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Analysis of Information Technology Service Management Using ITIL V3 Domain Service Operation at Company XYZ

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Abstract

In today's dynamic landscape, the rapid evolution of information technology and the pursuit of excellent technological services have become universal aspirations. Organizations, institutions, and universities are increasingly relying on advanced technology to support their activities, streamline tasks, and enhance business processes. To align with current IT trends, enterprise organizations must adopt centralized methods that prioritize consumers' perspectives on IT services in the context of overall business objectives. XYZ Company exemplifies this approach, having implemented bespoke information technology solutions geared towards managing service activities and processing administrative data efficiently. The Service Operation phase, a crucial lifecycle component encompassing day-to-day IT service management operations, has been a focal point of XYZ Company's endeavors. The research, focusing on three pivotal processes—Event Management, Request Fulfillment, and Problem Management—reveals a pressing need to enhance hardware, software, and infrastructure to meet XYZ Company's evolving requirements for more effective operations. Moreover, the implementation of Standard Operating Procedures (SOP) and specialized modules for employees emerges as a critical necessity. These strategic enhancements are poised to augment efficiency, ensuring that employees can harness the full potential of information technology in their daily tasks. As XYZ Company navigates the evolving IT landscape, this research underscores the imperative to adapt hardware, software, and procedural frameworks to foster a more effective and streamlined work environment.

Keywords: ITIL V3, SOP, Technology Usage, Services Operation

1. Introduction

The rapid advancement of information technology and the provision of excellent technology services have become the expectation for individuals, organizations, institutions, and universities to support their activities, streamline their tasks, and enhance their business processes [1]. Essentially, technology is designed to simplify human endeavors. Information technology is widely used to process, manipulate data, and analyze data to generate relevant, fast, clear, and accurate information [2,3]. The utilization of technology significantly supports the objectives of education, emphasizing the need for efficient resource utilization and risk management. The reliance on information technology to achieve organizational goals and strategies has become a primary driving force, enhancing productivity and making business processes effective and efficient [4].

In the current landscape, every business organization needs to adapt to the ongoing developments in information technology. Information technology has emerged as a new aspect, playing a pivotal role in the success of companies and institutions [5]. It is used by individuals to work with information and support an organization's informational needs. The orientation of information technology utilization should align with the organization's vision and mission. In reality, information technology goes beyond mere implementation; there should be information technology service management functioning as a guide to align technology with organizational objectives, enabling the delivery of added

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value [6,7]. The purpose of IT Audit is to assess the maturity level of information technology services at XYZ Company and provide recommendations if the maturity level falls below the target set by the company itself [8,9,10].

Managing IT services involves a centralized method focused on the consumer perspective of IT services towards the company's business [11]. The five main processes in IT service management are service agreement management, service design and development, service delivery management, service issue management, and service improvement [12]. These processes align with the framework of IT service management, namely, Information Technology Infrastructure Library (ITIL) [13,14]. XYZ Company has implemented information technology tailored for users to [i]manage service activities and process administrative data. However, challenges in technology implementation often arise, negatively impacting the company. These recurring issues remain unresolved, prompting the need for a detailed analysis of IT service management using the ITIL V3 framework at XYZ Company.

Given these challenges, this research aims to analyze IT service management using the ITIL V3 framework at XYZ Company. The application of this framework is considered appropriate since the main topic of concern is the service related to Information Technology. This study specifically focuses on the Service Operation domain, encompassing all daily operational activities related to IT service management to determine the extent of efficiency [15,16]. Relevant studies, such as "Analysis of Maturity Level in Blended Learning in the Service Operation Domain of ITIL V3 Framework," serve as references for this research. The outcomes of this study include the maturity level within the Service Operation domain of the ITIL V3 framework and recommendations based on the conducted measurements [17,18]. Similarly, the research "Analysis of Information Technology Service Management System at PT Dunia Boga Indonesia Referring to ITIL V3 Domain Service Operation Process Incident Management, Problem Management" utilized methods like interviews and observations, providing recommendations based on the core principles of IT service management and Standard Operating Procedures (SOP) for Incident Management and Problem Management processes [19,20]. It is anticipated that this research will assist companies, especially XYZ Company, in managing the implemented information technology services effectively.

2. Literature Review

2.1. Importance of Information Technology in Organizations

The rapid evolution of information technology (IT) has become a cornerstone for individuals, organizations, institutions, and universities, influencing their activities and business processes [1]. Organizations worldwide are increasingly dependent on IT to streamline tasks, enhance productivity, and support various functions. The transformative impact of IT is not only evident in operational efficiency but also in its role as a catalyst for innovation and strategic decision-making [1]. As businesses continue to navigate the digital landscape, the integration of advanced IT solutions has become synonymous with staying competitive and adaptive to changing market demands.

