

DEVELOPMENT OF HR OPERATIONAL DASHBOARD WEBSITE AT PT. TELKOM REGIONAL VI

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Abstract Human resources are a very valuable asset in a company where these resources are employees. Human Resources (HR) department is part of a company in charge of managing employees. HR managers have an important role to present data and workforce profiles, understand company needs, and provide recommendations regarding employee management to improve company performance. PT Telkom Indonesia (Persero) Tbk (Telkom) is a State-Owned Enterprise (BUMN) that is in the field of information and communication technology (ICT) services and telecommunication networks in Indonesia. PT Telkom Regional VI is a part of PT Telkom which operates in the Borneo area. In daily operational activities, HR managers are asked to present a workforce profile. To present data, HR managers need to collect data from various sources. Due to different data sources, management has difficulty in reading labor data so that it can trigger a revision of data presentation. Repeating management of similar data also causes additional allocation of time and effort. Therefore, this study aims to develop the HR Operational Dashboard Website at PT Telkom Regional VI using the scrum model. The stages in the scrum include sprint planning, daily scrum, sprint review, and sprint retrospective. The HR Operational Dashboard website was successfully developed using the scrum method with a total product backlog of 27 items in 6

sprints. This website can help HR manager presents accurate data and can be a media to support decision-making.

Keywords: PT Telkom Regional VI · Scrum · Human Resource · Employee Data.



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Introduction

Over time, technological innovations have been developing. This technological advancement helps humans in solving problems of daily life, making the role of technology difficult to separate from human life. Technology and information are 2 things that are very closely related. Fast, precise, and accurate information is obtained with advanced technology. Advances in information technology are also used by companies to help their work (Saepurrahman, et al. 2019).

Out of the various resources that exist in the company, human resources are an important part compared to other resources. Other resources cannot be utilized, nor managed without human resources. Human resources are very valuable assets in a company, in which these resources are called employees (Safrizal 2011). The Human Resources (HR) department is a part of the company in charge of managing employees. HR managers have an important role to present data and workforce profiles, understand company needs, and provide recommendations related to employee management to improve company performance.

PT Telkom Indonesia (Persero) Tbk (Telkom) is a State-Owned Enterprise (BUMN) that works in the field of information and communication technology (ICT) services and telecommunication networks in Indonesia. PT Telkom Regional VI is part of PT Telkom Indonesia (Persero) Tbk (Telkom) operating in the Kalimantan region. In each region, PT Telkom has several telecommunication business areas (Witel) that have the responsibility to manage their respective territories. PT Telkom Regional VI itself has 6 Witel including Witel Balikpapan, Witel Kaltara, Witel Kalbar, Witel Kalsel, Witel Kalteng, and Witel Samarinda.

In PT Telkom Regional VI, Telkom employee data processing is currently carried out manually in spreadsheet format, but the available data is still in raw form. The data collected is also taken from various sources ranging from applications to PIC-related units, so to present data it is necessary to process data. This causes a lot of time and energy to be spent on processing data repeatedly. Diverse data sources also make it difficult for management to read labor data which can trigger revisions in data presentation and proposals.

The data to be processed includes vaccine and survivor data drawn from data of employees who have or have not been vaccinated and have recovered from Covid-19. Both the Kaubis data, which is non-structural position data from Telkom employees in business units in Kalimantan, and the outsource data, which is

outsourced employee data at PT Telkom Regional 6, were then processed into visual data in the form of bar charts, pie charts, and pivot tables.

From the problems mentioned, it can be concluded that PT Telkom Regional VI needs an HR Operational Dashboard website that presents trends and data on workforce profiles visually related to the number of employees, their distribution, characteristics, and other profiles. The software development method used was the scrum model because the method is considered suitable for all types of software development, especially website development, where each iteration can help overcome bugs that arise from time to time. The scrum method is also adaptable where any changes to the system can be handled quickly (Rastogi, 2015).

With this research, it is expected to help PT. Telkom Regional VI to present accurate data to support more targeted decision-making.

