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Implementation IT Governance Using COBIT 5 Framework at PT. XYZ (Persero)

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***Abstract*— PT. XYZ (Persero) is one of the state-owned companies that move in insurance & guarantee, capital market & investment. PT. XYZ (Persero) conducts an assessment of information technology governance with the aim of meeting the implementation of GCG (Good Corporate Governance) which are listed through KBUMN (Ministry of State-Owned Enterprises) regulations PER-02/MBU/2013 & PER-03/MBU/02 /2018. The regulation PER-02/MBU/2013 has been stipulated on page 6 section 3.2. The target is that "The maturity level target in the next 5 years is a minimum maturity level of 3 in accordance with the specified maturity level". PT. XYZ will conduct a COBIT 5 assessment again based on the results of the assessment that has been carried out by the previous assessor. COBIT 5 assessment will be carried out with a target of level 4 so that it is expected to get a maturity value above 3 and can meet the request of KBUMN (Ministry of State-Owned Enterprises). The assessment is done by identifying company objectives, Enterprise Goals, mapping IT Related Goals, mapping and determining process domains, analyzing the previous assessor's COBIT 5 capability level measurement, measuring the process capability level of EDM01, EDM02 and EDM04, results and gap analysis as well as improvement recommendations. Based on the assessment that has been carried out on the EDM01, EDM02 & EDM04 process, the final result is obtained with a final value of 97.08% so that it gets a Capability Level of 3,88 and it has a gap of 0,12 from the expected target.**

Keywords— Capability Level, COBIT 5, EDM, IT Governance, PT. XYZ (Persero).

I. INTRODUCTION

In the era of globalization, information technology has developed rapidly. The use and utilization of information technology cannot be ignored in today's human life. In general, the use of information technology is not only used individually, but is also used for organizational or company purposes in increasing efficiency, effectiveness and assisting existing work processes. However, the utilization and use of information technology itself must have a large amount of investment accompanied by a high risk. Risk itself is a negative impact that can hinder the achievement of desired goal. Therefore, the implementation of the use and utilization of information technology needs to be controlled or supervised thoroughly to achieve the desired thing. Therefore, proper and good management of information technology is needed in order to feel the use and utilization of information technology that is efficient, effective and can help the work process for the company or organization [1].

Management of information technology is an important part in a company or organization, where the management of information technology is one part of the strategic resources needed in the development process. Management of information technology that is controlled and carried out properly and correctly is a key to success as a means to manage information technology work carried out with a systems approach.

PT. XYZ (Persero) is one of BUMN (State Owned Enterprises) which is engaged in insurance & guarantee as well as capital market & investment. PT. XYZ has the task of processing, collecting and presenting data services from each subsidiary as well as providing information technology systems and infrastructure. Based on the importance of the task of PT. XYZ until now there is no parameter or measurement scale that measures the maturity level of the use and utilization of information technology owned.

The role of IT Governance is very much needed to ensure the use and utilization of information technology that is owned can assist in meeting all

company needs. This also needs to be carried out with the aim of using and utilizing information technology at PT. XYZ can generate business value that can generate profits or facilitate business processes for the company. In addition, it is necessary to ensure that the use and utilization of information technology resources used can run in the long term or sustainale. Even so, cooperation is needed between the information technology division and other divisions such as human resources, risk management and legal in monitoring the use and utilization of information technology activities at PT. XYZ.

The development use, and utilization of information technology by institutions or government agencies has been going on for quite a long time, with a increasing level of seriousness [2]. To ensure the use and utilization of information technology supports the fulfillment of company needs, it is necessary to pay attention to the level of efficiency in allocating and using resources, managing risks and good governance related to information technology [2]. In addition, in order to obtain maximum results in the use and utilization of information technology, companies need to carry out information technology governance.

In implementing or designing information technology governance, companies need to look at all conditions and factors for the use and utilization of current and future information technology. In addition, it is also necessary to adjust the information technology strategy with the business strategy that determines the level of information technology needs to support current and future business needs. Therefore, to ensure the use and utilization of information technology at PT. XYZ which is already running and can generate business value and ensure that risk management, legal and human resources are capable of fulfilling all company needs, it is necessary to carry out an information technology governance assessment process.

Indirectly, the IT governance process is a structured activity to assess or evaluate all information technology components and activities that are planned, owned and executed. It also helps in ensuring that the use and utilization of IT had met and can support the needs of the company.

As a result, an audit of information technology governance is necessary. This is intended by conducting an assessment to determine the maturity level of the use and utilization of information technology that is owned and currently running. In this study, PT. XYZ will implement IT Governance using the COBIT 5 framework. The COBIT framework itself has the function to measure the maturity level of IT utilization in an organization [3]. COBIT is a framework that is used to determine the level / value of the maturity of IT process control. The COBIT 5 framework divides information technology activities into 2 areas, namely governance (Evaluate, Direct, Monitor) and management (Plan, Build, Run, Monitor). In addition, the existing information technology processes are divided into 5 process domains, including EDM (Evaluate, Direct, Monitor), APO (Align, Plan, Organise), BAI (Build, Acquire, Implement), DSS (Deliver, Service, Support) and MEA (Monitor, Evaluate, Assess). The function of these five domains aims to determine the alignment of values between different stakeholders, business goals and the value of information technology that is owned and will be used [4].

