Academic Information System Audit Using the COBIT 5 Framework Deliver, Service, and Support (DSS) Domain

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Abstract

The use of information technology in higher education is a strategic necessity to support the effectiveness and efficiency of academic processes. One form of its use is the Academic Information System (SIAKAD) as a means of managing academic data, administrative services, and providing information for students, lecturers, and management. However, the implementation of SIAKAD does not automatically guarantee that its management is in accordance with the principles of good information technology governance. Therefore, an evaluation through an information system audit is needed to assess performance, service quality, and system control. his study aims to audit the Academic Information System using the COBIT 5 framework with a focus on the Deliver, Service, and Support (DSS) domain. This domain was chosen because it is directly related to the delivery of information technology services, operational support, incident management, security, and service continuity. The research method used is mixed methods with a qualitative and quantitative approach, through observation, interviews, and the distribution of questionnaires compiled based on the COBIT 5 Process Assessment Model (PAM). The results of the study show that all processes in the DSS domain are at capability level 4 (Predictable Process). This indicates that IT service management has been running consistently and in a controlled manner. However, continuous improvement is still needed so that the process can reach the optimal capability level.

Keywords: Information System Audit, Academic Information System, COBIT 5, DSS Domain, IT Governance

I. INTRODUCTION

The rapid development of information technology has brought significant changes to the way organizations carry out their operational activities. Information technology not only serves as a supporting tool, but also becomes a strategic factor in improving organizational performance and service quality. In the context of higher education, the use of information technology is realized through the implementation of the Academic Information System (SIAKAD), which is used to manage academic data, lecture processes, assessments, and other academic administrative services (Rahmaani, 2014).

The Academic Information System plays an important role in supporting the smooth running of academic processes and managerial decision-making. However, the implementation of information systems that have been running for a certain period of time is not always accompanied by optimal information technology management. Several studies show that there are still problems in managing system services, operational support, and control of information technology processes, which have the potential to hinder the effectiveness of information systems in achieving organizational goals (Maniah & Suhendro, 2005; Biilmilah & Darwis, 2017).

These issues highlight the need for periodic evaluation of the information systems used. Information system audits are an important mechanism for assessing the effectiveness of information technology management, identifying system weaknesses, and ensuring that information systems are managed in accordance with organizational standards and requirements. Information system audits also serve to assess data security, system reliability, and the quality of services provided to users (Romney & Steinbart, 2014; Schiller & Davis, 2011).

The COBIT 5 framework is one of the most widely used frameworks in information technology auditing and governance because it provides a comprehensive and integrated approach. COBIT 5 is able to assist organizations in measuring the level of information technology process capabilities and providing systematic and targeted recommendations for improvement (ISACA, 2013). Various previous studies have shown that the application of COBIT 5 in information system audits can provide a clear picture of the state of information technology governance in various types of organizations, including educational institutions (Suryono et al., 2018; Hakim & Darwis, 2016).

In this study, the Deliver, Service, and Support (DSS) domain was chosen because it focuses on information technology operational activities directly related to the delivery of IT services, incident and problem management, user support, and system service continuity. The DSS domain is highly relevant for use in Academic Information System audits because the system is used intensively by users and requires reliable and continuous service availability (Rahmaani, 2014).

Based on this description, this study was conducted to audit the Academic Information System using the COBIT 5 framework in the Deliver, Service, and Support (DSS) domain with the aim of determining the level of process capability, identifying gaps between the current and expected conditions, and providing recommendations for improvement in order to enhance the quality of services and information technology governance in higher education institutions.

II. RESEARCH METHODOLOGY

This study uses a mixed methods approach, which combines qualitative and quantitative approaches. The qualitative approach is used to gain an in-depth understanding of SIAKAD management and operations through interviews and observations. The quantitative approach is used to measure the level of IT process capability through questionnaires

The research instrument was a questionnaire developed based on the COBIT 5 Process Assessment Model (PAM) in the Deliver, Service, and Support (DSS) domain, which consists of six processes, namely DSS01 to DSS06, with a total of 38 statements. There were 15 research respondents selected based on RACI (Responsible, Accountable, Consulted, Informed) mapping, including academic leaders, IT managers, IT staff, and academic staff.

The data obtained from the questionnaire was then tested for validity and reliability. Next, the capability level for each DSS process was calculated and a gap analysis was performed by comparing the current capability level with the capability level expected by the organization.

III. RESULTS AND DISCUSSION

This section presents the results of the audit of the Alma Ata University Academic Information System (SIAKAD) using the COBIT 5 framework in the Deliver, Service, and Support (DSS) domain. The analysis focuses on measuring the capability level of each DSS process and gap analysis. Capability level measurement was conducted based on the COBIT 5 Process Assessment Model (PAM) using data from questionnaires completed by 15 respondents according to RACI mapping. The measurement results show that all six processes in the DSS domain are at capability level 4 (Predictable Process). This indicates that the IT service management process in the Alma Ata University SIAKAD has been running consistently, in a controlled manner, and is predictable based on established standards and procedures.

Discussion of Each DSS Domain Process:

A. DSS01 – Managing Operations

The DSS01 process focuses on managing daily IT service operations, including system monitoring, infrastructure management, and operational reporting. The assessment results show that DSS01 has a capability score of 4.26, which falls into category level 4 (Predictable Process).

This indicates that SIAKAD operations have been running consistently and are well documented. Operational procedures have been implemented in a standardized manner and are supported by system performance monitoring. However, there are still limitations in the structured documentation of incidents and the use of operational reports as material for continuous evaluation. This condition is one of the factors preventing the DSS01 process from reaching level 5 (Optimizing Process).