Material and Methods

In outline, this research consists of several stages. These stages become a guide for research work. Figure 3.1 describes the research flow chart, among the stages are problem identification, literature study, needs analysis, system design, implementation, testing, and conclusions and suggestions. This research uses the Software Development Life Cycle (SDLC) as a framework for software development. SDLC is a collection of steps followed for systematic development, design, and maintenance for software projects and ensuring all user needs are met. The stages of the SDLC cycle consist of requirement analysis, design, implementation, testing, and deployment and maintenance (Barjtya, et al., 2017). One example of SDLC that is commonly used is Agile Development (Budi, et al. 2016). In this research, website development uses the agile framework of the scrum model. Scrum is one of the agile development models for managing software development that applies the object-oriented (OO) paradigm (Fadlullah dan Lesmidayarti, 2017). Scrum is the most widely used agile



software development. The idea behind Scrum is to address the shortcomings of traditional software development. In Scrum, each product release is planned according to customer requirements, time pressures, product quality, and available resources (Anwer, et al. 2017).

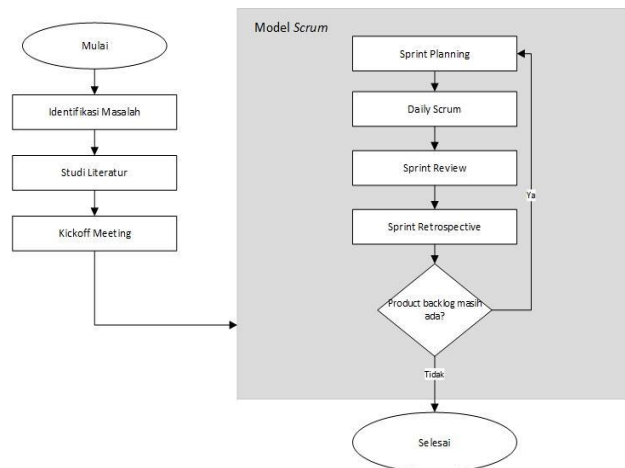


Figure 1. Research outline

a. Problem Identification

Problem identification was carried out to find out what problems exist at PT. Telkom Regional VI aims to get a background in research work and problem formulation from research. Identification of a problem was done by interview or observation techniques.

b. Literature Study

At this stage, reference collection was carried out on material related to research. This reference is expected to help as a basis for research work. References can be obtained from journals, books, and other research that discusses information systems.

c. Kickoff Meeting

At this stage, a meeting was held so that all parties understand the objectives of the project, and discuss technical activities that will be carried out during project work. In this project, several roles were needed including product owner, developer,

and scrum master. From this kickoff meeting, a product backlog was obtained.

d. Sprint

Sprints are at the heart of scrum, where ideas are converted into value. Sprints have a duration of 1 month or less. A new sprint starts as soon as the previous sprint ends. The sprint time is fixed, so if the first sprint has been determined for a long time, then the next sprint must follow the length of time from the previous sprint (Schwaber dan Sutherland, 2020).

1) Sprint Planning

At this stage, the product owner sets the goals of the product backlog items so that the developer understands the goals of feature development and has the same vision as what the product owner wants. Then the product backlog items are selected to be worked on in one sprint. After that, it is determined how long the work time of 1 sprint is. Sprint Items that have been selected are documented in the sprint backlog for subsequent work in the sprint.

2) Daily Scrum

At this stage, a 15-minute meeting was held by the developer to discuss what activities and plans to do for the next 24 hours. The daily scrum is done to inspect what will and has been done. At this stage, we also discuss what obstacles will occur in the remaining sprint time.

3) Sprint Review

At this stage, the developer explains what has been done during the sprint. The sprint review is attended by developers, scrum masters, and product owners. The developer exposes what has been completed and has not been done, as well as the obstacles experienced by the developer. Unfinished items will be included in the next sprint backlog. Then

the new items added will be included in the product backlog.

4) Sprint Retrospective

After the sprint review is carried out, the developer then analyzes what has happened during the live sprint and the suggestions from the sprint review. In this stage, the developer and scrum master inspect the individual process and communication of the sprint, and the solution to the problem at hand. This activity can be used as a reference for planning to improve quality and effectiveness for the next sprint.

Results and Discussion

a. Problem Identification

The stages of research begin with the identification of the problem. At this stage, an interview was conducted with the HR of PT Telkom Regional VI. The results of interviews showed that data was not ready to be used at any time, similar data processing was carried out repeatedly, data sources were scattered in various sources and management, and user data wanted a visual appearance. Therefore, an HR Operational Dashboard website was needed to make it easier for HR managers to process employee data.

b. Literature Study

At this stage, researchers collect references that are relevant to the research being done. Researchers are looking for reference comparisons of several agile software development models including Scrum, Extreme Programming (XP), Feature Driven Development (FDD), and Kanban. A comparison of several agile models can be seen in Table 1.