The assessment of IT governance at PT.XYZ is carried out with the hope of meeting and implementing good IT governance for state-owned companies which is stated in the KBUMN regulation PER-02/MBU/2013 concerning "Guidelines for the Preparation of Information Technology Management for State-Owned Enterprises" & PER-03/MBU/02/2018 concerning "Amendment to the Regulation of the Minister of State-Owned Enterprises Number PER-02/MBU/2013 concerning Guidelines for the Preparation of Information Technology Management for State-Owned Enterprises". The regulation PER-02/MBU/2013 has been stipulated on page 6 section 3.2. The target is that “The maturity level target of SOE IT Governance in the next 5 years is a minimum maturity level of 3 in accordance with the specified maturity level.

PT. XYZ has previously conducted a COBIT 5 assessment of twenty-one domain processes which were carried out together with consultants which ended on October 5, 2021 with a score of 3.43 as an assessor. Furthermore, PT. XYZ will conduct a COBIT 5 assessment again based on the results of the assessment that has been carried out by the previous assessor. COBIT 5 assessment will be carried out with a target of level 4 so that it is expected to get a maturity value above 3 and can meet the request of KBUMN (Ministry of State-Owned Enterprises) where the minimum maturity level obtained is level 3.

II. LITERATURE REVIEW

A. IT Governance

IT governance is technology-related proces that are carried out to regulate and manage the development and utilization of IT in an organization. In carrying out the use and utilization of IT in an organization, its performance needs to be assessed so that the IT management mechanism can run in accordance with the business objectives of the agency or government organization [5].

Information technology governance also needs to be implemented to direct IT activities to fulfill the mission and vision of government agencies or organizations. IT management assessment can be done with IT governance assessment. IT governance is a theory formed as a result of the development and use of IT in companies or organizations that function to facilitate the achievement of goals [6]. The application of IT governance is needed in the delivery of good and quality services if they can be managed in the right and structured way so as to increase user satisfaction. [6]

System audit or information technology governance is a means to test or examine information systems to determine whether an organization's information system operates in accordance with its mission, and objectives or carry out performance tests, uncovering potential risks and impacts that may occur within an organization [7]. An audit of information technology systems or governance is a way to collect and evaluate evidence to prove that the existing system can maintain data integrity effectively and efficiently.

B. Framework COBIT5

COBIT (Control Objective for Information and related Technology) is a framework that leads to service functions, management, audit functions, IT controls and aims to establish the availability, integrity and confidentiality of data [8]. Based on this, it can be concluded that COBIT 5 is a framework used by companies or organizations to carry out information technology control processes to ensure data availability, integrity and confidentiality as well as the execution of IT utilization and use.

There are five principles from the COBIT 5 framework, which are [9]:

1. Meeting Stakeholder Needs
   Aims to provide and fulfill the needs or all processes desired by stakeholders into structured, detailed, clear and practical goals with the utilization and use of IT.
2. Covering the Enterprise End-to-end
   Manage the governance and management of information technology as a whole.
3. Applying a Single Integrated Framework
   Designed as a framework that has standards covering various IT governance frameworks.
4. Enabling a Holistic Approach
   Has several enablers that can help implement IT governance and management that is easy to understand and understand to achieve company or organizational goals.
5. Separating Governance From Management
   Separate governance from management, because both have different activities, functions and organizational structures.

C. COBIT5 Process Reference Model

COBIT 5 divides IT governance and management processes into 2 main processes, which are [8]:

1. Governance has five processes that are determined through the EDM process practices.
2. Management, including Plan, Build, Run and Monitor. This domain is the level of the domain and process structure contained in COBIT 4.1, namely APO, BAI, DSS and MEA.

After that, there are three stages in determining the domain process that will be assessed using the COBIT 5 framework, which are [11]:

1. Adjusting or aligning COBIT 5 strategic objectives with the organization's strategic objectives.
2. Comply with applicable regulations, both from internal regulations and external regulations.
3. Melakukan pendekatan risiko dalam menentukan prioritas *domain process*.

D. COBIT5 Implementation Lifecycle

There are seven phase of implementing information technology governance using the COBIT 5 Framework [12], which are:

1. Initiate Programme – What are the drivers?
   Analyze the cause of the problem and decide if there is a need for implementation or improvement initiatives.
2. Define Problems and Opportunities
   Focusing on defining the scope of implementation or initiatives in improving the organization's or company's goals to IT-related goals into IT processes and considering the risks that may occur.
3. Define Road Map
   Set targets for improvement or development to be implemented as well as gap analysis in order to provide recommendations for improvement of the gaps that occur.
4. Plan Programme
   Design the best practical solution based on the business case/project being executed. A well-developed project can assist in project monitoring and identification.
5. Execute Plan
   Providing solutions based on the design of solutions that have been formed that can be carried out in daily activities and ensuring that business goals are aligned, can be maintained, achieved and can be measured. To achieve success, commitment from top management, stakeholders and influential business owners is required.

6. Realise Benefits
   Focusing on sustainable operations by new enablers or to be improved and monitoring the achievement of the expected benefits.
7. Review Effectiveness
   Analyze IT governance and management requirements with the aim of managing continuous improvement.

