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Evaluation of Information Technology Governance by Using CobIT 5 Framework at Higher Education

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ABSTRACT

IT (Information Technology) governance is an important thing in every organization where at this time Information Technology has become an important role in the sustainability of an organization. Therefore, to produce good organizational goals, good IT governance is needed as well. In this study, there are several problems that must be managed by the organization but have been summarized in the problem of resource optimization. To solve these problems, the COBIT 5 framework was chosen as a framework that would become a reference for solving these problems. There are 16 processes that will solve organizational problems, namely EDM02, EDM04, APO01, APO03, APO04, APO07, APO08, APO10, APO13, BAI01, BAI02, BAI04, DSS01, DSS03, DSS04, MEA01 and using PAM (Process Assessment Model) as tools to evaluate. The purpose of this study was to determine the level of organizational IT capabilities, and to analyze the gap between the organizational target value (to be) and the capability value obtained by the current organization (to be). After knowing the gap value, this value will be used as a basis for producing a recommendation for improvement for the organization.

1. Introduction

IT governance has emerged as a new paradigm that allows organizations to control and direct the use of IT (Rado Omesaad, AL Fanah Muna, 2019). So that all technological developments should be accompanied by good governance. Because information technology (IT) is the key to efficient performance and corporate strategic management to achieve its goals.(Wautelet, 2019). In other words, IT has shifted from supporting sources to strategic sources. So that without good governance, organizations can face missed opportunities and potential failures and lags behind innovation, as well as increased exposure to IT risks(Bart, 2019). Effective IT Governance promotes the achievement of business goals, while poor IT Governance hinders and limits business achievement. Because IT Governance (ITG) is a discipline of corporate governance that focuses on Information Technology systems, performance and risk management.(Rado Omesaad, AL Fanah Muna, 2019).

The development of information technology also demands universities to manage resource potentials with information technology effectively and efficiently to face competition (Bianchi and Sousa, 2016). Higher Education is one of the educational institutions that really needs the support of information and communication technology. One of them is STMIK Pelita Nusantara, which uses information technology to become a core business process to realize its vision and mission and get value from the information technology investment. The information technology used is: Academic Information System, Online Library Application, Graduation System Application, Alumni System Application, Career / Study Tracer Application, PPMB Application, Lecturer Honor Payment Application, Lecturer Attendance Application, Student Attendance Application, Student Database Application / Main books, Employee Payroll System, Tuition Payment System, Logistics System Application, Pelita Nusantara Portal (WEB), online library, e-learning, e-journal.

However, there are still several problems, namely the less than optimal use of information technology and supervision. Information technology investment costs are not proportional to the results obtained. Inconsistent management policies on application utilization. Motivation of operational staff and poor skills and productivity. Therefore, procedures are needed to analyze resource efficiency, assess, set parameters and characteristics to produce decisions in a reliable manner(Kuznetsov et al., 2018).

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Information technology governance has various frameworks (frameworks) that have been developed to help organizations handle various components of IT governance, such as the International Standard Organization (ISO), Information Technology Infrastructure (ITIL), Project Management Body of Knowledge (PMBOK), Capability Maturity Model Integration (CMMI), Project in Controlled Environment (PRINCE), Control Objective for Information and Related Technology (CobIT), Certified in the Government of Enterprise IT (CGEIT), Lean IT and others(Selig, 2018), where all of these frameworks represent standards, guidelines and tools for information technology governance.

CobIT 5 is a good practice framework for Corporate Governance and IT Management developed by ISACA which comprises a set of practices, both for board and senior IT and operational management aimed at controlling IT through IT related processes. CobIT 5 assists organizations in corporate IT governance and management(ISACA, 2012) (De Haes et al., 2016). Thus, to analyze the application of information technology governance in this study, the CobIT 5 framework will be used. Because there are many processes and practices in COBIT 5 that are related to or in line with other frameworks in all fields. In the COBIT 5 enterprise goal, there is a governance objective, namely resource optimization, which is in accordance with the existing problems at STMIK Pelita Nusantara.

