Install : Information System and Technology Journal
Vol. 1, No. 3, December 2024, pp. 40~48
ISSN: 3048-1597, DOI: https://doi.org/10.33859/install.v1i1.799

Implementation of COBIT 5 Framework in IT Management at UNISM Library

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Article Info

Article history:

Received march 13, 2025
Revised march 19, 2025
Accepted April 09, 2025

Keywords:

it governance
library
cobit 5
edm04
dss02

ABSTRACT

In general, COBIT 5 is a framework that helps to focus on Governance and management which includes 2 main areas, namely Governance and Management. So that this study applies the COBIT 5 framework to a library institution at Sari Mulia University. In this study, we used COBIT 5 domains, namely EDM04 (Ensure Resource Optimization) and DSS02 (Manage Service Requests and Incidents), both of which focused on optimizing resources (IT) as well as managing service requests and incidents. This study uses methods that include qualitative and quantitative approaches by collecting data through interviews and surveys. The results show that the implementation of COBIT 5 can improve the efficiency of IT resource use as well as improve the response to IT service incidents. The average level of IT maturity is at level 3 (Established), although there are some gaps that need to be addressed to reach the optimal level. This research provides important insights for libraries in optimizing IT governance to support better services.

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1. INTRODUCTION

Library is a crucial institution in supporting teaching and learning activities, research, and community development [1]. Along with the development of information technology and the increasing need for fast and accurate access to information, IT governance and services in libraries are becoming increasingly vital [2]. This project aims to implement good IT governance practices based on COBIT 5 standards in a library, with the hope of improving operational efficiency and quality of service for users. Libraries have a vital role in expanding student knowledge. Typically, a library consists of bookshelves arranged according to scientific disciplines [3]. In general, libraries function as book repositories, requiring visitors to come in person to find and borrow books. The library of Universitas Sari Mulia, as an educational institution that focuses on human resource development, has an important role in improving the quality of education through the effective use of information technology (IT). In recent years, the library has experienced significant growth in the use of IT, including information systems, networks, and applications [4]. However, this growth also brings challenges in managing and monitoring the use of IT effectively and efficiently. To improve user services and information security, Library of Universitas Sari Mulia requires a systematic and structured framework for managing IT.

COBIT 5 (Control Objectives for Information and Related Technology), developed by ISACA (Information Systems Audit and Control Association), is one of the most popular and effective frameworks for managing IT [5]. COBIT 5 is an improvement over COBIT 4.1 and previous versions, integrating Risk IT and Val IT models, making it a comprehensive framework covering the entire organization [6]. COBIT 5 provides guidelines, tools, and models to help organizations maximize IT value while managing risks. It is built on five key principles: meeting stakeholder needs, covering the organization end-to-end, applying a single integrated framework, enabling a holistic approach, and distinguishing governance from management [7]. This study aims to apply the COBIT 5 framework in IT management at Library of Universitas Sari Mulia and evaluate its

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impact on user services and information security [8]. In this study, qualitative and quantitative approaches will be used to analyze data collected through interviews, surveys, and documentation analysis. Descriptive and statistical analysis will be used to analyze the data and draw conclusions [9].

This study will also focus on the COBIT 5 domains EDM04 (Ensure Resource Optimization) and DSS02 (Manage Service Requests and Incidents) [10]. EDM04 aims to ensure IT resources are optimally utilized, while DSS02 focuses on managing service requests and incidents. By implementing these two domains, it is hoped that library can increase the efficiency of resource use and response to service requests and incidents, thereby improving the overall quality of service [11]. Thus, this research is expected to provide a significant contribution to the development of more effective and efficient IT management at the Library of Universitas Sari Mulia, as well as being a valuable reference for other educational institutions wishing to implement the COBIT 5 framework in IT management [12]. To assess the capability of the IT governance process running in an organization, the COBIT 5 framework is designed as a methodology for measuring the maturity level of an organization system. Table 1 shows the levels in assessing the maturity of IT governance levels with COBIT 5.

Table 1. Levels in assessing IT maturity with COBIT 5

Maturity Level	Description
Level 0: *Incomplete*	The process is not implemented or fails to achieve its process objectives
Level 1: *Performed*	The implemented process achieves its process objectives
Level 2: *Managed*	The process is managed and its results are determined, controlled and maintained
Level 3: *Established*	Standard processes are defined and used throughout the organization
Level 4: *Predictable*	The process is executed consistently within defined limits
Level 5: *Optimizing*	The process is continually improved to meet current and projected relevant business objectives

The process of assessing IT maturity using COBIT 5 aims to ensure that the evaluation is objective, fair, consistent, repeatable, and accurately represents the processes being assessed. Besides COBIT 5, there are other frameworks that can be used to evaluate processes in organizations and companies, such as ISO 38500 and ITIL. COBIT 5 serves as a basic control standard for a process in an organization [13].

