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Inventory Information System Audit Using Cobit 5 Domain MEA at PT. Telkom Akses Pontianak

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Abstrak - PT. Telkom Akses Pontianak memiliki sistem informasi *Inventory* yang selama ini digunakan, selama melakukan penelitian ditemukanlah beberarapa temuan, yaitu seperti informasi terkait ketersedian material, sistem yang kurang efektif terkait data pengeluaran barang yang berdampak pada laporan periodik perusahaan, dan kurangnya optimalisasi Sumber Daya Manusia yang ada. sehingga dengan permsalahan yang ada menjadi dasar untuk melakukan audit sistem informasi yang digunakan. Audit mengacu pada *framework* COBIT 5 dengan menggunakan Domain MEA ditemukanlah hasil dari tingkat kapabilitas masing-masing sub domain MEA itu sendiri dan juga Gap Analisisnya. Dengan nilai kapabilitas dari subdomain MEA 01 senilai 3,83, Subdomain MEA 02 senilai 3,60, dan Subdomain MEA 03 senilai 3,69, dengan nilai rata-rata yaitu 3,70 dengan keterangan *Predictable Process* yang berarti objek yang diteliti sudah mencapai proses yang ditetapkan berjalan dalam suatu batas yang ditentukan untuk mencapai tujuan prosesnya. Serta dengan perhitungan Gap Analisis yaitu pada subdomain MEA 01 senilai 1,2, Subdomain MEA 02 senilai 1,4, dan Subdomain MEA 03 senilai 1,3, dengan nilai rata-rata yaitu 1,3 yang berarti perusahaan masih perlu meningkatkan terkait sistem informasi *Inventory* yang digunakan agar dapat memperoleh hasil yang optimal bagi seluruh pemangku kepentingan.

Kata Kunci: Audit sistem informasi, *Inventory*, COBIT 5, MEA

Abstract - *PT. Telkom Akses Pontianak has an inventory system that has been used so far. During the research, several findings were found, such as information related to material availability, an ineffective system related to expenditure data that has an impact on the company's periodic reports, and the lack of optimization of existing human resources. so that the existing problems become the basis for conducting an audit of the information system used. The audit refers to the COBIT 5 framework using the MEA Domain. The results of the capability level of each MEA subdomain itself and the Gap Analysis are found. With the capability value of MEA 01 subdomain worth 3.83, MEA 02 subdomain worth 3.60, and MEA 03 subdomain worth 3.69, with an average value of 3.70 with Predictable Process description which means the object under study has reached the process. set runs within a defined limit to achieve the process objectives. And with the Gap Analysis calculation, namely the MEA 01 subdomain worth 1.2, MEA 02 subdomain worth 1.4, and MEA 03 subdomain worth 1.3, with an average value of 1.3 which means the company still needs to improve related to information systems. Inventory is used to obtain optimal results for all stakeholders.*

Keywords*: Information system audit, Inventory, COBIT 5, MEA*

INTRODUCTION

In today's highly competitive and rapidly changing business environment, companies are beginning to realize the potential benefits that can be generated by an information technology and information system. Information systems can help various types of businesses to improve the efficiency and effectiveness of business processes that are run, decision making. Unit cooperation to strengthen the company's competitive position in a dynamic market. So that information systems become one of the necessary parts for the success of today's dynamic business (Naibaho, 2017). This then encourages the management of a company to increase expectations of the outcomes and benefits of information technology.

In a previous study entitled Evaluation of the Denpasar City E-Government System Using the COBIT 5 Framework in the Monitor, Evaluate, and Assess (MEA) Domain by (Purbawangsa et al., 2014).

Where the results of the research conducted, it was found that the GAP Analysis value was 1, so planning

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was needed to reduce the existing GAP Analysis value. Meanwhile, in this study, the GAP Analysis value was 1.3.

Business competition is getting tougher in the telecommunication service business which continues to increase (Fauzi, 2016). Utilization of information technology now has the potential as an initial determinant towards the success of a company, especially those engaged in telecommunications. Various ways are carried out to try to achieve the company's business goals, one of which is by conducting system and information technology audits, to evaluate the evidence to determine whether the information system used is in accordance with the company's vision and mission. This process also looks at whether the resources are sufficient to achieve the company's goals. Audit is a management tool that is useful for confirming evidence of a transaction, to assess how successfully a process or activity has been carried out, in order to find out whether the target that has been set can be achieved (Sembiring, 2015).

