

ITIL 2011: Maturity Level of Service Operation

Case Study PT Pertamina (Persero), Indonesia

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Abstract— Service quality is a measurement from users' hope to the company in fulfilling their needs and desires also service delivery accuracy. Technology and information services can help the company in supporting the company's business operations. Therefore, the company needs to apply ITSM (Information Technology Service Management) as an operational approach of technology and information services to keep the service quality in the company. The framework that is focusing on providing technology and information services which can be used as a guide is the ITIL framework (Information Technology Infrastructure Library). This research is conducted at PT Pertamina (Persero). The research is conducted using the 2011 ITIL framework on Domain Service Operation with 5 processes in it which are Incident Management, Request Fulfillment, Event Management, Access Management, and Problem Management. The methods that are used in this research are interview and questionnaires. This research is conducted based on research steps by Gallegos 2008, which consist of 5 steps such as the planning, the field checking, the report, and the follow-up. Based on the research conducted there are three processes that are stopped at level 1 which is Incident Management with score 62.54%, Problem Management with score 79.08% and Request Fulfillment with score 81.09%. Meanwhile, on the Access Management process achieve 86.00% and Access Management is stopped at level 2 with score 77.23%.

Index Terms— ITIL 2011, ITSM (Information Technology Service Management), Service Quality, Maturity Model

I. INTRODUCTION

Service quality can be interpreted as an effort to fulfill the needs and desires of consumers as well as the accuracy of delivery in offsetting the expectations of users [1]. User expectations are a measure of service quality [2]. Services focus on the practice of service strategies, service design, service transitions, service operations and service improvements continuously [3]. To build a strong and lasting relationship with all stakeholders, it is necessary to apply good technology and information service management by implementing ITSM (Information Technology Service Management) in the company.

ITSM (Information Technology Service Management) is defined as an operational approach to information technology that is focused on information technology services, customers, service levels and through the handling process in terms of daily information technology function activities [4]. According to [3], ITIL (Information Technology Infrastructure Library) is the most widely applied guide for ITSM throughout the world, the proposition of the value of ITIL (Information Technology Infrastructure Library) centered on technology and information service providers. Based on research conducted by [5] there are 500 certified companies using ITIL in 40 countries. Based on the results of a survey with 110 respondents at the ITSMF conference in Australia, ITIL was the most popular initiative, there were 24% who had just started implementation, 58% had just implemented in part of the company's operational processes, 15% had implemented almost the majority of company operations and has implemented ITIL in all its business operations, namely 3%.

PT Pertamina (Persero) is a state-owned company that focuses on the oil and gas industry. By becoming a state-owned company PT Pertamina (Persero) has a commitment to provide services. PT Pertamina (Persero) has a special section to deal with service issues within the company called CSS (Corporate Shared Service). Based on the results of interviews conducted with PT Pertamina (Persero) in the CSS (Corporate Shared Service) section, it can be said that the services to support the company's operations still need further improvement because for some jobs they are still done manually. Therefore, it is necessary to measure the quality of services to improve service in the company's operations.

II. STATE OF THE ART

ITSM (Information Technology Service Management) is needed in service management because ITSM (Information Technology Service Management) can enable each organization and company to have adaptive capabilities consisting of assessment, planning, implementation, architecture and design, and also Support [6]. Similar to the results of the study [7] found the benefits of implementing

ITSM (Information Technology Service Management) in organizations and companies that ITSM (Information Technology Service Management) has benefits in service costs and time being efficient, giving higher satisfaction to users and also improve the processes that exist within the organization. It was also found that each organization and company use a framework that varies according to the needs of its organization [7]. However, private companies are more advanced than public companies/countries in implementing the ITIL framework [8]. The benefits of implementing the framework is a solution to improve services within the organization because it can improve the quality of IT services, reduce costs, increase productivity and delivery, and increase customer satisfaction [9]. However, in addition to receiving acceptance of changes, they also get a rejection because there is a group of workers who are already comfortable getting used to doing the old work [10]. First step that could have a major impact on IT performance or governance at educational institutes, organizations and companies is the need to identify stakeholder needs, resource preparation and business strategies to align IT strategies and business strategies to achieve desired goals [10], [11].