2. METHOD

The first step in this research is to conduct initial observations at the Library of Universitas Sari Mulia to understand how existing IT is used and managed. Then, the relevant COBIT 5 domains, namely EDM04 (Ensuring Resource Optimization) and DSS02 (Managing Service Requests and Incidents), were selected for analysis. EDM04 domain ensures that IT resources, including hardware, software, and personnel, are optimally utilized to support business objectives and maximize value [14]. It focuses on ensuring IT resources are managed effectively to provide maximum business value. While DSS02 ensures timely and effective responses to user requests and incident resolution [15]. This domain aims to ensure that IT services efficiently meet user needs while minimizing disruptions to business operations. Effective DSS02 implementation enhances user satisfaction and IT service reliability.

Data were collected through surveys and interviews. The survey is directed towards library users and staff to collect quantitative data on the satisfaction and effectiveness of IT management. The survey consists of various questions designed to evaluate users views on IT services, their level of satisfaction, and how well the IT systems support their daily needs. Respondents are also asked to assess various aspects of IT management, such as reliability, availability, and service quality. The results of this survey will be analyzed to identify trends and areas that require improvement. In-depth interviews were conducted with the IT manager, library staff, and several key users to collect qualitative data about their challenges and needs. The complete research flow can be found in Figure 1.

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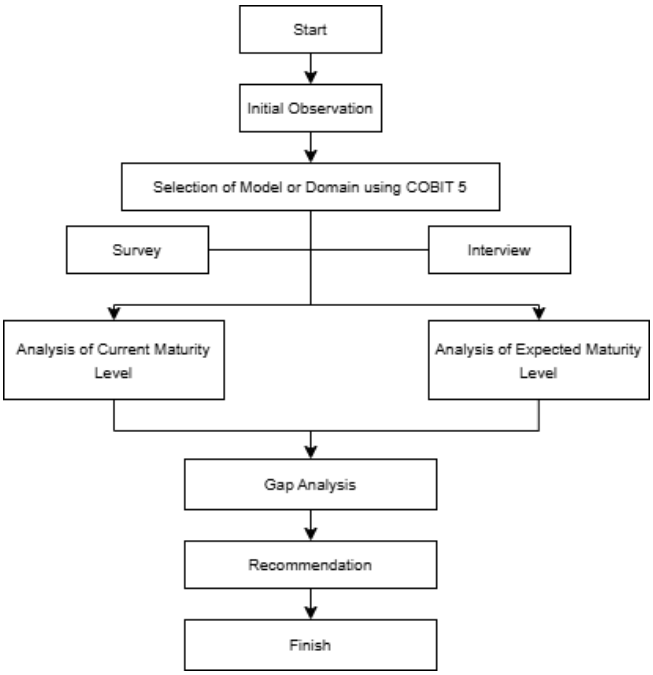

Figure 1. Research Flowchart

The next step is to analyze the maturity level of IT governance using the COBIT 5 framework on the EDM04 and DSS02 domains. The results of this analysis are used to identify the gaps between the current condition and the expected condition. Finally, improvement recommendations are determined to address the identified gaps and enhance the efficiency and effectiveness of IT services in the library. COBIT 5 was chosen because it is a comprehensive framework for auditing and analyzing IT processes, which clearly distinguishes between governance and management. With this method, the research is expected to provide a clear overview of the current IT governance condition in the library, identify existing gaps, and offer recommendations for the necessary improvements. The reference model of the COBIT 5 framework divides IT-related practices and activities into two main areas: governance and management. These two areas are further divided into several process domains, where the Governance domain consists of Evaluate, Direct, and Monitor. The four Management domains are related to responsibilities in the areas of Planning, Building, Running, and Monitoring. These five process domains are defined into 37 defined processes. The chosen process domains for evaluation using the COBIT 5 framework is presented in Table 2.

Table 2. Selection of Process Domains with COBIT 5

EDM Domain (Governance)	DSS Domain (Management)
EDM04 Ensuring Resource Optimization	DSS02 Manage Service Requests and Incidents

This study uses two process domains, with EDM04 falling under the Governance area. Meanwhile, in the Management area, the process domain used is DSS02.

