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IMPLEMENTATION OF THE COBIT 2019 FRAMEWORK ON INFORMATION TECHNOLOGY GOVERNANCE AND RISK MANAGEMENT (STUDY CASE: CV. SYNTAX CORPORATION INDONESIA)

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ABSTRACT

CV. Syntax Corporation Indonesia is one of the companies that has adopted the application of information technology. In the process of its implementation, CV. Syntax Corporation Indonesia has not yet had an assessment that became an evaluation process of the management or application of information technology in it. Therefore, an assessment process is needed on the governance and management of the information technology it adopts. To support the assessment process, it is assisted by a framework that can be used as a tool during the assessment process, namely using COBIT 2019. The research method used is a qualitative-descriptive method that can describe an event that is happening now through measurement. APO12 and BAI09 sub-domains were obtained based on the mapping results. From the mapping results on the RACI chart and capability level, APO12 is at level 3. As for BAI09, it is at level 2. From the mapping process to the strategic objectives of CV. Syntax Corporation Indonesia has a main focus, namely governance on services and a focus on risk management. This result will form a Critical Success Factor (CSF) which will be a direction in providing recommendations as advice given. On the other hand, there is also a website in the form of a dashboard which is a tool to visualize the results of this assessment process.

KEYWORDS *Governance Assessment, Information Technology Services, COBIT 2019, Management Risk*

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INTRODUCTION

Information technology in today's era is developing very rapidly. Many companies, both in Indonesia and abroad, have used information technology in carrying out their business procedures. Information technology has many advantages for its users, namely it can make work easier, it can help company

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management to make decisions on certain companies and can integrate all parts of the company (Powa, Kaawoan, & Pangemanan, 2021). With the development of the world of information technology, the use of information systems has become an obligation for companies to be able to compete. Along with that, new threats related to information technology have emerged. Companies must recognize threats or risks to be able to deal with them with the right methods. In order to minimize the risks that arise, appropriate standards are needed to analyze these (Maranjaya, 2022).

Governance assessment and risk management of the use of information technology is an evaluation process of information technology management in an organization (Vidiarto, Azis, Mulyanto, & Prasetyono, 2023). The existence of the governance and risk management assessment of the use of this technology is to determine the importance of the use of information technology in supporting business and organizational operations in the current digital era. One of them is corporate governance which is a system design to direct the management of the company so that it can run well and in accordance with applicable principles (Abdurrahman, 2021). Good corporate governance practices apply principles such as openness, accountability, accountability, independence, and fairness. In addition to companies, governance is also used in universities to help integrate the role of policy makers, the high-ranking sector in universities to be more effective, efficient, and accountable (Prima & Fibriani, 2023).

CV. Syntax Corporation Indonesia is a Service and IT Company that has been established since 2015. The company is now located in Cirebon, West Java. The company concentrates on Software House, Scientific Publications and Professional Certification Institutions (LSP) with a total of 180 human resources and is divided into 9 divisions. In the assessment of governance and management of technology services, CV. Syntax Corporation Indonesia has not evaluated policies, procedures, governance, control, development and management of information technology services, and has not measured and evaluated the performance of information technology in CV. Syntax Corporation Indonesia. This has an impact on the non-optimal use of IT systems, there is no renewal of IT systems and companies do not find positioning in the IT field. The organizational system implemented by CV. Syntax Corporation Indonesia is an Agile Organization where human resources can further explore their potential and this is one of the advantages of CV. Syntax Corporation Indonesia which is rarely owned by other companies.

According to a previous study Della Ariesta, Suprapto, & Perdanakusuma (2022) regarding the governance and risk management of information technology by adopting the COBIT 2019 framework (Case Study: PT. MyECO Teknologi Nusantara) shows that the results of the research obtained are in the form of the results of the evaluation of the implementation of information technology governance at PT. MyECO Teknologi Nusantara, such as the capability level expected in the EDM03 (Ensured Risk Optimization) and APO12 (Managed Risk) processes, is level 2. To achieve the desired level of capability, the company is expected to consider several recommendations that can be implemented periodically in the company, namely by implementing and implementing recommendations by implementing guidelines related to risk appetite and risk tolerance as improvement steps so that the success of IT risk management in the company can be achieved.

According to previous research conducted by Tasya Maulariqa Insani (2021), namely about information technology governance audits (Sungei Putih Research Institute Using the COBIT 2019 Framework) obtained results, namely in the form of recommendations on ongoing IT risk records, it is recommended that it can be carried out consistently to assess and improve risk incidents. And it is recommended to make a control plan analysis to find out new risks and their causes.

According to previous research conducted Rajjani, Hanggara, & Musityo (2021) discussing the evaluation of information technology risk management in the department of ICT (Case Study: PT Semen Indonesia (Persero) Tbk) using the COBIT 2019 Framework with EDM03 and APO12 Domains. From the results of the research, one of them is to evaluate and improve risk management which has 3 processes, namely, data collection, maintaining an Information Technology Risk profile, and establishing a portfolio of Information Technology Risk management actions at the ICT Department of PT Semen Indonesia (Persero) Tbk.