The multifaceted importance of IT extends beyond basic functionalities. It serves as a facilitator for communication, collaboration, and data-driven decision-making [2,3]. As organizations strive for agility and responsiveness, IT plays a pivotal role in providing relevant, fast, clear, and accurate information. The utilization of technology has become synonymous with efficiency and effectiveness in modern business operations, underlining the necessity for organizations to embrace and leverage IT capabilities to remain relevant in a rapidly evolving landscape [2,3].

2.2. The Role of Information Technology in Business Success

In the contemporary business landscape, the adaptation to ongoing IT developments is imperative for organizational success [5]. Information technology has transcended its role as a support function and emerged as a strategic enabler for companies and institutions. The transformative impact of IT is not confined to internal processes; it extends to customer engagement, market outreach, and overall organizational competitiveness [5]. Individuals within organizations utilize IT not merely as a tool but as an integral part of their work processes, aligning their efforts with the broader organizational goals.

Aligning IT utilization with the organization's vision and mission is emphasized, surpassing mere implementation [6,7]. Successful organizations view IT as a dynamic component that evolves in tandem with their strategic objectives. This alignment ensures that IT investments contribute directly to the achievement of organizational goals. The integration

of IT with strategic planning is a key driver for business success, fostering innovation, and maintaining a competitive edge in the market [6,7].

2.3. IT Service Management as a Guiding Framework

Effective management of IT services is crucial for aligning technology with organizational objectives and delivering added value [6,7]. This is exemplified by the implementation of Information Technology Infrastructure Library (ITIL), a globally recognized framework consisting of key processes such as service agreement management, service design and development, service delivery management, service issue management, and service improvement [12]. The adoption of such frameworks signifies a shift from ad-hoc IT management to a structured and standardized approach.

ITIL's emphasis on service-oriented processes ensures that IT services are not only technically proficient but also closely aligned with business needs [12]. Organizations that embrace ITIL or similar frameworks benefit from improved service quality, reduced risks, and enhanced customer satisfaction. The focus on continuous improvement in IT service management ensures that organizations can adapt to changing technological landscapes while maintaining a consistent level of service excellence [12].

2.4. Challenges in Technology Implementation

Despite the implementation of IT services tailored for users at XYZ Company, recurring challenges in technology implementation persist, negatively impacting the company [8]. A centralized method focused on the consumer perspective is essential for managing IT services, and XYZ Company faces the need for a detailed analysis of IT service management to address unresolved issues [11].

Technology implementation challenges are multifaceted and can stem from factors such as organizational resistance, inadequate training, or insufficient planning [8]. These challenges often result in suboptimal utilization of IT resources, leading to inefficiencies and disruptions in business processes. XYZ Company's recognition of these challenges highlights the importance of not only adopting advanced technologies but also ensuring their seamless integration into existing workflows.

Addressing challenges in technology implementation requires a comprehensive understanding of the specific issues faced by the organization. This understanding serves as a foundation for the development of effective strategies and solutions to overcome these challenges. By undertaking a detailed analysis of IT service management practices, organizations can identify areas for improvement, ultimately enhancing the overall efficiency of technology utilization.

2.5. IT Service Management Analysis Using ITIL V3 Framework

Given the challenges at XYZ Company, this research aims to analyze IT service management using the ITIL V3 framework, with a specific focus on the Service Operation domain. This domain encompasses daily operational activities related to IT service management, intending to assess the efficiency level [15,16]. Reference studies, such as "Analysis of Maturity Level in Blended Learning in the Service Operation Domain of ITIL V3 Framework," provide a basis for this research [17,18].

The selection of the ITIL V3 framework for analysis signifies a strategic approach to IT service management evaluation. The Service Operation domain, in particular, provides insights into the day-to-day operational activities that are critical for the overall effectiveness of IT services. By focusing on this domain, organizations can gain a nuanced understanding of the factors influencing service efficiency, incident management, and problem resolution.

Reference studies, such as the one on the "Analysis of Maturity Level in Blended Learning in the Service Operation Domain of ITIL V3 Framework," offer valuable insights into the potential methodologies and benchmarks for assessing IT service management maturity [17,18]. These studies contribute to the existing body of knowledge and provide a foundation for developing a comprehensive analysis framework tailored to the specific needs of XYZ Company.

2.6. Previous Studies and Their Implications

Previous research, such as the study on the "Analysis of Information Technology Service Management System at PT Dunia Boga Indonesia Referring to ITIL V3 Domain Service Operation Process Incident Management, Problem

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Management," employed methods like interviews and observations to provide recommendations based on core IT service management principles and Standard Operating Procedures [19,20].

