Evaluation of OSS Planters Application Services at PTPN XII Company Using ITIL V3 Domain Service Operation

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Abstract- **PT Perkebunan Nusantara XII is a state-owned limited liability company engaged in plantations. The company's goal is to improve the performance of plantation workers by using the One Stop Solution (OSS) Planters application. However, in implementing IT operations at OSS Planters, there are still areas for improvement in the management and maintenance of the company's business processes, which can hamper PTPN XII's operational activities. Therefore, an analysis of information technology service management using the ITIL V3 Service Operation domain at OSS Planters is needed. The method used for data collection in this research is an observative-qualitative approach in the form of interviews and literature studies. The interview results show that PTPN XII is good enough through supervision and frequency of maintenance of OSS Planters. Still, besides that, it also needs to improve process management and measurement indicators for maintenance so that the author provides recommendations for using the maintenance 4.0 model in a reasonably clear measurement and maintenance process to minimize the occurrence of company incidents and problems.**

Index Terms- **Service Evaluation, ITIL V3, Service Operation**

I. INTRODUCTION

PT Perkebunan Nusantara XII, commonly abbreviated as PTPN XII, is a limited liability company owned by a state-owned enterprise (BUMN) that operates in the cocoa, tea, sugar cane, rubber, and coffee plantation sector. According to the official website ptpn12.com, PTPN XII has 34 plantations spread throughout East Java, ranging from the Ngawi regency to the Banyuwangi regency. The purpose of establishing PTPN XII, as stated on the ptpn.com website, is to engage in agribusiness and agro-industry and to use the company's resources optimally to produce high-quality goods and services with solid competitiveness and profitability while adhering to the principles of limited liability and Good Corporate Governance.[1].

To achieve the company's goals, PTPN XII is trying to improve the performance of plantation workers by using the One Stop Solution (OSS) Planters application. Based on an official PTPN XII interview, the One Stop Solution (OSS) Planters is an application used by PTPN XII in monitoring plantation activities throughout East Java. The One Stop Solution (OSS) Planters application is a super-app used to monitor the plantation process of various commodities such as tea, cocoa, sugar cane, and coffee. However, the commodity ready-to-use OSS Planters is the Sugarcane commodity with the Tebang Muat Angkut business process. So that the flow from Sugarcane is cut to the milling process at the sugar factory will be recorded in OSS Planters. Tebang Muat Angkut is one of the business processes at PT Perkebunan Nusantara XII when harvesting Sugarcane commodities. OSS Planters is present in sugar cane harvesting activities starting from cutting sugar cane, loading it on trucks, and transporting sugar cane from trucks to sugar factories so that officers in the office can monitor officers in the field.

For two years, OSS Planters was implemented by PT Perkebunan Nusantara XII, while there were barriers during use. Barriers to OSS Planters often occur to OSS Planters users, starting from internet signal barriers, knowledge about the application, use of the application, and functional application. The Information Technology Subdivision at PT Perkebunan Nusantara XII classifies each obstacle that occurs, classification of barriers such as Bug, Change Requests, and Stoppers. Bugs are obstacles that occur due to errors that occur in the application. A change request is a request for changes to application functionality, such as adding new features when the application is running. A stopper is an obstacle that causes the business process not to run, so the barrier must be resolved.

Based on the problems at OSS Planter, information technology service management is needed. Information technology service management is a method of managing information technology systems that centers on the perspective of information technology service users in business companies [2]. For the information technology service management framework, researchers use ITIL V3. Information Technology Infrastructure Library V3 (ITIL V3) is a collection of best practices for managing information technology services, development, and Office of Government Commerce (OCG) information technology operations [3]. ITIL V3 aims to increase efficiency and achieve service goals planned by the company [4]. ITIL V3 has five domains: service strategy, service design, service transition, service operation, and continual service improvement (CSI). Of the five ITIL V3 domains, researchers chose to use the service operation domain because this research focuses on managing the implementation of the OSS Planters application when used by users and from the developer's perspective. The purpose of service operation is to coordinate and carry out the activities and processes needed to manage user services [5]. The service operation domain consists of 5 process stages: event management, request fulfillment, access management, problem management, and incident management. This research uses three

service operation domain processes: event management, incident management, and problem management, to determine how PTPN XII manages the OSS Planters application when bugs and errors are the main problems.