E. COBIT5 Process Capability Attribute

Based on the identified IT processes, COBIT 5 can perform measurements with six levels of maturity (Capability Level), which are [13]:

1. Level 0 (Incomplete Process)
   Not implementing the IT process as intended and not meeting the objectives of the IT process.
2. Level 1 (Performed Process)
   Have implemented IT processes but have not achieved the goals of IT processes.
3. Level 2 (Managed Process)
   Have implemented IT processes and achieved the goals to be achieved by means of good management.
4. Level 3 (Established Process)
   Already have and implement IT processes that have been standardized into the overall scope of the organization. As well as having standardized processes that apply as a whole.
5. Level 4 (Predictable Process)
   Has implemented IT processes into a clear boundary. This limit is obtained based on previous assessments when implementing standardized IT processes.
6. Level 5 (Optimizing Process)
   Have tried new things and made continuous improvements to achieve maximum capabilities.

There is a scale for assessing the level of maturity (Capability Level) that a process has achieved its objectives, as shown in Table 1 below [11]:

Table 1. Maturity Rating Scale COBIT 5

Code	Description	Scale
F	Fully Achieved	More than 85% up to 100%
L	Largely Achieved	More than 50% up to 85%
P	Partially Achieved	More than 15% up to 50%
N	Not Achieved	0% to 15%

F. COBIT 5 RACI *Chart*

The RACI diagram or RACI Chart is part of the Assignment of Responsibility Matrix (RAM), which is a mapping between resources and activities in each procedure [9]. RACI itself stands for [10]:

- Responsibility
  Determine who will complete the task. It refers to an important operational part in fulfilling activities and creating the desired results.
- Accountable
  Who determines success or success in this task. Which is given overall responsibility to complete this task according to the level of accountability.
- Consulted
  Who provides feedback or input which is a key role for all inputs received. In addition to providing input, it is also necessary to obtain information from external partners or other outside parties for comparison or consideration.
- Informed
  Who receives the information. Is the party who receives and is notified of the results of the achievements or the results of the tasks carried out.

III. METHODOLOGY

A. Identify Company Goals

Seek and find out information about the company's goals and objectives in the use and utilization of information technology. The information obtained is related to the goals and objectives of the use and utilization of information technology at PT. XYZ will be used in determining Enterprise Goals, IT Related Goals and determining the process domain.

B. Enterprise Goals Mapping

Figure 4—COBIT 5 Enterprise Goals

BSC Dimension	Enterprise Goal	Relation to Governance Objectives		
		Benefits Realisation	Risk Optimisation	Resource Optimisation
Financial	1. Stakeholder value of business investments	P		S
	2. Portfolio of competitive products and services	P	P	S
	3. Managed business risk (safeguarding of assets)		P	S
	4. Compliance with external laws and regulations		P	
	5. Financial transparency	P	S	S
Customer	6. Customer-oriented service culture	P		S
	7. Business service continuity and availability		P	
	8. Agile responses to a changing business environment	P		S
	9. Information-based strategic decision making	P	P	P
	10. Optimisation of service delivery costs	P		P
Internal	11. Optimisation of business process functionality	P		P
	12. Optimisation of business process costs	P		P
	13. Managed business change programmes	P	P	S
	14. Operational and staff productivity	P		P
	15. Compliance with internal policies		P	
Learning and Growth	16. Skilled and motivated people	S	P	P
	17. Product and business innovation culture	P		

Figure 1. Enterprise Goals Mapping

Mapping the goals and objectives of the use and utilization of information technology at PT. XYZ with Enterprise Goals framework COBIT 5. Mapping Enterprise Goals based on the goals and objectives of the use and utilization of information technology at PT.

XYZ. Figure 1. are the 17 Enterprise Goals that have been determined by the COBIT 5 framework.

C. IT Related Goals Mapping

The previously determined Enterprise Goals are used as material for mapping IT Related Goals.

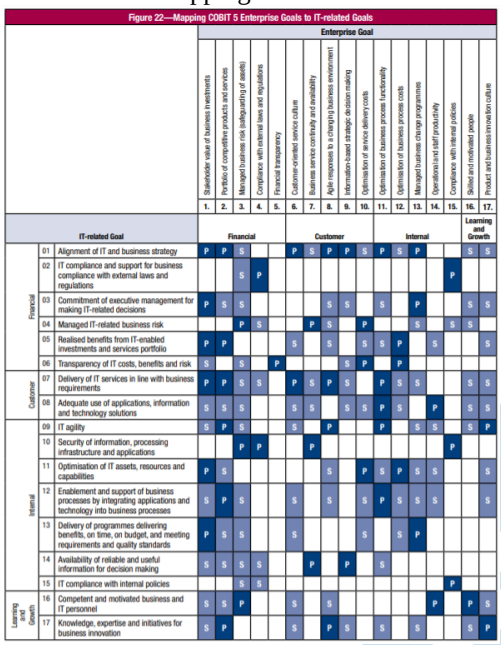

Figure 2. IT Related Goals Mapping

Mapping of IT Related Goals is carried out in accordance with the previously determined COBIT 5 Enterprise Goals.

D. Determine the process to be assessed

Determination of the domain process that will be used in accordance with the information technology activities carried out by the company. The process domain mapping is carried out in accordance with the predetermined COBIT 5 IT Related Goals.