3. RESULTS AND DISCUSSION

The results of the assessment and the calculation of the questionnaire, referring to the COBIT 5 framework, involve several domains, namely the EDM04 and DSS02 domains. The questionnaire is a data collection method aimed at measuring the maturity level at the Universitas Sari Mulia library. The formula used to obtain the Index Maturity is:

$$\text{Index Maturity} = \frac{Total\ Number\ of\ Answers}{Total\ Number\ of\ Questions}$$

The resulting maturity index is then converted to a scale, which is then mapped back to maturity levels to detect maturity levels. The processing results are presented in Tables 3 to 8 and the processing graphs are presented in Figures 2 to 4.

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Table 3. Assessment of EDM04 Domain

No	Question	Alternative Answers					
	EDM04 : Ensuring Resource Optimization	0	1	2	3	4	5
1	Universitas Sari Mulia library evaluates IT resource management by comparing current usage with needs, and implementing best practices to identify areas for improvement.					√	
2	Library management has taken steps to manage IT resources directly and effectively, including establishing clear policies, organizational structures, and procedures.				√		
3	IT resource management in libraries is monitored effectively by implementing monitoring tools, conducting data analysis, and periodic evaluations.				√		

Table 4. EDM04 Domain Assessment Results

Domain	Process Description	Average Value	Level	Condition
EDM04	Ensuring Resource Optimization	3,33	3	Established

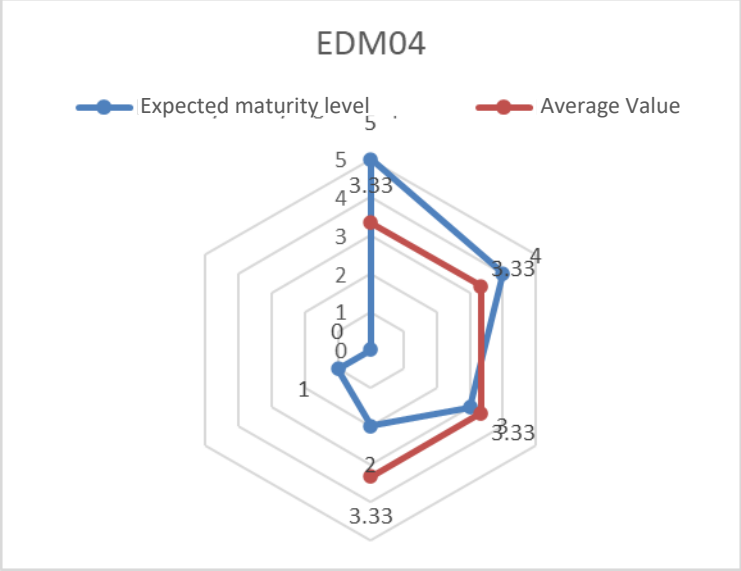

Figure 2. EDM04 Chart

On average, the maturity level value in EDM04 is 3.33, which means that the standard process is defined and used throughout the organization. The rounded of the average value is defined at level 3 with the *Established* condition.

Table 5. Assessment of DSS02 Domain

No	Question	Alternative Answers					
	DSS02 : Manage IT Service Requests and Incidents	0	1	2	3	4	5
1	The library has established a classification scheme and prioritization process for IT service requests and incidents.				√		
2	The process of recording, classifying, and resolving IT service requests and incidents in the library is carried out using an IT service management system.				√		
3	Service requests from users are verified, approved, and processed according to the established procedures.				√		

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4	To handle IT incidents, libraries perform root cause analysis of the problem and identify appropriate solutions.					√	
5	The best methods for resolving IT incidents include implementing recovery procedures, regular testing, and re-evaluating procedures after an incident.				√		
6	The procedure for closing service requests and incidents includes verifying the resolution, informing the users, and closing the records.					√	
7	To track the status and generate reports, the library uses a tracking system and creates regular reports.					√	

Table 6. DSS02 Domain Assessment Results

Process Domain	Process Description	Average Value	Level	Condition
DSS02	Manage IT Service Requests and Incidents	3,43	3	Established