Regarding the important role of OSS Planters in the continuity of the company's business processes, evaluating the OSS Planters application service is necessary. Evaluation is needed to decide the success value of a product, procedure, purpose, or benefit to maintain its specific purpose [6][7][8]. Evaluation of this service is important to determine to what extent the use of information technology services is a bridge to developing a company's business [9]. The evaluation results will ultimately become recommendations in making decisions and increasing understanding of an event [10][11]. Thus, the evaluation of the OSS Planters application service at the PTPN XII company using the ITIL V3 service operation domain aims to obtain information about the management of the OSS Planters application with output in the form of data that can be used as a reference in implementing and managing the OSS Planters application service for PTPN XII.

II.RESEARCH METHODOLOGY

The research is observational research with a qualitative approach. The purpose of using the observational research approach is to collect qualitative data based on the results of interviews from sources. Then, the interview data will be further observed using literature studies with the final output as conclusions from the answers to interviews and observations. The data used in this research are primary data and secondary data. Primary data is data researchers collect directly, and secondary data is data from other sources such as scientific journals. The data collection techniques used are interviews and literature studies. The interview sources consisted of 4 IT employees of PTPN XII.

Research Flow

1.   Literature study and Observation

At this stage, researchers conducted a literature study to find problems implementing the OSS Planters application. Researchers also conducted field observations to support literature studies based on facts in the field.

2.   Problem identification

Researchers began to identify problems with the OSS Planters application service management. At this stage, researchers explain the problems in the OSS Planters implementation process from the user and developer sides.

3.   Data Collection

At the data collection stage, researchers used the interview method. The sources used in the interview session were 4 IT employees from PTPN XII. The interview process was conducted from June 7 to June 10, 2023, via the Zoom cloud meeting application.

4.   Data Analysis and Observation

Data analysis and observation are carried out by conducting further literature studies of the data obtained from previous interview sessions. Researchers will compare the theory from the literature study with the results obtained during the interview session with the interviewees. From this comparison, recommendations will emerge regarding each process of the service operation domain stages to be used as a reference in the OSS Planters implementation process at the PTPN XII company.

5.   Summary of Results and Discussion

Summarizing the results and discussion is done by comparing the objectives and results obtained by the researcher. With this comparison, researchers and readers will know whether the results obtained by the research answer the original purposes of the research that the researchers conducted.

III.RESULTS AND DISCUSSION

Interviewee Identities

The interviewees in this research are 4 IT employees from PTPN XII company. The position of each resource person comes from the IT division intern, IT DevOps staff, IT website developer staff, and IT mobile developer staff. Based on the position of each resource person, they have different job descriptions. IT division interns have a job desk to help developers implement ideas and needs in building web and mobile-based applications. IT DevOps staff has a job desk to prepare servers and OSS Planters application services so users can use them. IT website developer staff have a job desk to build website-based oss planters applications. Finally, IT mobile developer staff have a job desk to build mobile-based OSS Planters applications.

Event Management

In event management, this research will focus on managing maintenance on the OSS Planters application system. As maintenance is one of the actions in event management. What is discussed in event management this time is the maintenance management process and measurement indicators that PTPN XII can use in the future.

The implementation of OSS Planters at PTPN XII company makes maintenance one of the important processes to be carried out for the continuous development of the system. European Standard EN 13306:2017 (1330) describes maintenance as a combination of all technical, administrative, and management actions during system implementation to maintain or restore the system's condition to work according to the required functions. The European Standard also describes maintenance management as a collection of activities that determine maintenance objectives, strategies and responsibilities, and their implementation through maintenance planning, maintenance control, and improvement of maintenance activities [12]. Maintenance has four measurement indicators: reliability, availability, safety, and cost [13].

