

Analysis of New Student Admission Service Management Using The ITIL Version 3 Framework in The Service Design Domain at Senior High School of 22 Palembang

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Abstract

This study aims to analyze and evaluate the management of new student admission services at SMA Negeri 22 Palembang using the ITIL Version 3 Framework in the Service Design domain. The problem of this research is that there is no connection between the school website and the PPDB Online application owned by the government, and there is a decrease in bandwidth when using the application together when registration is carried out for new students. This research uses a qualitative approach by collecting data through interviews, observation, and analysis. The results showed that the application of ITIL in the management of new student admission services can improve the efficiency and quality of services ensuring the fulfillment of the needs of prospective students and parents, as well as strengthening the relationship between schools and communities around Talang Kelapa, Palembang. The conclusion of this research is that the use of ITIL in the management of new student admission services at SMA Negeri 22 Palembang can provide benefits for SMA Negeri 22 Palembang to improve services for new student admissions, and to have a positive impact on the community's view of SMA Negeri 22 Palembang.

Keywords: ITSM, ITIL, Service Design, New Student Management

Abstrak

Penelitian ini bertujuan untuk menganalisis dan mengevaluasi manajemen layanan penerimaan siswa baru di SMA Negeri 22 Palembang menggunakan Framework ITIL Versi 3 pada domain Service Design. Permasalahan dari penelitian ini belum terkoneksinya antara website sekolah dengan aplikasi PPDB Online yang dimiliki pemerintah, serta terdapat penurunan bandwidth ketika penggunaan aplikasi secara bersama-sama ketika pendaftaran dilaksanakan penerimaan siswa baru. Penelitian ini menggunakan pendekatan kualitatif dengan mengumpulkan data melalui wawancara, observasi, dan analisis. Hasil penelitian menunjukkan bahwa penerapan ITIL dalam manajemen layanan penerimaan siswa baru dapat meningkatkan efisiensi dan kualitas layanan memastikan pemenuhan kebutuhan calon siswa dan orang tua, serta memperkuat hubungan antara sekolah dan masyarakat sekitar Talang Kelapa, Palembang. Kesimpulan dari penelitian ini adalah bahwa penggunaan ITIL dalam manajemen layanan penerimaan siswa baru di SMA Negeri 22 Palembang dapat memberikan manfaat bagi SMA Negeri 22 Palembang guna meningkatkan pelayanan terhadap penerimaan siswa baru, serta guna memberikan dampak positif terhadap pandangan masyarakat terhadap SMA Negeri 22 Palembang.

Kata kunci: ITSM, ITIL, Service Design, Manajemen Siswa Baru

I. INTRODUCTION

Education is one of the complex systems, as it shows that education in it has various devices that can affect internal problems. This is assembled in a system of input-process-output education, because the devices that have been influenced need to get a guarantee of quality and quantity to the *stakeholders* concerned. Based on the stipulation of the 1945 Constitution Article 31 states "All citizens have the right to education". Education units are not only concentrated in certain cities, but education equity must be available throughout the territory of the Republic of Indonesia, as well as to facilitate citizens in accessing it.

The process of entering students into the education level as a form of quantity to the input organized by the school. The quantity of student graduates is seen from the output of each process of organizing education, while learning activities are a process to produce a quantity of student outputs that are ensured to have quality assurance of their abilities [1]. To access each student input from the school, a technology is needed in managing the development of each individual. The goal isto improve the quality of the school in serving every entry of students in supportingthe learning process at school.

Technology is an asset that has valuable value in an institution or agency. The success of an agency can be known through the process of using information

technology and can improve the agency. However, it needs to be underlined by every agency that uses this technology is the understanding and associated risks, such as increased compliance with regulations from the form of dependence of business systems involved in information technology [2]. The development of increasingly sophisticated technology in its application is very fast but has a big impact on the use of information systems and services from the use of this technology. This is what is felt by various companies to utilize it in supporting the operational performance process, so that companies need a strategy to manage information technology properly based on the objectives of the agency in minimizing the problems faced, both in improving the quality of service and achieving agency goals, including schools [3].

SMA Negeri 22 Palembang is one of the schools in Palembang City, South Sumatra Province. SMAN 22 Palembang has provided a variety of sophisticated information technology to support the needs of students, not least in the admission of new students. In applying information technology as a means to facilitate in providing services to the performance of all employees and help the implementation of activities. This is also the existence of information technology can help ease the work of every employee, especially in schools. It needs to be realized that its existence also reaps a problem, so it needs to be analyzed to find out where the problems are.