Information system is a system that brings together transaction processing needs within an organization to support managerial operations. The information system audit serves to ensure that the information system in this company safeguards information assets, uses the system effectively and efficiently and maintains integrity (Bina Elshaddai & Fernandes Andry, 2018). In a company there are various management units that function to carry out a business procedure according to the rules of the company, such as HRD unit, Finance unit, Procurement unit, Inventory unit and others, depending on the management of the company.

Formulation of the problem raised in the research (Sabtu, 2021) This includes how to clarify problems into statements that are in accordance with the COBIT 5 framework. And how to measure the maturity level of IT governance at AIKOM Ternate. The relationship with this research is that there is an understanding in choosing the COBIT 5 framework.

This Research (Mambu et al., 2019) conducted at the University of Klabat in North Sulawesi by evaluating academic information systems as learning support media as well as providing information for students, lecturers and staff, which has the aim of assessing, monitoring and ensuring that an organization's information system can manage data integration properly and is able to operate. effectively according to company goals. In accordance with these problems, this research takes the COBIT 5 MEA domain framework.

This Research (Hudin et al., 2020) discusses the Inventory Information System at Domino's Pizza Utan Kayu using COBIT 4 sub domains PO, AI, DS, ME. Domino's Pizza Utan Kayu is one of the businesses engaged in fast food. As a restaurant that provides a dish every day, of course, supplies related to raw materials and goods are very, very important, so a system is needed so that everything can be controlled properly. However, there is often a discrepancy between the inventory stock in the system and the physical stock, it is necessary to audit the information system using a framework, such as COBIT 4.1. The difference with this study is the version used in the study, using the COBIT Framework Version 5, while in this study using the COBIT Framework with COBIT Version 4.1.

The Research (Zailina, 2020) This study aims to measure the maturity level of IRAISE (Integrated Academic Information Systems) located at UIN Suska Riau using the ITIL v3 framework. The difference is that this study measures the maturity level using the maturity level formula, while measuring the capability level using the Capability level formula and the difference is the use of a different framework in my research using the COBIT 5 framework and this study using the ITIL v3 framework.

This study will discuss the Inventory Information System at PT. Telkom Akses Pontianak. Inventory management is one of the important aspects that need to get a special portion in its management. One solution is to apply information technology to the inventory system. Inventory becomes more effective and efficient (Zailina, 2020). This research makes PT. Telkom Akses Pontianak as the object of research, especially in the Inventory section. PT. Telkom Akses (PTTA) is a subsidiary of PT. Telkom Indonesia which is engaged in network infrastructure throughout Indonesia.

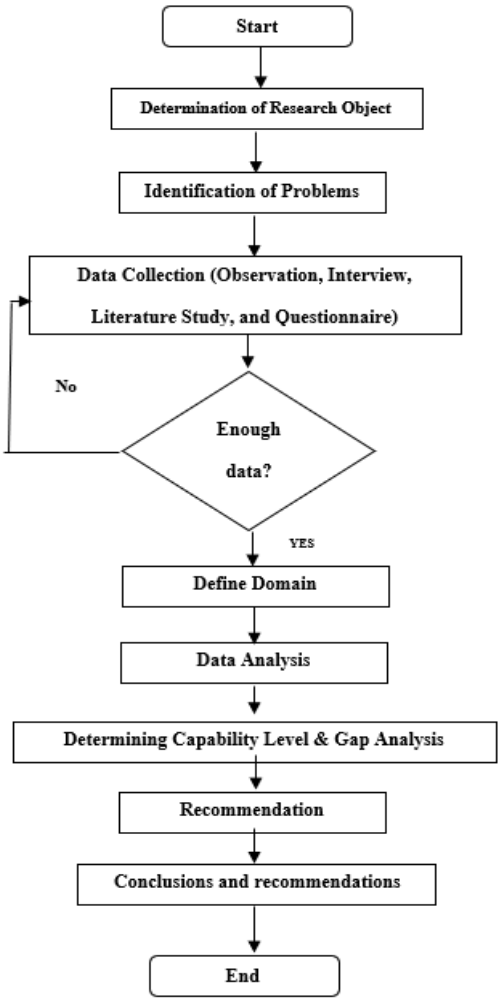
PT. Telkom Akses (PTTA) was established on December 12, 2012. The establishment of PTTA is part of Telkom Indonesia's commitment to always develop a broadband network to provide access to information and communication for all Indonesian people in various parts of the archipelago. Telkom Akses strives to provide quality internet connections that are affordable to improve the quality of human resources, so that they can compete globally. Currently, Telkom Akses is building a Fiber Optic-based backbone network (fiber optic cable) throughout Indonesia.