As a form of adaptation to Industry 4.0, many researchers have created a new maintenance concept called "Maintenance 4.0". Jasiulewicz-Kaczmarek [14] describes maintenance 4.0 as the latest form of maintenance management to meet the needs of industry 4.0 integration and sustainable development. Maintenance 4.0 involves advanced analytical methods that predict system failures and can avoid failures and optimize maintenance schedules and resources [15]. In its application to the IT field, maintenance 4.0 can effectively use Enterprise Resource Planning (ERP) to manage overall maintenance at each level [16]. Intelligent and sustainable are key elements in maintenance 4.0, where the integration of digital technology allows real-time access to information

needed to manage system implementation [17]. As for maintenance 4.0, the measurement indicators in the previous paragraph are defined with maximum values with the following conditions [13]:
1)   Availability: 100%, every system must have 100% availability
2)   Reliability: ∞, every failure is a failure
3)   Safety: ∞, any accident is not tolerated
4)   Cost: 0, cost should be used as minimum as possible.

The maintenance management process can be implemented with three main stages, as Duffuaa & Raouf [18] explained that three main stages are managing the maintenance process: planning, organization, and control. Maintenance planning is the stage of planning maintenance activities that will be carried out on the system. Maintenance organization is the stage where every activity from the maintenance planning process is organized in such a way as to smooth the maintenance process. Finally, maintenance control is the stage of supervising each maintenance activity so that maintenance is by the desired output.

Based on the interview results, PTPN XII implements maintenance on the OSS Planters application. The urgency of maintenance is divided into two priority scales: major and minor. The major scale will be carried out as quickly as possible by PTPN XII when there are problems with the OSS Planters application, even outside working hours. The minor scale will be done during working hours, considering that the minor scale has a smaller tendency than the major scale.

The maintenance frequency is set based on the server side and functional OSS Planters application. From the server side, maintenance will occur three times in 1 month. Meanwhile, from the functional side of the application, PTPN is always on standby 24/7 if some problems or barriers happen in the application. In addition, users can also report OSS Planters to feature discrepancies on the change request form provided by PTPN XII.

Overall, PTPN XII implements the maintenance process well through the existence of a priority scale, routine maintenance frequency, and user requests. However, in implementing this maintenance, PTPN XII requires a maintenance model that can be applied, such as maintenance 4.0. Maintenance 4.0 is applied to avoid system failures and optimize maintenance schedules, such as the routine maintenance frequency that PTPN XII has implemented in the OSS Planters application. Maintenance 4.0 can be implemented through the ERP application, where PTPN XII uses the SAP application for the company's daily needs.

Maintenance 4.0 includes measurement indicators companies can use: availability, reliability, safety, and cost. Through these measurement indicators, PTPN XII can measure maintenance's success to avoid system failures. Then, to manage the maintenance process, you can use the process management described by Duffuaa & Raouf [18] by implementing three stages: planning, organization, and control processes. PTPN XII can further optimize the existing maintenance schedule and supervise the ongoing maintenance process through the three stages of managing the maintenance process.

Incident Management
The Incident Management process is a part of Service Operation that plays a role in managing various incidents to return service operations to normal conditions as quickly as possible and minimize negative impacts on business operations [19].

In incident management, research will focus on incident management in the OSS Planters application system. The focus on incident management includes incident management steps and evaluations carried out by PTPN XII to prevent similar incidents in the future. The OSS Planters application is used to support PTPN XII's business processes. In using the OSS Planters application, there must have been an incident that caused the PTPN XII business process to be hampered. Therefore it is important to identify every incident that occurs. The goal is to restore normal service as quickly as possible and minimize the impact on the business while ensuring that services' best quality and availability are arranged [20]. In incident management, several activities can be carried out by companies so that companies can run and manage IT service application incident management properly, such as incident identification, incident logging, incident categorization, incident prioritization, initial diagnosis, incident escalation, investigation and diagnosis, resolution and recovery, and incident closure [21].

