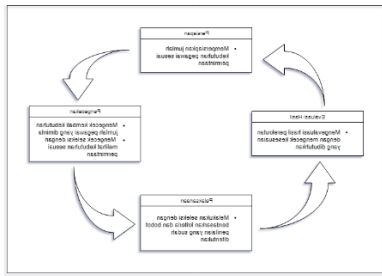


Figure 4. PT Adhi Mitra Dinamika's SIM Recruitment Model

The stages of this model include the preparation, checking, implementation and evaluation of results. Preparation also aims to find ways to achieve the goals obtained. The next stage is checking, aiming to ascertain the needs needed to carry out the plan and achieve the goals. While the implementation phase aims to carry out everything that has been planned. The last stage is the evaluation of results is the stage that aims to evaluate the results of recruitment by checking the suitability of the required requests.

The SIM model in the process of recruiting and selecting new employees at PT Adhi Mitra Dinamika is carried out by the HRD & GA field as follows:

1. Preparation

At this stage the HRD & GA department will prepare the number of needs according to the request made by the head of the division.

2. Checking

The HRD & GA Department will re-check the amount and the required part if it is as planned, before sending the employee's request to the General Manager.

This stage also checks whether the applicant meets the required part criteria. The HRD & GA Department began selecting employees based on the criteria in the pre-planned section.

3. Implementation

At this stage, the HRD & GA section will start to recruit and select applicants based on criteria for the type of position that has been previously planned. After that, the HRD & GA section will determine the weights of the predetermined criteria based on the required parts. At this stage the Weighted Product method also applies the calculation to determine the applicants to be accepted.

4. Evaluation of results

At this stage, a selection of the 4 alternative applicants will be examined. In the evaluation phase the results of the HRD & GA section have prepared the number of employees needed.

2.8 Database Analysis

Database analysis on human resource management information systems in Miski Aghnia Corporation will be built using Entity Relationship

Diagrams (ERD) and data dictionaries that aim to describe the design process or picture data that are interconnected and stored in the system.

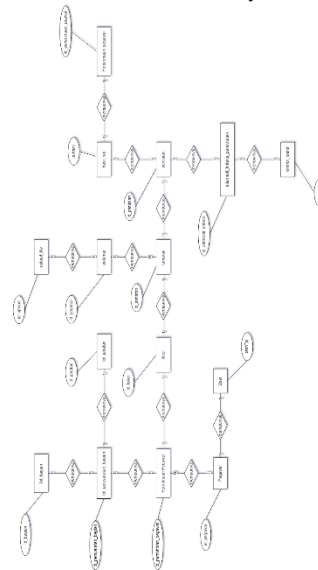


Figure 5. Diagram ERD

2.9 Context Diagram

Rainy context diagram to illustrate the relationship between external entities, input and output of the system being built, also used to describe the system for the first time in outline.

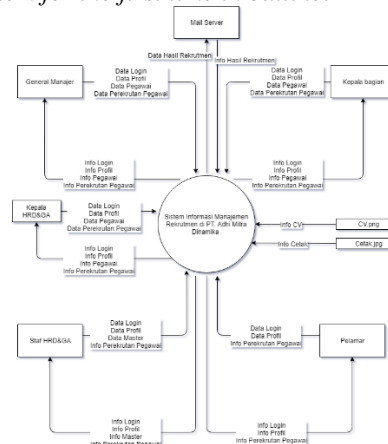


Figure 6. Diagram Contexts

2.10 Data Flow Diagram

DFD is used to present a graph that illustrates the flow of information and transformation of information that is applied as data flowing from the input (input) and output (output) in each process that is connected with the data flow.

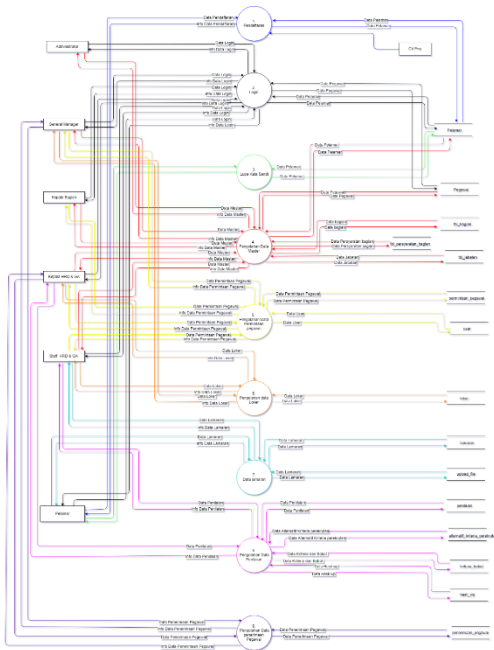


Figure 7. Data Flow Diagram (DFD) Level 1

2.11 Relation Scheme

Relationship schemes are relations that exist between tables that have the same primary key, so the data in that table are interconnected because of the same key. Following is the relation scheme that will be built on a recruitment management information system at PT Adhi Mitra Dinamika:

