IT GOVERNANCE OF SENAYAN LIBRARY MANAGEMENT SYSTEM (SLIMS) LIBRARY AND ARCHIVES DEPARTMENT OF EAST KALIMANTAN PROVINCE USING COBIT 5.0

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Abstract: *The existence of an information system in the Library and Archives Department of East Kalimantan needs to be properly maintained and supervised so that the organizational system is in line with the agency's goals. One way to ensure this is to conduct an information system performance analysis. This study uses the Control Objective for Information and related Technology (COBIT) version 5.0, which is a best practice that provides activities managed by the IT organizational structure within a framework in the form of a product, to focus on execution and control that has been made from experts from the field of technology governance Information. This practice can maximize IT investment, to assess if there are errors in providing measurements made and delivering services. Therefore, in order to achieve the target, this research was carried out using the COBIT 5.0 framework in order to be able to analyze an information system performance at the Library and Archives Department of East Kalimantan. The results of this study indicate that MEA01 is at level 5 (Optimizing Process), MEA02 is at level 3 (Established Process), MEA03 is at level 2 (Managed Process). In this case the Regional Library and Archives Office of East Kalimantan to be more efficient in the use of IT requires handling of the factors that influence it so that it is maximal, the use of IT for all employees in the operation of the Senayan Library Management System (SLiMS) and also the person in charge of IT to keep pace with developments technology.*

Keywords: *IT Governance, Library Management System, SLiMs, COBIT 5.0*

1. INTRODUCTION

The importance of information technology at this time is a means of processing information on government organizations because information technology makes efficiency and effectiveness in supporting work. Today many organizations apply and utilize and develop information technology in order to assist organizations in their business processes, in order to obtain relevant and accurate information in order to assist and make decisions. Implementing information technology (IT) [1] in an organization requires a large investment and

there is also a high risk, so that thorough supervision can carry out proper governance mechanisms for the use of IT [2],[3]. An organization in the use of IT performance needs to be evaluated so that the IT management mechanism runs according to the objectives and business processes in an applicable government organization [1],[4]. In an organization, evaluation is needed for the development of information technology that is applied in order to contribute to the organization optimally, there are several frameworks that can be needed to carry out evaluations for controlling technology standards including ISO, COBIT, or ITIL [5]. Control Objective for Information and related

Technology (COBIT) 5.0 is the framework used in this research, in order to model the IT governance framework that covers financial, operational, implementation, planning and monitoring issues for each IT process [6],[7],[8]. There are several frameworks that can be needed to evaluate for technology standard control including ISO, COBIT, or ITIL. COBIT 5.0 is the framework used in this research, in order to model the IT governance framework that covers financial, operational, implementation, planning and monitoring issues for each IT process[7].

The Library and Archives Department of East Kalimantan (KALTIM) is an agency that has implemented IT in its operational processes such as library management information systems, archival information systems, and personnel information systems. The existence of an information system within this agency needs to be properly maintained and supervised so that it can be ensured that the organizational system is in line with the agency's objectives. One way to ensure this is to perform an information system performance analysis. Information system performance analysis can be done using various IT Governance frameworks. Control Objectives for Information and related Technology (COBIT) version 5.0 are best practices that provide activities managed by the IT organizational structure within a framework in the form of products, to focus on execution and control that has been made by experts from the field of information technology governance. This practice can maximize IT investment, to assess if there are errors in providing measurements made and delivering services [6]

Therefore, in order to achieve the target, this research was carried out using the COBIT 5.0 framework in order to be able to analyze an information system performance at the Library and Archives Department of KALTIM. The results of this study are expected to provide recommendations to improve strategic alignment, value delivery, risk management and information system performance measurement. To assess if there are errors in providing the measurements made and delivering services [6]. Therefore, in order to achieve the target, this research was carried out using the COBIT 5.0 framework in order to be able to analyze an information system performance at the Library and Archives Department of KALTIM. The results of this study are expected to provide recommendations to improve strategic alignment, value delivery, risk management and information system performance measurement. To assess if there are errors in providing the measurements made and delivering services [6]. Therefore, in order to achieve the target, this research was carried out using the COBIT 5.0 framework in order to be able to analyze an information system performance at the Library and Archives Department of KALTIM. The results of this study are expected to provide recommendations to improve strategic alignment, value delivery, risk management and information system performance measurement.