The availability of facilities and infrastructure at SMAN 22 Palembang has been fulfilled in the Technical Implementation Unit (UPT), as Information and Communication Technology (ICT) has the responsibility in managing and developing information systems, network and application development and maintenance, database management and other technology development. Therefore, SMAN 22 Palembang is expected to have a form of information provision that is accurate and responsive in decision making, besides that it also follows the changes of every era. This is to support the improvement of the quality of the school.

Referring to the problem of application implementation in each school, there have been many studies from other researchers. First, research conducted Rahmawati and Prihadi (2021) suggests that the use of an information security management system that focuses on *system design* has provided assistance in evaluating the current system and anticipating future obstacles and preventing attacks on IT assets. Second, research conducted by Ikhtiarti et al. (2023) suggests that the use of the ITIL V3 Framework application service design domain has realized in improving the quality of information technology services and can evaluate the service system to update the application system used. Third, research conducted by Krismayanti and Sutabri (2023) suggests that service analysis using the ITIL V3 Framework can improve IT service management and increase participant satisfaction. As its application identifies and implements best practices in the administrative management of their participants.

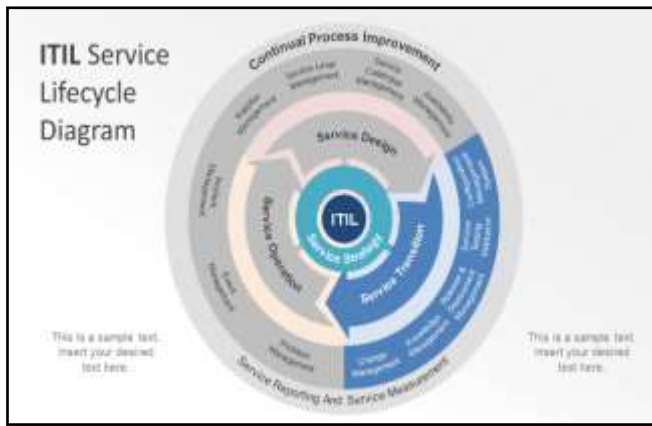
To see the quality of the school, the information system is aimed at new student admissions using the ITIL (*Information Technology Infrastructure Library*) Framework application. This process is carried out to obtain competent student abilities, besides supporting the school's reputation and ensuring the fulfillment of quotas from prospective students and parents. The ITIL (*Information Technology Infrastructure Library*) Framework has been recognized as the best framework in IT service management, and version 3 of this Framework has a "Service Design" domain that is relevant to the management of new student admission services.

Application systems that are analyzed have various purposes, so it is necessary to conduct an analytical study. The focus of the analysis is to provide input, consider, and conduct a study whether the program created is worth continuing or stopping. Therefore, the management system of the school requires *stakeholders* related to the management of information technology in the implementation of service management in the field of information technology SMAN 22 Palembang. This situation also looks at the services carried out whether they have followed the applicable standards or vice versa.

Based on the description of the problems revealed above, this study conducted an analysis of the management of new student admission services using the ITIL Version 3 Framework in the Service Design Domain at SMA Negeri 22 Palembang. The purpose of this research is to analyze and evaluate the management of new student admission services at SMA Negeri 22 Palembang using the ITIL Version 3 Framework in the Service Design domain.

II. RESEARCH METHODS

ITIL is the best training of IT management services that are very popular in today's era, as the use of business analysis framework for a client to define a comprehensive business roadmap and IT infrastructure based on consistency. This process is also to support the company's business plan to be in line with IT and Infrastructure, besides that the company is also expected to achieve a superior quality of service as provided by the IT Service Management Forum [7]. The benefits obtained from ITIL include increased satisfaction for users and customers with IT services, the availability of improved services both obtained through increased revenue and business profits, minimizing repetition of performance and saving time, improving the management of resources used, increasing time in the market world for the availability of new products and services, optimizing risk and decision making. There are five components in building ITIL to create the ITIL Service Lifecycle as this process is designed in Figure 1 listed below.



Picture 1 : ITIL Service Lifecycle

The following further explains the five components of the image above, the first *Service Strategy*, an ITSM implementation guide that provides a view of the ITSM concept as not only supporting organizational capabilities, such as delivering, managing, and operating IT services, but also as a strategic asset of the company. The form of guidance presented has the basic principles of the ITSM concept, references, and core processes that are core processes in operating all stages of the ITIL *Service Lifecycle*.

