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Enterprise Architecture for Designing Human Resources Application Standard Reference

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Abstract: ***Human resources within the company is the most important thing because in managing a company requires competent, creative and innovative human resources. This research was made based on observations from several companies that discuss problems and complaints from employees about human resources in the company. The human resource standard reference application is created using the TOGAF Framework which can help in designing human resource standard references because within the TOGAF framework there are several stages in building a corporate Enterprise architecture. The human resource standard reference application is also supported by UML design method. With these two methods, the human resource standard reference application can become an application for monitoring all data and reports on human resources transparently without having to bother and come directly to the office and in managing information applications of the human resource standard reference using SMS support technology.***

Keywords: Empowerment Human Resources, Referensi Standard, SMS Gateway, TOGAF, UML

I. INTRODUCTION

This now human resources (HR) in a business context is very important. Without human resources, the company will not be able to generate profits or increase its value. Indonesia ranks 5th in terms of human resource quality and employment is still inferior to neighboring countries such as Malaysia, Singapore, and other ASEAN countries [1]. Likewise with PT. Sumber Inti Sukses which is one of the companies in Indonesia that aims to be different by always having reliable, skilled and experienced staff, thus ensuring that every human resource at PT. SIS is the best employee. Management wants to create an enterprise architecture design for the HRD division and as a standard reference for other companies.

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According to Widodo (2014) the ability of human resources in companies owned by humans for company needs is called assets. [2]. HR has the main function of which is to carry out the mission of the organization in which there are reliable human resources in building a quality, creative and innovative organization. In increasing the added value of HR, it is necessary to redefine the role of HR, the development of new competencies, identification of activities supporting operational activities, and the implementation of overall human resource activities in corporate entities [3]. Many problems were found regarding human resources in the company. he author conducted interviews with 10 HRD staff in the following 10 companies. The data can be seen in Figure 1.

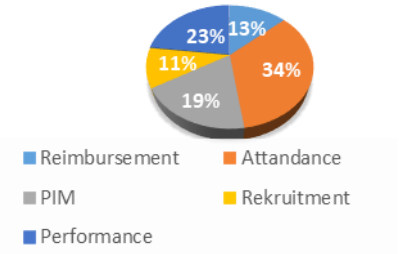

Fig 1. Data on 10 Companies

In figure 1, shows data from 10 companies that discuss modules on human resources and in companies A, and B of the five modules there is only 1 module that discusses human resources, namely the leave and overtime presentation module about 34%, at company C and D about 19% using 2 modules, namely the overtime leave module and the recruitment module, in companies E and F discussing the recruitment module and the employee appraisal module are 11%, company G and H discuss 3 modules in human resources namely the recruitment module, claims, and employee performance percentage reached 13%, and at a value of 23% in companies I and J there were 4 discussion modules that contained recruits, claims, PIM or data processing employees, and overtime leave. From the data, the problem statement can be identified "How is the TOGAF framework in helping to design enterprise architecture as a reference?" The output produced in this study is in the form of a blueprint from the Enterprise Architecture design for the HRD and as a reference for company standards in designing resource applications that are expected to help in achieving strategic objectives in accordance with the HR function as well as reference the application of these resource standards is complemented by the SMS gateway support system [4]

in processing information resources especially in human resources as well as profits for the company become a benchmark as an ingredient in improving the management of human resources within the company in order to become better and be able to compete in the business world.

II. STUDY LITERATURE AND PREVIOUS RESEARCH

A. Sms Gateway

SMS Gateway is a middleware service or commonly called an intermediary service that allows to send and receive SMS from the application's point of view, ideal so that any software service can communicate automatically with end users or provide notifications via SMS channel [5]. According to M. Hilmi Masruri (2015) SMS Gateway can be defined as a module that can call, send or receive messages without using a cellphone [6].