In accordance with stakeholder needs and governance objectives, namely resource optimizations, a mapping process is carried out between the enterprise goal to IT-related goals and IT-related goals to COBIT 5 Process so as to obtain 16 process domains that greatly affect IT related goals with a higher primary level. and serve as the basis for evaluating IT governance. These processes are EDM02 (Ensure Benefits Delivery), EDM04 (Ensure Resource Optimization), APO01 (Manage the IT Management Framework), APO03 (Manage Enterprise Architecture), APO04 (Manage Innovation), APO07 (Manage Human Resources), APO08 (Manage Relationships), APO10 (Manage Suppliers), APO13 (Manage Security), BAI01 (Manage Programs and Projects), BAI02 (Manage Requrements Definition), BAI04 (Manage Availability), DSS01 (Manage Operations),

Research related to governance evaluation using the CobIT 5 framework has been carried out by many previous researchers. (De Haes et al., 2016) in the application of CobIT 5 does not determine the level of capability, gap analysis and does not provide recommendations for improvements to the evaluated company. (Fitroh, Nur Amalia and Ratnawati, 2019) in the selection of the CobIT 5 domain does not cover all problems and does not match the needs of the company. (Setiawan and Andry, 2019) do not select domains through mapping enterprise goals to IT Related Goals and IT Related Goals to Domain Process COBIT 5. (Juliantari, Dantes and Divayana, 2020) In selecting respondents, it is not in accordance with the RACI chart in CobIT 5.However, the research carried out will be better if the use of CobIT 5 is carried out by mapping what stakeholders and organizations want, targeting levels to be achieved, calculating the gap (GAP) against achievement so as to produce recommendations for improvement to the organization.

2. Literature Review

2.1. Information Technology Governance (IT Governance)

Information technology governance is part of corporate governance which refers to the process of ensuring the effectiveness of the use of information technology to achieve organizational goals (ITGI, 2003). The effectiveness of governance is determined by how IT functions and how decision-making authority is in the organization(Care et al., 2017).

According to ITGI in research (Bart, 2019) There are five domains in IT governance, namely:

a) Resource management (IT Resource Management)
   This domain ensures that IT resources are managed properly and responsibly. IT resources include equipment, hardware, software, cloud-based storage, IT staff and knowledge.
b) IT performance measurement
   This domain is focused on ensuring that IT activities, services and processes are properly performed, measured and valued.
c) IT strategic alignment
   This domain is focused on ensuring that IT is well integrated and supports business goals.
d) Generating IT value delivery (IT value delivery)
   This domain focuses on one of the ultimate goals of IT governance, namely companies that succeed in getting value from IT. These values include better finances, better performance, customer satisfaction, compliance, and operational excellence.
e) IT risk management

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This domain focuses on ensuring that IT-related risks are properly managed and mitigated. IT risks include service disruptions, technical malfunctions, cybercrime, cyber attacks, industrial espionage, electronic fraud, incorrect service, denial of service, improper data modification, and unauthorized data.(Bart, 2019).

Figure 1. Focus area of IT Governance (ITGI, 2007)

2.2. CobIT 5

a. Principles in CobIT 5

COBIT 5 has five key principles for IT governance and management. These five principles are used to build an effective governance and management framework, which can optimize IT investment and use to benefit stakeholders.(ISACA, 2012). The principles can be seen in Figure II.3 below:

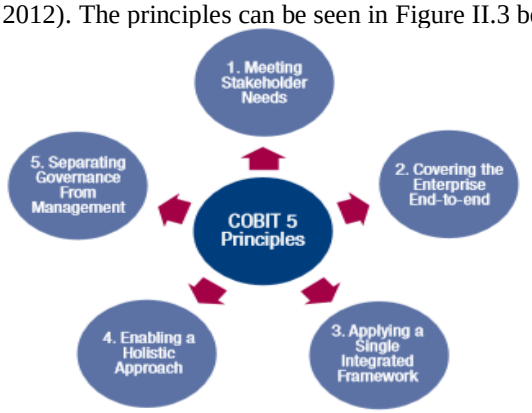

Figure 2. The CobIT Principle 5(ISACA, 2012).

b. Process Assessment Model (PAM)

Process Assessment modelis a two-dimensional model of process capability. In one dimension, process dimensions are defined and classified into process categories. In another dimension, the capability dimension, is defined as a set of process attributes grouped into capability levels. Process attributes provide measurable characteristics of process capability(ISACA, 2013). The process assessment model defined in this respect conforms to the requirements of ISO / IEC 15504-2 and can be used as a basis for conducting a capability assessment of each process.CobIT 5(ISACA, 2013). The PAM model can be seen in Figure 3.