III. METHODOLOGY

A. ITIL – Service Operation

ITIL (Information Technology Infrastructure Library) is a series of concepts and techniques for managing infrastructure, development, and information technology operations. ITIL (Information Technology Infrastructure Library) is a framework that contains best practices to assist organizations in developing Information Technology Service Management (ITSM) processes [12]. The research method used in this study is by using the ITIL 2011 framework, the Service Operation domain which has a focus on services. The Service Operation domain is used to ensure that the services available are in accordance with the company's Service Level Agreement and measure based on the experience felt by each user rather than just overseeing the infrastructure or services that are available. There are 5 processes in the Service Operation focusing on indicators that are different from each other. The five processes are [9]:

- Incident Management
Incident management is a process that focuses on handling and increasing incidents that occur, starting from how to handle IT services that experience disruptions and decreases in quality beyond the plan. The total questionnaire in this process is 13 items.
- Request Fulfillment
Request fulfillment is a process of fulfilling user needs for IT services, giving an explanation of service request procedures and how long it will take to fulfill service requests

and creating categories regarding handling according to user complaints. The total questionnaire in this process is 11 items.

- Event Management
Event management is a process for monitoring and configuration items. Helps increase time to detect, communicate and respond to incidents that occur and to changes that occur within the company. The total questionnaire in this process is 10 items.
- Access Management
Access management is a process that regulates the limits of access to services that users use according to their respective job desk. The total questionnaire in this process is 11 items.
- Problem Management
Problem management is a process to handle incidents that occur repeatedly, make actions to minimize the impact of these incidents and how to make the incidents that have occurred will not be repeated in the future. The total questionnaire in this process is 13 items.

B. Audit Phase

The stages of research that will be carried out at PT Pertamina (Persero) are as follows [13].

- Planning
The first step is planning. In the planning stage, the determination of the object to be audited is PT Pertamina (Persero), then conducts an analysis of the vision, mission, goals, objectives, strategies, and policies that apply to PT Pertamina (Persero).
- Field Check
The second stage is conducting field checks by collecting information and data from relevant parties, such as conducting interviews with IT managers or related parties, distributing questionnaires and making observations directly into the IT division's workspace. Then, from the information and data that has been collected, it will be processed to be calculated using the maturity level calculation method to determine the level of performance of the IT division at PT Pertamina (Persero).
- Report
The third stage is to report the results of the audit findings from the previous stage to describe the recommendations related to the audit findings obtained for the future.
- Follow Up
The last stage is to provide results in the form of an audit report and the results of recommendations for improvements that can be applied directly or used as a reference for IT.

C. Maturity Model

The maturity model is a method for measuring the level of process management development and measuring the extent to which management capability

is [13]. A level can increase, provided the overall average value of the process reaches a value of 85.5. If the overall average value of the process is less than 85.5 then, the level of a company stops at that level.

IV. RESULT AND DISCUSSION

A. Planning

The first stage carried out in the research is the planning stage, which at the planning stage determines PT Pertamina (Persero) as the research object. In preparation for the research, direct permission was given to PT Pertamina (Persero), represented by Mr. Frans Fredrik Huwae as Manager of End User Support-CSS and Mr. Ageng Nugroho as Junior Officer Computing Support Admin and at the same time being the field supervisor at PT Pertamina (Persero). After obtaining further research permission, request data in the form of organizational structure; vision, and mission; and also the values that apply in PT Pertamina (Persero) to be analyzed to find out the problems that occur within PT Pertamina (Persero), especially in the IT department of the company.

Next, to find out the problem and ensure the problem more clearly, then pre-interview the two parties. Human error is the main problem of this company. After knowing the problems that occur within the company, the adjustment of the problems to the ITIL framework 2011 is done in order to obtain the domain that matches these problems and measure the level of IT services at PT Pertamina (Persero) in supporting its business processes.