B. *Togaf Adm*

TOGAF ADM to provide a specific overview of the process of developing an enterprise architecture [7]. TOGAF ADM has several stages in building enterprise architecture, including Phase A, Phase B, Phase C, Phase D, Phase E, Phase F, Phase G, Phase F, Architecture Change Management, Requirements Management. TOGAF is a framework and a supporting tool for developing enterprise architecture. TOGAF, The Open Group updated TOGAF in 1995, based on the Technical Architecture Framework for Information Management (TAFIM) established by the US Department of Defense (DOD). But in its development, TOGAF is often used in various fields such as manufacturing, banking, and education. This TOGAF framework is used to develop enterprise architecture, where there are detailed methods and tools in implementing it so that it can differentiate from other Enterprise Architecture frameworks. The strength of the TOGAF framework is that it is very flexible and open-source [8]. The technical open group architecture framework (TOGAF), which is a framework for the development of enterprise architecture, was proposed by the open group architecture framework (2009) and based on the U.S. Department Of Defense initiative. The following is an explanation of each phase of the TOGAF ADM according to the open group architecture framework (2009). TOGAF allows architects and corporate stakeholders to design, evaluate and build flexible company architecture for organizations. The initial version of The initial version of TOGAF was based on the Technical Architecture Framework for Information Management (TAFIM) developed by Department of Defense U.S. (DoD) . TOGAF is based on Architectural Development Method (ADM), as many as 9 phases shown in Figure 4.6, where these phases are: Preliminary analysis, architecture vision, business architecture, information systems architectures, technology architecture, opportunities Where these stages are: preliminary assessment, vision of architecture, business architecture, architecture of information systems, technology architecture, possibilities and solutions, migration plans, governance execution and change management of architecture.All TOGAF parts generate diagrams, flow diagrams, structures, definitions and other artifactsand solutions, migration plans, implementation of governance and architecture change management. All TOGAF components produce consignments in the form of diagrams, flow diagrams, structures, definitions and other artifacts [9].

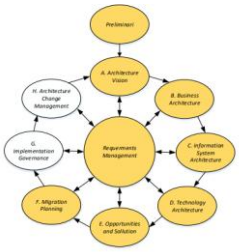

Fig. 1 TOGAF ADM [9]

C. Empowerment Of Human Resources

Empowerment comes from the word "power" which starts with the word "power" which means to have or have power. Power means strength, power means having power. Empowerment means making something empowered or having power or having strength. Empowerment in Indonesian is an English translation of empowerment. Understanding empowerment according to experts as follows: According to Daulay (2017) Empowerment is an effort made to encourage the community to have a bargaining position so that they can become actors in a participatory and active development process. According to (Drs. H. Malayu SP Hasibuan 2013, p10) HRM is the science and art that regulates the relationship and role of human resources to be effective and efficient in realizing corporate, or organizational goals, according to Sutrisno 2014, p6 in the book Schuler, et al. is a recognition that the contribution of human resources in business activities To attain organisational achievement goals to be effective and equitable for the interests of individuals, organizations, and society, it is very important, and according to the 2013 Mangkunegara in p2 HRM book is a management and utilization of resources in each individuals who are developed to the maximum in the world of work to achieve common goals [10].

D. Previous Research

The following are some of the results of research that have been conducted by discussing the same problems regarding human resources. The first research explains that the design of enterprise architecture is based on TOGAF ADM. Having employee recruitment modules, staffing management, counseling, payroll, leave and employee recruitment, this design will produce a blueprint architecture consisting of preliminary phase, vision architecture, business architecture, data architecture, Architecture of applications, technology, possibilities and solutions, and migration planning, the method used is the TOGAF ADM method, previous studies have different module differences with this research because in previous studies they did not have an employee claim module . The second study discusses the application of complaints with the sms gateway support system, explaining the applications that can be resolved by customer complaints at PT. Indosat Ooredoo Tbk.

And generate applications for receiving data on web-based customer complaints with SMS Gateway support from the results of this study can provide information on access to customer complaints thus getting information about the complaints responded [11], And in the third study, it contained the problem of the process of handing overtime pay and replacement of employees at PT EDI Indonesia, the approval process of hiring overtime and replacement of employees by the Coordinator, Personnel, and Division Heads of each division, The process of calculating overtime employees based on the Manpower minister's decree toand Transmigration and the policy that with the application, we can minimize errors that occur due to human error, with a web-based online system the approval process of overtime and reimbursement is faster, can facilitate the search for overtime data and reimbursement of employees and is safe from the risk of damage and loss of data , the application can display the process of calculating overtime and reimbursement in detail, and make it easier in making reports that are quite complicated, the method used for this research is UML has an employee overtime module and employee reimbursement [12]. The related article discusses employees who use the balance scorecard method in this journal about customer perspectives, discusses matters relating to change, changes in service for customers. This is part of HR so that it can produce a good and quality company [13].