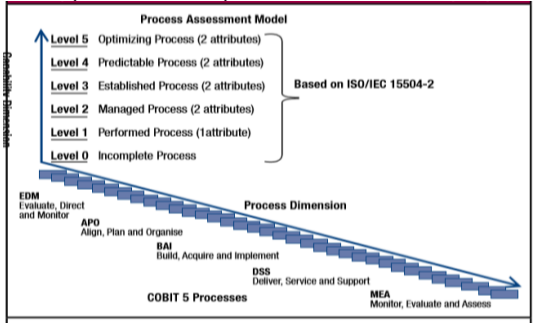

Figure 3. Overview of the Process Assessment Model (PAM) (ISACA, 2013)

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Process reference model CobIT 5 (PRM) consists of 37 processes that describe the life cycle of corporate IT governance and management, as shown in Figure 4.(ISACA, 2013)

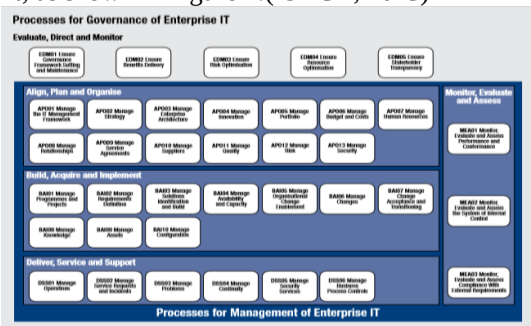

Figure 4. Process CobIT 5(ISACA, 2013)

The CobIT 5 process reference model divides the company's IT processes into two main areas of activity namely governance and management and is divided into process domains.

2.3. RACI Chart

RACI (Responsible, Accountable, Consulted, and Informed) chart is a matrix of all activities or authority in decision making carried out in the organization towards all people or roles for each process(Fitroh, Nur Amalia and Ratnawati, 2019). The following is an explanation of the RACI chart found on COBIT 5:

a. R (Responsible / Responsible)
Who gets the task to do. This refers to the main role or person in charge of operational activities, meeting needs and creating the expected results of the organization.

b. A (accountable / Accountable)
Who is responsible for the success of the task. This refers to overall accountability for the work performed.

c. C (consulted / consultation)
Who provided input. This refers to the role that is responsible for obtaining information from other units or external partners. Inputs must be considered and appropriate action taken.

d. I (informed / information)
Who receives the information. This refers to the role that is responsible for receiving proper information and overseeing every task performed.

RACI charts can be used to build the necessary organizational structure and process responsibility for relevant management practices by clearly outlining responsibility, accountability, consultation and information. (Fitroh, Nur Amalia and Ratnawati, 2019).

3. Research methodology

The research method used in this research is a qualitative method, using case studies (objects), which is a systematic way of seeing an event, collecting data, analyzing information and reporting the results. (Nasution, Erwin and Bartuska, 2020). In this case study, the data collection method was carried out by guided interviews based on questions based on CobIT 5, besides that, observations were also made to strengthen the research results.

3.1. Method of collecting data

The data collected for this study consisted of primary data (based on observations, questionnaires and interviews with the organization) as well as secondary data obtained from various sources (literature reviews, internet, journals, and books in accordance with this research).