Vision of PT. Telkom Akses is to become the best broadband network operation and maintenance service provider in Indonesia, PT. Telkom Akses to provide the best quality for all stakeholders. Mission of PT. Telkom Akses exists to support the successful development, quality of the broadband network of PT. Telekomunikasi Indonesia, to provide excellent service with the best quality, on time and with the right volume. Creating professional, reliable, and capable human resources in the field of access network technology, as well as fostering good relations with the environment related to construction work and providing satisfactory results for all stakeholders. With the vision and mission of PT. With

such access, we need inventory management that fully supports it so that the vision of the company can be achieved.

RESEARCH METHODOLOGY

The research stage is an important thing. Therefore, the stages of research must be arranged in such a systematic way properly and correctly (Hanso, 2016). In this study the stages of research carried out, so that the results of the research produced later can be appropriate and easy to understand, the following stages or plots carried out in this research:



Source: (Hermawati & Rosyida, 2022)

Figure 1. Research Flowchart

In the research stage, there are several functions of each of the stages of the research carried out, namely as follows:

1. Determination the object of research, conducting a survey related to the object to be researched, from several objects surveyed finally choosing PT. Telkom Akses Pontianak as the object to be researched.
2. Identification the problem, after selecting the object under study, the next step is to identify the problem, in this case collecting information on the company under study, and finally there are some background problems obtained, so focus on the Inventory Information System at PT. Telkom Akses Pontianak.
3. Collecting data, carrying out several data collection techniques such as observation, interviews, literature studies, and questionnaires.
4. Determining the domain, determining what domain is suitable for the background of the problem being studied, in the end choosing the MEA domain in the COBIT 5 framework as a method that becomes a reference in conducting research at PT. Telkom Akses Pontianak.
5. Data analysis, in this process, is a step to analyze data sources that have been obtained from the data collection process, check related data that have been obtained, to choose which sources can be aligned with the background of the problem being studied.
6. Determining capability level and gap analysis, after analyzing this stage is the stage where calculations are carried out so that the data determines the Capability level and Gap Analysis related to the Inventory Information System at PT. Telkom Akses Pontianak according to the COBIT 5 framework standard in the MEA domain.
7. Recommendations, carried out to provide solutions related to problem solving, repairs, and for developers of the object under study (Suliyanto S.E, M.M, 2018). This stage provides recommendations to the object being studied regarding the Inventory information system used.
8. Conclusions and suggestions, a final process of a research where this process is to reaffirm and take the essence of the results of data analysis discussed in a study (Suliyanto S.E, M.M, 2018). This stage is the final stage of all research processes carried out, conclusions given regarding the research being studied, and suggestions given to the object under study.

To be accurate and in accordance with the problems that occur, then carry out the process of collecting data at the place that is the object of research and using the COBIT 5 framework which will focus on the MEA Domain, where as a reference in carrying out the Inventory Information System Audit at PT. Telkom Akses Pontianak. This subsection also provides an overview in analyzing and obtaining conclusions from the results of data collection.

RESULTS AND DISCUSSION

Capability Level Framework COBIT 5 Domain MEA

The results of the calculation of each MEA subdomain consisting of MEA 01, MEA 02, and MEA 03, from the results of the questionnaire can be

explained as below.