III. METHOD

A. *UML*

According to Dennis, (2015) [14] UML (Unified Modeling Language) is a diagramming technique that can model any system development project from design analysis. In some cases, the same diagramming technique is used throughout the development process. In this case, the diagram starts as very conceptual and abstract. When the system was developed, diagrams evolved to include details which ultimately led to the creation and development of code. In other words, the diagram moves from documenting the requirements to laying out the design. Overall, consistent notation, integration between Diagramming and implementation methods diagrams throughout the development process make UML strong and flexible language For researchers and analysts [15]. UML has been applied With regard to the field of human resources and many applications that use these methods in development [16]. UML aren't a methodology; it does not officially terms of reference diagramming techniques. Many organizations are experimenting with UML and try to understand how to incorporate their techniques into their analysis and design of systems methodology. In many cases, UML diagrams only replace older structured techniques (eg, class diagrams replace ERD diagrams)[17].

B. SWOT

SWOT analysis is a method of preparing a company or organization strategy that is one single business unit. The scope of a single business can be domestic or multinational. SWOT itself is an abbreviation of Strength (S), Weakness (W), Opportunities (O), and Threats (T) which means strengths, weaknesses, opportunities and threats or constraints, which which can systematically help in identifying external factors (O and T) and factors within the company (S and W). These words are used in the preparation of a mature plan to achieve goals both in the short and long term [18].

IV. RESULTS AND DISCUSSION

A. PRELIMINARY

Identification of problems contained in PT. Sumber Inti Sukses in building human resource applications with standard references using the SWOT method. The table explains the SWOT analysis at PT. Sumber Inti Sukses. The results of the analysis produced an opportunity for PT. The Core Source of Success is to be able to make it easier for employees to make claims view performance reports, and attendance online and also become a benchmark for companies in developing business with the standard references contained in these modules. The module contains a reimbursement module, attendance module, leave module, best employee module, and personal information management module. The modules above are modules that must be used in building competent and quality human resources.

Table I. SWOT

SWOT	Strength	Weakness
	1. Claims and reprts can be done anywhere. 2. Not time bound. 3. Fast and appropriate responses	1. Must use an internet network. 2. Lack of human resources who understand IT.
Opportunity	**SO**	**WO**
1. Companies become more organized and organized. 2. The system can be develoved to continue IT development.	Creating applications that can simplify the work of employees in making claims and making reports, and also can improve performance to be more quickly and more efficiently	Make claiming services, assess employee performance, and manage attendance data online, so that it can simplify work because it can be done anywhere without time-bound.
Threat	**ST**	WT
1. Server down if used simultaneously. 2. The internet network goes out.	Improve performance efficiency and transparency in reporting so that report manipulation is not easy.	Install security systems and anti-virus applications to prevent viruses from occurring that can interfere with the performance of the applications created and maintain an internet connection to remain stable.

B. ARCHITECTURE VISION

At this stage, this explains the vision in creating an application architecture that creates benchmarks as an element in improving the management of human resources in the company for the better and the ability to compete in the business world. The company PT.Sumber Inti Sukses has a vision of being a partner or partner that guarantees the quality, on time, and competitive prices. As well as having a mission to develop the company into a professional partner through services that satisfy all customers, and be able to provide stakeholder value

C. Business Architecture

At this stage describes the business processes that are currently running in the company.

