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Exploring User Satisfaction with Internet Services: A Pilot Test Investigation

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Abstract

This study investigates user satisfaction with Internet services provided by an Internet Service Provider (ISP) using the ITIL V3 framework, with a specific focus on the Service Operation domain. The research evaluates key service operation processes, including Event Management, Incident Management, Request Fulfillment, Problem Management, and Access Management. These processes are analyzed for their maturity levels and effectiveness in meeting user demands. Data collection involved assessing user feedback through targeted questions designed to measure the efficiency and reliability of these service operations. Validity and reliability tests were conducted, confirming that the indicators used in the study are both valid and reliable, with Cronbach's Alpha values supporting the consistency of the measures. The findings highlight areas of strength and potential improvement for ISPs, offering actionable insights for enhancing service delivery and aligning with ITIL V3 standards to better meet user needs. The study emphasizes the importance of efficient service operations in maintaining high levels of user satisfaction.

Keywords: *ITIL V3 Framework, Service Operation, User Satisfaction*

Abstrak

Studi ini menyelidiki kepuasan pengguna terhadap layanan internet yang disediakan oleh Penyedia Layanan Internet (ISP) menggunakan kerangka kerja ITIL V3, dengan fokus khusus pada domain Operasi Layanan. Penelitian ini mengevaluasi proses operasi layanan utama, termasuk Manajemen Peristiwa, Manajemen Insiden, Pemenuhan Permintaan, Manajemen Masalah, dan Manajemen Akses. Proses-proses ini dianalisis untuk mengetahui tingkat kematangan dan efektivitasnya dalam memenuhi tuntutan pengguna. Pengumpulan data melibatkan penilaian umpan balik pengguna melalui pertanyaan-pertanyaan yang ditargetkan yang dirancang untuk mengukur efisiensi dan keandalan operasi layanan ini. Uji validitas dan reliabilitas dilakukan, yang mengonfirmasi bahwa indikator yang digunakan dalam penelitian ini valid dan reliabel, dengan nilai Alpha Cronbach yang mendukung konsistensi pengukuran. Temuan ini menyoroti area kekuatan dan potensi peningkatan bagi ISP, menawarkan wawasan yang dapat ditindaklanjuti untuk meningkatkan penyampaian layanan dan menyelaraskan dengan standar ITIL V3 untuk memenuhi kebutuhan pengguna dengan lebih baik. Studi ini menekankan pentingnya operasi layanan yang efisien dalam mempertahankan tingkat kepuasan pengguna yang tinggi.

Kata kunci: *ITIL V3 Framework, Service Operation, User Satisfaction*

1. INTRODUCTION

The presence of the Internet in society is supported by companies providing Internet access services commonly referred to as Internet Service Providers (ISP). An Internet Service Provider (ISP) better known as

an Internet provider is a company or business entity that provides Internet connection services and other related services. In this study, the author uses the ITIL V3 framework [1]-[10] and focuses on the service operation domain at Internet Service Provider (ISP) companies. The author chose this domain because this domain aims to provide efficient services to users. Service Operation is one of five important stages in the ITIL (Information Technology Infrastructure Library) framework which is used to manage information technology services. The Service Operation stage focuses on the operation and maintenance of technology services information that has been applied [11]-[15]. The main objective of this stage is to ensure that three information technology services continue to run smoothly, efficiently, and according to user needs. Domain Service Operation is a phase in ITIL where services are designed, tested, and designed directly to be efficient. So the purpose of Service Operation is to coordinate and carry out the necessary process activities and provide service approval to users or customers who use Internet services [16]-[18].

2. METHOD

This research stage will facilitate the identification of the necessary steps for the study. The stages of the research to be conducted are illustrated in Figure 1.