Another research "Evaluation of IT Governance Performance on the Implementation of the COBIT 5 Star Click Framework Information System (Case Study: PT. Telekomunikasi Indonesia, TBK Semarang)".

Building a system that helps companies, this research aims to be in the decision-making process that connects managers and elements within the company. From the research results obtained at PT. Telekomunikasi Indonesia, TBK Semarang already uses the Star click Information System (SI) which supports the sales process using maps. The author forms a framework as a reference model, in order to ensure the performance of IT governance implemented by the Star Click application. Including well-managed planning, the level of capability is measured, monitoring and adjustment both internally and externally. Everything that is obtained at the capability level in general is 1.89, it is known because the new capability level has reached the manage process level in the fully archive category (>85%). With this, the company is able to meet up to level 3 established process in the fully archive category, it can be expected to meet the target based on the existing recommendations [10]

Another study with the title "Information System Security Audit at the Yogyakarta City Government Office Using COBIT 5". Knowing the level of information system security capability in the Yogyakarta City Government, this research was carried out. From the assessment of the level of IS security capability in the Yogyakarta City Government, it still does not meet the required level, namely level 3, which is caused by several obstacles [11].

Another research with the title "Implementation and Assessment of Information Technology Governance Based on the COBIT 5 Framework at Audit Board of the Republic of Indonesia". By helping to implement international standard information technology governance, this study aims to determine the level of capability in the IT bureau of Audit Board of the Republic of Indonesia, explaining that the level of capability in the IT Bureau of Audit Board of the Republic of Indonesia is currently at level 2 (managed process) with a score of 2,162, the details of which are 1 process in level 0, 3 processes at 1, 22 processes at level 2, 11 processes at level 3, and there are no processes that reach levels 4 and 5. IT governance at Audit Board of the Republic of Indonesia is at level 2, which means that work products are carried out according to process performance that has been determined to be managed well, it involves monitoring, adjustment and planning [9].

Another research is the IT Governance process using COBIT 5 domain BAI at PT. Indonesian post. Regarding the assessment of the expectations of this Domain, it can be ensured that the solution can meet the objectives of the business process. The result of this research is that the target level of IT governance and management capability is at level 3 [12].

From the results of the research that has been discussed, this research analyzes the performance of information systems using the COBIT 5.0 Framework at the Library and Archives Department of KALTIM.

2.   RESEARCH METHODOLOGY

COBIT (Control Objective for Information and related Technology) is a

collection of best practices for IT management. COBIT version 5 was developed by The IT Governance Institute (ITGI) and the Information Systems Audit and Control Association (ISACA). COBIT 5 takes engineering management and corporate governance a new thought, and delivers globally accepted understandings, practices, analytical tools and models to help increase the trustworthiness and value of information systems. Figure 1 is the 5 basic principles of COBIT 5 [7],[12]
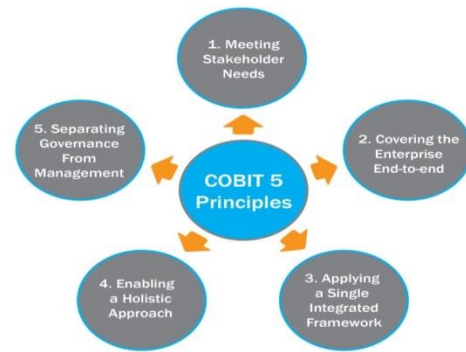
1. *Level 0 Incomplete Process*

   The process is not implemented or fails to achieve its process objectives. At this level, there is little or no evidence of any achievement of process objectives.