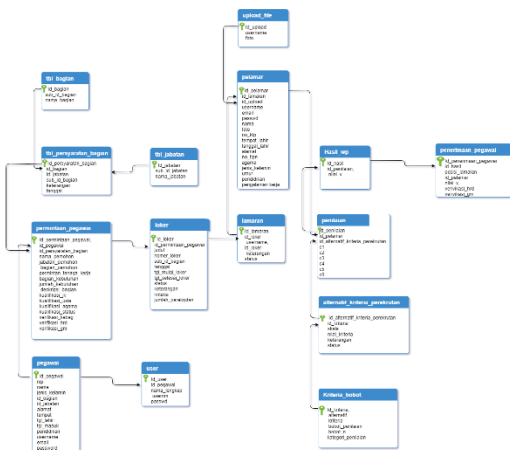


Figure 8. Relation Scheme

2.12 Interface Design

The design of this interface serves to describe the appearance of the program that will be used by users to interact with the system to be built. Following is the design of the interface on PT Adhi Mitra Dinamika's recruitment information system:

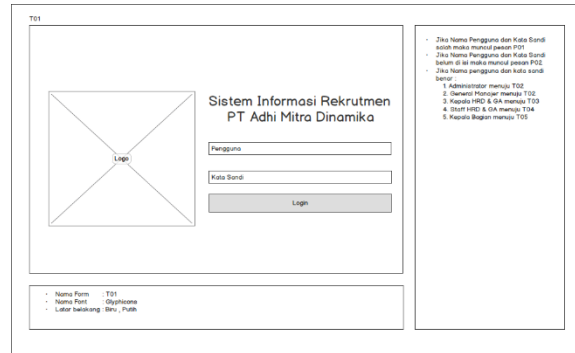


Figure 9. Display Login

2.13 Semantic network

Semantic networks are made to illustrate the connectedness of menu navigation between one page and another. The connectedness of navigation on each menu of the recruitment management information system at PT Adhi Mitra Dinamika is as follows:

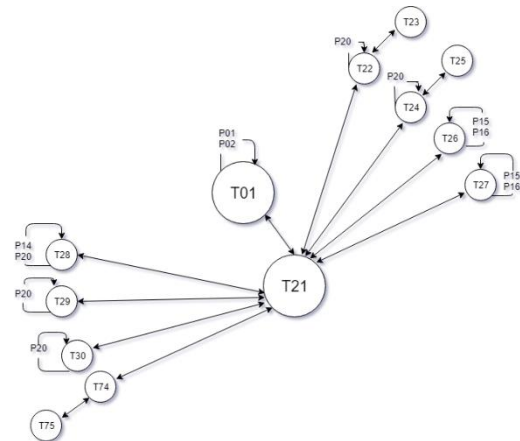


Figure 10. Semantic networks General Manager

2.14 System Testing

System testing is the most important thing done with the intention of finding errors - mistakes or deficiencies in the information system being tested. Testing also has the aim to find out whether the system that has been made is in accordance and meets the needs of the information system design goals. This system testing is based on two tests namely blackbox testing and end user testing. Blackbox testing is done by observing the results of execution through test data and focusing on the functional requirements of the software, while the end user testing is carried out to determine the results and the extent of the quality of the software that has been built. The research method used is the interview method that will be submitted to prospective users to see whether it is in accordance with the objectives of the research conducted, namely the Head of HRD & GA.

2.14.1 Testing BlackBox

This management information system testing uses test data based on data contained in PT Adhi Mitra Dinamika.