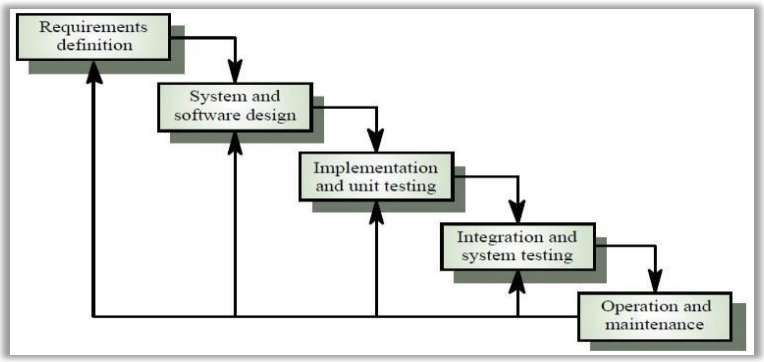
According to previous research conducted Khairuna, Wibowo, & Gamayanto (2020) on the Evaluation of Information Technology Risk Management Using the COBIT 5 Framework Based on the APO12 Domain (Case Study: BPR Agung Sejahtera Head Office). One of the results of the research is that the level of capability in the risk management process activities is currently still at level 1 (Performed Process) PA 1.1 Process Performance with the status of Largerly Achieved, which is with a value of 50.8%. Thus, the status has evidence and also a systematic approach and significant achievements obtained through assessment in the attribute process.

According to the previous one conducted Kusuma, Marpaung, Putra, & Megawati (2024) regarding the Audit of Information Technology Governance (Case Study: Agam Regency Communication and Information Office) using COBIT 2019. The results of the research were obtained, one of which is the objective level 2 capability analysis of the APO-07 – Managed Human Resource process, or managed human resources, showing that the operational level of the APO07 process at the Agam Regency Diskominfo has an average maturity value of 57.40%, which means that it is at the Largely Achieved level (50-84), and has not reached the Fully Achieved Level (85-100). Therefore, it can be concluded that the objective level of capability of the APO07 process at the Agam Regency Diskominfo is at level 1, with the audit status at level 2 has not been achieved and is not continued to the calculation of level 3 capability.

This study continues the previous research described above which only takes governance variables. In this study, not only governance variables but also risk management are important to carry out in IT systems. The goal to be achieved through research on governance and risk management in information technology is to facilitate the process of submitting visualization of the results of assessments of information technology services that will be used in CVs. Syntax Corporation Indonesia. Making it easier to determine the focus of the domain and providing recommendations based on the framework in COBIT 2019 in assessing information technology services on CVs. Syntax Corporation Indonesia. Prepare recommendations that can be given from the results of the evaluation to align IT process management with the company's business strategy and goals in order to achieve good corporate.

RESEARCH METHOD

One of the most important processes in system analysis is the system development process. The system development method used by the author in the process of designing an invitation booking problem solving portal is the Waterfall method. According to (Sukamto & Shalahuddin, 2018) in their book explained that the SDLC (Software Development Life Cycle) model is often called a sequential linear model or classic life cycle (Classic life cycle). The waterfall model provides an orderly approach to the software lifeflow. The stages in the process of developing a system using this waterfall are as follows:



Gambar 1. System Development Life Cycle (SDLC) Rosa A.S dan M. Shalahuddin (2018)

a. Requirement (System Requirements Analysis)

At this stage, the needs collection process is carried out intensively, the process of specifying the needs of the software is easy to understand.

b. Design

Furthermore, the results of the analysis of the system needs will be made a design database, DFD, ERD, user interface or Graphical User Interface and network needed for the system. In addition, it is also necessary to design the data structure, software architecture, procedure details and display characteristics to be presented. This process translates the system requirements into a software model whose quality can be estimated before starting the implementation phase.

c. Implementation

The design that has been made in the previous stage will be translated into a language that can be read by a computer for processing. This stage can also be called the implementation stage, which is the stage that converts the results of the previous design into a programming language that is understood by the computer. Then the computer will carry out the functions that have been defined so that it is able to provide services to its users (Firstanty, 2020).

d. Testing

Program testing is carried out to determine the suitability of the system to run according to procedures or not and to ensure that the system avoids errors that occur. Testing can also be used to ensure the validity of the input process, so that it can produce the appropriate output. At this stage, there are two testing methods, namely the black-box and white-box methods.

Black-box testing emphasizes the functionality of a software without having to know how the structure is in the software. Software tested using the black-box method is said to be successful if the existing functions have met the specifications of the requirements created beforehand. Testing with the white-box method is testing the internal structure of the software by testing the algorithm used by the software (Pamungkas, 2015).

e. Maintenance

The last stage of this SDLC method is Maintenance. At this stage, if the system is in accordance with the specified goals and can solve the problem in the company, it will be given to the user. After being used for a certain period, there must be adjustments or changes according to the desired circumstances, so that changes to the system are required. This stage can also be interpreted as the stage of using software accompanied by maintenance and repair. Maintenance and repair of a software is necessary, including development, because in practice when software is used, sometimes there are still shortcomings or additions of new features that are deemed necessary (Muflihin, Dhika, & Handayani, 2020).

f. Analysis of the Implementation of the COBIT 2019 Process Flow

In this study, a research method using the COBIT 2019 method is used, the following can be seen in figure 2 which is an overview of the analysis of the application of the COBIT 2019 process flow framework in this study.