2. *Level 1 Performed Process* (1 attribute)

   The process is implemented to achieve its business goals.

3. *Level 2 Managed Process* (2 attributes)

   Implemented processes are managed (planned, monitored, and adjusted) and results are defined and controlled

4. *Level 3 Established Process* (2 attributes)

   Processes are documented and communicated (for organizational efficiency)

5. *Level 4 Predictable Process* (2 attributes)

   Processes are monitored, measured and predicted to achieve results.

6. *Level 5 Optimizing Process* (2 attributes)

   The predicting process is then improved to meet relevant and future business objectives.

Figure 1. COBIT Framework Principle

Control Objectives for Information and Related Technology (COBIT) 5.0 has 5 domains which are divided into governance and management domains, each domain has a process to achieve its respective goals, namely:

1. *Domain Evaluate, Direct, and Monitor* (EDM) there are 5 processes

2. *Domain* Align, Plan and Organize (APO) there are 13 processes

3. *Domain Build, Acquire and Implement* (BAI) there are 10 processes

4. *Domain* Deliver, Service and Support (DSS) there are 6 processes

5. *Domain* Monitor, Evaluate and Assess (MEA) there are 3 processes

Evaluate, Direct, and Monitor (EDM) This governance process deals with stakeholder governance objectives in conducting assessments, optimizing risks and resources, includes practices and activities aimed at evaluating strategic options, providing direction to IT and monitoring results.

Align Plan and Organize (APO) Provides direction for solution delivery (BAI) and service and support provision (DSS). This domain covers strategy and tactics, and identifies concerns about how IT can best contribute to

achieving business goals. The realization of the strategic vision needs to be planned, communicated and managed for different perspectives. A proper organization, as well as a technology infrastructure, must be put in place.

Build, Acquire and Implement (BAI) Provide a solution and pass it so that it will turn into a service. To realize the IT strategy, IT solutions need to be identified, developed or acquired, as well as implemented and integrated into business processes. Changes and maintenance of existing systems are also covered by this domain, to ensure that solutions continue to meet business objectives.

Deliver, Service and Support (DSS) Accepting solutions and making them available to end users. This domain is concerned with the actual delivery and support of required services, which include services, security and continuity management, user support services, and operational facility and data management.

Domain Monitor, Evaluate and Assess (MEA) which focuses on the management area, namely the process of assessing the company's needs and the ongoing system is still fulfilling or not, ensuring the control design complies with regulations, and monitoring related to the independent assessment of the effectiveness of the system and the ability to meet business objectives by an independent appraiser. MEA domain consists of 3 control objectives.

3. RESULTS AND DISCUSSION

At this stage, measuring the maturity level of the Library and Archives Department of

KALTIM is based on the results of interviews, observations to each related section using COBIT 5 using one domain, namely the Monitor, Evaluate and Assess (MEA) domain. Where this domain consists of 3 objective controls that focus on the management area, namely the process of assessing the company's needs and the ongoing system is still meeting or not, ensuring the control design complies with regulations, and monitoring related to an independent assessment of system effectiveness and the ability to meet business objectives by assessment independent.

Mapping the current condition of the Library and Archives Department of KALTIM was carried out with an interview process regarding the COBIT 5 MEA framework process with the research object as the source of the research object, namely the Library and Archives Department of KALTIM. Interview informants were determined based on their positions, titles and responsibilities related to the processes in MEA for the Senayan Library Management System (SLiMS) application.

3.1 Monitor, Evaluate, and Assess Performance and Conformance

For example, when the lights go out and so on, it can't be handled directly, usually there is trouble when after the lights go out, the generator doesn't turn on when it comes back on, there's trouble, for example, there are some menus that don't appear, including the administrator, you have to consult the Communication and Informatics Department

service to ask for help of IT personnel and that's what ever happened.