1. Capability Level MEA 01
   The following is the result of the questionnaire calculation from MEA 01 Domain with several subdomains in MEA 01, as follows:

Table 1. The calculation result of Capability Level MEA.01

MEA.01 (Monitor and Evaluate Performance and Conformance)				
Domain	**Sub Domain**	**Description**	**Capability**	**Description**
MEA 01	MEA 01.1	Establish a monitoring approach	3,60	Established Process
	MEA 01.2	Set performance and conformance targets	3,77	Predictable Process
	MEA 01.3	Collect and process performance and conformance data	3,53	Predictable Process
	MEA 01.4	Analyse and report performance	4,10	Predictable Process
	MEA 01.5	Ensure the implementation of corrective actions	4,13	Predictable Process
		Averange	**3,83**	**Predictable Process**

Source: (Hermawati & Rosyida, 2022)

From the table above, it can be seen in the MEA Domain with the MEA 01 sub domain, which has several sub subdomains, in the MEA 01.1 subdomain the questionnaire results show the Capability value of 3.60 with the information being at the Predictable Process level, which means the object under study has reached the required process. has been set to run within a specified limit to achieve the goal of the process. Furthermore, in the MEA subdomain 01.2, the results of the questionnaire show the Capability value, which is 3.77 with information being at the Predictable Process level, which means that the object under study has reached the specified process already running within a specified limit to achieve the goal of the process.
Likewise with MEA 01 subdomains, each of which has a questionnaire value of MEA 01.3 with a Capability value of 3.53, MEA 01.4 with a value of 4.10, and MEA 01.5 with an ability value of 3.13 are at the Predictable Process level. From the calculation table above MEA 01 has an average value of 3.83 which is at the Predictable Process level, which means that the object under study has reached the specified process already running within a specified limit to achieve the goal of the process.

2. Capability Level MEA 02
   The following are the results of the questionnaire calculation from MEA 02 Domain with several subdomains in MEA 02, as follows:

Table 2. The calculation result of Capability Level MEA.02

MEA.02 (Monitor the System of Internal Control)				
Domain	**Sub Domain**	**Description**	**Capability**	**Description**
MEA 02	MEA 02.1	Monitor internal controls	3,80	Predictable Process
	MEA 02.2	Review business process controls effectiveness	3,33	Established Process
	MEA 02.3	Perform control self-assessments	3,63	Predictable Process
	MEA 02.4	Identify and report control deficiencies	3,80	Predictable Process
	MEA 02.5	Ensure that assurance providers are independent and qualified	4,13	Predictable Process
	MEA 02.6	Plan assurance initiatives	3,33	Established Process
	MEA 02.7	Scope assurance initiatives	3,40	Established Process
	MEA 02.8	Execute assurance initiatives	3,33	Established Process
		Averange	**3,60**	**Predictable Process**

Source: (Hermawati & Rosyida, 2022)

From the table above, it can be seen in the MEA domain with the MEA 02 sub domain, has several sub domains, in the MEA 02.1 sub domain the results of the questionnaire show the Capability value of 3.47 with information being at the Predictable Process level, which means that the object under study has reached the specified process already running within a specified limit in order to achieve the goal of the process, as well as the MEA 02.3 subdomain with a Capability value of 3.63, MEA 02.4 with a Capability value of 3.80, and MEA 02.5 with a value of 4.13, which has information at the Predictable Process level.
Furthermore, in the MEA 02.2 subdomain, the results of the questionnaire show a Capability value of 3.33 with a description of being at the Established Process level, which means that the managed process has now been implemented or implemented using a predetermined process and can achieve its process goals. as well as the subdomain MEA 02.6 with a Capability value of 3.33, MEA 02.7 with a Capability value of 3.40, and MEA 02.8 with a value of 3.33, which have information at the Established Process level. From the calculation table above MEA 02 has an average value of 3.60 which is at the Predictable Process level, which means that the object under study has reached the specified process already running within a specified limit to achieve the process goal.

3. Capability Level MEA 03
   The following are the results of the questionnaire calculation from MEA 03 Domain with several subdomains in MEA 03, as follows:

Table 3. The Calculation result of Capability Level MEA.03

MEA.03 (Monitor, Evaluate and Assess Compliance with External Requirements)				
Domain	**Sub Domain**	**Description**	**Capability**	**Description**
MEA 03	MEA 03.1	Identify external compliance requirements	3,50	Established Process
	MEA 03.2	Optimise response to external requirements	3,51	Predictable Process
	MEA 03.3	Confirm external compliance	3,93	Predictable Process
	MEA 03.4	Obtain assurance of external compliance	3,80	Predictable Process
		Averange	**3,69**	**Predictable Process**

Source: (Hermawati & Rosyida, 2022)