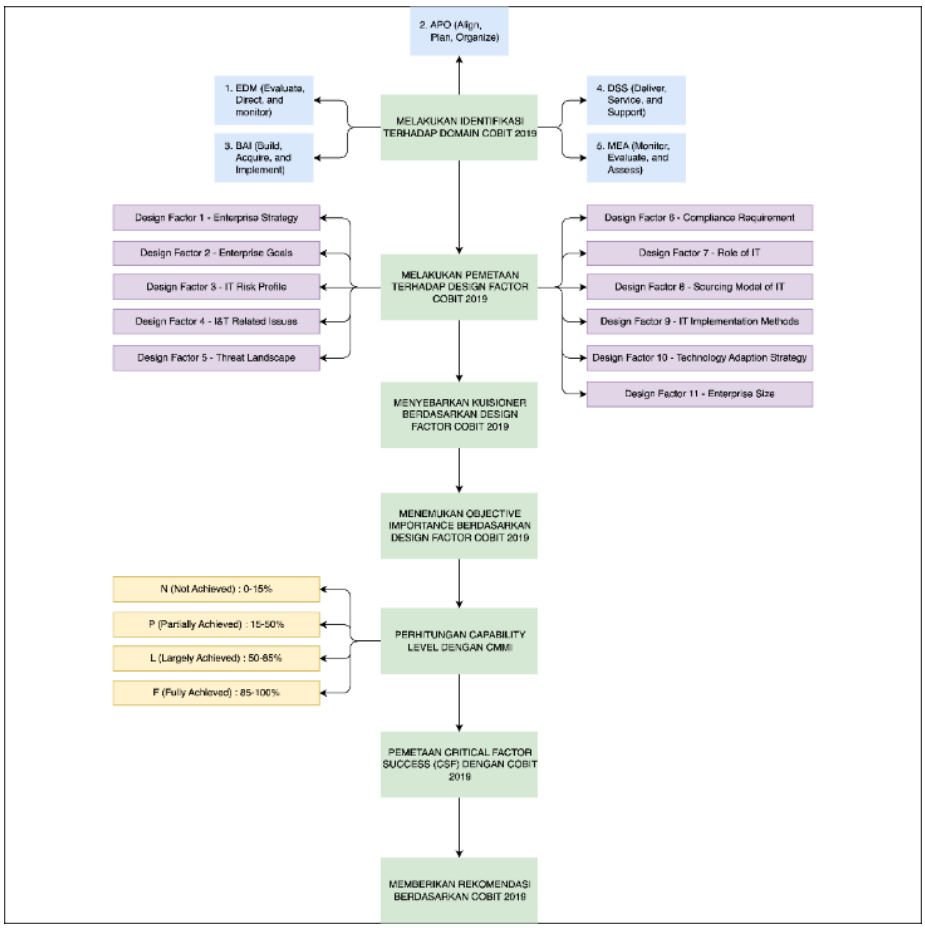


Figure 2 Implementation of the COBIT 2019 Process Flow

It can be seen in figure 2 where the process of implementing the COBIT 2019 framework will start from:

1. Identifying five domains from COBIT 2019. Of these five domains, there are derivatives of each domain or commonly referred to as objectives or sub-domains. The EDM domain is divided into 5 objectives, APO is divided into 14 objectives, BAI is divided into 11 objectives, DSS is divided into 6 objectives, while MEA is divided into 4 objectives.
2. Conducting a mapping process on the 11 design factors owned by COBIT 2019 as the first step in determining and finding the most important objectives in the company.
3. In this process, the researcher will create a questionnaire based on the design factor toolkit owned by COBIT 2019. This questionnaire is made through a google form and distributed by HR CV. Syntax Corporation Indonesia.
4. After all the answers are collected, an "objective importance" will be found that will be generated from the process of filling out the design factor questionnaire on the design toolkit that has been provided.
5. After finding "objective importance". It will be followed by mapping the RACI Chart first based on the organizational structure in the CV. Syntax Corporation Indonesia. After that, a questionnaire will be made to find out the level standards that have been applied by CVs. Syntax Corporation Indonesia.
6. After mapping the RACI chart. Furthermore, a questionnaire will be made for the calculation of the level of capability to find out the standard level that has been achieved by the CV. Syntax Corporation Indonesia.
7. After the results of the questionnaire for the calculation of this level of capability, it will be continued by analyzing the level of gap. As well as conducting a mapping analysis of the Critical Success Factor (CSF) of higher education governance, namely CV. Syntax Corporation Indonesia, against the domain from COBIT 2019 that had been discovered in the previous process.

And the last can provide the results of appropriate recommendations that can be applied and used by CVs. Syntax Corporation Indonesia so that the governance and management of IT services in CV. Syntax Corporation Indonesia could be much better.

RESULT AND DISCUSSION

Research Results

Before conducting a strategic goal analysis, it is necessary to identify the problems of the three services to be researched. The following table below is an identification of problems from the services in CV. Syntax Corporation Indonesia.

