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Information Security Analysis Using ITIL Framework in Domain Operation Services

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Abstract

Information is one of the important assets for related companies/agencies. Information Security is the protection of information from various kinds of threats that can damage, disrupt, and reduce the performance of a company/related agency. Information security at SMK Negeri 1 Kakas currently has to be very carefully considered because if information can be accessed by irresponsible people, the accuracy of the information will be doubted and will even cause other problems. The purpose of this study is to measure or analyze how large and safe the level of information security in the State Vocational High School 1 Kakas is. The method used in this research is the Information Technology Infrastructure Library version 3 (ITIL V3) method. ITIL is a set consisting of Service Design, Service Transition, Service Operation. In this case the author focuses on Service operation. The results of this study indicate that the level of information security is good, privacy can be maintained, risk management is not good, and there is good trust in all parties in SMK Negeri 1 Kakas.

Keyword : *Information Security, Information Technology Infrastructure Library (ITIL) v3*

Introduction

In today's technological developments, security is demanded in every aspect. One aspect that needs to be considered is information security. Information security is important because it will harm several parties if the information is misused. At this time, the ITIL framework concept was also developed, namely infrastructure management techniques, development, and information technology (IT) operations.

Information security is also very much needed in educational institutions because it has become a major requirement in information technology. It is also very important to maintain information security among the educational environment, especially in the school area, because competition between schools is so tight in the intellectual life of the nation. However, in the area of the State Vocational High School 1 Kakas at this time it may not fully maximize the information security section in schools and schools are still faced with the problem of a lack of human resources in the IT field who are in charge of the school IT field. Therefore, the purpose of this study is devoted to measuring or analyzing how large and safe the level of information security in the State Vocational High School 1 Kakas.

Method

ITIL or Information Technology Infrastructure Library is a series of concepts and techniques for infrastructure management, development, and operation of information technology (IT). ITIL is published in a series of books, each of which addresses an IT management topic. The ITIL framework has several systematic stages. The stages are as follows: Service Strategy provides guidance to ITSM implementers on how to view the ITSM concept not only as an organizational capability (in providing, managing and operating IT services), but also as a strategic asset of the company. Service Design provides guidance to IT organizations to be able to systematically and best practice designing and building IT services as well as ITSM implementation itself. Service Design contains design principles and methods for converting the strategic objectives of IT and business organizations into a portfolio/collection of IT services and service assets, such as servers, storage and so on. Service Transition provides guidance for IT organizations to be able to develop and the ability to transform the results of IT service designs both new and modified IT services specifications into the operational environment. Service Operation is a lifecycle stage that includes all daily operational activities of managing IT services. In it there are various guidelines on how to manage IT services efficiently and effectively and ensure the level of performance that has been agreed with customers in advance. These guidelines cover how to maintain stable IT service operations and manage changes to the design, scale, scope and performance targets of IT services. Continual Service Improvement provides important guidance in establishing and maintaining service quality from the design, transition and operation processes.

Figure 1. ITIL Framework

Computer security or in English computer security or also known as cybersecurity or IT security is information security that is applied to computers and their networks. Computer security or computer security aims to help users prevent fraud or detect fraud attempts in an information-based system. The information itself has a non-physical meaning.

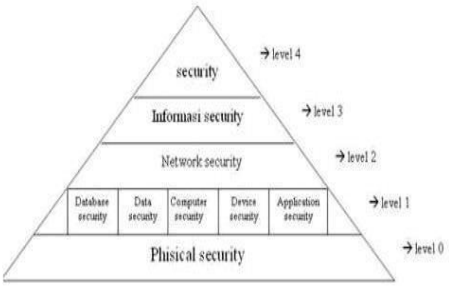

Figure 2. Level of Computer Security

Security level 0: physical security, is the initial stage of computer security. If physical security is not well maintained, then the data and even the computer hardware itself cannot be secured.
Security level 1: consists of databases, data security, security from the PC itself, devices, and applications. For example: if we want a secure database, then we must first consider whether the application used to design the database is an application that has been recognized for its security, such as Oracle. In addition, we must pay attention to the other side, namely data security. Data security is a way of designing the database. Device security is what tools are used so that the security of the computer is maintained. Computer security is physical security from people who are not entitled to access the computer where the database is stored.
Security Level 2 is network security, which is the security of computers connected to networks, such as LAN, WAN, or the internet. Because, computers connected to the network are very vulnerable to attacks, because the server computer can be accessed using a client computer. Therefore, after security level 1 is completed, security level 2 must be designed so that there are no network leaks, illegal access, and actions that can damage the security.
Level 3 security is information security, namely the security of information that administrators or employees sometimes don't really care about, such as giving passwords to friends, used transaction papers, etc. However, this can be very fatal if the information is known by irresponsible people.
Security level 4 is the overall security of the computer. If level 1-3 has been done well, then automatically security for level 4 has been met. If one of these levels cannot be met, then there are still security holes that can be accessed. Even though all levels have met the requirements, it still doesn't rule out the possibility of an intruder or illegal user.
This study uses the ITIL v3 framework in the operation service domain. The steps taken are as follows: 1) Introduction; at this stage, the definition of the background, the formulation of the problem, the limitation of the problem, the objectives and benefits of the research. 2) Collection and Analysis; at this stage collecting data on information security using an online questionnaire, and selected several respondents. 3) Making Analysis; at this stage the preparation of the results of the analysis from the previous stage is carried out. As well as loading diagram attachments from existing questionnaires. 4) Conclusion; at this stage the formulation of conclusions from the existing stages.