Based on the results of interviews with several respondents from PTPN XII, the company has implemented several activities to manage incident management, such as identifying incidents that have occurred, recording incidents that occur, categorizing incidents based on the nature of the incident, prioritizing incidents based on urgency and impact on IT services as carried out by PTPN XII which distinguishes the priority scale into two, namely minor and major, and conducting initial diagnosis or post-incident analysis by conducting post-development and pre-development evaluations. However, from the activities that have been mentioned to reduce the impact of incidents that occur, PTPN XII has not implemented all activities that can be done to minimize the occurrence of incidents in the future so that the business process activities of the company are not hampered. Therefore, the recommendations that researchers can give are as follows:
1)   Performing incident escalation, this can be done by developing guidelines or guidelines that can increase the level of handling of incidents that are being or have not been resolved to a higher level, making it possible to get help in resolving the incident.
2)   Documenting incidents, this can be done by creating a document to document each incident activity so that it can facilitate the evaluation process.
3)   Creating a Standard Operating Procedure (SOP), this SOP is made to be used as a standard reference in handling incidents that occur. In addition, Standard Operating Procedures (SOP) play a role in forming a work system and workflow that is organized, structured, and accountable. SOPs also describe how work objectives can be carried out by applicable policies and regulations [22].

Problem Management
Problem management itself means problem management, which is the basis of a process used to identify problems from the cause of an incident caused by user activities while eliminating and minimizing existing problems to prevent them [23]. Sometimes most

of these problems in problem management can cause adverse effects on a company's business processes, which are usually caused by the fault of the company's infrastructure and infrastructure itself. There needs to be more attention to maintenance, regular control, and neglect of security, which can hinder business processes [2]. In the end, all information about problems managed using problem management can significantly help the team to find and solve a root cause which is an important part of ITIL problem management.

Based on the results of interviews with several respondents from PTPN XII, several problems were found regarding the OSS Planters application, such as errors in the application (slow application, long time loading data, and server down). In addition, there are problems regarding data that cannot be backed up at any given period, considering that the data that enters every day is approximately 600 data from various commodity fields in the OSS Planters application. However, from these two problems, the solution from PTPN XII is always to be ready 24/7 to overcome application problems so that they do not recur and always carry out maintenance if there is a new API or framework. In addition, regarding the problem of slow servers and the inability to back up every certain period, PTPN XII reshuffles the table attributes of the database storage, such as compressing files, reducing attributes, changing data types, and reducing the length or value of these attributes. The last problem is the lack of attention regarding the OSS Planters application security system, where the system and the server from OSS Planters were hacked. At that time, all new developers paid attention to the security system in the application. In addition, to enter the web-based OSS Planters application system, it is easy to enter the system without logging in (shoot the admin URL from the website), which was said by one of the sources from PTPN XII.

From the results of these interviews, the authors can conclude and provide suggestions that problem management at PTPN XII companies is good enough to overcome existing problems. Supported by 24/7 activities to be ready to overcome existing problems so they do not recur, minimize the risk of these problems, and carry out regular maintenance. In addition, the author can also advise that it is necessary to conduct audits regarding security during certain periods and conduct regular evaluations of problems and incidents that are often faced.

IV. CONCLUSION

Based on this research, the researcher aims to obtain information about the management of the OSS Planters application with output in the form of data that can be used as a reference source for the OSS Planters application for PTPN XII. This research uses the ITIL V3 framework Service operation domain with the stages of the event management, incident management, and problem management processes. In event management, PTPN XII has carried out the OSS Planters application maintenance process quite well through routine maintenance supervision and frequency but needs to improve process management and maintenance measurement indicators. So the researcher recommends using the maintenance 4.0 model because it has a reasonably clear measurement indicator and management of the maintenance process. Through the incident management stage, PTPN XII manages incidents quite well, such as a structured incident management process. However, it is still necessary to implement activities to minimize the occurrence of incidents. Thus, researchers provide suggestions for carrying out three stages: (1) Perform incident escalation, (2) Document the incident, and (3) Create a Standard Operating Procedure (SOP). Finally, in problem management, PTPN XII has implemented problem management quite well with 24/7 supervision and regular maintenance. However, even though it has implemented routine supervision and periodic maintenance, many problems still need to be solved in OSS Planters when it is run. Therefore, the research suggests that it is necessary to conduct security audits at certain periods and conduct regular evaluations of problems and incidents that are often faced.

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