Table 1 Identification of Information Technology Service Problems in CV. Syntax Corporation Indonesia

No.	Service	Problem Identification
1	Integrated Application System Services (IASS)	1. In the SATU application, there has never been an evaluation by policy makers and there is no recommendation to upgrade the service 2. There has been no evaluation of SATU services that are unavailable or slow in responding that can interfere with the company's database asset process.
2	Payment System Services (ERPNext)	1. The ERPNext service is a product of cooperation with other vendors outside the company, but has never been evaluated both in terms of risk and from the effectiveness of the use of the service 2. There is no evaluation of IT services on how to manage costs efficiently while ensuring that services/assets are utilized optimally.
3	Attendance System Services	There has never been a thorough evaluation of the use of attendance services whether it can be accessed by all CV employees. Syntax Corporation Indonesia is not available and even experiences delays in responding which can interfere with employee productivity.

Based on the analysis of the problems above and for the research object in the previous chapter. There are 5 strategic objectives owned by CV. Syntax Corporation Indonesia.

Discussion

1. Domain Questionnaire Distribution APO12 (Managed Risk)

Before distributing questionnaires to get levels in the audit process, it is necessary to prepare a questionnaire on the APO12 domain which is divided into 5 levels. The following is the table below the questions on the APO12 domain.

Table 2 List of APO12 Domain Questionnaire Questions

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
		LEVEL 2			
1	APO12.01 Collect Data	1. Organizing data collection, classification, and analysis procedures related to IT risks.	2		
		2. Record data related to IT risks that have a significant impact, both from the company's internal environment and external factors that affect operations.			
	APO12.03 Maintain a Risk Profile	1. How are business processes identified and documented to IT service management processes and IT infrastructure resources?	2		

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
		2. Identify and assign IT services and IT infrastructure resources that are critical to keeping business processes operational			
		3. Identify support teams, applications, infrastructure, facilities, key manual records, vendors, suppliers, and outsourcing parties that have an important role in maintaining smooth business operations.			
	APO12.05 Define a Risk Management Action Portfolio	Maintain an inventory of the control measures that have been implemented to reduce risks, facilitate risk taking in accordance with the preferences and risk tolerance limits that have been set	2		
		LEVEL 3			
	APO12.01 Collect Data	1. Establish risk taxonomy to provide a consistent definition of risk scenarios and group their impact levels and likelihood.	3		
		2. Log data on risk events that have had an impact on business operations according to impact categories such as Record relevant information from related problems, incidents, problems, and investigations.			
	APO12.02 Analyze Risk	1. Determine the appropriate scope of risk analysis efforts, taking into account all risk factors and/or the business criticality of the asset.	3		
		2. Regularly updating IT risk scenarios; Exposure to IT-related losses; and reputational risk scenarios, including scenarios that combine cascading and/or contingent threat types and events.			
		3. Estimating the frequency and magnitude of losses or gains associated with IT risk scenarios. Considering all applicable risk factors and evaluating known operational controls.			

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
		4. Compare the risk of IT-related losses with your risk appetite and acceptable risk tolerance. Identify unacceptable or increased risks.			
		5. Propose a risk response to risk that exceeds the level of risk appetite and tolerance.			
	APO12.03 Maintain a Risk Profile	1. Regularly captures all risk profile information and combines it into an aggregate risk profile.	3		
		2. Obtain information on the status of risk action plans to be included in the company's I&T risk profile.			
	APO12.04 Articulate Risk	1. Report the results of risk analysis to all affected stakeholders to support company decisions.	3		
		2. Provide decision makers with information about worst-case scenarios regarding exposure to significant IT-related and reputational losses, legal and regulatory considerations, or other impact categories			
		3. Report the current risk profile to all stakeholders. Include information about the effectiveness of the risk management process, effectiveness of controls, gaps, inconsistencies, redundancies, remediation status and impact on the risk profile.			
	APO12.05 Define a Risk Management Action Portfolio	1. Determine whether each organizational entity monitors risk and accepts accountability for operating within its individual and portfolio tolerance levels.	3		
		2. Determine a balanced set of project proposals designed to mitigate risks and/or projects that enable strategic enterprise opportunities, considering costs, benefits, effects on risk profiles and current regulations.			

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
	APO12.06 Respond to Risk	1. Develop and test plans that document specific steps to address significant operational or development incidents with serious business impact	3		
		2. Implement appropriate response plans to minimize impact when risk incidents occur.			
		LEVEL 4			
	APO12.01 Collect Data	1. Survey and analyze historical I&T risk data and loss experience through external information, industry trends and industry-based event logs to identify common events.	4		
		2. Determine the specific conditions that exist or do not exist when a risk event occurs and how these conditions affect the frequency of losses.			
		3. Report regular events and analyze risk factors to identify new or emerging risk issues			
	APO12.02 Analyze Risk	Validate the results of risk analysis and business impact analysis before making decisions.	4		
	APO12.03 Maintain a Risk Profile	Define a set of risk indicators based on all risk profile data that allows for quick identification and monitoring of current risks and risk trends.	4		
	APO12.04 Articulate Risk	Conduct a review of identified gaps and exposure of I&T-related losses to determine the need for additional risk analysis.			
	APO12.06 Respond to Risk	1. Communicate business impact to decision-makers as part of reporting and updating risk profiles.	4		
		2. Compare exposure to IT-related losses with risk tolerance thresholds.			
		LEVEL 5			
	APO12.02 Analyze Risk	Conduct a benefit analysis of potential risk response options such as avoiding, mitigating, and accepting of those risks	5		

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
	APO12.06 Respond to Risk	Communicate causes, additional risk response requirements, and process improvements to the right decision-makers.	5		

2. Domain Questionnaire Distribution BAI09 (Managed Asset)

Before distributing questionnaires to get levels in the audit process, it is necessary to prepare a questionnaire on the BAI09 domain which is divided into 5 levels. The following is the table below the questions on the BAI09 domain.

