Analysis Risk Management Application e-Raport Using COBIT 4.1

Deswindasari Hasibuan[1], Resad Setyadi[2]
Institut Teknologi Telkom Purwokerto
DI Panjaitan No 128 Purwokerto, Central Java
[1]19103020@ittelkom-pwt.ac.id, [2]resad@ittelkom-pwt.ac.id

Abstract— The role of information technology in increasing the use of e-Raport is to make it easier for schools to input student data. The e-Raport application is very important because it is a system to make it easier for teachers, staff, students, parents, and the Ministry of Education and Culture to find out the results of student learning analysis at SMK N 1 Balige as a means of communication between schools, students and parents of students. The problem with e-Report at SMK N 1 Balige is that there is an error when using the application to input data. The purpose of this study was to analyze risk management in the e-Raport application at SMK N 1 Balige. This research method uses quantitative methods. In measuring IT risk management, the author uses the Control Objective for Information and Related Technology (COBIT) 4.1 domain Plan and Organize (PO) framework, especially PO9 (Assessment and Manage IT risk). The result of this research is the value of the maturity level of the risk management application of e-Raport at SMK N 1 Balige is 2.6088. The maturity level of the e-Report of SMK N 1 Balige is Defined. Recommendations from this study are the need for a special person to control the e-Raport application at SMK N 1 Balige and training in the use of the e-Raport application.

Keywords— Cobit 4.1 , e-Raport, PO9, Risk Assesment

I. INTRODUCTION

Progress in the use of a technology that is increasing from time to time as well as the ability to access speed of information is a demand in running the wheels of government, both in the business world and in education. The use of information technology in an institution certainly brings benefits to the institution. Information technology is now the key for an organization or company in developing and improving the efficiency of the ongoing process[1].

The very significant role of IS/IT must be balanced with regulation and management appropriate so that the loss or threat what might happen can be avoided even can be prevented. As for the frequent threats occurs, among others, cases of loss of data, data leakage, available information inaccurate caused by processing wrong data so that data integrity is not defensible, abuse use of computers, as well as procurement Information Technology/System investment Valuable information but not offset by the return of the value in accordance[2] .

In the world of education, an information system in student assessment whose utilization is not far from the use of information technology because until now there are still many schools that use manual systems, to print student grade reports still use report cards.[3].

The use of E-Raport can be interpreted in accordance with the application. E-Raport is a web-based software for compiling reports on the achievement of student competencies by the education unit level developed by the school curriculum sub-directorate. The E-Raport application is an application for processing knowledge values, skill values, conducting attitude values by educators so that final grades and descriptions are formed automatically according to student acquisitions in assessing each basic competency, after which the homeroom

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teacher will input extracurricular values, student attendance, achievements, attitude description, for that E-Raport is one of the efforts to control the quality of the assessment.

Regarding the analysis of risk management or management of threats that arise in the use of the E-Report application, the output will provide solutions to limit risk errors, in terms of solving risks that still arise and risks that rarely occur in schools. The result is expected, the school requires an E-Report risk management analysis using COBIT 4.1 to minimize the risks that have occurred.

II. METHOD

This study uses a quantitative research type, which will provide a complete, systematic, factual and accurate picture of the state of the management information system. This research can also include how to evaluate the school management information system implemented at SMK N 1 Balige. This research follows the COBIT 4.1 a framework that is part of the IT standard management model that is enhanced by the Information Technology Governance Institute or also known as (ITGI) from the Information System Audit and Control Association (ISACA). COBIT 4.1 has 34 high-level supervision and then has 4 domains including the following, Deliver and Support (DS), Monitor and Evaluate (ME).

A. Plan and Organize (PO)

A process domain COBIT 4.1 defines the results of a strategic plan and identifies an IT to achieve business goals, has indicators such as table 1:

Tabel 2.1. LEVEL CONTROL OBJECTIVE PO[4]

Indicator	Describe
PO1	Determine a strategic information technology plan.
PO2	Define the information architecture
PO3	Specify technology direction
PO4	Define IT organization and relationships
PO5	Manage investment in information technology
PO6	Communicate management objectives and direction
PO7	Manage human resources.
PO8	Manage Quality
PO9	Assess Risk
PO10	Manage the project.