Drawing insights from previous studies is integral to understanding the broader implications of IT service management analysis. The study on "Analysis of Information Technology Service Management System at PT Dunia Boga Indonesia" provides a practical example of leveraging ITIL V3 in assessing incident management and problem resolution processes [19,20]. The utilization of interviews and observations underscores the importance of qualitative data in gaining a holistic understanding of IT service management practices.

These studies not only contribute valuable methodologies but also offer recommendations based on core IT service management principles and Standard Operating Procedures. Such recommendations serve as a guide for organizations looking to enhance their IT service management practices, providing actionable insights derived from real-world applications.

2.7. Anticipated Contributions

This research anticipates contributing to the effective management of information technology services, particularly at XYZ Company. By assessing the maturity level within the Service Operation domain of the ITIL V3 framework, the study aims to provide valuable recommendations based on measured outcomes [17,18].

The anticipated contributions of this research extend beyond the confines of XYZ Company. The insights gained from the analysis of IT service management within the Service Operation domain are expected to offer valuable lessons and best practices applicable to a broader spectrum of organizations facing similar challenges. The recommendations derived from measured outcomes aim to serve as a practical guide for organizations seeking to enhance their IT service management maturity, ultimately fostering a more efficient and resilient IT environment.

3. Methodology

Research methodology refers to the systematic techniques or methods organized and utilized by researchers to gather information and data tailored to the object or subject under study. In this research, an inductive approach is employed, which delineates issues based on existing facts. These issues are subsequently analyzed to pinpoint problem areas. Recommendations are then formulated, and conclusions are drawn from the analysis. The methodology aims to provide a comprehensive understanding of the problem, allowing for effective problem-solving and informed decision-making.

3.1. Research Flowchart

The research design encompasses several stages. The initial stage of this analysis of information technology service management at Company XYZ involves problem identification. This phase is utilized to recognize and identify the existing issues within the system of Company XYZ in Indonesia. The research progresses through the following stages. The research flowchart illustrates the sequential progression of the study, starting from the preliminary phase and culminating in the final phase. The flowchart is depicted in Figure 1.

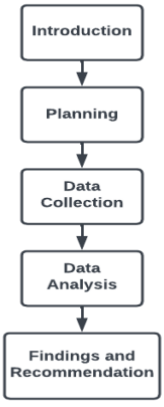

Figure. 1. Research flowchart

The research process involves the following stages:

1) Introduction: In this stage, the author identifies the issues occurring in the information technology services of Company XYZ in Indonesia. Additionally, the researcher gathers references related to previous studies conducted by the author.
2) Planning: The author proceeds to design and plan the activities for the research, specifically focusing on the analysis of Information Technology Service Management using ITIL V3 Domain Service Operation in Company XYZ. The researcher also compiles a list of questions to be asked to respondents related to the study. In this phase, data collection begins based on the questionnaire drafted in the previous stage.
3) Data Collection: The researcher gathers data from the drafted questions distributed in the previous phase through interviews and observations.
4) Data Analysis: Subsequently, the collected data from interviews and observations are analyzed and processed using the ITIL V3 framework with the Service Operation domain as a reference. This analysis aims to understand the problems faced and the methods used to handle each issue.
5) Findings and Recommendations: In this phase, the researcher compiles and organizes the findings. Recommendations are formulated based on the processed data and analysis from the previous stages. The goal is to provide suggestions that can aid in improving the performance, effectiveness, and efficiency of the system at Company XYZ.

3.2. ITIL V3

The Information Technology Infrastructure Library (ITIL V3) is a comprehensive set of concepts and practices for managing information technology services, development, and IT operations, developed by the Office of Government Commerce (OGC). ITIL provides highly detailed descriptions of several essential information technology practices and offers a comprehensive list of tasks and procedures that organizations can tailor to their specific needs. The primary goal of ITIL is to enhance efficiency and achieve the planned service delivery of a company [21,22]. On June 30, 2007, the OGC released ITIL V3, which essentially comprises five parts, placing greater emphasis on the management of the service lifecycle provided by information technology. These five parts are as follows:

1) Service Strategy: This part provides guidance to IT service management (ITSM) practitioners on how to view the ITSM concept as more than just an organizational capability for delivering, managing, and operating technology services. It also emphasizes ITSM as a strategic asset for the company. This guidance is presented in the form of fundamental ITSM concepts and core processes that operate across all stages of the ITIL service lifecycle. Topics covered in this phase include market formation for service sales, types and characteristics of internal and external service providers, service assets, portfolio concepts, and the implementation of a full service lifecycle ITIL strategy.