Table 3 List of BAI09 Domain Questionnaire Questions

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
		LEVEL 2			
1	BAI09.01 Manage Security Services (BAI09.01 Manage Security Services)	1. Identify all security assets owned in the asset list which records the current status	2		
		2. Identify all owned assets and ensure compliance with change management processes, configuration management, and financial systems and records.			
		3. Carrying out verification to ensure that security assets are in a state that is fit for purpose, namely functioning effectively			
		4. Identify legal, regulatory or contractual requirements that need to be addressed when managing assets			
		5. Includes information on assets listed on the balance sheet, which are acquired or created to increase company value or support operations, such as hardware and software.			
	BAI09.02 Manage Identity and Access (BAI09.02 Manage Identity and Access)	1. Identify assets that are critical to providing service capabilities by referring to requirements in service definitions, SLAs, and configuration management systems	2		
		2. Periodically, consider the risk of failure or the need for replacement of each critical asset			

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
		3. Procure all assets based on authorized requests, adhering to company procurement policies and practices.			
	BAI09.03 Manage Data Security (BAI09.03 Manage Data Security)	1. Perform periodic reconciliations, including the use of software tools			
		2. Allocate security assets to users by assigning responsibilities and requesting signatures when necessary			
		3. reallocate assets when they are not needed due to user role changes, service redundancy, or service outages.			
		LEVEL 3			
	BAI09.04 Manage Security Testing and Monitoring (BAI09.04 Manage Security Testing and Monitoring)	1. Periodically review the entire asset base, considering whether it is aligned with business needs	3		
		2. Comprehensive evaluationFoundation existing services to identify opportunities for standardization, single procurement, and other approaches that can reduce the costs of procuring, supporting, and maintaining security assets			
		3. Routinely examine incident trends to monitor critical asset performance, and take repair or replacement action as needed			
		4. Comprehensive evaluation of the overall situation to look for opportunities to adopt new technologies or alternative resource approaches that can reduce costs or increase value for money			
	BAI09.05 Manage Security Incident Response (BAI09.05	1. Maintain a list of all purchased software licenses and associated license agreements.	3		
		2. Regularly perform audits to identify all installed licensed software.			

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
	Kelola Response Security Incident)	3. Comparing the number of installed software with the number of licenses owned, by checking whether the license compliance measurement method meets the applicable license and contract provisions			
		4. Periodically, consider whether better value can be obtained by upgrading the product and associated licenses			
		LEVEL 4			
	BAI09.06 Manage Third-party Services Providers (BAI09.06 Manage Third-Party Service Providers)	1. Establish a preventive maintenance plan for all hardware, taking into account cost/benefit analysis, vendor recommendations, outage risks, qualified personnel, and other relevant factors	4		
		2. Approve payments and complete transactions with suppliers in accordance with the conditions agreed in the contract			
		3. Communicate with customers and affected users to communicate anticipated impacts, including performance limitations, from maintenance activities			
		4. Utilize statistical data on capacity and utilization to identify underutilized or redundant assets that can be considered for elimination or replacement for cost reduction			
		LEVEL 5			
	BAI09.07 Manage Security Governance (BAI09.07 Manage Security Governance)	1. Evaluate whether maintaining or discontinuing permits for fewer units is needed, taking into account potential savings in maintenance, training, and other unnecessary costs.	5		
		2. Reevaluate the need and relevance of each instance to ensure efficient use of resources			

No	Is. Domain	Activity Statement	Level	Answer	
				Of	No
		3. Evaluate maintenance costs by considering reasonableness aspects and identifying efficiency			
		4. Assign assets to users by assigning responsibilities and requesting signatures if necessary			

3. RACI Chart Results APO12 and BAI09

Based on the results of the analysis that has been carried out between the guidelines on the RACI chart line structure from the COBIT 2019 guidebook and the organizational structure contained in the CV. Syntax Corporation Indonesia in the sub-chapter above. Therefore, it can be concluded that the RACI chart table used to determine respondents in terms of filling out questionnaires to find out the capability level can be seen in table 4 below.