B. Acquire and Implement (AI)

A process domain COBIT 4.1 defines to achieve an IT strategy, identify IT solutions or can implement them into a business, has indicators such as table 2:

Tabel 2.2. LEVEL CONTROL OBJECTIVE AI

Indicator	Describe
AI1	Identifies automatic solutions
AI2	Acquire and maintain application software
AI3	Acquire and maintain technology infrastructure
AI4	Develop and maintain IT procedures
AI5	Meets IT Data Sources
AI6	Managing change
AI7	Installing and accrediting systems and their changes

C. Delivery and Support (DS)

This domain includes the process of fulfilling IT services, system security, service continuity, training and education for users, and fulfilling ongoing data processes, having indicators such as table 3:

Tabel 2.3. LEVEL CONTROL OBJECTIVE DS

Indicator	Describe
DS1	defines and manages service levels
DS2	manages third party services
DS3	manages performance and capacity
DS4	ensures continuous service
DS5	ensures system safety
DS6	identifies and allocates costs
DS7	educates and trains users
DS8	manages service and incidents
DS9	manages configuration
DS10	manages problems
DS11	manages data
DS12	manages Facilities
DS13	manages operations

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D. Monitor and Evaluation

This domain focuses on the problem of controls whose application can occur within the organization, internal and external audits and independent assurance of the inspection process carried out. have indicators such as table 4:

Tabel 2.4. LEVEL CONTROL OBJECTIVE ME

Indicator	Describe
ME1	supervises and evaluates IT performance
ME2	supervises and evaluates internal controls
ME3	ensures fulfillment of external needs
ME4	provides IT governance

The level and model of maturity in COBIT 4.1 are as follows:

Table 2.5. TINGKAT KEMATANGAN COBIT 4.1

Nilai	Level	Describe
0-0,50	0Non existent	the condition of the company has not realized the need for information technology and has not acknowledged that there are even problems in the company's services.
0,51-1,50	1 Initial/Ad hoc	The condition if the company has recognized that information technology is needed and there is even evidence.
1,51-2,50	2 Repeatable and intuitive	A condition where there is responsibility and the person in charge of information technology but the process still depends on the knowledge of certain parties.
2,51-3,50	3 Defined	Conditions where company policies or procedures regarding Information Technology have been defined by company management and even IT testing and training
3,51-4,50	4 Manage and Measureable	Conditions where Information Technology has been measured and monitored by management.
4,51-5,00	5 Optimized	Conditions where the application of information technology is a shared responsibility of business management and IT.

III. RESULTS AND DISCUSSION

Research activities carried out in data analysis are respondent categorization which aims to determine the reliability and validity of the analyzed questionnaire results[5].

A. RESULT

1. Validity Test

The results of the discussion at the validity test stage of the questionnaire data are poured into the validity formula and the results of the validity test obtained from level 0 to level 5 show a value of 0.822 so that r count is greater than r table then the data is valid[6].

Correlations

		VAR00056	VAR00057	VAR00058	VAR00059
VAR00056	Pearson Correlation	1	.703**	.830**	.822**
	Sig. (2-tailed)		.001	<,001	<,001
	N	18	18	18	18
VAR00057	Pearson Correlation	.703**	1	.690**	.637**
	Sig. (2-tailed)	.001		.002	.004
	N	18	18	18	18
VAR00058	Pearson Correlation	.830**	.690**	1	.733**
	Sig. (2-tailed)	<,001	.002		<,001
	N	18	18	18	18
VAR00059	Pearson Correlation	.822**	.637**	.733**	1
	Sig. (2-tailed)	<,001	.004	<,001	
	N	18	18	18	18

**. Correlation is significant at the 0.01 level (2-tailed).

picture 3.1 Validity Test Level 5

2. Reability Test

The reliability test results obtained from level 0 to level 5 show the value of Cronbach's alpha, as shown in the table[6] :

Tabel 3.1. RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
0.882	3
0.927	4
0.586	2
0.747	4
0.828	3
0.917	4

3. Maturity Test

The results of the risk management maturity test at SMK N 1 Balige using COBIT 4.1 are shown in the table below[7] :

Tabel 3.2. MATURITY LEVEL 0

No.	Statement	0	0.33	0.66	1	
1	Risk assessment in the use of the e-Raport Application.	3	6	2	7	10.3
2	Risk assessment	2	6	2	8	11.3

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No.	Statement	0	0.33	0.66	1	
	solutions in the use of the e-Raport Application.					
3	Security issues in using the e-Raport Application.	1	3	3	11	13.97
	Total					35.57
	Compliance					11.85