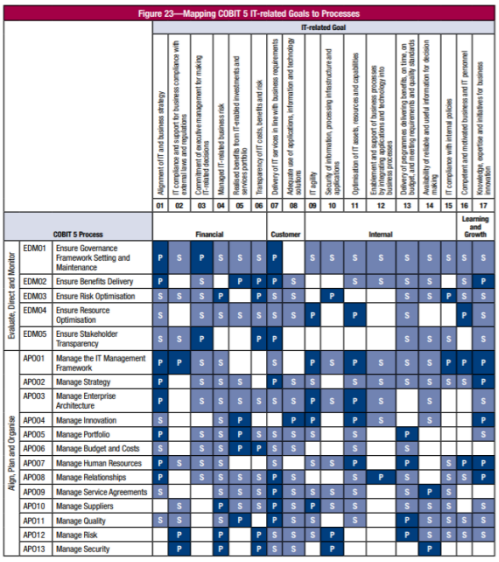

Figure 3. COBIT 5 Process Mapping

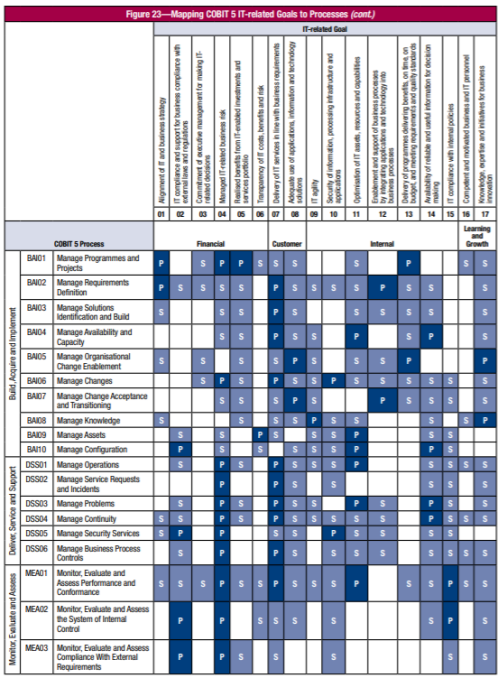

Figure 4. COBIT 5 Process Mapping

Mapping process domains according to the previously determined COBIT 5 IT Related Goals.

E. Filling out Questionnaires and doing Interview

Conduct interviews or seek information related to the established COBIT 5 process domain. Domain process that has been determined will be used to evaluate information technology activities carried out by the company.

Interviews were conducted with the company regarding the information technology activities carried out. Interviews were conducted regarding the activities carried out and based on the COBIT 5 Process

Reference Model. The end result is information related to the company's information technology activities.

F. Assessment

Carry out COBIT 5 assessment based on the results of interviews related to information technology activities that have been carried out information related to the company's information technology activities becomes the basis for carrying out the assessment. This is done by analyzing previously obtained information related to information technology activities with the activities listed in COBIT 5 and checking the completeness of the required documents. The end result is to provide an assessment score for each activity carried out by the company.

G. Leveling/Ranking

Determine the level to determine the maturity level of the information technology activities carried out. The assessment score for each information technology activity carried out by the company becomes the basis for determining the level of the company in implementing information technology activities contained in COBIT 5.

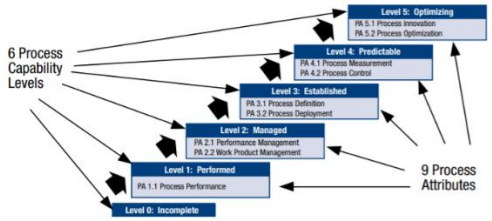

Figure 5. Process Rating on COBIT5

H. Giving Improvement Recommendation

Provide recommendations for improvement based on all findings found in information technology activities carried out by the company as a solution for future improvements.

All information related to activities, scoring of each process domain and the final level of maturity level of information technology activities carried out by the company become a reference in providing recommendations for improvement.

IV. RESULT AND DISCUSSION

A. Identify Company Goals

Below are the results of the identification of company goals obtained from Mr. Wahyu Eko as the Coordinator of the IT Planning and Governance Department in the IT division of PT. XYZ:

1. Manage and regulate the strategy and activities of information technology in the company.
2. Ensuring the function of information technology in meeting the daily operational activities of the company.
3. Manage and manage risk management related to information technology in the company.
4. Prepare and manage the Company's Work Plan and Budget.
5. Establish and review SOPs related to information technology in the company.
6. Fulfill KPI (Key Performance Indicator) as a fulfillment of IT audit and follow up on audit results.

B. Mapping Enterprise Goals

After the identification of the company's goals is obtained, then proceed with selecting the COBIT 5 Enterprise Goals. The results of the Enterprise Goals mapping carried out in Figures 6 are as follows [10]:

Enterprise Goals **COBIT 5**

BSC Dimension		*Enterprise Goals*	Peringkat
Financial	1	Nilai pemegang saham dari investasi bisnis	3
	2	Portofolio layanan dan prooduk yang kompetitif	8
	3	Mengendalikan risiko bisnis	16
	4	Kepatuhan akan regulasi hukum maupun peraturan eksternal	2
	5	Transparansi keuangan	5
Customer	6	Budaya layanan yang berorientasi terhadap pelanggan	6
	7	Ketersediaan dan keberlanjutan layanan bisnis	1
	8	Cepat tanggap terhadap lingkungan bisnis yang mengalami perubahan	17
	9	Penggunaan informasi sebagai penentuan pengambilan keputusan strategis	14
	10	Memaksimalkan biaya pemberian layanan	10
Internal	11	Memaksimalkan proses bisnis secara fungsional	4
	12	Memaksimalkan biaya proses bisnis	12
	13	Mengendalikan proses bisnis yang mengalami perubahan	13
	14	Operasional dan produktivitas staf	9
	15	Kepatuhan dan produktivitas staf	11
Learning and Growth	16	SDM yang memiliki motivasi dan terampil	15
	17	Budaya inovasi bisnis dan produk	7