Based on the results of a conversation with Head of Department of Library and Archives, it can be said that currently the IT performance is standard and fine, if in the future Library Department of KALTIM migrants to a new program, the application from the national library is expected to be accepted. Use Based on this understanding, it can be said that the Library and Archives Department of KALTIM has a standard IT performance evaluation so that the Capability Model level based on COBIT 5, the Library and Archives Department of KALTIM has been at level 5 Optimizing Process.

3.2 Monitor, Evaluate and Assess the System of the Internal Control

The purpose of internal control at the Library and Archives Department of KALTIM is to regulate and maintain standards for internal control and assurance assessment activities, as stated by Head of Department of Library explaining: "*The internal control is like this, for example, from the hardware it is placed in the living room. The server that goes into the processing room to access it must have a special username and password and only know by the admin himself. For operators, each password is also made and for data backup, the control itself will be backed up every two weeks.*"

Based on the results of a conversation with Head of Department of Library and Archives, it can be said that for the current internal control, not everyone can access processing, they must have a username and password, and the data will

continue to be backed up in order to maintain the data when a time is needed. Based on the explanation, it can be said that the Library and Archives Department of KALTIM has an internal control objective that regulates and maintains activity standards so that the level of the Capability Model based on COBIT 5, the Library and Archives Department of KALTIM is at level 3 Established Process.

3.3 Monitor, Evaluate, and Assess Compliance with External Requirements

Assessing IT business processes at the Library and Archives Department of KALTIM, the level of IT maturity in the applications used, as conveyed by Head of Department of Library eexplained: "*For business processes like I said earlier the menus in the application are already standard menus, such as member registration menus, attendance menus for visitors, any search or collection menus, borrowing, returning, extending borrowed books, then menus for reporting on what books have been borrowed, anyone who have borrowed or any group of books borrowed in 1 year or how many months or in a day it can be seen. For stock taking, the calculation of the collection can also be done in the application, all of which are standard.*"

Based on the results of a conversation with Head of Department of Library and Archives, it can be said that the standard IT gasoline process is carried out, as well as in calculating the collection (stock taking) everything is standard on the application that is used. Based on this understanding, it can be said that the Library and Archives Department of KALTIM has an IT

business process as stated so that the level of Capability Model based on COBIT 5, the Library and Archives Department of KALTIM is at level 2 *Managed Process.*

Figure 2 shows, spider chart the current maturity level. MEA01 (Monitor, Evaluate, and Assess Performance and Conformance) is at maturity level 5 (Optimizing Process) because plans in the IT sector at the Library and Archives Department of KALTIM, information technology and library strategy have so far not been fully running well. Problems often occur that make administrators have to consult with the Communication and Informatics Department Service to get help from IT staff, the library also hands over full responsibility for handling servers to Communication and Informatics Department which if there is a decrease in server performance or connection errors it is the responsibility of Communication and Informatics Department to be overcome. For database problems, The Library and Archives Department of KALTIM has also collaborated with Communication and Informatics Department in