From the table above, the MEA domain with the MEA 03 sub domain has several sub-domains, in the MEA 03.1 sub-domain the results of the questionnaire show the Capability value of 3.50 with information being at the Established Process level, which means that the managed process has now been implemented or implemented using a predetermined process and can be able to achieve the objectives of the process. Furthermore, in MEA 03.2 the results of the questionnaire show the Capability value, which is 3.51 at the Predictable Process level, which means that the object under study has reached the specified process already running within a specified limit to achieve the goal of the process.
Likewise with MEA 03.3 with a Capability value of 3.93 and MEA 03.4 with a Capability value of 3.80, which has a description of being at the Predictable Process level. From the calculation table above, MEA 03 has an average value of 3.69 which is at the Predictable Process level, which means that the object under study has reached the specified process and has been running within a specified limit in order to achieve the goal of the process.

GAP Analysis

From the Capability value that has been obtained previously, it is compared to the expected value in the MEA domain. As for the results of the calculation of GAP results from each MEA subdomain which consists of MEA 01, MEA 02, and MEA 03, the results of the questionnaire can be explained as below.

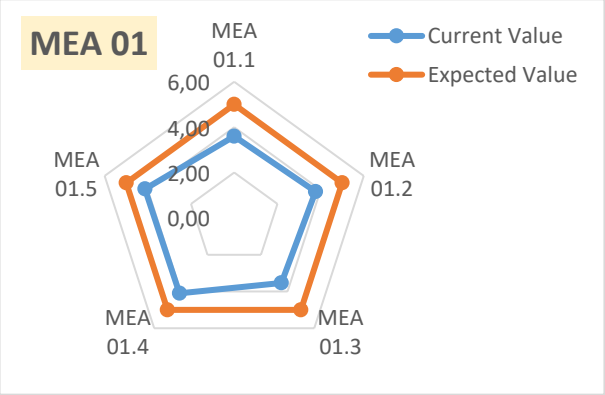
1. GAP Analysis MEA 01
   The following is the result of Gap Analysis calculation from MEA 01 Domain with several subdomains in MEA 01, as follows:

Table 4. The Calculation of GAP Analysis MEA.01

MEA.01 (Monitor and Evaluate Performance and Conformance)					
Domain	**Sub Domain**	**Description**	**Capability Value**	**Expected Value**	**Gap**
MEA 01	MEA 01.1	Establish a monitoring approach	3,60	5	1,4
	MEA 01.2	Set performance and conformance targets	3,77	5	1,2
	MEA 01.3	Collect and process performance and conformance data	3,53	5	1,5
	MEA 01.4	Analyse and report performance	4,10	5	0,9
	MEA 01.5	Ensure the implementation of corrective actions	4,13	5	0,9
		Averange	**3,83**	**5**	**1,2**

Source: (Hermawati & Rosyida, 2022)

From the table above, MEA 01.1 has a Gap value of 1.5, MEA 01.2 has a Gap value of 1.2, MEA 01.3 has a Gap value of 1.5, MEA 01.4 has a Gap value of 0.9, and MEA 01.5 has a Gap value of 0.9. With the average value of the gap in MEA 01, which is 1.2. The appearance of the radar diagram on MEA 01 is as follows:



Source: (Hermawati & Rosyida, 2022)
Figure 2. Radar chart MEA 01

2. GAP Analysis MEA 02
   The following is the result of Gap Analysis calculation from MEA 02 Domain with several subdomains in MEA 02, as follows:

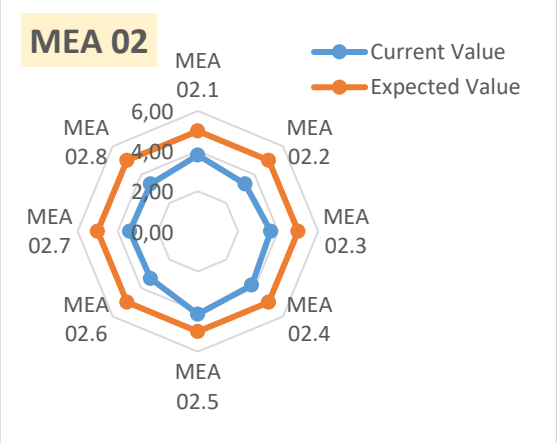
Table 5. The Calculation of GAP Analysis MEA.02