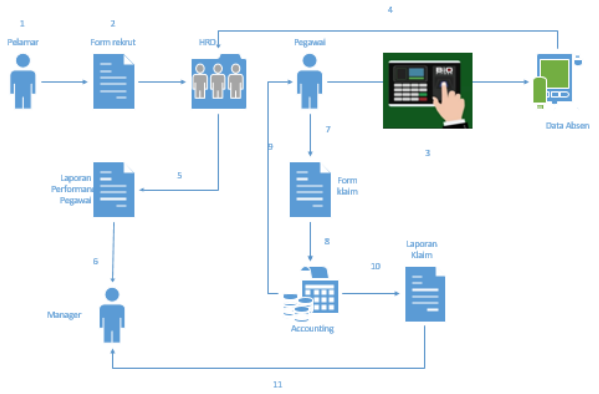

Fig. 2 Current business processes within the company

In the picture describes the current flow in the resource system within the company, the steps are, the first thing the applicant does is filling out the recruit form when applying to the company, then when It was filled in correctly the form is given to the HRD and the applicant is interviewed, then directly accepted to work in the company. Furthermore, employees attend absenteeism when entering and returning home, then the attendance data is then downloaded and managed by HRD. From the attendance data, HRD can assess employee performance in terms of discipline and timeliness of office entry and return, and HRD reports performance and is given to the Manager. Furthermore, the employee submits a claim and directly fills out the claim submission form provided by accounting. After the form has been filled incorrectly, the claim form is given to accounting for review. If the claim is approved, the accounting will provide reimbursement money to the employee with the system via transfer. Then accounting makes a claim report and then prints it, and the results of the report are given to the Manager for checking and evaluation**.**

D. Information System Architecture

At this stage modeling information system architecture will be designed according to previous results, including data architecture modeling and application architecture modeling and process architecture. In its implementation, it is not only fixed on the data architecture first and followed by the application architecture, but the implementation can be done with the reverse process. At this stage explain the system architecture created by the UML method. The following is one example of a use case and activity diagram of the application system for human resources for PT. Sumber Inti Sukses:

1) Use Case Diagram

Use cases to clarify and document interactions needed between users And the system to use complete user tasks. Use cases created to assist the development team comprehend the measures in more detail involved in achieving user objectives [14].

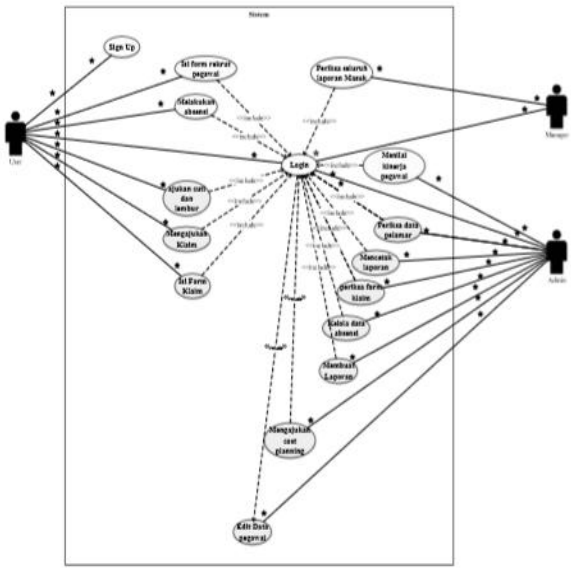

Fig. 3 Use case diagram

The above use case diagram has 3 actors consisting of users, admin, and approval who have their respective roles in carrying out tasks and have the same goals in advancing the company. Where the user has several functions and One of these is to fill in the form of recruitment and attendance, and the admin has a function of assessing employee performance and submitting cost planning to pay for reimbursement claims submitted by all employees, and the last is actor-manager who plays a role as head in the division and has the task of checking the entry report within the company.

2) Class Diagram

Class Diagram is a diagram that contains Classes, sub-classes, and functions that describe the structure of the system in terms of defining the classes that will be developed in the application.

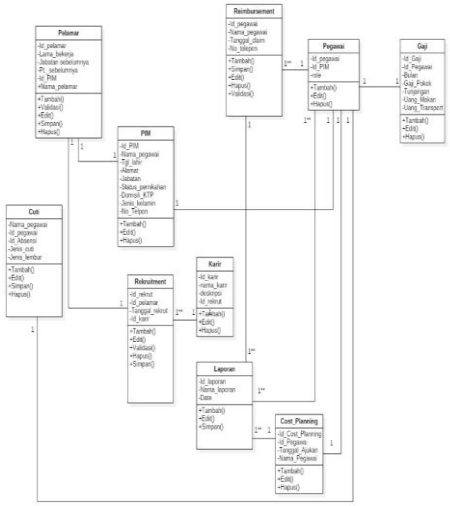

Fig. 4 Class diagram

Class Diagram The application of human resources consists of class diagrams that will be implemented into the application to be created, class diagrams are also used as table designs that will be used in the application.

In this application, there are 9 tables, which include: applicant user tables, employee user tables, replacement tables, performance tables, attendance tables, PIM tables, recruitment tables, career tables, cost planning tables Each table has a relationship with tables others. Data used to display information as needed is stored in a database consisting of several interrelated tables. The following table structure design in the application system design.