Tabel 3.3. MATURITY LEVEL 1

No.	Statement	0	0.33	0.66	1	
1	Meeting regarding the risk assessment of the use of the e-Raport Application.	3	3	5	7	11.29
2	Risk considerations in using the e-Raport application.	0	4	7	7	12.94
3	Risk assessment of the use of the e-Raport Application.	1	6	5	6	11.28
4	Admin manager performs specific risk assessment.	0	4	3	11	4.3
	Total					39.81
	Compliance					9.95

Tabel 3.4. MATURITY LEVEL 2

No.	Statement	0	0.33	0.66	1	
1	Efforts to reduce risk in the use of the e-Raport Application.	1	2	4	11	14.3
2	Risk assessment of serious problems in using the e-Raport Application.	1	4	5	8	12.62
	Total					26.92
	Compliance					13.46

Tabel 3.5. MATURITY LEVEL 3

No.	Statement	0	0.33	0.66	1	
1	Training on risk management in the use of the e-Raport Application.	3	2	5	8	11.96
2	Understanding of risk management.	1	2	8	7	12.94
3	Risk assessment of errors in the use of e-Report.	1	3	7	7	12.61
4	Attention to risks in the e-Raport Application.	1	4	9	4	11.26
	Total					48.77
	Compliance					12.19

Tabel 3.6. MATURITY LEVEL 4

No.	Statement	0	0.33	0.66	1	
1	Risk management policy.	0	5	5	8	12.95
2	Operational risk budget in the use of the e-Raport Application.	4	2	6	6	10.62
3	Risk responsibility in using the e-Raport Application.	0	2	5	11	14.96
	Total					38.53
	Compliance					12.84

Tabel 3.7. MATURITY LEVEL 5

No.	Statement	0	0.33	0.66	1	
1	Management related to risk monitoring.	0	4	5	9	13.62
2	Management development in the use of e-Raport Applications.	0	2	9	7	13.6
3	Risk acceptance.	0	4	7	7	12.96
4	Risk assessment is important in	0	2	7	9	14.28

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No.	Statement	0	0.33	0.66	1	
	school development.					
	Total					54.46
	Compliance					13.61

Tabel 3.8. MATURITY LEVEL OF ASSESS RISK

P09 Maturity Level Calculation (Level 0-5)			
Level	Compliance	Normalize	Contribution
0	11.85	0.1603	0
1	9.95	0.1346	0.1346
2	13.46	0.1821	0.3642
3	12.19	0.1649	0.4947
4	12.84	0.1737	0.6948
5	13.61	0.1841	0.9205
	73,9	ML	2.6088

B. DISCUSSION

The literature review in this study uses quantitative study analysis that helps the analysis process through a statistical data management approach. The application of quantitative studies needs to consider policies in risk management to ensure the quality of these policies is maintained.

Based on the questionnaires that have been distributed thoroughly, the reliability test results show that the questionnaire analysis has a consistent quality by utilizing qualitative methods into questionnaires as an accurate measuring tool[8] .

This study discusses the results of the maturity level or Maturity Level at SMK N 1 Balige, where data were obtained through observations, interviews and questionnaires. In the questionnaire given to the admin of the school operator and the user teacher, a feasibility standard based on COBIT 4.1 was used[9] .

This research is focused on looking at the management process, internal control management and whether the regulations that have been made are running or not. All processes that support the process require monitoring and evaluation in order to maintain the quality of an agency.

The main principle of developing information systems is service, by implementing services using applications that have a major impact on company application development. The description of the occurrence of errors in the use of applications is very high related to IT risks. The application of methods in risk management can determine the position of aspects that are continuously in line with the IT system through the COBIT 4.1 framework. The COBIT method provides a significant overview of the organization using this model. The research process carried out by researchers uses the COBIT method to examine and analyze IT, as well as company risks towards good governance[10] .

IV. CONCLUSION

From the research results, it can be concluded as follows: Based on the analysis process of risk management management at SMK N 1 Balige has a maturity level at level 3 which means the value is in the position define process. The process of achieving its goals in a much more organized manner using organizational assets and is well defined. Suggestions from research related to the same research are that it is necessary to define the recommended actions to be carried out on each process attribute that is directed at the stages of achieving the expected maturity process. For this reason, management must monitor and measure the appropriateness of the procedure and take action if the process cannot be carried out effectively.

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