Table 1. Testing login

Kasus dan Hasil Uji (Data Benar)			
Data masukan	Harapan	Pengamatan	Kesimpulan
Nama Pengguna : admin Kata Sandi : admin	Masuk pada halaman sesuai hak akses pengguna.	Admin dapat melakukan pengolahan data sesuai dengan hak akses admin.	[√] Diterima [] Ditolak
Kasus dan Hasil Uji (Data Salah)			
Data masukan	Harapan	Pengamatan	Kesimpulan
Nama Pengguna : admin Kata Sandi :	Tidak dapat login dan akan muncul pesan kesalahan "Nama pengguna dan Kata sandi salah"	Admin tidak dapat login dan akses ditolak.	[√] Diterima [] Ditolak
Kasus dan Hasil Uji (Data Kosong)			
Data masukan	Harapan	Pengamatan	Kesimpulan
Nama Pengguna : kosong Kata Sandi : kosong	Tidak dapat login dan akan muncul pesan kesalahan "Nama pengguna dan Kata sandi salah"	Admin tidak dapat login.	[√] Diterima [] Ditolak

2.14.2 User Acceptance Test (UAT)

Newly built applications will be tested through the User Acceptance Test (UAT) as a condition to prove that the application has been accepted by the user / user. The application testing process will be addressed to the company's representatives, namely the Head of HRD & GA at PT Adhi Mitra Dinamika.

Table 2. Testing User Acceptance Test (UAT)

No	Deskripsi Pengujian	Prosedur Pengujian	Keluaran yang Diharapkan	Hasil yang didapatkan	Status
1	Pengujian Login User	<ul style="list-style-type: none"> ▪ Klik menu login ▪ Masukkan nama pengguna dan kata sandi ▪ Tekan tombol masuk 	User dapat masuk ke halaman utama user	User dapat masuk ke halaman utama user	[√] Diterima [] Ditolak [] Diterima dengan catatan

2.14.3 End User Testing

Based on the results of interviews with Mr. Rustani as head of HRD & GA through face to face, are as follows:

1. Whether the results of the recruitment and selection of prospective new employees in this

system has been able to provide convenience in making decisions to choose the best prospective employees to be accepted in the company in accordance with existing qualifications?

The answer:

According to Mr. Rustani as the head of HRD & GA is, Yes this system can provide convenience in making decisions for prospective employees who are accepted in the company in accordance with existing qualifications.

2. Is this recruitment management information system already able to help the HRD & GA section and in particular help you as the head of HRD & GA who take care of all forms of activities relating to employees in general in the company?

The answer :

According to Mr. Rustani as the head of HRD & GA is, This system is enough to help the company, especially the HRD & GA in conducting recruitment activities.

3. According to you, has the recruitment and selection process for new employees in this system helped the HRD & GA department and in particular assisted you as the head of HRD & GA in organizing the recruitment and selection of new employees for the company?

The answer:

According to Mr. Rustani as the head of HRD & GA is, This system is enough to help the HRD & GA in carrying out recruitment and selection of new prospective employees properly, and accelerate the process of selecting new employees.

3. Does this system make it easy for the HRD & GA section to see the results of the recruitment selection of prospective employees conducted by the company?

The answer:

According to Mr. Rustani as the head of HRD & GA is, this system is very easy for the value of prospective employees and not bother looking for the results of the selection of prospective employees.

4. Is this system easy to learn and use?

The answer:

According to Mr. Rustani as the head of HRD & GA is, This system is easy to learn and use, the design is simple and clear directly with the aim of making the system easy to understand. The color is also simple so that we who use it don't get dizzy and don't get bored seeing the appearance of this system, the language in this system is easy to understand too and there is no ambiguous language so we who are comfortable using it.

3. COVER

Bab ini akan membahas mengenai kesimpulan yang diperoleh setelah melakukan analisis, perancangan sistem, dan implementasi dari perangkat lunak yang telah dibangun sebelumnya, serta saran yang dibangun untuk perbaikan dan pengembangan perangkat lunak yang lebih lanjut.

3.1. Conclusion

After analyzing, designing, and testing. Then a conclusion can be drawn from the PT Adhi Mitra Dinamika Recruitment Management Information System as follows:

PT Adhi Mitra Dinamika's Recruitment Management Information System can assist the Head of HRD & GA in determining applicants that match the qualifications that have been set according to their respective sections.

3.2. Suggestion

Based on the conclusions outlined above, what is expected going forward in the PT Adhi Mitra Dinamika Recruitment Management Information System is as follows:

- 1. The addition of menu facilities to determine which prospective employees will be accepted in the company when there are prospective employees who have the same value.*
- 2. The addition of an online test menu facility for prospective employees, so that prospective employees do not have to do tests at the company and can be directly selected for the next stage.*

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