B. Field Check

Field checks were carried out in two methods, interviews and questionnaires. In this study, no observations were made due to company policies that did not allow the company to show internal documents. Field checks were only conducted for interviews with respondents and preparing for the distribution of questionnaires.

- Interview Result

The interview was conducted by two parties, namely Mr. Frans Fredrik Huwae as Manager of End User Support-CSS and Mr. Ageng Nugroho as Junior Officer Computing Support Admin on the End User Support-CSS function. The interview questions submitted are based on the 2011 ITIL framework of the Service Operation domain. The limitations of the questions asked are only about IT problems at PT Pertamina (Persero). According to the respondents, PT Pertamina (Persero) has implemented several frameworks such as ISO 27001. Problems that have occurred are usually caused by human error. For some processes that are carried out on the End User Support function, it is still done manually, for example sending credit billing invoices imposed by staff at PT

Pertamina (Persero) which is done by manually sending one by one via 7000 existing staff. Problems that have occurred are errors in calculating the total invoices imposed on the staff, besides the obstacles faced, namely, the task requires a longer time due to having to send one by one to 7000 staff. Then, to serve service requests, it is set up and executed in accordance with the applicable SOP (Company Operational Standard) and there is also a special function to serve service requests from users, however, it is still run manually in requesting available services.

- Questionnaire Results

Table 1 Questionnaire Result

#	Process	Total	Description
Level 1			
1.	Incident Management	82,54	Stop at Level 1
2.	Problem Management	79,08	Stop at Level 1
3.	Access Management	86,00	Continue to Level 2
4.	Event Management	85,40	Stop at Level 1
5.	Request Fulfillment	81,09	Stop at Level 1
Level 2			
6	Access	77,23	Stop at Level 2

The calculation obtained at the incident management process is 82.54. This is because the job desk that has been given is not in accordance with what is done. Often the employees are assigned outside their job desk. Jobs that are outside of the jobdesk can cause employees to lack focus in completing their tasks, both assignments according to job desk and assignments outside their responsibilities. But in this process, PT Pertamina Persero has been good at responding to incidents, seen from the incident resolution that each part has.

The calculation results obtained from the problem management process are 79.08. This is because the problem management process is only focused on the technical problems compared to the services provided to the user. Activities carried out in the problem management process are not only used to minimize the impact of incidents that occur. However, it is also used in anticipation of repeated incidents.

In the total access management process obtained is 86.00. This is because in the process of access management activities are carried out to maintain the security of company data and information as well as the accuracy of existing data and information access rights. There is a special function to handle access rights within the company, namely the authorization function and CS function. Access rights are carried out

based on the SOP and data storage guideline standards applicable at PT Pertamina (Persero).

The total event management process obtained is 85.40. This is because the details regarding the main components used in PT Pertamina (Persero) 's IT operations are not made automatically. Activities in event management are not only done to improve the company's IT infrastructure but rather, to improve human resources and also the processes within them. So, the event management process is not only focused on IT operations but also focuses on the development side.

The calculation obtained in the request fulfillment process is 81.09. This is due to the lack of information about the details of what services are available within the company and activities are only carried out to fulfill the service request from the user. The main focus of this process is on services for users.

The results obtained from the calculation are 77.23 so it can be concluded that in the Access Management process it can only stop at level 2. That is because in this process there are procedures that regulate but, in carrying out it there are still shortcomings as in supervision, initiatives from workers, as well as supporting technologies that are not fully utilized.

C. Report

Reporting is done using the Ishikawa Diagram analysis method. This analysis method is used to analyze findings obtained from questionnaires given to respondents. This method is also used as a basis for making recommendations given to companies to improve the quality of technology services and company information.