The Process Assessment Model (PAM) method is a model that is in CobIT 5. This model will be used to collect data in order to obtain detailed data so that in the completion it gets good results. (Fitroh, Nur Amalia and Ratnawati, 2019). The processes in the PAM model are as follows:

a. Initiation

At this stage, the necessary data and information is collected at STMIK Pelita Nusantara. The aim is to explain the identification results of some of the information obtained. At this stage it is divided into 4 parts, namely:

1) Observation
Observation is a direct observation of the state, activity and process of an object of research(Fitroh, Nur Amalia and Ratnawati, 2019). This observation was carried out at STMIK Pelita Nusantara. The

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observation carried out was non-participant observation, the researcher was not directly involved in organizational activities but only as an independent observer.

2) Interview

One method in collecting data and information is by conducting interviews. The interview is written with questions. The interview technique was carried out because researchers needed communication and information from respondents(Nasution, Erwin and Bartuska, 2020). Interviews were conducted at STMIK Pelita Nusantara which were conducted with the Head of STMIK Pelita Nusantara, the Chairman of PSI, Puket 1, Puket 2, and service users. From the interview results, data and information were obtained regarding the vision and mission, organizational structure, regulations and policies, applications used, main tasks and functions, problems being faced and expectations of ongoing IT management.

3) Literature Review

Literature studies are conducted by studying theories related to information technology governance and CobIT 5. These theories are derived from books, e-books, and previous research journals that support this thesis.

4) Questionnaire

The next stage of data collection by giving a questionnaire addressed to a number of respondents at STMIK Pelita Nusantara with the aim of studying the perceptions and attitudes of each respondent. Submission of a research questionnaire containing written questions regarding activities contained in the CobIT 5 process, namely the EDM02 (Ensure Benefits Delivery) process, EDM04 (Ensure Resource Optimization), APO01 (Manage the IT Management Framework), APO03 (Manage Enterprise Architecture), APO04 (Manage Innovation), APO07 (Manage Human Resources), APO08 (Manage Relationships), APO10 (Manage Supliers), APO13 (Manage Security), BAI01 (Manage Programs and Project), BAI02 (Manage Requrements Definition), BAI04 (Manage Availability), DSS01 (Manage Operations),

b. Planning and Assessment

At this stage, the functional-functional mapping contained in the STMIK Pelita Nusantara organizational structure against the COBIT 5 organizational structure then makes a research questionnaire based on activities in the COBIT 5 process aimed at respondents. So that the answers to the questionnaire can be in accordance with the conditions that occur at STMIK Pelita Nusantara.

1) Capability Level Questionnaire

The question object of the capability level questionnaire was developed from the description of the CobIT 5 capability level model in the 16 process domains. This questionnaire uses a Guttman scale based on the CobIT 5 framework. Each question or sentence on the questionnaire is to determine the current organizational conditions (as is) and the desired conditions (to be) which focuses on 16 domains of the process.

2) Sampling

The sampling technique for 16 process domains was determined and adjusted using the RACI chart in CobIT 5 for each process. The sampling technique used is purposive sampling technique, which is a technique in determining the samples taken are considered to meet certain fields so that they are suitable for sampling. This technique is usually carried out in qualitative research.

c. Data Collection

At this stage, collecting data from the findings of interviews and observations at STMIK Pelita Nusantara to obtain evidence of process activity assessments that have been carried out in the 16 process domains.

d. Data Validation

At this stage, the respondents validated the findings from the questionnaire answers according to the RACI chart. The findings are recapitulated using the Guttman scale for each process in the 16 process domains.

e. Process Attribute Level

Assessment of base practices is carried out by looking at the achievement of the process objectives from base practices that must be carried out by the organization. Base practices in this study consist of processes and principles of IT governance that must be carried out by an organization. The research questionnaire was filled in by selecting one of the answers with YES and NOT represented by 1 and 0. The assessment was carried out in two stages, the first stage was calculating the average answer of each respondent to the implementation of base practice using equation (1), the next stage was the calculation. Base practice scale for all respondents using equation (2) where the calculation starts from i = 1 (respondent 1) to the nth respondent.(Murad et al., 2018)

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$$\text{skala BP per responden} = \frac{\text{jumlah skala penilaian BP}}{\text{jumlah BP}} \quad \ldots \ldots \ldots \ldots \ldots (1)$$

$$\text{Skala BP} = \sum_{i=1}^{n} \frac{\text{skala BP per responden}}{\text{jumlah responden}} \quad \ldots \ldots \ldots \ldots \ldots (2)$$