Figure 6. Enterprise Goals Mapping

C. IT Related Goals Mapping

The results of the previous Enterprise Goals mapping will be used as the basis for determining IT Related Goals. IT Related Goals will be determined based on the primary key (P) in Figure 7 as follows [10]:

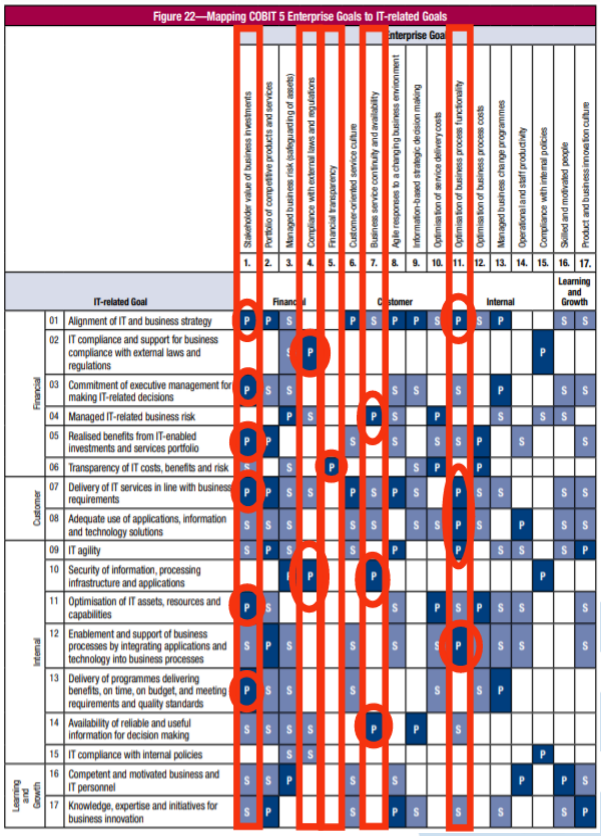

Figure 7. Mapping IT Related Goals

The following is the result of mapping IT Related Goals in Figure 8, 9 and 10 below based on the Enterprises Goals mapping that has been done previously:

BSC Dimension	*Enterprise Goals*	Peringkat	*IT Related Goals*
Customer	7 Ketersediaan dan keberlanjutan layanan bisnis	1	4 Mengendalikan risiko bisnis terkait TI
			10 Keamanan informasi, aplikasi dan infrastruktur
			14 Ketersediaan informasi yang terjamin serta dapat membantu dalam pengambilan keputusan
Financial	4 Kepatuhan akan regulasi hukum maupun peraturan eksternal	2	2 Kepatuhan dan dukungan TI terhadap kepatuhan bisnis terhadap peraturan eksternal serta hukum
			10 Keamanan informasi, aplikasi dan infrastruktur
	1 Nilai pemegang saham dari investasi bisnis	3	1 Sinkronisasi TI dengan strategi bisnis
			3 Komitmen manajemen eksekutif dalam membentuk keputusan terkait TI
			5 Perwujudan manfaat portofolio layanan dan investasi yang mendukung TI
			7 Menyediakan layanan TI sesuai kebutuhan bisnis
			11 Memaksimalkan sumber daya, aset dan kapabilitas TI
			13 Penyampaian program yang sesuai anggaran, tepat waktu, memberikan manfaat, memenuhi standar kualitas dan persyaratan

Figure 8. Mapping IT Related Goals

Internal	11 Memaksimalkan proses bisnis secara fungsional	4	1 Sinkronisasi TI dengan strategi bisnis
			7 Pengiriman layanan TI sesuai dengan kebutuhan bisnis
			8 Penerapan informasi dan teknologi serta solusi aplikasi yang layak
			9 Kecekatan TI
			12 Pemberdayaan serta mendukung proses bisnis dengan memadukan teknologi maupun aplikasi ke dalam proses bisnis

Figure 9. Mapping IT Related Goals

Financial	5 Transparansi keuangan	5	6 Transparansi biaya, risiko serta manfaat TI

Figure 10. Mapping IT Related Goals

D. Mapping and Determination of Domain Process

Based on the results of the mapping of IT Related Goals that have been carried out, the results of the mapping will be used as the basis for determining the Domain Process. The Domain Process will be

determined based on the primary key (P) in Figure 11 and 12 as follows [10]:

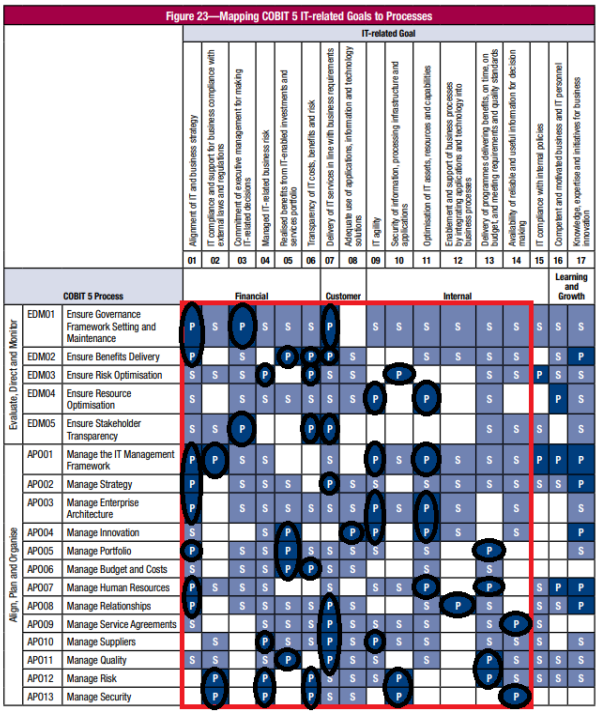

Figure 11. Mapping IT Related Goals to COBIT 5 Process

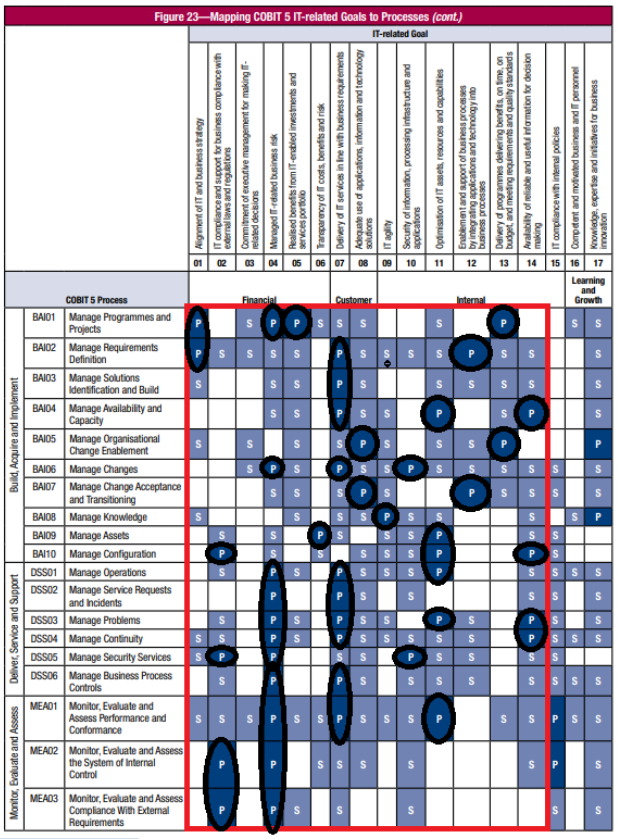

Figure 12. Mapping IT Related Goals to COBIT 5 Process

Based on Figure 11 and figure 12 above, it can be determined which processes can be assessed. The following is the result of the process mapping carried out in Figure 13 and 14 below this:

No	*IT Related Goals*	EDM	APO	BAI	DSS	MEA
1.	IRG 1 Sinkronisasi TI dengan strategi bisnis	01 02	01 02 03 05 07 08	01 02	-	-
2.	IRG 2 Kepatuhan dan dukungan TI terhadap kepatuhan bisnis terhadap peraturan eksternal serta hukum	-	01 12 13	10	05	02 03
3.	IRG 3 Komitmen manajemen eksekutif dalam membentuk keputusan terkait TI	01 05	-	-	-	-
4.	IRG 4 Mengendalikan risiko bisnis terkait TI	03	10 12 13	01 06	01 02 03 04 05 06	01 02 03
5.	IRG 5 Perwujudan manfaat portofolio layanan dan investasi yang mendukung TI	02	04 05 06 11	01	-	-
6.	IRG 6 Transparansi biaya, risiko serta manfaat TI	02 03 05	06 12 13	09	-	-
7.	IRG 7 Menyediakan layanan TI sesuai kebutuhan bisnis	01 02 05	02 08 09 10 11	02 03 04 06	01 02 03 04 06	01
8.	IRG 8 Penerapan informasi dan teknologi serta solusi aplikasi yang layak	-	04	05 07	-	-
9.	IRG 9 Kecekatan TI	04	01 03 04 10	08	-	-
10.	IRG 10 Keamanan informasi, aplikasi dan infrastruktur	03	12 13	06	05	-
11.	IRG 11 Memaksimalkan sumber daya, aset dan kapabilitas TI	04	01 03 04 07	04 09 10	01 03	01
12.	IRG 12 Pemberdayaan serta mendukung proses bisnis dengan memadukan teknologi maupun aplikasi ke dalam proses bisnis	-	08	02 07		
13.	IRG 13 Penyampaian program yang sesuai anggaran, tepat waktu, memberikan manfaat, memenuhi standar kualitas dan persyaratan	-	05 07 11 12	01 05	-	-
14.	IRG 14 Ketersediaan informasi yang terjamin serta dapat membantu dalam pengambilan keputusan	-	09 13	04 10	03 04	-

Figure 13. Mapping IT Related Goals to COBIT 5 Process

Figure 14. Mapping IT Related Goals to COBIT 5 Process

After mapping the COBIT 5 process which was then handed over to Mr. Wahyu Eko as the IT Governance Coordinator in the IT division of PT. XYZ, Mr. Wahyu Eko submitted a suggestion to conduct an IT Maturity Level assessment using the COBIT 5 framework in the governance process (Governance). Taking this into account, then the students and the company through Mr. Wahyu Eko as the IT Governance Coordinator of the IT division of PT. XYZ made an agreement to assess 3 Evaluate, Direct and Monitor (EDM) domain processes to be assessed, namely EDM01, EDM02 and EDM04 with the assessment target reaching level 4 (Predictable Process) where previously the assessment by third parties only reached level 3 (Established). Process).