In essence, ITIL V3 offers a robust framework for organizations, such as Company XYZ, to enhance their IT service management, ensuring alignment with strategic business goals and improved efficiency in service delivery.

3.3. Domain Service Operation

Service Operation is a lifecycle phase that encompasses all day-to-day operations of IT service management. Within this phase, various guidelines are provided on how to efficiently and effectively manage IT services while ensuring agreed-upon performance levels with customers. These guidelines elaborate on how to keep IT services active and running, as well as manage changes in design, scale, scope, and performance of IT services [21]. Service Operation also bears the responsibility of operating and maintaining IT services to ensure they remain operational and meet the needs of users or customers. The objective of Service Operation is to coordinate and execute the processes or activities necessary to deliver IT services to users and customers. The presence of Service Operation offers guidance on managing IT services efficiently and effectively, guaranteeing the agreed-upon performance improvements [11,23].

In the context of Company XYZ, Service Operation plays a crucial role in ensuring the seamless operation of IT services, aligning with user and customer requirements, and adhering to agreed-upon performance standards. It serves as a comprehensive guide for managing IT services, promoting efficiency, effectiveness, and enhancing overall performance, thereby meeting the organization's objectives and customer expectations.

4. Result and Discussion

The current technological advancements have reached a highly sophisticated level of globalization, enabling various activities within an organization or corporate institution to address numerous challenges. The utilization of technology within an organization or company has led to significant changes in various aspects such as structure, authority, power, job responsibilities, employee career progression, supervision, and managerial tasks.

The series of research findings, based on the sequence or arrangement, is conducted following the ITIL V3 framework's domain of service operation. The choice of the service operation domain is due to its establishment of standards for managing IT services, encompassing all operational activities related to the effective and efficient management of IT services.

The determination of maturity levels is calculated based on the analysis of interviews conducted within each subdomain. The average scores from each subdomain, obtained from the interviews, are used to determine the maturity level. Descriptions of the maturity levels for each level can be found in Table 1.

Table. 1. Maturity Model ITIL

Level	Description
Level 0 - Non Existent	1. No IT processes have been identified. 2. The company has not yet recognized the issues that need to be addressed.
Level 1 - Initial	1. The company has begun to recognize the information technology processes within its organization. However, there is currently no standardization; these processes are handled individually and lack organization. 2. There is evidence indicating that the company is aware of the issues that need to be addressed. 3. The overall management approach is lacking. There are no standardized processes; instead, specific ad hoc approaches are applied on a case-by-case basis.
Level 2 - Repeatable	1. The company has begun implementing procedures in the information technology process, but there is a lack of formal training and communication regarding these standard procedures. 2. Responsibility for these processes is still placed on individuals, and there is a significant reliance on individual capabilities, leading to errors.
Level 3 - Defined Process	1. The procedures within the company have been standardized, documented, and communicated through training. However, the implementation still relies on individuals, whether they choose to adhere to these procedures or not. 2. These established procedures are not complex; they merely formalize existing activities.
Level 4 - Managed and Measurable	1. The company can measure and monitor existing procedures, making it easy to address any deviations that occur. 2. The existing processes are running smoothly and consistently. 3. Automation and the use of information technology devices are limited.
Level 5 - Optimized	1. The existing processes have reached best practices through

continuous improvement efforts.
2. The information technology utilized is integrated to automate workflow processes within the company, enhancing quality, effectiveness, and the ability to adapt to the company's needs.

In the context of Company XYZ, these technological advancements play a pivotal role in reshaping various aspects of the organization. The utilization of the service operation domain within ITIL V3 provides a standardized approach for effectively managing IT services, ensuring efficiency and effectiveness in operational activities. By adopting these technological advancements and IT service management best practices, Company XYZ can enhance its overall performance, meet organizational objectives, and adapt to the evolving demands of the modern business landscape.

4.1. Service Operation - Event Management

Event management involves identifying changes in a condition that holds significance for the management of configuration items in IT services. In this process, notifications are detected, and monitoring checks the status of a component even when no events occur. Based on the analysis conducted in the service operation event management, it is evident that a reliable internet network is essential. This is crucial to support more effective performance activities, requiring adequate connectivity. The survey and interviews conducted at Company XYZ reveal the necessity for an improved network connection. Several instances of data transfer delays have occurred, potentially causing losses to the company.

In the context of Company XYZ, it is imperative to enhance the network connection to ensure seamless data transfer and support efficient workflow. Addressing these network issues is pivotal for optimizing operations, minimizing disruptions, and preventing potential financial losses. The analysis of event management highlights the critical role of a robust network infrastructure in facilitating the company's activities and maintaining operational efficiency.