Table 4 Conclusion of RACI Chart Results

No	Domain	Raci Chart Cobit 2019	Organizational Structure Cv. Syntax Corporation Indonesia
1	APO12	Chief Information Officer	It Director
		Head Development	Manager It
		Head It Operations	Manager It
2	BAI09	Chief Information Officer	Holding Director
		Head It Operations	Hr Director
		Head It Administration	Manager It

4. Results of *APO12 Level Capability Activity Analysis*

a) Accumulated Capability Level 2 APO12 Calculation

The following are the results of the average accumulated calculation of 3 respondents for level 2 in the objective of APO12. Accumulated capability calculation level 2:

$$CLi = \frac{R1+R2+R3}{\sum R}$$

$$CLi = \frac{100+100+83}{3}\ \%$$

$$CLi = \frac{283}{3}\ \%$$

$$CLi = 94.33\%$$

The result obtained is 94.33% for achievement at level 2. Therefore, it can be categorized as Fully Achieved. And can be continued by doing calculations at level 3.

b) Accumulated Capability Level 3 APO12 Calculation

The following are the results of the average accumulated calculation of 3 respondents for level 2 in the objective of APO12. Accumulated capability calculation level 2:

$$\boldsymbol{CLi} = \frac{R1+R2+R3}{\sum R}$$

$$\boldsymbol{CLi} = \frac{68+56+56}{3} \%$$

$$\boldsymbol{CLi} = \frac{283}{3} \%$$

$$\boldsymbol{CLi} = 60.41\%$$

The yield obtained is 60.41% for achievement at level 3. Thus, it can be categorized as *Largely Achieved*. Therefore, the expected value was not achieved. So for the calculation of *the capability level* in the APO12 sub-domain, it only reaches capability level 3.

5. Results of *Capability Level Activity Analysis BAI09*

a) Accumulation of Capability Calculation Level 2 BAI09

The following are the results of the average accumulated calculation of 3 respondents for level 2 in the objective of BAI09. Accumulated capability calculation level 2:

$$\boldsymbol{CLi} = \frac{R1+R2+R3}{\sum R}$$

$$\boldsymbol{CLi} = \frac{72+72+81}{3} \%$$

$$\boldsymbol{CLi} = \frac{283}{3} \%$$

$$\boldsymbol{CLi} = 75.75\%$$

The yield obtained is 75.75% for achievement at level 2. Thus, it can be categorized as *Largely Achieved*. Therefore, the expected value was not achieved. So for the calculation of *the capability level* in the BAI09 sub-domain, it only reaches capability level 2.

b) Conclusion *of Capability Level Calculation Results*

After doing the calculation on the 2 sub-domains or objectives in the previous sub-chapter. So it can be concluded that the objective of APO12 has reached level 3. Meanwhile, the domain has only reached level 2. The following can be seen in table 5 explanations are the conclusions of the results of the capability level achievements that have been carried out.

Table 5 Conclusion of Capability Level Achievement Results.

No.	Objective	Level	Description of Level Achievements
1.	APO12 (Managed Risk)	3	The activities contained in this process in terms of achieving its goals are in a more organized way using assets owned by the company. The definition of this process has also been well defined. And focuses on the goals of the company
2.	BAI09 (Manage Assets)	2	The activities contained in this process achieve its goals through the implementation of a series of basic activities that are carried out completely. Can be characterized as ongoing performance. As

No.	Objective	Level	Description of Level Achievements
			well as identifying and monitoring progress on company goals.

6. Identifying *Gaps Towards Capability Levels*

Purnasari (2023) The purpose of identifying this gap is to make it easier to evaluate the process of IT service governance and management in CV. Syntax Corporation Indonesia. The results of this gap level are obtained from:

G = as is – to be

Keterangan:
G = Gap Level
as is = Current Ability Level
to be = Expected Ability Level

The following can be seen in table 6 is the result of the calculation of the identification of the level of gap owned by the two objectives.

Table 6 Conclusion of Gap Analysis Results

Objectif	Capability Level		
	as-is	*to-be*	*gap*
APO12	3	5	2
BAI09	2	5	3

Based on the results of table 5.9 above, it can be seen from the two sub-domains that have been analyzed regarding the situation for the level of capability that there is still a gap (gap). A priority scale for domains that can be the main focus to be leveled up by a CV. Syntax Corporation Indonesia is in BAI09 which has the highest gap, which is 3. In addition, it is also hoped that CV. Syntax Corporation Indonesia can improve and pay attention to the level of achievement (*as-is*) for each domain with an expected level (*to-be*) so that there is no gap or gap in the two domains as much as possible.

Therefore, for the next sub-chapter, there are recommendations that can be considered for CVs. Syntax Corporation Indonesia to improve the governance and risk management of IT services used.

7. Analysis *Capability Level*

a. Analysis Capability Level APO12

Tabel 7 Analysis Capability Level APO12

Domain Name	Current Level	Level Target	Gap
APO12 (Managed Risk)	3	5	2

The first research domain, APO12, called Managed Risk, focuses on assessing the alignment of IT risk management with overall enterprise risk management or ERM and balancing costs with the benefits of IT risk management. The results of the APO12 domain level capability assessment are level 3 where at this level the domain process has been carried out in an organized and well-defined

manner and a series of basic activities have been implemented and categorized well. The level that CV. Syntax Corporation Indonesia for the APO12 domain is level 5 where at this level it is able to be well defined and quantitatively measurable performance.