E. COBIT 5 Process Capability Measurement Results by Third Parties

The final result of measuring the level of COBIT 5 process capability that has been carried out by a third party previously with the target of achieving level 3. The following is a summary of the IT Capability Level PT. XYZ (Persero) by third parties, as shown in Figure 15:

No	Nama Proses	Level Penilaian
Evaluate, Direct and Monitor		
1	EDM01: Ensure Governance Framework Setting and Maintenance	3
2	EDM02: Ensure Benefits Delivery	3
3	EDM03: Ensure Risk Optimisation	4
4	EDM04: Ensure Resource Optimisation	3
Keterangan		
	Hijau	Nilai *Assessor* Lebih Ting
	Biru	Nilai *Assessor* Lebih Rendah
	Putih	Nilai *Assessor* sama denga self-assessment

Figure 15. Summary Value of IT Capability Level

The summary results produce findings that will be part of the fulfillment of the next level 4 target that will be implemented, as shown in Figure 16:

Tingkat (*Level*)	Atribut	Kriteria	Target Pemenuhan
4 (*Predictable Process*)	PA 4.1	a) Persyaratan pemrosesan informasi untuk mendukung tujuan bisnis yang ditetapkan, terkait dan telah ditetapkan.	Dibutuhkan pemetaan antara *process goals* dengan *business goals*.
		b) Tujuan pengukuran proses diturunkan dari kebutuhan informasi proses.	Dibutuhkan *cascading* penurunan matrik KPI dari *process goals*.
		c) Tujuan kinerja proses kuantitatif yang mendukung tujuan bisnis yang relevan telah ditentukan.	Dibutuhkan Obyektif dan matrik KPI yang bersifat kuantitatif (bukan lagi kualitatif).
		d) Ukuran dan frekuensi pengukuran telah teridentifikasi dan ditentukan sesuai dengan tujuan pengukuran proses kuantitatif dan tujuan kinerja.	Dibutuhkan pengukuran kinerja proses serta frekuensinya yang sudah ditentukan dan tercantum dalam SOP.
		e) Hasil pengukuran dikumpulkan, dianalisis dan dilaporkan untuk memantau seberapa baik tujuan kinerja proses kuantitatif terpenuhi.	Dibutuhkan hasil pengukuran kinerja yang telah dilaporkan dan dilakukan *review*.
		f) Hasil pengukuran digunakan untuk mengkarakterisasi kinerja proses.	Dibutuhkan hasil pengukuran untuk mendukung pencapaian obyektif proses yang tercantum dalam SOP.
	PA 4.2	a) Teknik analisis serta kontrol diidentifikasi dan diaplikasikan jika dapat dijalankan.	Dibutuhkan metode, formula serta sumber data yang diperlukan untuk pengukuran kinerja.
		b) Batas kontrol variasi ditetapkan untuk kinerja proses normal.	Dibutuhkan suatu target atau batasan target sebagai kriteria keberhasilan proses.
		c) Data pengukuran dianalisis untuk penyebab khusus variasi.	Dibutuhkan catatan analisis atau tindak lanjut atas ketidaktercapaian kinerja proses.
		d) Tindakan korektif diambil untuk mengatasi penyebab spesifik atau khusus dari perubahan maupun variasi.	Dibutuhkan daftar *corrective action* untuk variasi kinerja yang tidak sesuai dengan target.
		e) Batas kontrol didefinisikan ulang sesuai kebutuhan setelah tindakan korektif.	Dibutuhkan *review* serta *rebaselining* ukuran (target) kinerja jika terdapat variasi.

Figure 16. Level 4 Capability Level Fulfillment Target

F. Assessment

The EDM01 (Ensure Governance Framework Setting and Maintenance) process aims to provide a consistent, aligned and integrated approach through a corporate governance approach. The capability assessment results in EDM01 process using self assessment template framework COBIT 5 [20] listed in Figure 17 below.

Nama Proses	Tingkat							
	0	1	2		3		4	
EDM01		PA 1.1	PA 2.1	PA 2.2	PA 3.1	PA 3.2	PA 4.1	PA 4.2
Penilaian Berdasarkan Kriteria	F	F	F	F	F	F	F	F
Penilaian Berdasarkan Persentase	100%	100%	100%	100%	100%	100%	86.66%	90%
Pencapaian Tingkat Kapabilitas								4

Figure 17. Process Capability Assessment on EDM01

The score reached by EDM01 process, is 97.08% and reaches capability level at 3.88, as shown in Figure 18 below.

Process Name	*Level*	Nilai per *Level*	Nilai Akhir	*Capability Level*
EDM 01	1	100%	97.08%	3,88
	2	100%		
	3	100%		
	4	88.33%		

Figure 18. EDM01 Final Result

The EDM02 (Ensure Benefits Delivery) process has the aim of maximizing the contribution related to business value from business processes, assets and information technology services generated by investments made at an affordable and reasonable cost. The capability assessment results in EDM02 process using self assessment template framework COBIT 5 [20] listed in Figure 19 below.

Nama Proses	Tingkat							
	0	1	2		3		4	
EDM02		PA 1.1	PA 2.1	PA 2.2	PA 3.1	PA 3.2	PA 4.1	PA 4.2
Penilaian Berdasarkan Kriteria	F	F	F	F	F	F	F	F
Penilaian Berdasarkan Persentase	100%	100%	100%	100%	100%	100%	86.66%	90%
Pencapaian Tingkat Kapabilitas								4

Figure 19. Process Capability Assessment on EDM02

The score reached by EDM02 process, is 97.08% and reaches capability level at 3.88, as shown in Figure 20 below.