B. DSS02 – Managing Service Requests and Incidents

The DSS02 process covers the management of service requests and the handling of incidents reported by system users. Based on the calculation results, DSS02 obtained a capability score of 4.17. This score indicates that the incident handling and service request mechanisms in SIAKAD are running in a standardized and predictable manner. Incidents are generally handled based on priority and urgency levels. However, the incident classification process and incident history documentation are not yet fully integrated into the incident management system. The lack of utilization of historical incident data as a basis for continuous improvement is an obstacle to achieving the highest level of capability.

C. DSS03 – Managing Issues

The DSS03 process aims to identify the root causes of issues and prevent the recurrence of similar incidents. The assessment results show that DSS03 has the lowest capability score among the other DSS processes, at 4.16. This indicates that although problem handling has been carried out consistently, the approach used is still reactive. Documentation of solutions and lessons learned from previous problems has not been optimally utilized as a basis for knowledge management. To achieve level 5, it is necessary to implement a proactive approach to problem management and integrate a database of solutions that can be accessed by the entire management team.

D. DSS04 – Managing Sustainability

The DSS04 process focuses on managing the sustainability of IT services to ensure that systems remain available even in the event of a disruption. The assessment results show a DSS04 capability score of 4.17. This score indicates that SIAKAD has basic mechanisms in place to maintain service continuity, including recovery procedures and risk management. However, testing of continuity plans and disruption simulations has not been conducted on a regular basis or documented. The lack of periodic testing is a factor hindering the improvement of capabilities to the optimal level.

E. DSS05 – Managing Service Security

The DSS05 process obtained the highest capability score of 4.41. This indicates that service security management in SIAKAD has been implemented well, including access rights settings, data protection, and system security controls. However, security activities are still preventive in nature and are not yet fully complemented by regular security testing, such as penetration testing and vulnerability assessment. The implementation of continuous security practices is an important aspect that needs to be improved to achieve level 5.

F. DSS06 – Managing Business Process Controls

The DSS06 process focuses on controlling business processes supported by information systems. The assessment results show a capability score of 4.26.This score indicates that business process control in SIAKAD has been running consistently and supports academic needs. However, internal audits of business process control have not been conducted regularly and systematically. Strengthening the evaluation mechanism and adjusting business process control in real time is necessary to improve the capability of this process.

G. Gap Analysis

Based on interviews with management, the expected capability level for the entire DSS process is level 5 (Optimizing Process). With the entire process achieving level 4, there is a gap of ±1 level. This gap indicates that although the system is running stably and is under control, continuous improvement practices have not been fully implemented systematically. The results of this audit have strategic implications for Alma Ata University, particularly in improving the quality of information technology-based academic services. By understanding the current level of capability and the existing gap, management can develop more focused and sustainable improvement strategies in accordance with the principles of good IT governance.

IV. CONCLUSION

This study aims to audit the Academic Information System (SIAKAD) of Alma Ata University using the COBIT 5 framework in the Deliver, Service, and Support (DSS) domain. Based on the results of measuring the capability level using the COBIT 5 Process Assessment Model (PAM), it was found that all processes in the DSS domain, namely DSS01 to DSS06, were at capability level 4 (Predictable Process).

This achievement shows that information technology service management in SIAKAD has been running consistently, standardized, documented, and predictable. Operational processes, incident handling, problem management, service continuity, information security, and business process controls have been implemented in accordance with procedures established by the organization.

However, the gap analysis results show a gap between the current conditions and the capability level expected by management, which is level 5 (Optimizing Process). This gap indicates that continuous improvement practices, the use of historical data, and innovation in IT service management have not been fully implemented systematically. Therefore, strategic steps are needed to encourage the improvement of DSS process capabilities in order to achieve an optimal level and support the sustainable achievement of institutional goals.

V. RECOMMENDATIONS

Based on the results of the Academic Information System (SIAKAD) audit using the COBIT 5 framework in the Deliver, Service, and Support (DSS) domain, improvement efforts oriented towards continuous improvement are needed to achieve level 5 capability (Optimizing Process). Although all DSS processes are already at level 4, information technology service management still needs to be strengthened in order to optimally support academic needs and adapt to changes in the organizational environment.

The utilization of operational data, incident reports, and system performance monitoring results needs to be optimized as a basis for strategic decision-making. More structured documentation and historical data analysis are expected to encourage the implementation of continuous improvement and minimize the recurrence of the same problems in the future. With this approach, IT service management is not only reactive but also proactive and knowledge-based.

In addition, testing of the sustainability and security aspects of IT services needs to be carried out regularly and documented. The implementation of disruption simulations, testing of recovery plans, and routine system security evaluations are expected to improve the reliability and resilience of SIAKAD in facing operational risks and information security threats.

Evaluation and strengthening of controls over business processes supported by information systems also need to be improved through the implementation of continuous internal audits. This aims to ensure alignment between business processes, organizational policies, and the information systems used, so that academic services can run effectively and efficiently.

Furthermore, improving the competence of human resources in the field of information technology is an important factor in supporting the

achievement of optimal capability levels. Developing capabilities through training, certification, and increasing understanding of COBIT 5-based IT governance is expected to encourage innovation and improve the overall quality of Academic Information System management.

By implementing these recommendations, it is hoped that the management of the Academic Information System can be continuously improved, supporting the quality of academic services and aligning with the principles of good information technology governance.

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