Second, *Service Design*, a guide refers to the IT organization systematically. According to Hanief and Jepriana (2019) suggests the ITIL V3 *Domain Service Operation Framework* in analyzing the best management and training for designing, and building IT services or implementing ITSM for yourself. *Service design* contains a set of design principles and methods in converting strategic goals for IT and business organizations into an IT service portopolio, as well as various service assets, such as *servers*, *storage* and others. The scope of *service design* is not only designing new IT services, but also improving the change process and service quality, service sustainability, and performance of services.

Third, *Service Transition*, a guide that has provided IT organizations to be able to develop the ability to change the results of IT service design, either in a new or changed based on specifications that enter the new environment or IT services are changed into the form of an operational environment. The *lifecycle* stages as it has provided an overview of how the needs defined in the *service strategy*, then formed in the *service design* to be more effective can be realized in *service operation* [9].

Fourth, *Service Operation*, a *lifecycle* stage that performs all operational activities in carrying out the daily management of IT services. In the guide there are various ways to manage IT services effectively and efficiently. In addition, it guarantees the level of work against the agreement if a violation is committed. The guide also covers how to maintain the stability of IT service operations, as well as make changes that include the design, scope, scale, and performance targets of IT services.

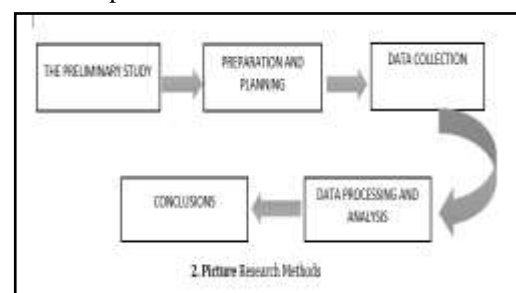
Fifth, *Continual Service*, an improvement that contains important guidelines for structuring and

maintaining service quality from the operation, transition, and design processes. *Continual service* performs incombining various principles and methods of quality management. This guide includes all performance in the form of better maintenance to improve the quality of the company.

Research related to ITIL has been conducted by several other researchers. First, the research discusses "Analysis of Information Technology Service Quality using the *Framework Information Technology Infrastructure Library V.3 (ITILV.3) Service Transition Domain (Case Studyon Costumer Service Area Telkom Salatiga)*" which raises the background of the problem because there is a new system or the formation of a modified system. This can affect the services obtained from customers, thus affecting the management system. The results of this study reveal that CSA Salatiga is aware of the importance of a transition period before releasing a system, such as the change of SISKKA to I-SISKKA. Just as it is useful to have the new system accepted by employees, eventually any complaints from customers or consumers can be addressed with the collection of several document reports. After that the company took over to complete the complaint as an improvement in the company's performance in serving customers [10]. Second, the research discusses "Analysis of IT Service Quality inthe SliMs Application using the ITIL V.3 *Framework Service Operation Domain (Case Study: Regional Library and Archives Office of Salatiga City)*" which raises the background of the problem of IT services that often arise in the transaction process onthe SliMs system. The results of this study show that the *output* obtained is in the form of recommendations, in accordance with the ITIL V3 *Framework Service Operation Domain*. However, there is a weakness that the Salatiga City Regional Library and Archives Office has, which is that the available services often appear *human error* and lack of Human Resources (HR) [11], [12].

This study used a qualitative approach. Data were collected through interviews with relevant staff, observation of the admission process, and analysis of documents related to service management. The data analysis process involved categorizing the findings, comparing them with ITIL Version 3 principles, and evaluating their impact on efficiency and quality of admission services.

The picture of the research method used:



Picture 2 : Research Method

Qualitative research stages, as follows:

In the first stage, researchers conducted a literature

study and made initial observations. The intended literature study is to study previous research problems regarding ITIL V3, as well as to deepen the results of the research to be carried out. Meanwhile, initial observations were made to answer the findings in the field and implement the problems that occur in the study of the Analysis of the Student Admission Service Management System at SMA Negeri 22 Palembang which is used for the process of admitting new students with an approach carried out using ITIL V3.

Preparation and Planning is an analysis to adjust the *service operation domain* as one of the stages to design various questions. In addition, this research was conducted by collecting data through the implementation of qualitative research. Questions made by researchers adjust to the needs of the findings in the field and answer from the *service operation domain* analysis.