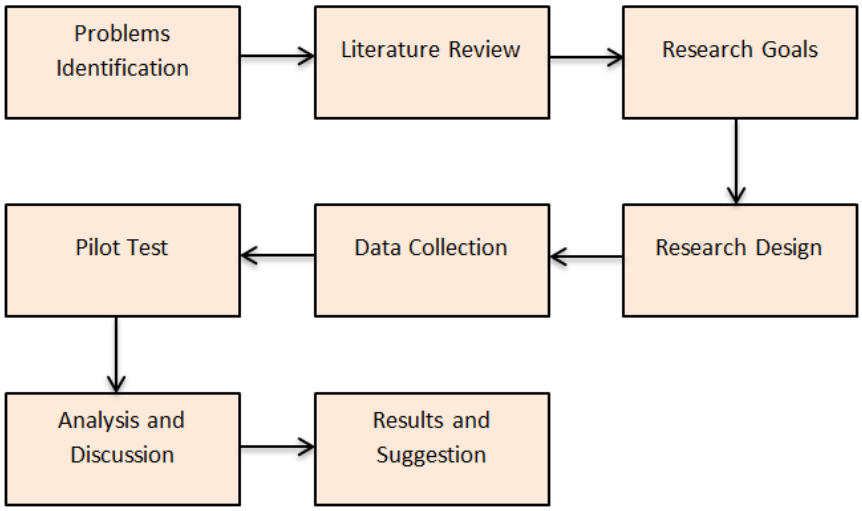

Figure 1 – Research stage

The study leverages ITIL V3 to systematically address the quality of service delivery. Beginning with Problem Identification, the study recognizes key areas of user dissatisfaction in internet services, which are critical for improving service quality. Through a Literature Review, the research explores existing frameworks and models related to IT service management and user satisfaction, with a focus on ITIL V3 principles. The Research Goals are then defined, aiming to evaluate and enhance user satisfaction by applying ITIL V3 best practices. In the Research Design phase, a detailed plan is crafted to ensure a comprehensive approach to data gathering and analysis. Data Collection is carried out, focusing on user feedback and service performance metrics. A Pilot Test is then conducted to validate the research methodology and refine the data collection tools. During Analysis and Discussion, the collected data is evaluated against ITIL V3 standards to identify gaps and potential improvements. Finally, the Results and Suggestions offer actionable insights and recommendations for internet service providers to enhance user satisfaction by aligning their practices with ITIL V3 guidelines. In this research step, the author uses it as a guide, though it is not binding. The steps can be adjusted—either added or reduced—as needed.

3. RESULTS AND DISCUSSION

Service operation indicators based on the ITIL framework can be seen in Table 1. In the pilot test investigation of user satisfaction with internet services, various service operations were evaluated to assess their maturity levels and the overall effectiveness in meeting user demands. Event Management (EM) was focused on the management of internet services provided, which involves the systematic handling of all events that could affect service operations. The maturity level of this process was assessed using an interval scale, providing insights into how well the internet service provider (ISP) manages its services during routine operations and unexpected incidents. Similarly, Incident Management (IM) was scrutinized to determine its effectiveness in minimizing the impact on Internet services when incidents occur. By evaluating the maturity level of incident management, the investigation aimed to understand how efficiently the ISP can respond to and mitigate issues that might disrupt service delivery.

Tabel 1 - Service operation indicators

	Respond	Indicator	Size	Scale
Service Operation	Event Management (EM)	Management of the Internet services provided	Maturity Level	Interval
	Incident Management (IM)	Minimizing the impact on Internet services	Maturity Level	Interval
	Request Fulfillment (RF)	Demand for internet services	Maturity Level	Interval
	Problem Management (PM)	Problems that occur with Internet services	Maturity Level	Interval
	Access Management (AM)	User rights to Internet services	Maturity Level	Interval

Furthermore, the investigation also delved into Request Fulfillment (RF), Problem Management (PM), and Access Management (AM) to gain a comprehensive view of the internet services' performance. Request Fulfillment focuses on how well the ISP meets the demands for internet services, assessing the maturity level of processes that handle user requests. Problem Management, on the other hand, evaluates the maturity of processes that address recurring issues and their underlying causes, ensuring that such problems are resolved effectively to prevent future occurrences. Lastly, Access Management was examined to determine how the ISP manages user rights to access internet services, ensuring that users have appropriate permissions and that access control is handled securely. All these service operations were evaluated on an interval scale, allowing for a nuanced analysis of the maturity levels of each process, which in turn sheds light on the overall user satisfaction with the ISP's service delivery.

This study uses the service operation domain, namely a service provided to users in managing applications in the form of technology that aims to support the service. Table 2 shows a summary of variables from the service operation domain based on the ITILL V3 framework:

Table 2 – The variables

	Indicators	Questions
Event management	EM1	Are there any maintenance scheduling activities on internet services?
	EM2	Are data backups performed regularly in internet services?
	EM3	Are there any benefits to internet services today?
Request management	RM1	Is the process of submitting an internet service request easy?
	RM2	How fast is the response you receive when requesting internet services?
	RM3	Is this internet service easy to understand your needs when making a request?
Incident management	IM1	Is it easy for you to report problems that occur with internet services?
	IM2	Are you satisfied with the communication of the team handling the internet service issue?
	IM3	Is this internet service effective in responding to problems that occur?
Problem management	PM1	Do you often experience disruptions when using this internet service?
	PM2	Does this internet service provide clear information regarding the problem you are reporting?
	PM3	Can this internet service provide clear information on the problem you are experiencing?
Access management	AM1	Can this internet service provide controls to manage and limit users on the network?
	AM2	Apakah anda puas dengan kualitas atau kecepatan layanan internet?
	AM3	Does this internet service provide a facility to restore network access if you have problems or forget your password?

In the pilot test investigation exploring user satisfaction with internet services, various indicators were used to gauge different aspects of service performance through targeted questions. For Event

Management (EM), the investigation focused on understanding how well maintenance and data protection activities are carried out, as well as the perceived benefits of current internet services. Questions such as whether maintenance scheduling activities are in place (EM1) and if data backups are performed regularly (EM2) aimed to assess the proactive measures taken by the service provider. Additionally, the inquiry into the benefits of internet services today (EM3) sought to capture the users' perception of the service's value in their daily activities, which is critical for determining overall satisfaction.