MEA.02 (Monitor the System of Internal Control)					
Domain	**Sub Domain**	**Description**	**Capability Value**	**Expected Value**	**Gap**
MEA 02	MEA 02.1	Monitor internal controls	3,80	5	1,2
	MEA 02.2	Review business process controls effectiveness	3,33	5	1,7
	MEA 02.3	Perform control self-assessments	3,63	5	1,4
	MEA 02.4	Identify and report control deficiencies	3,80	5	1,2
	MEA 02.5	Ensure that assurance providers are independent and qualified	4,13	5	0,9
	MEA 02.6	Plan assurance initiatives	3,33	5	1,7

	MEA 02.7	Scope assurance initiatives	3,40	5	1,6
	MEA 02.8	Execute assurance initiatives	3,33	5	1,7
		Averange	**3,60**	**5**	1,4

Source: (Hermawati & Rosyida, 2022)

From the table above it can be seen that MEA 02.1 has a Gap value of 1.2, MEA 02.2 has a Gap value of 1.7, MEA 02.3 has a Gap value of 1.4, MEA 02.4 has a Gap value of 1.2, MEA 02.5 has Gap value is 0.9, MEA 02.6 has a Gap value of 1.7, MEA 02.7 has a Gap value of 1.6 and MEA 02.8 has a Gap value of 1.7. With the average value of the gap in MEA 02 which is worth 1.4. The appearance of the radar diagram on MEA 02 is as follows:



Source: (Hermawati & Rosyida, 2022)
Figure 3. Radar chart MEA 02

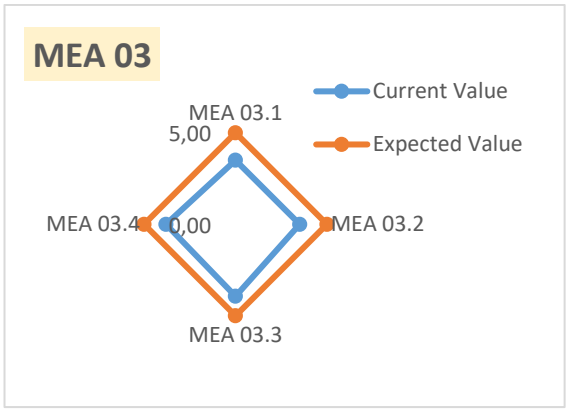
3. GAP Analysis MEA 03
The following is the result of Gap Analysis calculation from MEA 03 Domain with several subdomains in MEA 03, as follows:

Table 6. The Calculation of GAP Analysis MEA.03

MEA.03 (Monitor, Evaluate and Assess Compliance with External Requirements)					
Domain	**Sub Domain**	**Description**	**Capability Value**	**Expected Value**	**Gap**
MEA 03	MEA 03.1	Identify external compliance requirements	3,50	5	1,5
	MEA 03.2	Optimise response to external requirements	3,51	5	1,5
	MEA 03.3	Confirm external compliance	3,93	5	1,1
	MEA 03.4	Obtain assurance of external compliance	3,80	5	1,2
		Averange	**3,69**	5	1,3

Sumber: (Hermawati & Rosyida, 2022)

From the table above, MEA 03.1 has a Gap value of 1.5, MEA 03.2 has a Gap value of 1.5, MEA 03.3 has a Gap value of 1.1, and MEA 03.4 has a Gap value of 1.2. With the average value of the gap in MEA 03, which is 1.2. The appearance of the radar diagram on MEA 03 is as follows:



Source: (Hermawati & Rosyida, 2022)
Figure 4. Radar chart MEA 03

CONCLUSION

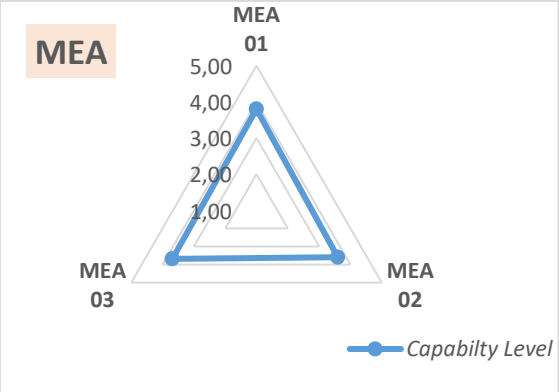
Inventory Information System Audit Using COBIT 5 with MEA Domain at PT. Telkom Askses Pontianak, which is the object of careful research, focuses on the MEA domain with several subdomains, namely MEA 01, MEA 02 and MEA 03 by calculating the number of Capability levels of each subdomain and Gap Analysis. Below is a table and a radar diagram of the overall Capability level calculation of the MEA domain in the COBIT 5 framework.