Tabel 8 Pencapaian Governance Practice dan Capability Activities Level 3 APO12

Management Practice Level 3 APO12	
Management Practice	**Capability Activities**
Safeguarding Information Technology Risks: **1. Payment System Services (ERPNext)** **2. Integrated Application System Services (IASS)** **3. Attendance System Services**	1. It was found that in the ERPNext service system there were frequent database errors, payment link errors and several databases that could not be found. CV. Syntax Corporation Indonesia makes improvements and adjusts the update system so that errors do not occur that could hinder the payment process.
	2. Found on system Integrated Application Services (IASS) contains employee data, collaboration data and other company data that is not updated, but currently CV. Syntax Corporation Indonesia upgraded the service by inputting all employee data, doing so screening all data on Cooperation MoUs with other institutions, as well as do screening data review, SOP and other important documents
	3. Attendance System Services at CV. Syntax Corporation Indonesia can be used by all employees but can only be accessed by Android cellphone users, but currently the company is upgrading the application so that it can be used by employees who use IOS/Iphone
Establish a Portfolio of Information Technology Risk Management Actions	CV. Syntax Corporation Indonesia maintains an inventory of existing control activities to mitigate Information Technology Risk and enable risks to be taken according to risk appetite (level of risk which is accepted) and risk tolerance.
Information Technology Risk Management Evaluation	1. CV. Syntax Corporation Indonesia has not intensively evaluated Information Technology Risk management activities to ensure alignment with the company regarding IT loss capacity
	2. Decision making when risks/problems occur with information technology is still taken by the IT manager and decision making has not been made by the IT Director
	3. CV. Syntax Corporation Indonesia has recorded data related to relevant and significant Information Technology Risks in the company's internal and external operating environment. The Company has created a risk report document for all use of Information Technology Services

8. Analysis Capability Level BAI09

Tabel 9 Analysis Capability Level BAI09

Domain Name	Current Level	Level Target	Gap
BAI09 (Manage Assets)	2	5	3

The second research domain, BAI09 called Manage Assets, focuses on assessing the state of company asset management by looking at all aspects and benefits of company asset management. The result of the BAI09 domain level capability assessment is level 2 where at this level the domain process has been carried out in an organized and well-defined manner and a series of basic activities have been implemented and categorized well. The level that CV. Syntax Corporation Indonesia in this domain is level 5 where at this level the entire process has been well organized using the company's assets.

Tabel 10 Pencapaian Governance Practice dan Capability Activities Level 2 BAI09

Management Practice Level 2 BAI09	
Management Practice	**Capability Activities**
Implementation of Asset data in Information Technology: **1. Payment System Services (ERPNext)** **2. Integrated Application System Services (IASS)** **3. Attendance System Services**	1. In the process of use and maintenance assets Information technology in the ERPNext service has been carried out well by CV. Syntax Corporation Indonesia by controlling the use of the service every week
	2. CV. Syntax Corporation Indonesia has not upgraded the IASS service to protect assets such as important company documents, legal cooperation documents and employee documents.
	3. At CV attendance services. CV. Syntax Corporation Indonesia has used it well, but only some of its employees can use it
Establish an Action Portfolio	1. CV. Syntax Corporation Indonesia does not yet have a blue print regarding asset data in the company
	2. CV. Syntax Corporation Indonesia does not yet have an SOP regarding when the evaluation will be carried out and which asset data should be prioritized
	3. CV. Syntax Corporation Indonesia has collected several scenarios of adding and subtracting assets based on the current business category and functional area.

9. Results of Strategic *Goal Analysis with Processes Related to COBIT 2019*

The determination process for *the Critical Success Factor* (CSF) will help CV. Syntax Corporation Indonesia to achieve a good governance that is in accordance with its strategic objectives. In this study, the COBIT 2019 framework will be used to assist in terms of achieving these goals.

a) Results of Critical Success Factor (CSF) Mapping for CV Governance. Syntax Corporation Indonesia

Based on the limitations of the problems owned, the COBIT 2019 framework will analyze the governance of CV. Syntax Corporation Indonesia. Therefore, in this sub-chapter will discuss the factors that determine success for governance in a company that can help CV. Syntax Corporation Indonesia to achieve these strategic goals. The following can be seen from table 5.9 which is a success determining factor or CSF for governance in CV. Syntax Corporation Indonesia.

Table 11 Critical Success Factor (CSF) for Corporate Governance

No.	Critical Success Factors (CSF) for Corporate Governance
1.	The company has carried out an evaluation once a week of the ERPNext service by the IT Director CV. Syntax Corporation Indonesia.
2.	CV. Syntax Corporation Indonesia has used the attendance service well, but it can only be used by some employees who use Android cell phones.
3.	CV. Syntax Corporation Indonesia maintains an inventory of existing control activities to mitigate Information Technology Risk and enable risks to be taken according to risk appetite (acceptable risk level) and risk tolerance
4.	CV. Syntax Corporation Indonesia has recorded data related to relevant and significant Information Technology Risks in the company's internal and external operating environment. The Company has created a risk report document for all use of Information Technology Services
5.	CV. Syntax Corporation Indonesia has collected several scenarios of adding and subtracting assets based on the current business category and functional area

***b)* Results of Mapping Between the CSF Process and COBIT 2019**

In chapter previously, 2 focuses have been obtained for the sub-domains of COBIT 2019 based on the analysis that has been carried out previously, namely::

APO12 dan BAI09

And there have also been 9 points regarding CSF for corporate governance which can be a determining factor in the success of CV. Syntax Corporation Indonesia to be able to realize good governance. Furthermore, from the results that have been obtained, mapping will be carried out to determine the scope in accordance with the 2 sub-domains of COBIT 2019 based on the 9 CSF points. The results can be seen in table 12 below.

