Evaluation of Information Technology Service Devices At High Schools in Kendal Regency With ITIL 4.0

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ABSTRACT

Schools as educational institutions with information technology services in the form of New Student Admission Systems, e-report systems, and other information technology services require devices supported by good service. Information technology devices must be appropriately managed to conduct business processes according to business goals. With good service management, the business value offered to customers (students) will increase. ITIL V4 contains information technology service management guidelines that contain best practices for information technology service management, including attention to customer experience, value streams, and support for current digital transformation. This research measures information technology equipment services at high schools in Kendal Regency. This research uses indicators adapted to schools with ITIL V4: Key Performance Indicators (KPI) and Critical Success Factors (CSF). The results of this research show that the performance of the hardware needs to be improved, and the value of the maturity model for each service device is still not good.

Keywords: IT service; ITIL v4, Service IT; Evaluatioin of Service; Service Device

1. INTRODUCTION

To increase business value, careful efforts are needed to implement the right strategy (Herlinudinkhaji & Daru, 2015). Information technology is developing in a positive direction to support business success. It cannot be denied that information technology makes business more accessible and more promising (Ardianto, 2022). However, if the convenience of information technology is managed correctly, it will also have positive consequences for business continuity (Kompetensi et al., 2022).

Senior high school educational institutions and scientific centers are expected to become examples of how information technology can be utilized to maintain business processes (Hayadi et al., 2021). During the pandemic, all educational institutions, whether in universities or schools, utilize information technology for their service activities. Educational institutions have also developed information technology service governance (Hamranová et al., 2020), but educational institutions are lulled by the ease of information technology. They think applying information technology will be fine, but this is different. The application of information technology needs to be managed well to support the goals expected from the start. They also forget that undesirable incidents (Ayuh & Chernovita, 2021) hinder the services they manage. Tool selection can help an organization or agency decide the type of tool used to support organizational activities, so it must be determined accurately. If this is done, it will significantly impact information technology services so that they will be able to function as they should (Zuev et al., 2018). However, on the other hand, schools seem indifferent to information technology, which helps them conduct their functions.

ITIL stands for Information Technology Infrastructure Library. ITIL V4 is information technology service management guidelines that contain best practices for information technology service management that include attention to customer experience (Putra et al., 2022), value streams, and support of digital transformation at this time (Hamranová et al., 2020). ITIL V4 consists of 2 main components: Service Value System (SVS) and Service Value Chain (SVC) . SVS represents company/organization activities in interacting to produce value through information technology, while SVC is the life cycle of information technology implementation (Herlinudinkhaji & Kurnia Ramadhani, 2023).

From the problem above, the problem formulation that will be conducted is measuring information technology

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services with ITIL V4 so that the services managed by high schools align with increasing business value.

2. LITERATURE REVIEW

The research entitled Evaluation of Information Technology Governance Services with ITIL V3 shows that a good maturity level value (Tanuwijaya, 2013) determines which customers will conduct the transaction process because they feel they have been served according to their needs. To meet the demands of the business side, IT services are becoming more service-oriented to achieve customer expectations. The ITIL model focuses on value creation for customers/users and overall end-to-end service quality. The ITIL V4 framework does not focus on processes but on the elements necessary to create customer value.

The ITIL Maturity Model is one of the most relevant maturity models from an IT perspective. The ITIL maturity model (Yandri et al., 2019) includes service management, which can be used to assess the level of maturity in an IT services organization.

Critical Success Factor (CSF) can be used to measure technology information and can be used to manage the integration of information technology in achieving business goals. CSF can be used to measure academic service assessments (Nuraini & Ahmad, 2021). CSF is one of the companies company's activities to achieve its goals (Cahaya & Septa, 2018). So, CSF is used as an indicator to assess performance (Sari, 2018). Critical failure factors, or risk factors, can compromise IT service process improvements, resulting in system implementation failure.

3. METHOD

The data processing used uses measurements to determine Key Performance Indicators. This indicator is based on ITIL Practice, which consists of 2 leading indicators: Service Management Practice and Technical Management Practice. The results of this analysis are performance, which produces measurements in the form of capacity level, maturity model, rating, and capability level.
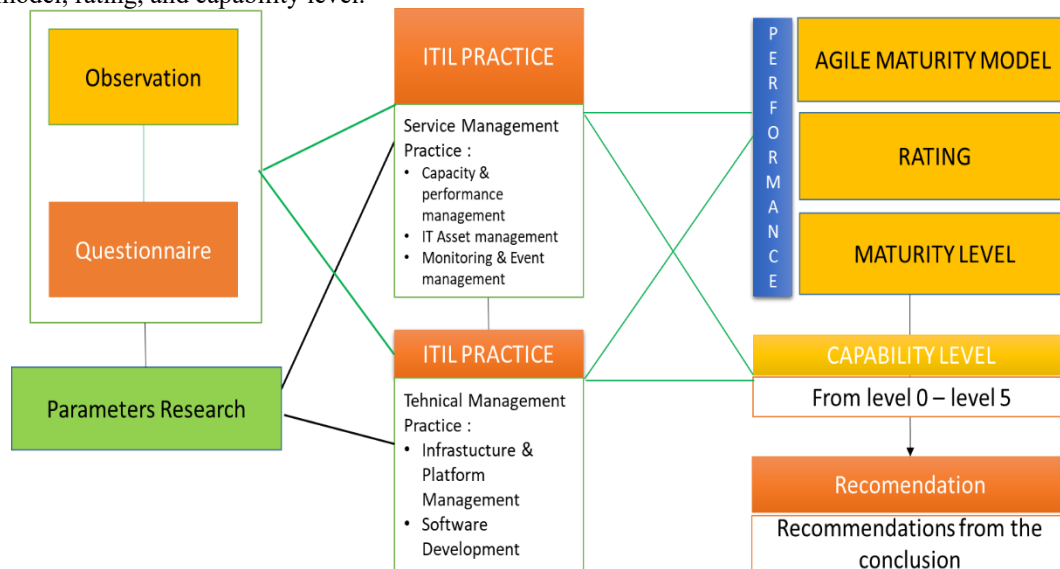