Table 1. Scrum, XP, FDD, and Kanban Comparison

Characteristic	Scrum	XP	FDD	Kanban
Development approach	Iteration and incremental	Iteration and incremental	Iteration and incremental	Incremental

Team size	<10	<20	Many (More than 1 team)	Not defined
Time frame for one iteration	2-4 weeks	1-6 weeks	<2 weeks	Not defined
Project size	All project types	Small projects	Complex projects	Small projects
Team communication	Informal	Informal	Based on documentation	Informal face-to-face
Customer engagement	Through the product owner during the course of the project	During the course of the project	through reports	through product releases in stages

(Anand and Dinakaran, 2016).

Table 1 describes the comparison between Scrum, XP, FDD, and Kanban. FDD is a development method suitable for complex projects with very large teams. As for small projects, it is better to use Scrum, XP, or Kanban. Scrum and XP break down system requirements into iterations, while in Kanban projects are implemented continuously and products are released periodically. The use of kanban is more appropriate for teams that have a lot of unplanned work during the project. Scrum and XP run on an iterative and incremental basis with different focuses. Scrum focuses on project management while XP focuses on development techniques. Scrum gives developers freedom in choosing the product backlog to be worked on while XP follows the order that has been determined by the user. During iterations, in XP customers can change backlog items that are worked on as long as they have not been worked on. Whereas in Scrum, changes are made after the sprint is complete. Because of its nature, XP is better suited for advanced developers who are ready for planning changes. Therefore, this researcher chose Scrum as a software development model in this study.



c. Kickoff Meeting

The first step taken in the development of the HR Operational Dashboard Website is to hold a kickoff meeting with the HR department of PT Telkom Regional VI. This meeting discussed the agreement on feature development and the length of time to work on the feature. From the interviews, features to be developed include employee vaccine data management, caution data management, and outsourced data visualization. These features are written in user stories format with a processing time of less than 3 months. User stories contain a list of features to be developed for the HR Operational Dashboard Website and can be seen in Table 2.

Table 2. User Stories

No	As a...	I want to be able to...	In order to...
1	<i>Human Resources</i>	Go to Kaubis page	View all lists of Kaubis operating in the Kalimantan region
2	<i>Human Resources</i>	Go to the Logs page	View all new or revised Kaubis logging permissions that are being submitted, denied, and accepted
3	<i>Human Resources</i>	Adding a new Kaubis	Register a new Kaubis that has not been registered on the active Kaubis list
4	<i>Human Resources</i>	Change Kaubis data	Change the Kaubis data in operation
5	<i>Human Resources</i>	Delete Kaubis data	Remove Kaubis data from the Log list if an error occurs
6.	<i>Human Resources</i>	View Kaubis details	View detailed data from Kaubis
7.	<i>Human Resources</i>	Download Kaubis data	Download Kaubis data details on the Kaubis list
8.	<i>Human Resources</i>	Go to the Approvals page	View a list of Kaubis being submitted
9.	<i>Human Resources</i>	Approve/Reject Kaubis	Approve or reject the proposed Kaubis

10.	<i>Senior Leader and Human Resource</i>	Go to the Outsource Dashboard page	View charts about Outsourced data
11.	<i>Senior Leader and Human Resource</i>	Filter the Outsourced Dashboard	View the chart according to the filters applied to the chart
12.	<i>Human Resources</i>	View chart data details	Display chart data details in the selected chart area
13.	<i>Senior Leader and Human Resource</i>	Download data on detailed charts	Download chart data details that appear on a table
14.	<i>Senior Leader and Human Resource</i>	Login for vaccine data collection	Go to the main page of the vaccine list
15	<i>Senior Leader</i>	Go to the Vaccine Dashboard page	Display the pivot table of the vaccine list
16	<i>Human Resources</i>	Go to employee vaccine list page	Displays a list of employee data who have or have not taken the Telkom Regional VI Covid vaccine
17	<i>Human Resources</i>	View a detailed list of vaccine data	View details from vaccine data
18	<i>Human Resources</i>	Upload data	Add employee vaccine data by uploading an excel file

User stories contain a general description of the features to be developed and written from the user's point of view. From Table 2, there are 18 features to be done with users including the Human Resource unit, users of Human Resource users are staff/officers of the human capital division. Among them are CDC officers, planning & development officers, and HR Service officers. While Senior Leaders are employees who have the positions of Manager, Senior Manager, and EVP. After the user stories are defined, then the next is the creation of the Product Backlog which contains a planned list of features to be developed which can be seen in Table 3.