Assessment of work products is carried out by looking at work products that have been produced from the IT governance process. Filling in the research questionnaire is done by selecting one of the YES and NO answers represented by 1 and 0. This is done to obtain information about the work products produced and to assess the level of completeness of the work products. The assessment is carried out in two stages, the first stage is calculating the average answer of each respondent to the work product produced by using equation (3), the next step is calculating the work product scale for all respondents using equation (4) where the calculation starts from i = 1 (respondent 1) to respondent n(Murad et al., 2018)

$$\text{Skala WP per responden} = \frac{\text{jumlah skala penilaian WP}}{\text{jumlah responden}} \quad \ldots \ldots \ldots \ldots \ldots (3)$$

$$\text{Skala WP} = \sum_{I=1}^{n} \frac{\text{jumlah skala penilaian WP}}{\text{jumlah responden}} \quad \ldots \ldots \ldots \ldots \ldots (4)$$

f. Reporting the Result

The final stage is a report based on an evaluation of the 16 process domains. Examinations, findings, data fulfillment that have been carried out will produce a gap analysis and description of each process from the capability level questionnaire in which there are two conditions, namely the current condition (as is) and the expected condition (to be). So as to result in the provision of a recommendation that is used as a consideration and improvement of the governance of STMIK Pelita Nusantara.

3.2. Analysis Technique

Quantitative analysis techniques use Microsoft Excel spreadsheets to process answers from the survey results and explain the formulation of the problem of the capability level of information technology governance carried out by STMIK Pelita Nusantara Medan. The research tool used is based on the literature contained in CobIT 5.

a. Capability Level Calculation

The results of the assessment of the capability level of each process can be carried out with the following average formula:(Fitroh, Nur Amalia and Ratnawati, 2019)

$$\text{Capability level} = \frac{(0 * y0) + (1 * y1) + 2 * y2) + (3 * y3) + (4 * y4) + (5 * y5)}{s}$$

Information:

Yn (y0… y5): The number of processes that are at level n

Z : Number of processes evaluated.

3.3. Problem Solving Concept Framework

This problem-solving conceptual framework describes how to identify research problems, determine the process domain to determine models in data collection and calculate gaps to produce recommendations for improvement in the organization. The following is an overview of the conceptual framework of problem solving from the research to be carried out, it can be seen in Figure 5 below:

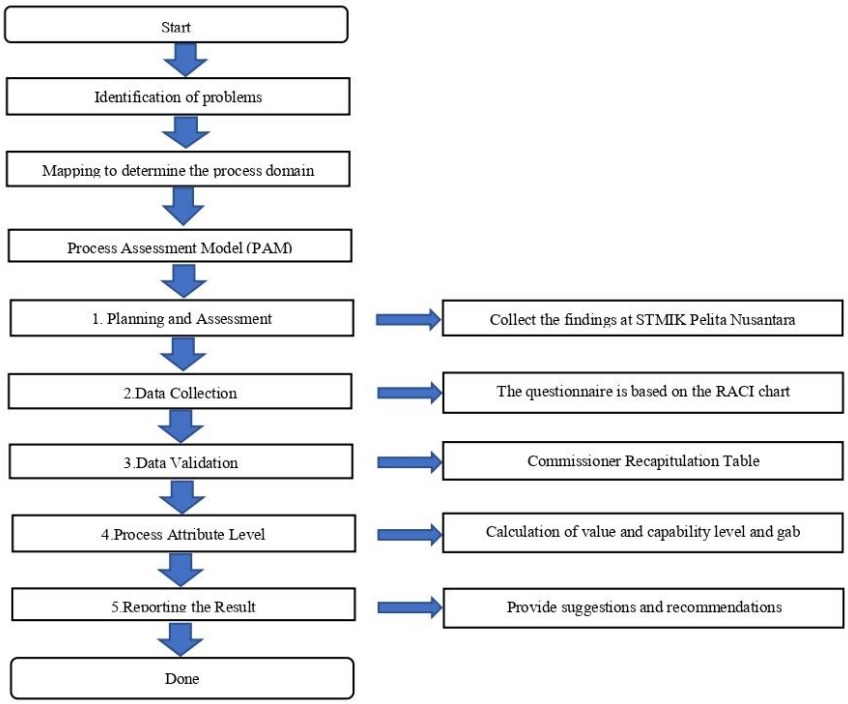

Figure 5. Problem Solving Concept Framework

4. Results and Discussion

4.1. Research result

a. Distributing Questionnaires and Returning Questionnaires

The distribution of questionnaires was carried out by meeting face to face with respondents and distributing questionnaires directly to respondents which had been mapped with the RACI Chart COBIT 5 with the previous STMIK Pelita Nusantara organizational structure. The purpose of distributing this questionnaire is to obtain accurate data.

The questionnaire has been compiled by researchers with 5 levels, but for how to distribute it done in a gradual manner. For the first stage, the distribution was carried out on questionnaires level 1 to level 3. After filling in by the respondent, the researcher then recapitulated the respondent's answer. The summary of respondents' answers is as follows:

b. Analysis of Current Capability Levels (As Is)

After completing data collection in the form of a questionnaire and continued with data collection, the next step is to analyze all the data that has been collected in order to produce the current capability value. The description of the capability level analysis is as follows:

Table. 1
Analysis of the capability level for the 16 sub domains used

Domain	Process	Base Prctice scale						Work Product							
		BP Resp Scale 1	BP Resp Scale 2	BP Resp Scale 3	BP Resp Scale 4	BP Resp Scale 5	BP scale%	WP Resp scale 1	WP Resp scale 2	WP Resp scale 3	WP Resp scale 4	WP Resp scale 5	WP Scale%	PA 1.1%	Rating
EDM02	Make sure you benefit	0.13	0.68	1.00	1.00	0.68	82.22%	0.00	0.00	0.00	0.00	0.00	0.00	41.11%	p
EDM04	Ensure Resource Optimization (Ensure Optimization of Resources)	0.38	0.60	1.00	1.00	0.93	78.22%	0.00	0.00	0.00	0.00	0.00	0.00	39.11%	P
APO01	Manage the IT Management Framework	0.43	0.68	0.80	0.94	0.98	76.73%	0.00	0.00	0.00	0.00	0.13	0.00	38.36%	P
APO03	Process Practices, Inputs / Outputs and Activities (Practices, Input / Output and Activities)	0.23	0.27	0.83	0.76	0.25	47.06%	0.00	0.00	0.00	0.00	0.00	0.00	23.53%	P
APO04	Manage Innovation (Managing Innovation)	0.31	0.73	0.88	0.92	0.90	74.94%	0.00	0.00	0.00	0.00	0.00	0.00	37.67%	P
APO07	Manage Human Resources (Manage Human Resources)	0.33	0.74	0.60	0.91	0.61	64.00%	0.00	0.00	0.00	0.00	0.00	0.00	32.00%	P
APO08	Manage Relationships (Manage Relationships)	0.37	0.17	0.88	0.76	0.61	55.71%	0.00	0.00	0.00	0.00	0.00	0.00	27.86%	P
APO10	Manage Suppliers (Manage Suppliers)	0.20	0.38	0.72	0.48	0.29	42.00%	0.00	0.00	0.00	0.00	0.00	0.00	21.00%	P
APO13	Manage Security	0.37	0.32	0.85	0.53	0.90	59.81%	0.00	0.00	0.00	0.00	0.00	0.00	29.90%	P
BAI01	Manage Programs and Projects	0.42	0.40	0.67	0.72	0.44	55.00%	0.00	0.00	0.00	0.00	0.00	0.00	27.00%	P
BAI02	Manage Requirements Definition	0.33	0.42	0.46	0.58	0.71	50.00%	0.00	0.00	0.00	0.00	0.00	0.00	25.00%	P
BAI04	Manage Availability and Capacity (Manage Availability and Capacity)	0.37	0.45	0.48	0.79	0.84	59.00%	0.00	0.00	0.00	0.00	0.00	0.00	29.00%	P