Request Management (RM) and Incident Management (IM) were also explored to evaluate user interaction and response effectiveness. Questions under Request Management, such as whether the process of submitting a service request is easy (RM1), how quickly the provider responds (RM2), and whether the service provider understands user needs effectively (RM3), are crucial for assessing the user experience during the request process. Meanwhile, Incident Management questions focused on the ease of reporting issues (IM1), satisfaction with communication during problem resolution (IM2), and the effectiveness of the service in addressing problems (IM3). These questions are designed to provide insights into the responsiveness and communication quality of the internet service provider, both of which are key factors in user satisfaction.

The results of the validity test for each variable are shown in Table 3.

Table 3 - The validity test result

Variables	Indicators	r-calculated	r-table	Valid/No Valid
Event Management	EM1	0.849	0.361	Valid
	EM2	0.870		Valid
	EM3	0.664		Valid
Request Fulfillment	RF1	0.822	0.361	Valid
	RF2	0.756		Valid
	RF3	0.776		Valid
Incident Management	IM1	0.849	0.361	Valid
	IM2	0.887		Valid
	IM3	0.795		Valid
Problem Management	PM1	0.696	0.361	Valid
	PM2	0.815		Valid
	PM3	0.686		Valid
Acces Management	AM1	0.872	0.361	Valid
	AM2	0.927		Valid
	AM3	0.867		Valid

In the pilot test investigation of user satisfaction with internet services, various variables and indicators were analyzed to assess the validity of the measurements. The results showed that all indicators within the variables of Event Management, Request Fulfillment, Incident Management, Problem Management, and Access Management had r-calculated values significantly higher than the r-table value of 0.361, indicating that they are valid. For instance, in Event Management, the indicator EM1 had an r-calculated value of 0.849, which exceeds the r-table threshold, confirming its validity. Similarly, EM2 and EM3 also displayed r-calculated values (0.870 and 0.664 respectively) that validated their reliability in measuring aspects of event management related to user satisfaction.

The pattern continues across other variables such as Request Fulfillment, where RF1's r-calculated value of 0.822 and RF2's 0.756 demonstrate strong validity, showing that the indicators are well-suited to capture user satisfaction with how their requests for internet services are handled. Incident Management indicators like IM1 (0.849) and IM2 (0.887) also exceed the r-table value, further ensuring that the measures accurately reflect the effectiveness of incident handling by the service provider. This consistency across all variables indicates that the investigation employed robust and reliable indicators to measure user satisfaction, with each indicator being statistically validated to contribute meaningful insights into the overall analysis.

The results of the reliability test for each variable are shown in Table 4. In the exploration of user satisfaction with internet services, the reliability of different variables was assessed using Cronbach's Alpha, a statistical measure that evaluates the internal consistency of a set of items or indicators. The results indicate that all the variables under consideration—Event Management, Request Fulfillment, Incident Management, Problem Management, and Access Management—are reliable. For example, Event Management showed a Cronbach's Alpha of 0.718, which suggests a good level of consistency among the indicators used to measure this variable. Similarly, Request Fulfillment had a slightly lower, yet still reliable, Cronbach's Alpha of 0.686, indicating that the indicators used are consistently reflecting user satisfaction with the request process.

Table 4 – The reliability test result

No	Variables	Cronbach's Alpha	Testing Result
1	Event Management	0.718	Reliable
2	Request Fulfillment	0.686	Reliable
3	Incident Management	0.797	Reliable
4	Problem Management	0.537	Reliable
5	Acces Management	0.865	Reliable

Incident Management and Access Management showed even higher reliability, with Cronbach's Alpha values of 0.797 and 0.865, respectively, suggesting that the items within these variables are strongly correlated and provide consistent results. Despite Problem Management having the lowest Cronbach's Alpha at 0.537, it is still considered reliable, though the consistency among its indicators is less robust compared to the other variables. Overall, these findings suggest that the variables used in the study are reliable measures of user satisfaction with internet services, ensuring that the insights derived from this investigation are based on consistent and dependable data.

4. CONCLUSION

This study provides a comprehensive analysis of user satisfaction with internet services using the ITIL V3 framework, specifically focusing on the Service Operation domain. The research methodology, which included the validation of various service operation indicators and an assessment of their reliability, demonstrates that the tools used to measure user satisfaction are both valid and reliable. The high reliability scores, especially in areas such as Incident Management and Access Management, indicate that the indicators are consistent and effective in capturing users' experiences. Additionally, the overall validity of the indicators across all variables confirms that the study provides a robust and accurate evaluation of internet service performance. These findings suggest that internet service providers can rely on the insights gained from this study to enhance their service operations, ultimately leading to improved user satisfaction.

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