Data collection is a stage carried out by applying various research methods, such as interviews with school operators and students, direct observation at the research locus as to see the problems that occur in the object that has been determined, and available documents according to the needs needed by researchers.

Data analysis is a research that is carried out by analyzing the findings obtained, both from observations, evidence of statements from sources when interviewed, as well as important documents in the research. This process is carried out as a measuring tool in this research process. In addition, from the results of the analysis to see the quality of service from each ITIL V3 process.

Conclusion is a final stage process to conclude from various findings, then the researcher compiles a writing in the form of synthesis and can recommend according to the results of data processing and analysis processed from the previous stage. The form of the findings of this research is compiled based on the standards of the use of ITIL V3 *domain service operation*.

III. RESEARCH RESULT

The results showed that the application of the ITIL Version 3 *Framework* in the Service Design domain in the management of new student admission services at SMA Negeri 22 Palembang can optimize related processes. In this case, service design that takes into account aspects such as the needs of prospective students and parents, management of operational procedures according to standards, and performance monitoring, can improve service efficiency and quality. A more structured and measurable service management also allows the school to be more responsive to changes and improvements needed.

When recruiting new students, a system is needed for the admission process as one of the services of SMA Negeri 22 Palembang to facilitate new students in the registration process in an online school PPDB application, this application was made by the education office in collaboration with public schools in Palembang city in order to facilitate the process of admitting new students to public high schools in Palembang and integrated with schools. The following is a display of the school PPDB application as a medium used for new student admissions.

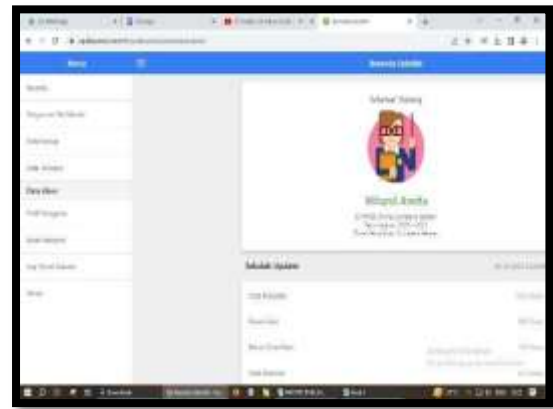


Figure 3: School PPDB Application

In the PPDB home application display mechanism, schools can find out the number of student capacity, the number of prospective students who register and the number of students who pass the exam. Students can also find out the date of the school PPDB exam schedule and students can see the mechanism for the school PPDB exam selection stages.



Figure 4: PPDB Home Application

After students go through the stages of the new student admission selection mechanism, the school operator will announce the results of the student selection online in the school PPDB application with the provisions of the selection results, namely meeting the criteria according to school standards and the best selection results of PPDB school SMA Negeri 22 Palembang.



Figure 5: Selection Result PPDB Application

Selection of new student admissions using the school PPDB application with several pathways, namely: Zoning Pathway is a student selected based on the zoning of the location of the nearest house from SMA Negeri 22 Palembang, Achievement Pathway is the best student sent from each junior high school and is selected again to meet the criteria of SMA Negeri 22 Palembang, and Independent Pathway is a general pathway every student is entitled to take the exam according to the criteria of SMA Negeri 22 Palembang.



Figure 6: PPDB Application Selection Results

IV. DISCUSSION

Regarding the discussion of this article, it will be explained further using several analyses according to the problem being studied. The main problem is based on the findings made from using the PPDB application, it is studied using analysis from the ITIL V3 framework as an effort to see whether the management carried out when accepting new prospective students has been fulfilled, on the other hand, look how satisfied the registrants, both parents and students, are after using the application. To study this problem in more depth, the researchers used five analyses, including analysis with ITIL V3 framework, domain service operation event management, domain service operation request fulfillment, domain service operation problem management, and domain service operation access management. Below it will be explained in more detail.

4.1 Analysis with ITIL V3 Framework

The process carried out in this research refers to the ITIL V3 Framework, as to see the extent of application management used in new student admissions with the *service operation domain*. The goal is to provide a direction for IT service management.