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Domain	Process	Base Prctice scale						Work Product							
		BP Resp Scale 1	BP Resp Scale 2	BP Resp Scale 3	BP Resp Scale 4	BP Resp Scale 5	BP scale%	WP Resp scale 1	WP Resp scale 2	WP Resp scale 3	WP Resp scale 4	WP Resp scale 5	WP Scale%	PA 1.1%	Rating
DSS01	Process Practices, Inputs / Outputs and Activities (Process Practices, Input / Outputs and Activities)	0.35	0.38	0.25	0.85	0.76	52.00%	0.00	0.00	0.00	0.00	0.00	0.00	26.00%	P
DSS03	Manage Problems	0.55	0.85	0.28	0.66	0.73	61.00%	0.00	0.00	0.00	0.00	0.00	0.00	31.00%	P
DSS04	Manage Continuity	0.41	0.45	0.63	0.64	0.51	53.00%	0.00	0.00	0.00	0.00	0.00	0.00	26.00%	P
MEA01	Monitor, Evaluate and Assess Performance and Conformance	0.43	0.64	0.37	0.76	0.72	58.33%	0.00	0.00	0.00	0.00	0.00	0.00	29.17%	P
Average							60.56%							30.23%	p

From the results of the distributed questionnaire recapitulation, the results can be seen in the table which shows that the Base Practice Scale has not achieved the desired results by the organization because the implemented process is still partially achieving the goal because it still gets an average capability value of 60.56% or is at scale L (Largely Achieved) so that it is not possible to continue the calculation to level 2, because the Work Product which is proof that STMIK Pelita Nusantara has documentation of the ongoing process does not exist or is at a capability value of 30, 23% or a P scale (Partialy Achieved).

c. Process Capability Level Assessment

Based on the results of the assessment process of the process domain EDM02, EDM04, APO01, APO03, APO04, APO07, APO08, APO10, APO13, BAI01, BAI02, BAI04, DSS01, DSS03, DSS04, MEA01 can be summarized in table IV.20 below:

Table 2.
Process Capability Assessment Results

Domain ID	Domain Name	Process Capability Level					
		Level 0	Level 1	Level 2	Level 3	Level 4	Level 5
Evaluate, Direct, and Monitor							
EDM02	Make sure you benefit		Partially Achieved				
EDM04	Ensuring Optimization of Source Day		Partially Achieved				
Align, Plan and Organize							
APO01	Managing an IT Management Framework		Partially Achieved				
APO03	Practices, Input / Output and Activities)		Partially Achieved				
APO04	Managing Innovation		Partially Achieved				
APO07	Manage Resources		Partially Achieved				
APO08	Managing Relationships		Partially Achieved				
APO10	Managing Suppliers		Partially Achieved				
APO13	Manage security		Partially Achieved				
Build, Acquire and Implement							
BAI01	Managing Programs and Projects		Partially Achieved				
BAI02	Manage Requirements Definition)		Partially Achieved				
BAI04	Managing Availability and Capacity		Partially Achieved				
Deliver, service and Support							
DSS01	Practice Process, Input / Output and Activities		Partially Achieved				
DSS03	Manage Problems		Partially Achieved				
DSS04	Managing Sustainability		Partially Achieved				
Monitor, Evaluate and Assess							
MEA01	Monitor, evaluate and assess performance and suitability		Partially Achieved				

From the results of the capability level assessment, all the domains that were assessed were EDM02, EDM04, APO01, APO03, APO04, APO07, APO08, APO10, APO13, BAI01, BAI02, BAI04, DSS01, DSS03, DSS04, MEA01 is at level 1 with the status of Partially Achieved (P) except APO01 is in Largely Achieved status L) this shows that all processes in STMIK Pelita Nusantara have not been fully implemented because for the scale of the assessment is still between 15% - 50% meaning that for level 1 alone it has not been fulfilled. Based on the data from the respective level assessment results, the calculation of the average level of capability level of Information Technology resources at STMIK Pelita Nusantara is carried out as follows:

$$\text{Capability Level} = \frac{(0*1)+(1*16)+(2*0)+(3*0)+(4*0)+(5*0)}{16}$$

Capability level = 1

Based on the results of the calculation of the capability level above, the results of the capability level are at level 2.