overcoming the database storage server, the lack of strategy in the IT field at the Library and Archives Department of KALTIM is still an obstacle at this time. MEA02 (*Monitor, Evaluate and Assess the System of the Internal Control*) is at maturity level 3 (Established Process) for controlling the Library and Archives Department of KALTIM. Fully running according to the strategic organization of each processing must have access, to control its own data, book data, borrower data and employee data have also been integrated and stored into the database. The data will also be backed up every two weeks for security and prevent unwanted things. MEA03 (*Monitor, Evaluate, and Assess Compliance with External Requirements*) is at maturity level 2 (Managed Process) for its business processes to run strategically at the Library and Archives Department of KALTIM, both in the member registration menu, returning and borrowing books, all running according to business processes and in calculating collections (stock taking) all standards performed on the application in use.
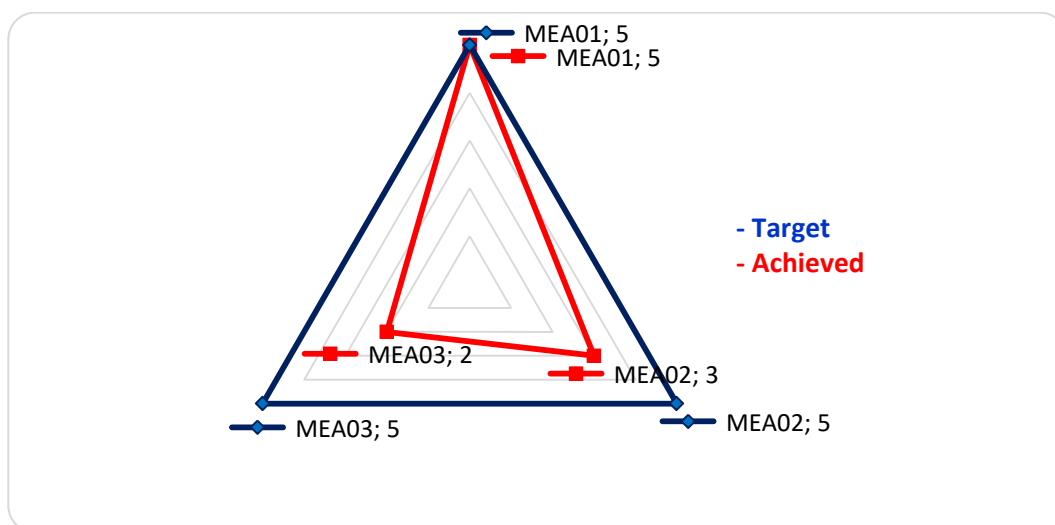

Figure 2. Maturity Level

Table 2. Recommendation Table

MEA Domains	Problem	Recommendation
MEA01 (Monitoring, Evaluation and Assessment of Performance and Compliance)	We found weaknesses in the system caused by many employees who cannot use the SLiMS application properly. This is due to the lack of SLiMS application training for employees.	There is a need for special training for staff in operating the SLiMS application.
MEA02 (Monitoring, Evaluation and Assessment of Internal Control System)	Only supervises IT infrastructure, and has not supervised the use of IT and SLiMS applications at the Library and Archives Department of KALTIM.	Need there is an increase in monitoring the IT infrastructure and the use of SLiMS applications which will also have an impact on the findings.
MEA03 (Monitoring, Evaluation and Assessment of Compliance and External Requirements)	Do not have policies in implementation IT, but there is an approach in directing the objectives of implementing IT but has not implemented it fully.	There is a need determination of clear IT implementation policies and in accordance with applicable SOPs and also provide clear directions in following up on business processes at the Library and Archives Department of KALTIM.

3.4 IT Recommendations

Based on the assessment carried out in this study by researchers using the COBIT 5 Framework, several deficiencies were found that did not meet the criteria specified in the Monitor, Evaluate and Assess (MEA) through the Capability Model which was less than the maturity level. As a researcher, he also recommends that his research uses COBIT 5 with the MEA domain, which found that there were several problems that occurred in the Library and Archives Department of KALTIM. The researcher recommends every problem that exists in the MEA domain as a measuring tool and also provides recommendations from his research to achieve the desired target.

4. CONCLUSION

In this study, from the results of the Information Technology Governance Performance Analysis using the COBIT 5.0 Framework at the Library and Archives Department of KALTIM, the domain used is Domain Monitor, Evaluate and Assess (MEA).through interviews, to assess the level of maturity (Capability Level), as well as assessing the suitability of the MEA domain on activities and actions taken related to performance at the Library and Archives Department of KALTIM. Based on the data obtained, it produces different levels of maturity in the Monitor, Evaluate and Assess (MEA) domain where in MEA01 (Monitoring, Evaluation and Performance and Conformity Assessment), it is at the maturity

level of level 5 (Optimizing Process) where the predicting process is then improved. MEA02 (Monitoring, Evaluation and Assessment of Internal Control System), is at maturity level 3 (Established Process) where the process is documented and communicated for control for data security and access. MEA03 (Monitoring, managed results set and controlled

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