Table 3. Initial Product Backlog

No	User Story / Backlog Item	Priority	Story Point
1	Go to Kaubis page	High	2
2	Go to the Logs page	High	2



3	Adding a new Kaubis	High	3
4	Change Kaubis data	High	3
5	Delete Kaubis data	Moderate	1
6.	View Kaubis details	High	2
7.	Download Kaubis data	High	3
8.	Go to the Approvals page	High	2
9.	Approve/Reject Kaubis	High	2
10.	Go to the Outsource Dashboard page	High	2
11.	Filter the Outsourced Dashboard	High	2
12.	View chart data details	High	2
13.	Download data on detailed charts	High	3
14.	Login for vaccine data collection	High	2
15	Go to the Vaccine Dashboard page	High	2
16	Go to employee vaccine list page	High	2
17	View a detailed list of vaccine data	High	2
18	Upload data	High	8

Table 3 describes features to be developed which are written in user stories format. Furthermore, the priority column explains the priority of these features in development filled in by the Product Owner. The priority value is divided into 3, namely High, Medium, and Low. Each priority value indicates the level of importance of features on the website to be built. A High priority value indicates that the feature must be present and must be done first. Priority value Medium indicates that the feature must be present but the processing time is not as priority as the High value. Nilai priority Low indicates that the feature does not have to be present on the website. In the story point column, it is explained about the level of complexity of working on a backlog item. Story points describe the ratio between one backlog item and another. The value of the story point is determined using the Fibonacci sequence from 1 to 13. The Fibonacci series is obtained by adding the n th term number with the previous number, so that the Fibonacci sequence used is 1,2,3,5,8,13. The higher the story point value, the greater the effort required to realize a backlog item. The determination of story points is chosen from items that are felt to have low effort to complete. In the product backlog, the item that

has the lowest effort is to delete the Kaubis data, then the item is given story point 1. Furthermore, other items compared to items delete Kaubis data. If the effort required is 2 times more than the item deletes the Kaubis data, then the compared item is assigned a value of 2. And so on until the story point value of all backlog items is obtained (Visual Paradigm, 2019).

d. Sprint

At this stage, the realization of the initial product backlog is carried out. Items in the product backlog are completed in multiple sprints. The stages of each sprint include sprint planning, daily scrum, sprint review, and sprint retrospective. A summary of the sprints that have been passed can be seen in Table 4.

Table 4. Sprint Summary

<i>Sprint</i>	<i>Sprint Time</i>	<i>Sprint Planning</i>	<i>Daily Scrum</i>	<i>Sprint Review</i>	<i>Sprint Retrospective</i>
1	August 2, 2021 - August 13, 2021	5 <i>backlog</i> items with a total of 16 <i>story points</i>	Development of vaccination data management features	Feature improvements and new feature additions	Better time management is needed and a lot of reading literacy related to the features worked on
2	August 16, 2021 - August 27, 2021	6 <i>backlog</i> items with a total of 12 <i>story points</i>	Development of features and visualization improvement of vaccine data	Feature improvements	Time management has started to improve
3	August 30, 2021 - September	5 <i>backlog</i> items with a total of 11	Development of outsourced data improv	Feature improvements	Be more thorough when testing



	10, 2021	<i>story points</i>	ement and visualization features		
4	September 13, 2021 - September 24, 2021	5 <i>backlog</i> items with a total of 11 <i>story points</i>	Development of remedial features and some causal features	No feature additions and fixes	Increased confidence in developing features
5	September 27, 2021 - October 8, 2021	6 <i>backlog</i> items with a total of 13 <i>story points</i>	Development of some remaining features of the Kaubis	Addition of new features	Researchers are familiar with developing and allocating time so that <i>backlog</i> items are <i>delivered</i> on time
6.	October 11, 2021 - October 22, 2021	2 <i>backlog</i> items with a total of 5 <i>story points</i>	Development of new features	No feature additions and fixes	Researchers gain important experience in time management and troubles hooting during <i>sprints</i>

Conclusion

Based on the results of the study, it can be concluded that the features that have been developed according to user needs are evidenced by the completion of 27 product backlog items. Website development takes 11 weeks and 1 day or as many as 6 sprints. The website developed has been used with an internal domain owned by PT Telkom Regional VI. This research can help PT Telkom Regional VI in This website can help

HR managers present accurate data and as a medium to support decision making.

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