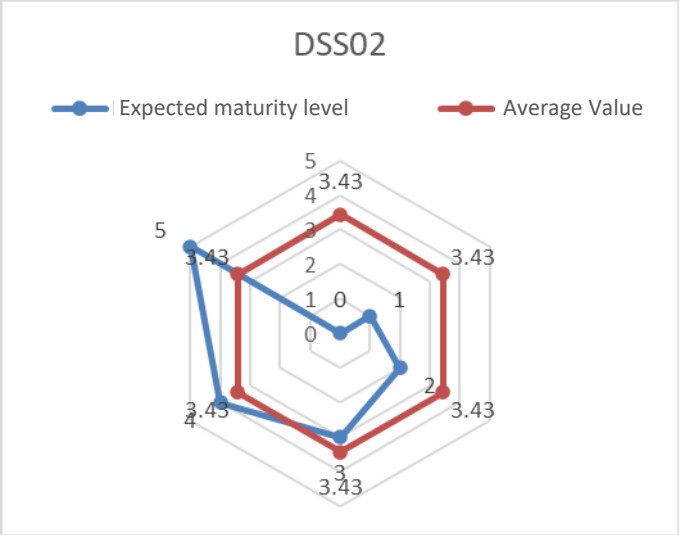

Figure 3. DSS02 Chart

The average maturity level value in DSS02 is 3.43, which means that standard processes are defined and used across the organization. The rounded average value is placed at level 3, with an "*Established*" condition.

Table 7. Average Analysis Value of the Process Domain

Process Domain	Process Description	Average Value	Level	Condition
EDM04	Ensuring Resource Optimization	3,33	3	Established
DSS02	Manage Service Requests and Incidents	3,43	3	Established
Average Analysis Value			3,38	

Table 8. Calculation of Gap Analysis of the Process Domain

Process Domain	Current Maturity (as-is)	Expected Maturity (to-be)	Gap = (to-be) – (as-is)
EDM04	3,33	5	(5) – (3,33) = 1,67
DSS02	3,43	5	(5) – (3,43) = 1,57
Average Gap Analysis			1,62

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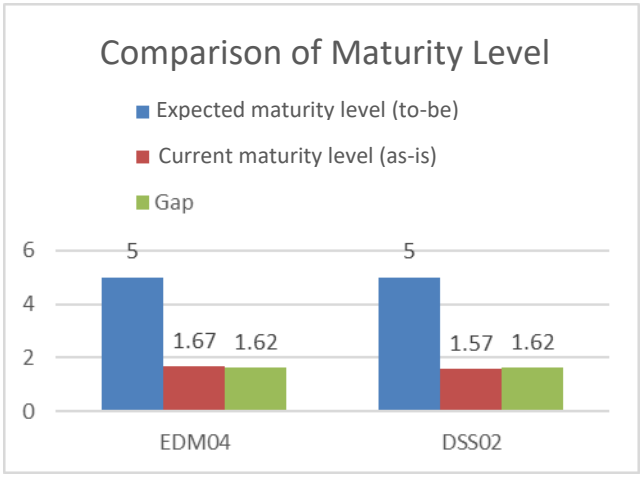

Figure 4. A Comparison Diagram of the Maturity Levels for Each Process Domain

Based on the audit using the COBIT 5 framework, the average maturity level across all process domains is 1.62, which falls under level 2 (Managed). At this level, the processes are generally well-managed, with the results being defined, controlled, and maintained. The evaluation results show a gap of 1.67 in the EDM04 (Resource Optimization) process domain. Meanwhile, in the DSS02 (Management of IT Service Requests and Incidents) process domain, there is a gap of 1.57. The gap at level 2 indicates that at the Universitas Sari Mulia Library, the processes in the EDM04 and DSS02 domains are well-managed, with the results being defined, controlled, and maintained (Managed). The recommendation to reduce the gap in the EDM04 and DSS02 process domains is to implement the defined standard processes consistently across the organization, and continuously improve these processes to achieve the relevant goals of the organization or the Universitas Sari Mulia Library.

4. CONCLUSION

The implementation of the COBIT 5 framework can be carried out by various types of organizations or companies. The maturity level audit at the Universitas Sari Mulia Library shows an average gap across all process domains with a value of 1.62, which falls within level 2 (Managed). At this level, processes are well-managed, with results that are defined, controlled, and maintained. This evaluation found a gap of 1.67 in the EDM04 (Resource Optimization) domain and a gap of 1.57 in the DSS02 (Management of IT Service Requests and Incidents) domain. The gap at level 2 indicates that the processes at the Universitas Sari Mulia Library are well-managed, with results that are defined, controlled, and maintained. For future research, it is recommended to include more process domains in both the Governance and Management areas so that the audit using the COBIT 5 framework can be conducted more comprehensively. In addition, it is important to consider other factors that may influence the maturity level, such as staff involvement, continuous training, and the use of more advanced technological tools.

5. ACKNOWLEDGEMENTS

The authors are very grateful for the support from the Bachelor of Information Technology study programs at the Faculty of Science and Technology at Sari Mulia University.

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Vol. 1, No. 3, December 2024, pp. 40~48
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