Fig. 1 Methods

This research obtained data through observation, questionnaires, and research parameters. Data was also obtained and adapted to the ITIL 4 framework using ITIL Practice in the form of Service Management Practice and Technical Management Practice. Each ITIL Practice will measure the use of Information Technology to produce outputs in the form of performance, maturity level, and capability level (Hayadi et al., 2021), which will then produce recommendations for improvement and sustainability (Sebaaoui et al., 2019).

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4. RESULT

a. Research indicators

The assessment indicators for academic services are based on the critical success factors or CSFs of academic services. Indicators from academic services include learning, teachers, academic guidance, and supporting infrastructure. Critical Success Factor (CSF) or determining success factor is one of the factors in company activities that strongly influence the company's ability to achieve its goals. The results of the assessment of indicators in the CSF are shown in table 1 and table 2.

Table 1 shows the CSF assessment indicators that will be measured in high school. The CSFs variables consist of : Learning, Teacher, Academic guidance, and Supporting Infrastructure. CSF indicator consist of many indicator in the high school at Kendal Regency.

Table 1
Assessment Indicators

No	CSF	Indicator
1	Learning	Curriculum
		Learning process
		Learning materials
		Assignment
		Evaluation
2	Teacher	Pedagogical competence
		Professional competence
		Personal competence
		Social competence
3	Academic guidance	Responsiveness
		Responsive
		Attitude in service
4	Supporting infrastructure	Study room
		Laboratory
		Library
		Internet/WIFI

Table 2 show the final score indicators. This table shows the results of the final scores resulting from evaluations for high school. The final score is in the form of a percentage for each indicator.

Table 2
Final Score Indicators

Factor	KPIs	Weight	Target	Realization	Score	Final Score (%)
Learning						
	curriculum	10	5	3	60	6.0
	learning process	6	100	82	82	4.9
	material	6	100	75	75	4.5
	task	4	6	2	33	1.3
	exam	6	2	2	100	6.0
Teacher	pedagogy	10	74	56	76	7.6
	professional	6	74	11	14.	0.9
	individual	5	74	56	75.	3.8
	social	6	74	56	75.	4.5

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Guidance	responsive	5	45	24	53.	2.6
	attitude	5	45	24	53.	2.6
Infrastructure	study room	8	34	36	105.	8.4
	laboratory	8	8	4	50	4.0
	library	10	7	2	28.	2.8
	Internet/WIFI	5	7	2	28.	1.4
TOTAL		**100**				**61.6**

b. Maturity Level Calculation

This analysis is based on calculating maturity levels 0 – 5. These results were obtained from statements from a questionnaire survey of the academic services section, which consists of the learning process, teachers, guidance, and supporting infrastructure (Hamranová et al., 2020). Maturity model is a method for measuring the level of process management development, which means measuring the extent of the management capability.

The author uses standard maturity level assessment techniques to obtain the maturity level. This technique is conducted by assigning a value to the questionnaire into the maturity level assessment standard (Tanuwijaya, 2013), as shown in Table 3 below:

Table 3
Maturity Level Assessment Standards

Statement	Mark
Strongly Disagree	0
Disagree	0.33
Agree	0.66
Strongly Agree	1

Determine the indicators of the object under study. The Maturity Level value of each indicator is shown in Table 4 below:

Table 4.
Maturity Level Indicator Value

Indicator	Index	Maturity Level
Learning	3.03	3
Teacher	3.38	3
Academic Guidance	2.79	3
Infrastructure	2.96	3

The results of this assessment can be seen, and it also provides an overview of IT performance so that it can be used as a guide for leaders to take appropriate steps to resolve the problem.

91 - Above: Excellent
76 – 90: Good

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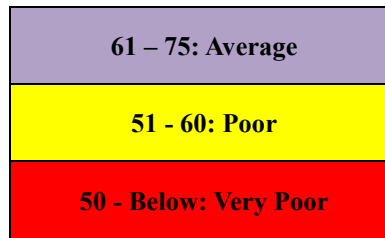| 61 – 75: Average |
|---|
| **51 - 60: Poor** |
| **50 - Below: Very Poor** |

Fig. 2 Percentage range

DISCUSSIONS

The recommendation to improve the process and business for manage IT changes is to have a change status report that records the initial status of the changes and the final status of the changes. Recommendations to improve the school managed IT change acceptance and transitioning process are to pay attention to user satisfaction in implementing the new program and evaluating the actual performance and results of the new service or changed service.

This discussion is based on evaluation is carried out by measuring the maturity level by measuring the capability level of each domain. The results of the measurements show that the target maturity level is at level 2 while the results obtained are at level below it, while the target performance is at level 2 the results obtained are at level below it.

To improve this, it is necessary to have measurement tools that are owned by each high school.

5. CONCLUSION

Based on the research data, the evaluation results of information technology service tools can be used as a reference or input for policymakers to determine the direction of future information technology policies. These results also show that existing information technology services at high schools have yet to be thoroughly evaluated, resulting in less than optimal use of information technology. The measurement result of the research object are maturity model. The maturity level on indicator Learning, Teacher, Academic Guidance, and Infrastructure is at level 3. This research provides an understanding of measuring maturity level. The maturity model is used to determine the extent to which an organization/company is conducting business.

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