Figure 1 Target Vs Capability Achieved

Based on the results of the study, at level 1 obtained 13 findings and at level 2 obtained 8 findings. These findings are used as a reference in making recommendations to the company. From the findings obtained the company still applies manual methods to several company activities. Lack of supervision there are some activities that have used automatic systems so that they have not been implemented optimally. Employees also often get a double job desk so that it

can affect their work. From the findings, it produced 53 recommendations for improving level 1 and 31 recommendations for improving level 2.

D. Follow Up

The results of the recommendations obtained from the findings are then reported and communicated to the parties from PT Pertamina (Persero). Recommendations are made based on the ITIL 2011 framework Service Operation domain. The total number of recommendations given as level 1 is 53 recommendations. Of the 53 recommendations given there were 30 recommendations received and 23 that were not accepted because they were already being processed. Whereas, for the total number of recommendations given at level 2 are 31 recommendations. Of the 31 recommendations there were 12 recommendations received and 19 were rejected because several recommendations were being processed.

V. CONCLUSION

Based on the results of measurements on PT Pertamina (Persero) IT services using the ITIL 2011 framework, Service Operation domains can be concluded that the level of PT Pertamina (Persero) IT services in the Incident Management process, Problem Management, Event Management, and Request Fulfillment stops at level 1. because, standards or activities concerning the three processes within PT Pertamina (Persero) are available, however, there are still shortcomings such as the lack of optimal use of the process. So, it is necessary to review the service standards available within the company. Improve services from manual to the system so as to minimize the risks that occur. Meanwhile, the Access Management process stops at level 2. This is because the standards and related activities in the process have been carried out well and directed in accordance with the applicable policies but there are still shortcomings such as in the supervision and performance of the workers. The findings obtained were processed into recommendations in the form of follow-up to the company. The total overall recommendations for level 1 and level 2 are 84 recommendations including 42 recommendations received and 42 recommendations rejected because the recommendations have been reviewed previously and are being processed for implementation.

VI. FUTURE RESEARCH

The advice for future research is that research is not only done by conducting interviews and distributing questionnaires but also by observing the system or related documents in order to better analyze in detail as a reference in making an Ishikawa diagram and providing recommendations to the company.

REFERENCES

- [1] Addy. (2007). Pengaruh Kualitas Pelayanan Terhadap Kepuasan.
- [2] Tjiptono, G. C. (2007). Service Quality Satisfaction.
- [3] Betz, C. T. (2007). Architecture and Patterns for IT Service Management, Resource Planning, and Governance: Making Shoes for the Cobbler's Children.
- [4] Chandra, T. d. (2007). Service Quality Satisfaction.
- [5] Esteves, R., & Alvesb, P. (2013). Implementation of an information technology infrastructure library process – The resistance to change.
- [6] Gallegos. (2008). Information Technology Control and Audit. Third Edition.
- [7] ISACA. (2012). www.isaca.org.
- [8] itsmF. (2007). Audit Pengelolaan Layanan Teknologi Informasi Berdasarkan ITIL Pada IT Marketing & Trading (M&T) PT. Pertamina (Persero) Marketing Operation Region V Surabaya. jurnal.stikom.edu/index.php/jsika/article/viewFile/390/278.
- [9] Marrone, M., & Kolbe, &. (2011). impact of it service management frameworks.
- [10] Melendez, K., Davila, A., & Pessoa, M. (2015). Information technology service management models applied to medium and small organizations: A systematic literature review .
- [11] Wella. (2016). Audit Sistem Informasi Menggunakan COBIT 5.0 Domain DSS pada PT Erajaya Swasembada, TBK
- [12] Meziani, R., & Saleh, I. (2007). E-government: ITIL-based service management case study.
- [13] Pardo, C., Pino, F. J., Garcia, F., Piattini, M., & Baldassarre, T. (2012). An ontology for the harmonization of multiple standards and models. *computer standards and interfaces*, 48-59.
- [14] Steel, A. C., & Tan, W. G. (2009). Implementation of IT Infrastructure Library (ITIL) in Australia: Progress and succes factors.