Table 7. Overall, of MEA Capability Level Result

Domain	**Sub Domain**	**Description**	**Capability Level**	**Description**
MEA	MEA 01	MEA.01 (Monitor and Evaluate Performance and Conformance)	3,83	**Predictable Process**
	MEA 02	MEA.02 (Monitor the System of Internal Control)	3,60	**Predictable Process**
	MEA 03	MEA.03 (Monitor, Evaluate and Assess Compliance with External Requirements)	3,69	**Predictable Process**
		Averange	**3,70**	**Predictable Process**

Source: (Hermawati & Rosyida, 2022)

It can be seen from the table above that the results of the Capability level calculation in the three subdomains in the MEA domain are at the Predictable Process level, which means that the object under study has reached the specified process and has been running within a specified limit to achieve the goal of the process. The following is a display of the Capability level radar diagram for the overall MEA domain in the COBIT 5 framework at PT. Telkom Akses Pontianak.



Source: (Hermawati & Rosyida, 2022)

Figure 5. Radar chart Overall of MEA Capability Level

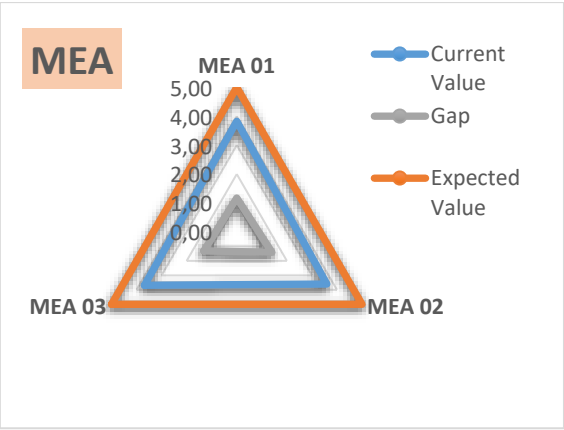
Below is a table and a radar diagram of the overall Gap Analysis calculation of the MEA domain in the COBIT 5 framework.

Table 8. Overall, MEA Gap Analysis Calculation Results

Domain	Sub Domain	Description	GAP
MEA	MEA 01	MEA.01 (Monitor and Evaluate Performance and Conformance)	1,2
	MEA 02	MEA.02 (Monitor the System of Internal Control)	1,4
	MEA 03	MEA.03 (Monitor, Evaluate and Assess Compliance with External Requirements)	1,3
		Averange	**1,3**

Source: (Hermawati & Rosyida, 2022)

From the table above, the Gap Analysis calculation results in the three subdomains in the MEA domain are at a value of 1.3 which means that there are still discrepancies that occur in the application system and individual workers at PT. Telkom Akses Pontianak than expected. The following is a display of the Gap Analysis radar diagram on the overall MEA domain in the COBIT 5 framework at PT. Telkom Akses Pontianak.



Sorce: (Hermawati & Rosyida, 2022)

Figure 6. Overall, MEA Radar Gap Analysis Diagram

From the results carried out during the study starting from observations, library studies, interviews, and questionnaires PT. Telkom Akses Pontianak, especially in related units, namely the Inventory unit and Operation unit, has complied with all regulations, both internal and external. The workers have carried out work according to company SOPs and existing and binding legal regulations, as well as good and good coordination between units. The application system used is also very helpful in the smooth daily operations of PT. Telkom Akses Pontianak.

During the research, the management of PT. Telkom Access Pontianak really provides full support regarding the data needed in the research I did, but there were also shortcomings during this research, namely when the appointment with the party to be interviewed was constrained because the person concerned was out of town for urgent business, so it was replaced with parties who are in the research location but still in the organizational structure of PT. Telkom Access Pontianak and on the basis of the selection of the Management of PT. Telkom Access Pontianak.

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