Process Name	*Level*	Nilai per *Level*	Nilai Akhir	*Capability Level*
EDM 02	1	100%	97.08%	3,88
	2	100%		
	3	100%		
	4	88.33%		

Figure 20. EDM02 Final Result

The EDM04 (Ensure Resource Optimisation) has the objective of ensuring sufficient IT-related capabilities (human resources, technology and processes) to effectively support business objectives with optimal costs and opportunities to increase

benefits and realization of future changes. The capability assessment results in EDM04 process using self assessment template framework COBIT 5 [20] listed in Figure 21 below.

Nama Proses	Tingkat							
	0	1	2		3		4	
EDM04		PA 1.1	PA 2.1	PA 2.2	PA 3.1	PA 3.2	PA 4.1	PA 4.2
Penilaian Berdasarkan Kriteria	F	F	F	F	F	F	F	F
Penilaian Berdasarkan Persentase	100%	100%	100%	100%	100%	100%	86.66%	90%
Pencapaian Tingkat Kapabilitas								4

Figure 21. Process Capability Assessment on EDM04

The score reached by EDM04 process is 97.08% and reaches capability level at 3.88, as shown in Figure 22 below.

Process Name	*Level*	Nilai per *Level*	Nilai Akhir	*Capability Level*
EDM 04	1	100%	97.08%	3,88
	2	100%		
	3	100%		
	4	88.33%		

Figure 22. EDM04 Final Result

G. *Gap Analysis*

After obtaining the Capability Level of each assessment process, a gap analysis will be carried out to identify the results obtained have reached the Level 4 (Predictable) target that has been determined together with the IT Governance Coordinator of the IT division of PT. XYZ, as shown in Figure 23 & Figure 24:

No	*Process Name*	*Level*		*Gap Analysi*
		Target	*Assessed*	
1	EDM01	4	3,88	0,12
2	EDM02	4	3,88	0,12
3	EDM04	4	3,88	0,12

Figure 23. Gap Analysis

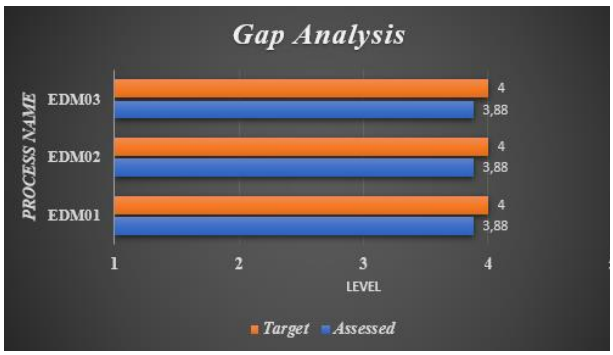

Figure 24. Bar Chart Gap Analysis

H. *Finding*

The findings obtained, as shown in Figure 25:

No	Tingkat	Atribut	Kriteria	Temuan
1.	4	PA 4.1	d	Belum adanya frekuensi pengukuran kinerja dalam dokumen SK Dir XYZ 047-2019 Pedoman HC – Combined.
2.	4	PA 4.2	e	Belum adanya mekanisme rebaselining dalam Pengisian Evaluasi RKAP 2021 7M21 Divisi XYZ ITrev20210901.

Figure 25. Gap Analysis Finding

I. *Improvement Recommendation for EDM01, EDM02 and EDM04*

Based on the measurement of IT governance using the COBIT 5 framework conducted at PT. XYZ, then the following conclusions can be drawn:

1. An update is needed regarding the addition of the frequency of performance measurement in the SK Dir XYZ 047-2019 Guidelines for HC – Combined to meet PA 4.1 criteria d).
2. It is necessary to update regarding the rebaselining mechanism (main alignment of the performance measurement basis to increase the correlation between work plans, budgets, scope and schedule) to variations that have not been clearly analyzed in the Completion of Evaluation of RKAP 2021 7M21 Division XYZ_ITrev20210901 to meet PA 4.2 criterion e).

V. CONCLUSION

The conclusions obtained from this research are:

1. Based on the identification of company goals, identification and mapping of enterprise goals, mapping of IT related goals, as well as mapping and determination of the COBIT 5 process domain. Selected and agreed jointly with the IT Governance Coordinator of the IT division of PT. XYZ to assess or conduct an assessment on the main processes of governance (governance), including EDM01, EDM02 and EDM04 where the three processes are given a target to reach level 4 (Predictable).
2. Based on the assessment that has been carried out, the EDM01, EDM02 & EDM04 process reached the final value with a large percentage level or in other words reached Fully Achieved (F) with a capability level that almost reached the expected target and had a very small gap value.
3. To meet the gap / gap values that exist in EDM01, EDM02 and EDM04:
   - An update is needed regarding the addition of the frequency of performance measurement in the SK Dir XYZ 047-2019 Guidelines for HC – Combined to meet PA 4.1 criteria d).

- It is necessary to update regarding the rebaselining mechanism (main alignment of the performance measurement basis to increase the correlation between work plans, budgets, scope and schedule) to variations that have not been clearly analyzed in the Completion of Evaluation of RKAP 2021 7M21 Division XYZ_ITrev20210901 to meet PA 4.2 criterion e).

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