E. Technology Architecture

At this stage, researchers use supporting technology in creating and designing human resource application systems. Microsoft Windows 10 operating system software 64-bit (10.0, build 17134) years, web server bundle applications such as XAMPP, PhpMyAdmin, MySQL, StarUML and Microsoft Visio 2013, and FIGMA.

F. Opportunities And Solution

At this stage it will be evaluated, by choosing an alternative implementation, defining the implementation strategy and implementation plan using the Agile method [19].

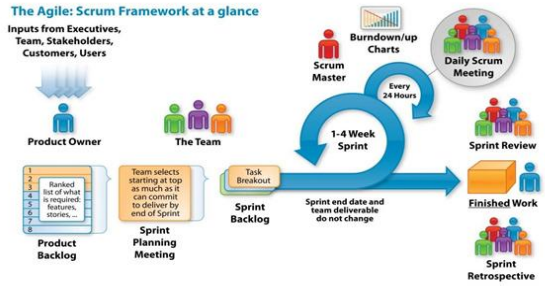

Fig. 5 Agile Method [20]

The image of the agile method above shows a process that begins with the first meeting with the making of the objectives to be achieved and the determination of the product backlog, at a later stage Sprint planning meeting is a meeting for the product owner, scrum team and interested people in the project. In the third stage discussing the Daily Scrum meeting (Inspect and adapt cycle) discusses daily meetings for no more than 15 minutes in which only sharing what was done yesterday, now and plans for tomorrow. Those who can speak in this team are scrum master and developer team members, in the fourth stage contains a Sprint review meeting containing meetings after 2 weeks or 1 month (Sprint) activity ends, which is then followed by meeting for asprint planning for Sprint next. And in the last stage or the fifth stage contains a meeting after the meeting of the sprint evaluation and before the next sprint planning meeting. This meeting is a meeting attended by Scrum Master and a team of developers to revise the process and work methods of Scrum, the development process so That the next sprint will be more efficient and enjoyable.

G. Migration Planning

At this stage, the order of implementation of the system is based on the priority scale from the highest to the lowest. Implementation in making standard reference human resource applications. The following is a table of sequences of system implementation based on priority order.

Table II. Prioritas Implementasi

No.	Fungsionalitas	Prioritas	Kriteria
1	**Modul Rekruitmen**		
	Career	7	Medium
	Check Applicant data	3	Low
	Fill in the employee recruitment form	5	Medium
2	**Modul Absensi**		
	Apply for leave and overtime	8	High
	Manage absent data	6	Medium
	Do Attendance	2	Low
	Make a report	4	Medium
	Print Report	2	Low
3	**Modul Reimbursement**		
	Claim reimbursement	7	Medium
	Apply cost planning	7	Medium
	Check the claim form	3	Low
	Print report	2	Low
	Fill in the claim form	5	Medium
4	**Modul Performance**		
	Value of employee performance.	8	High
	Grade	7	Medium
5	**Modul PIM (Personnel Information Management)**		
	Employee data input	5	Medium
	Print Report	2	Low
	Edit employee data	3	Low

In the table illustrates the process of implementing priorities in building a standard reference human resource application that has 3 priority measurement scales starting with high which has a level of 8-10, Medium has a level of 5-7, and for low priority has a level of 1-4. The measurement aims to implement the standard reference human resource application can be completed according to the plans and expectations of the researcher [21].

V. CONCLUSION

The conclusion of this study is based on the description that has been explained and made by the author in the chapters above, the authors make a conclusion as follows:

1. Designing business architectures to design standard reference resource applications using the UML (Unified Modeling Language) method which has a function as a tool for initial design in system makers that begins with making Usecase, Activity diagrams, Sequence diagrams, and class diagrams that determine the database to create yourself in the into the resource application system. This study uses the TOGAF ADM framework which helps in creating a standard resource application reference system in which there are recruitment modules, reimbursement claims, absences, PIM (personnel information management), and performance modules.

2. TOGAF ADM got one a preliminary process which is a process of identifying business processes related to resource problems within the Company, the second is requirement management that contains the management process of architectural needs in resource applications, the third is architecture vision phase which contains the vision of making resource applications , the fourth is a business architecture that.

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