Table 12 Results of CSF Mapping with COBIT 2019

No.	Critical Success Factors (CSF) for Corporate Governance	Sub-Domain COBIT 2019
1.	The company has carried out an evaluation once a week of the ERPNext service by the IT Director CV. Syntax Corporation Indonesia.	BAI09
2.	CV. Syntax Corporation Indonesia has used the attendance service well, but it can only be used by some employees who use Android cell phones.	APO12 & BAI09
3.	CV. Syntax Corporation Indonesia maintains an inventory of existing control activities to mitigate Information Technology Risk and enable risks to be taken according to risk appetite (acceptable risk level) and risk tolerance	APO12
4.	CV. Syntax Corporation Indonesia has recorded data related to relevant and significant Information Technology Risks in the company's internal and external operating environment. The Company has created a risk report document for all use of Information Technology Services	APO12
5.	CV. Syntax Corporation Indonesia has collected several scenarios of adding and subtracting assets based on the current business category and functional area	BAI09

3. Hasil Rekomendasi Penilaian Tata Kelola Teknologi Informasi

After going through several analysis and mapping processes. Currently, it has reached the final stage, namely providing recommendations from the assessment of IT governance and risk management that has been carried out. The provision of this recommendation will discuss recommendations for CV governance. Syntax Corporation Indonesia based on sub-domains at COBIT 2019.

Based on the results of the mapping of the 2019 COBIT framework used in this study, starting from the mapping of design *factors* to the calculation of the *capability level* that has been analyzed. As well as the mapping process towards the strategic objectives owned by CV. Syntax Corporation Indonesia on *the Critical Success Factor* (CSF) related to governance. Therefore, below are the results of recommendations for the five sub-domains that can be used as final results, solutions, and suggestions that can be used by CVs. Syntax Corporation Indonesia in evaluating the governance that has been running so that it can develop to become better governance.

The following are the results of the recommendations for both sub-domains (APO12 and BAI09), which can be seen in table 13 below.

Table 13 COBIT 2019 Recommendation Results

No.	Sub Domain	Recommendation Results
1.	APO12	1. Improve and adjust the ERPNext system update so that there are no errors that can hinder the payment process. 2. Screening all MoU cooperation data with other institutions, as well as re-scanning data, SOPs and other important

No.	Sub Domain	Recommendation Results
		documents. Accelerate the SATU application upgrade process carried out by the IT team so that important data in the company does not occur loss or other risks 3. In the new attendance service that can be used by employees who use Android phones, the IT team is recommended to immediately upgrade the application so that it can be used for employees who use IOS/Iphone. 4. CV. Syntax Corporation Indonesia is expected to make a schedule to evaluate Information Technology Risk management activities in order to ensure alignment with the company on IT loss capacity 5. The decision-making process is expected to be carried out jointly and known by the Director of IT CV. Syntax Corporation Indonesia
2.	BAI09	1. Screening all MoU cooperation data with other institutions, as well as re-scanning data, SOPs and other important documents. 2. CV. Syntax Corporation Indonesia creates a guidebook or blueprint related to asset data in the company 3. CV. Syntax Corporation Indonesia is expected to make an SOP related to when the evaluation will be carried out and where asset data must be prioritized

CONCLUSION

Based on research that has been carried out on the assessment of governance and information technology risk management on CV. Syntax Corporation Indonesia using the COBIT 2019 framework, it can be concluded through the following things:

The capability level is based on the results of the evaluation that has been carried out on the risk management governance conditions currently implemented by CV companies. Syntax Corporation Indonesia with the process of collecting data through interviews, observations, and distributing questionnaires to respondents determined through RACI Chart mapping obtained the results that the capability level achieved in the APO12 (managed risk) process at level 3 where at this level the domain process has been carried out in an organized and well-defined manner and a series of basic activities have been implemented and categorized well. The level that CV. Syntax Corporation Indonesia for the APO12 domain is level 5 where at this level it is able to be well defined and quantitatively measurable performance.

The expected capability level in the BAI09 (manage asset) process of BAI09 is level 2 where at this level the domain process has been carried out in an organized and well-defined manner and a series of basic activities have been implemented and categorized well. The level that CV. Syntax Corporation Indonesia in this domain is level 5 where at this level the entire process has been well organized using the

company's assets.

Overall Information Technology risk management on CV. Syntax Corporation Indonesia can be said to be good and has met the existing basic risk management standards, the Company has evaluated the ERPNext service once a week by the IT Director of CV. Syntax Corporation Indonesia, CV. Syntax Corporation Indonesia maintains an inventory of existing control activities to mitigate Information Technology Risks and allows risks to be taken in accordance with risk appetite and risk tolerance. It's just that CV. Syntax Indonesia has used the attendance service well, but it can only be used by some employees who use Android phones.

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