Results and Discussion

Respondents in this study were parties in SMK Negeri 1 Kakas, both students, teachers, and employees. And several people have been selected to be respondents representing students (class X, XI, XII), teachers, employees with a total of 60 respondents.

Table 1. Security Percentage Results

No.	Statement	Percentage	Description
1.	I feel safe when giving personal information to SMK Negeri 1 Kakas	41,7%	Agree
2.	I'm sure that all parties at SMK Negeri 1 Kakas really maintain the confidentiality of the information	36,7%	Agree
3.	I'm not worried about the security of SMK Negeri 1 Kakas	35%	Agree

Table 2. Privacy Percentage Results

No.	Statement	Percentage	Description
1.	I believe that SMK Negeri 1 Kakas will not give my personal information to other parties without my knowledge	40%	Agree
2	I believe that SMK Negeri 1 Kakas is able to protect my personal information	53,3%	Agree
3	I am sure that my personal information will not be misused by SMK Negeri 1 Kakas	40%	Agree

Table 3. Percentage Result of Risk Perception

No.	Statement	Percentage	Description
1.	I feel that giving personal information to SMK Negeri 1 Kakas will cause problems that will harm me	31,7%	Agree
2.	I feel full of risk if I give personal information to SMK Negeri 1 Kakas	33,3%	Agree
3.	I feel that the SMK Negeri 1 Kakas provides information that causes a lot of unexpected problems	33,3%	Agree

Table 4. Confidence Percentage Results

No.	Statement	Percentage	Description
1.	Information provided by SMK Negeri 1 Kakas can be trusted	41,7%	Agree
2.	I'm sure SMK Negeri 1 Kakas is able to fulfill every promise	40%	Agree
3.	All parties at SMK Negeri 1 Kakas are very honest, open and have integrity	32,2%	Agree

The table above is the result of the highest percentage of the existing questionnaires according to 60 respondents. The results of this study found that only a few respondents or around 31.7% felt that their personal information would cause problems that would harm them. This means that 69.3% of respondents believe that their personal information will not harm themselves. The majority of respondents still believe in SMK. Regarding respondents who feel that the information provided is full of risk, only 33.3% of respondents agree or 66.7% of respondents strongly believe that the information provided to the SMK does not pose a significant risk. Likewise with the matter of information by SMK which causes unexpected problems, only 33.3% of respondents agree. This means that 66.7% of respondents are very sure that the information obtained does not cause significant problems.

Based on the results of our research through a questionnaire that we gave to respondents, the level of information security at SMK Negeri 1 Kakas is as follows:

Table 5. Security Score Results

No.	Statement	Percentage				
		SS	S	N	TS	STS
1	I feel safe when giving personal information to SMK Negeri 1 Kakas	25%	41,7%	41,7%	18,3%	15%
2	I'm sure that all parties at SMK Negeri 1 Kakas really maintain the confidentiality of the information	21,7%	36,7%	15%	26,7%	
3	I'm not worried about the security of SMK Negeri 1 Kakas	21,7%	35%	15%	25%	3,3%

Table 6. Privacy Value Results

No.	Statement	Percentage				
		SS	S	N	TS	STS
1.	I believe that SMK Negeri 1 Kakas will not give my personal information to other parties without my knowledge	32,8%	41%	9,8%	13,1%	3,3%
2.	I feel full of risk if I give personal information to SMK Negeri 1 Kakas	5%	33,3%	23,3%	28,3%	10%
3.	I feel that the SMK Negeri 1 Kakas provides information that causes a lot of unexpected problems	1,7%	33,3%	16,7%	20%	28,3%

Table 7. Risk Perception Value Results

No.	Statement	Percentage				
		SS	S	N	TS	STS
1	I feel that giving personal information to SMK Negeri 1 Kakas will cause problems that will harm me	5%	31, 7%	25 %	25 %	13, 3%
2	I'm sure that all parties at SMK Negeri 1 Kakas really maintain the confidentiality of the information	21, 7 %	36, 7%	15 %	26,7 %	
3	I'm not worried about the security of SMK Negeri 1 Kakas	21, 7%	35 %	15 %	25 %	3,3 %

Table 8. Trust Value Results

No.	Statement	Percentage				
		SS	S	N	TS	STS
1.	Information provided by SMK Negeri 1 Kakas can be trusted	33,3%	41,7%	8,3%	13,3%	2,3%
2.	I'm sure SMK Negeri 1 Kakas is capable fulfill every promise	25%	40%	8,3%	25%	1,7%
3.	All parties at SMK Negeri 1 Kakas are very honest, open and have integrity	28,8%	32,2%	8,5%	15,3%	15,3%

From the analysis it was found that 41.7% of respondents stated that the information provided by the SMK can be trusted. The respondent also stated that he agreed and believed that the SMK was able to fulfill every promise given, which was only 40%. And only 32.2% of respondents stated that the SMK is honest, open and with integrity. This means that 67.8% of respondents still doubt the integrity of SMK institutions.

Thus there are still many things, especially the problem of institutional integrity that must be continuously improved in order to ensure the security of data and information in vocational high schools.

Conclusion

From the results of our research at SMK Negeri 1 Kakas, it is known that the level of information security is good, privacy can be maintained, risk management is not good, and there is good trust in all parties in SMK Negeri 1 Kakas. The results of this study may be helpful and useful for SMK Negeri 1 Kakas and other parties who need this journal

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