4.2 Domain Service Operation Event Management

Event management is a change of condition that has a meaning in managing configuration items in IT services. [3]. The process is designed to detect notifications, in addition to monitoring during component status checks even when no event is taking place. The purpose of *event management* is to detect an *event* and decide what approach is needed at the time of the *event* [13]. From the results of research conducted at SMA Negeri 22 Palembang, it shows that the internet connection

requirements used by the new student admission application at SMA Negeri 22 Palembang are used from the results of interviews with school operators that there is use of the application but cannot be used optimally to monitor *bandwidth*. To avoid the process running smoothly, *incident management* is needed. *Incident management* is a disturbance that is not planned by IT services or a decrease in IT quality. The management of an application that is designed to avoid incidents that come suddenly, an *incident management* is needed as well as all incident reporting and how to overcome problems to minimize the effects of the incident. The goal is to restore *fast response* operations so that they are not disrupted during new student admissions.

4.3 Domain Service Operation Request Fulfilment

Request fulfillment is a condition that is organized from various user requests, as they can *request* from receiving information, developing services, suggesting changes to standards, and accessing IT services that need to be organized [14]. The purpose of *request fulfillment* is to standardize users in receiving and receiving services related to new student admissions using the PPDB application online. The results obtained after *requesting* new student admissions, the school can decide in making *requests* from the results of student admissions according to the standard number of school capacity. This effort is also made to control the acceptance of new students who do not meet the criteria or standards set from SMA Negeri 22 Palembang.

4.4 Domain Service Operation Problem Management

Problem management is a condition that causes several problems that occur due to excessive *user* usage. The purpose of *problem management* is to prevent an incident that causes several problems, so that the emergence of incidents that occur repeatedly can be controlled or handled properly [15]. For example, incidents that often occur using the online PPDB application when the number of students registering simultaneously sometimes the server from the application causes slowness and *errors* so that prospective new students have to wait until the network is normal again. The problem is already known by the application manager, but the problem has not been resolved properly.

4.5 Domain Service Operation Access Management

Access management is a grant of authority to users so that the service system can be used [14]. The goal is to use access to the application regularly by services or service groups and prevent the use of applications to unauthorized people. For example, in the online PPDB application, if the student has not uploaded the requirements correctly, the application operator cannot verify the prospective student's file and cannot continue to the next stage such as printing the exam number. The results of the analysis using the ITIL V3 Framework *service management domain*, there are several things that have a relationship with the subdomains after an analysis is carried out. The results show that the assessment obtained is quite good, but there are recommendations that need to be underlined, namely that service

improvement must be improved even better so that the application is used smoothly by *users*. The following describes the results of the analysis conducted by researchers in table 1, as follows.

Table 1: Analysis Recommendations

No.	Subdomain	Problem	Recommendation
1.	Problem management	Incidents that often occur during simultaneous registration and the process of announcing the graduation of new student admissions, these problems can cause the information process for new students to take a long time and cause the server to go down.	The availability of a special allocation of bandwidth for new student admissions according to the admission schedule, and announcements so that there is no overcrowding and the application is smoothly used by users.

V. CONCLUSION

Based on the results of the study, the use of the ITIL Version 3 Framework in the Service Design domain in the management of new student admission services at SMA Negeri 22 Palembang can provide much better benefits. This includes improving the efficiency of the process and meeting the needs of prospective students and parents of students. Therefore, SMA Negeri 22 Palembang is advised to consider applying the principles of ITIL in the management of new student admission services.

The main focus is to apply the ITIL version 3 framework, especially in the Service Design domain to be able to improve the satisfaction of the process of new student admission candidates and it is hoped that this research can, like a improving the service process satisfaction of prospective new student admissions, improve school operational efficiency, and improving user satisfaction in this case students, school operators and those involved in the acceptance of new students at SMA Negeri 22 Palembang and can provide overall user satisfaction.

The use of prospective student recruitment using the PPDB application is very helpful in knowing the process of accepting prospective students, starting from the number of student capacity, the number of students registering, and passing the student admissions test. Students can also find out the specified time and implementation through the use of the PPDB application. After that, researchers carried out an analysis using the ITIL V3 framework with the service management domain. The results show that the assessment obtained is quite good, but there is a recommendation that needs to be underlined, namely that service improvements must be improved so that users can use the application smoothly.

For further development, SMA Negeri 22 Palembang is recommended to:

- Conduct training and increase the competence of staff involved in the management of new student admission services.
- Continue to monitor and evaluate new student enrollment processes based on ITIL principles.
- Integrate the online PPDB application with the current school system, so that the application can be better managed.
- Conduct further research to measure the impact and effectiveness of ITIL implementation in new student admission service management.

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