4.2. Service Operation - Request Fulfillment

Request fulfillment represents the condition where users make requests to develop services, seek information, propose standard changes, or request access to IT services that need organization. The objective of request fulfillment is to standardize user acceptance and receipt of services related to the implementation of information technology service management at Company XYZ in Indonesia.

Based on surveys and interviews conducted at Company XYZ in Indonesia, it has been identified that there are requests for improvements in both physical and non-physical aspects of the IT services utilized. Regarding the physical aspect, enhancements are required in hardware infrastructure and network to enhance employee efficiency. On the non-physical front, maintenance is needed for the existing systems, such as increasing storage memory and adding features that have not been available until now.

In summary, request fulfillment is essential for standardizing user requests and ensuring effective service delivery, which is crucial for the continuous improvement of IT services at Company XYZ. The survey and interviews conducted have shed light on the specific areas that require attention and enhancement to optimize the overall performance of the organization.

4.3. Service Operation - Problem Management

Problem management here refers to a situation that causes an incident or multiple incidents due to user utilization. The objective of problem management is to minimize or prevent incidents and their consequences, ensuring that recurring incidents are effectively handled. Based on surveys and interviews conducted at Company XYZ in Indonesia, issues related to problem management were identified. These issues include the utilization of both old and new information technology, where the company sometimes overlooks providing explanations or modules for implementing information technology to employees. This oversight can render the company's performance ineffective.

In the context of Company XYZ, problem management poses a significant challenge, especially concerning the utilization of various information technologies, both existing and new. Often, the company neglects to provide necessary explanations or modules to employees, hindering effective performance. Addressing these issues is crucial

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to enhancing the company's efficiency and ensuring seamless operation. Effective problem management not only prevents recurring incidents but also contributes significantly to the overall productivity and effectiveness of the organization.

4.4. Research Result

Based on the observations conducted, it was found that there are several organizational structure issues within Company XYZ in Indonesia, particularly in the realm of information technology management services. The implementation of systems is frequently overlooked, with a preference for manual procedures due to recurring problems arising from the information system application. Data collected will be mapped to identify the issues faced, as presented in Table 2.

Table. 2. Problem Mapping

Level	Description
The company's network and bandwidth requirements need to be increased	Event Management
Increased hardware and infrastructure requirements	Request Fulfilment
Inadequate hardware	Problem Management
Human resources that lack socialization in the application of information technology	Problem Management

These recommendations are derived from analyzing the computed results. Within the analyzed domains, the lowest scores are identified, followed by a detailed examination of the related statements and questions within those domains. This process results in several recommendations based on the calculations. In essence, the findings highlight challenges in the information technology management services of Company XYZ. These insights serve as a foundation for the derived recommendations, aiming to address and enhance the existing system issues. The goal is to ensure smoother operations and improved efficiency within the organization.

5. Conclusion

Based on the data collected through interview and observation methods, it can be concluded that the management of IT services at Company XYZ has not been executed well and in accordance with the requirements. The existing issues have not been resolved effectively, leading to recurring problems. This situation has a negative impact on the operational activities at Company XYZ in Indonesia. When related to the ITIL V3 Framework, the Service Operation domain appears to be the most suitable for the implementation, specifically concerning the three processes: Event Management, Request Fulfilment, and Problem Management. Company XYZ has struggled to handle incidents and issues adequately, evident in the slow problem resolution, lack of competent human resources to provide solutions, and absence of established Standard Operating Procedures (SOP) or policies related to IT management procedures.

Based on the research findings related to the three processes: Event Management, Request Fulfilment, and Problem Management, there is a need to enhance the requirements for adequate hardware, software, and infrastructure to meet the operational needs of Company XYZ effectively. Additionally, there is a requirement for implementing SOPs and suitable modules for employees to use information technology more efficiently.

This research emphasizes the importance of improving IT service management at Company XYZ, ensuring a streamlined approach to incident handling, efficient problem resolution, and the implementation of appropriate policies and procedures to optimize the utilization of technology in the organization.

6. Declarations

6.1. Author Contributions

Conceptualization: F.A. and A.N.; Methodology: A.N.; Software: F.A.; Validation: F.A. and A.N.; Formal Analysis: F.A. and A.N.; Investigation: S.A.S.S.; Resources: F.W.A.; Data Curation: S.A.S.S.; Writing Original Draft

Preparation: S.A.S.S. and W.P.M.W.; Writing Review and Editing: S.A.S.S. and W.P.M.W.; Visualization: W.P.M.W. All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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