4.2. Discussion

a. Gap Analysis (Gap)

Table 3
Gap Analysis

Domain	Process	Current Capability Value	Target value	Indigo gap
EDM02	Make sure you benefit	0.4111	2	1,5889
EDM04	Ensure Resource Optimization (Ensuring Optimization of Resources)	0.3911	2	1,6089

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Domain	Process	Current Capability Value	Target value	Indigo gap
APO01	Manage the IT Management Framework (Managing IT Management Framework)	0.3836	2	1,6164
APO03	Process Practices, Inputs / Outputs and Activities (Practice, Input / Output and Activities)	0.2553	2	1,7447
APO04	Manage Innovation (Managing Innovation)	0.37	2	1.63
APO07	Manage Human Resources (Manage Human Resources)	0.32	2	1.68
APO08	Manage Relationships (Managing Relationships)	0.2786	2	1,7214
APO10	Manage Suppliers (Managing Suppliers)	0.21	2	1.79
APO13	Manage Security (Manage security)	0.299	2	1,701
BAI01	Manage Programs and Projects (Manage Programs and Projects)	0.27	2	1.73
BAI02	Manage Requirements Definition (Managing Requirements Definition)	0.25	2	1.75
BAI04	Manage Availability and Capacity (Managing Availability and Capacity)	0.29	2	1.71
DSS01	Process Practices, Inputs / Outputs and Activities (Practice Process, Input / Output and Activities)	0.26	2	1.74
DSS03	Manage Problems (Managing Problems)	0.31	2	1.69
DSS04	Manage Continuity	0.26	2	1.74
MEA01	Monitor, Evaluate and Assess Performance and Conformance	0.2917	2	1,7083
Average		0.30315	2	1.69685

Based on the results of the capability level assessment and analysis of the gap in each domain, it can be explained that all domains are at level 1 with an average achievement status of 30.315% or a value of 0.30315, while the target to be achieved is with an F rating (Fully Achieved) at level 1 with an achievement level of 85% -100% or with a value of 0.85 - 1. This target is also the main requirement to be able to continue the assessment at level 2 (Managed Process). Based on the average of all gaps per domain, the gap is at 1.69685. This gap is the difference between reaching the target (to be), namely level 2. From the GAP, it will produce recommendations to STMIK Pelita Nusantara to make improvements in order to achieve the target value that has been set.

5. Conclusion

Based on the results of the analysis and evaluation in this study, it can be concluded that:

a. Domains selected through the cascade flow for evaluation of Information Technology STMIK Pelita Nusantara are 16 process domains between EDM02 (Ensure Benefits Delivery), EDM04 (Ensure Resource Optimization), APO01 (Manage the IT Management Framework), APO03 (Manage Enterprise Architecture), APO04 (Manage Innovation), APO07 (Manage Human Resources), APO08 (Manage Relationships), APO10 (Manage Supliers), APO13 (Manage Security), BAI01 (Manage Programs and Project), BAI02 (Manage Requrements Definition), BAI04 (Manage Availability) , DSS01 (Manage Operations), DSS03 (Manage Problems) DSS04 (Manage Continuity) and MEA01 (Monitor, Evaluate and Assess Performance and Confornance)
b. Based on the results of the evaluation that has been carried out, the capability level in the entire domain is at level 1 with an average achievement of 30.315% and for the target capability is at level 2. So that to reach the target level there is a gap of 1.69685 or 169.685% to reach level 2.
c. To cover the gap and reach the target level, STMIK Pelita Nusantara requires better documentation in accordance with CobIT 5.
d. Based on the evaluation, there are still many activities in CobIT 5 that have not been implemented by STMIK Pelita Nusantara so that they are only at level 1 with an average score of 15% - 50% or at level P (Partially Achieved)
e. Based on evaluations carried out by Work Products or outputs, this is evidence that very few activities in COBIT 5 have been implemented.

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