

An Audit of the Academic Information System of UIN Sunan Kalijaga

Amalia Ratna Armaani
Faculty of Science and Technology
Universitas Islam Negeri Sunan Kalijaga
Yogyakarta, Indonesia
bla.tiga@yahoo.com

Muhammad Dzulfikar Fauzi
Faculty of Science and Technology
Universitas Islam Negeri Sunan Kalijaga
Yogyakarta, Indonesia
dzulfikar1234567@gmail.com

Sumarsono
Faculty of Science and Technology
Universitas Islam Negeri Sunan Kalijaga
Yogyakarta, Indonesia
sumarsono@uin-suka.ac.id

Abstract—An academic Information System (AIS) is a form of information technology in the form of software services in the education process including academic information. To get a good AIS service, it needs good governance, including IT support, service for IT users as well as continuity of care. UIN Sunan Kalijaga has adequate information technology support used in academic services for users. Audit SIA is needed to fit the IT governance framework and standards of Control Objectives for Information and Related Technology (COBIT). COBIT is standard because it is the most complete guide of best practices in IT management because it has a very good compromise in the breadth of coverage and detail of management's processes. Referring to one of the domains in COBIT is to Deliver and Support the domain that has the focus in his ministry. This study has implemented almost all IT activities and has a maturity level of 2.56, which means IT Academic Information System is approaching Defined Process management. This suggests that the activities of the Deliver and Support domain have been applied, but have not had formal procedures in writing and well documented.

Keywords-Audit System; COBIT; Deliver and Support

I. INTRODUCTION

UIN Sunan Kalijaga Yogyakarta is one of the higher education institutions that provide services to the community by preparing quality and efficient future Human Resources (HR). To achieve this, it is necessary to support several supporting activities for success in the process. One important support is with academic services that are aligned with the business processes of each management organization.

The business process of an organization develops rapidly along with the development of information technology. The role of information technology is different in an organization according to its function. An organization can use information technology as a tool only, but another organization can utilize information technology as a strategic tool which means it can provide significant benefits.

AIA is one form of utilization of information technology in the form of software services in the world of education including the process of student academic information. AIS can be effectively used as a means of supporting lectures supported by the existence of sufficient information technology resources by related organizations. However, the AIS that is not properly utilized by its users will only be complementary and not as a support tool that will provide many benefits to its users.

One method of managing information technology that is widely used is IT governance found in COBIT. COBIT functions to bring together all control needs and technical issues. In addition to that function, COBIT is also designed to be a tool that can solve problems in IT governance in understanding and managing risks and the benefits associated with information resources.

The COBIT framework divides the information technology process into 4 domains, namely Plan and Organization (PO), Acquire and Implement (AI), Deliver and Support (DS) and Monitor and Evaluate (ME) and divides into 34 high-level control objectives. The COBIT standard is used because it has sufficient compromise both in the breadth of management coverage and the detail of the processes compared to other standards.

Discusses the measurement of IT performance using COBIT4.1 done with the Maturity Level model which aims to see a picture of the company's current and future conditions. From the study, it was concluded that the role of IT at PT. BTN (Persero/ limited liability company) in the scale of the maturity model is scale 4 (managed). This shows that PT. BTN (Persero) can measure and monitor existing procedures so that it is easy to overcome if there is a deviation. The existing process has been running well and constant, but the automation and IT devices used are limited [1].

Lack of accuracy of information related to academic information system services. In this study, there was no documented and documented procedure and showed that some processes were below international standards (standard IT process values at ISACA/ Information System Audit and Control Association) so that they needed to be continuously monitored, managed, and monitored [2].

Developing information technology using the COBIT 4.1 framework. The findings in this study are that FIB has a maturity level of 0.255 under the ISACA standard which is below 2 because international standards have maturity level values between 2-3. This shows that FIB has not implemented IT management correctly, but has high importance on business processes within the organization so that the processes related to the domain need to be considered [3].

Increase the use of information technology at PT. PLN (Persero) in the work process contained in PT. PLN, so those continuous improvement efforts can be made following technological developments. Data processing by the author is to analyze the extent of the application of information technology based on the COBIT framework using 4 domains: PO, AI, DS and ME, after level then the corrective action is proposed based on the attribute maturity. From the results of the analysis, it can be seen that the application of information technology in PLN is still low, marked by the presence of problems in the delivery of direct and objectives of management, change management, data management and measurement of company performance. Some of these problems are caused by a lack of supervision/control over the implementation of established policies and procedures [4].

II. INFORMATION TECHNOLOGY GOVERNANCE

IT governance is very much needed in the development and implementation of information technology. This is needed to support, achieve business objectives by showing the high aspects of accountant responsibility, and transparency. Gartner's research institute offers a concept of governance called "Gartner's Integrated Planning Suite" which has the goal that planning an information technology can be in line with the related business strategy. In this framework there are 4 interrelated aspects related to the principle of governance, namely [5]:

A. Strategic Planning

The company's strategic plan will trigger and direct the compilation of a plan for developing information technology. By referring to the vision and mission, and company goals, a clear picture of the role and information technology will be developed. Details of the plan can be detailed in an Information Technology Development Master Plan document or IT Master Plan.

B. Enterprise Architecture

It is the whole component and the relationship between one another that forms a corporate information technology system. The architecture also shows the philosophical development of a "homegrown" system that will be developed by the company following the strengths and limitations of its resources.

C. Portfolio Performance Management

Because there are so many components in the information technology architecture that must be built which are divided into a number of categories such as software, hardware, and device development process optimization. The concept was developed rooted in the diversity of perspectives or views on the nature of the information technology that wanted to be built, such as seen



in terms of priorities, functions, utilization of needs, demographics, stakeholders, characteristics of resources, aspects of planning and so forth.

D. Manajemen portfolio

In its development, decisions taken based on the principles of portfolio management will be measured in performance, especially related to how information technology decisions will affect the overall performance of the company. So that it can be said that portfolio management will influence the strategic planning that has been prepared.

III. DOMAIN IT GOVERNANCE

The problem areas that are the main focus of IT Governance are [6]:

A. Strategic Alignment

The application of IT must truly support the achievement of the company's mission, the IT strategy must be in line with the company's business strategy.

B. Value Delivery

Implementation of IT must be able to provide added value for the achievement of the company's mission.

C. Risk Management

IT implementation must be accompanied by the identification of IT risks so that the impact can be handled.

D. Resource Management

The application of IT must be supported by adequate resources and optimal use of resources.

E. Performance Measurement

IT implementation must be measured and evaluated periodically, to ensure that IT performance and capacity are following business needs.

IV. COBIT FRAMEWORK

ISACA introduces a framework for managing IT Governance in a company known as COBIT [5]. COBIT was developed to help meet various management needs for information by bridging the gap between business risk, control and technical issues [7].

The main characteristics of the COBIT framework according to [8], [9] are grouping information technology activities in four domains, namely PO, AI, DS and ME. PO domains provide direction to realize delivery solutions (AI) and service delivery (DS). AI provides solutions and channels to be converted into services. While DS accepts the solution and makes it more useful for end users. Whereas ME monitors the entire process to ensure that the direction given has been followed.

COBIT divides the process of managing information technology into four main domains with a total of thirty-four information technology processes. Each domain in COBIT has the following details [10]:

A. Plan and Organise

Discussing strategies, tactics, and identifying information technology in supporting the achievement of business goals. This PO domain consists of ten information technology processes as shown in Table 1.

TABLE I. INFORMATION TECHNOLOGY PROCESS IN PO DOMAINS

PO1	Defining an IT strategic plan
PO2	Defines information architecture
PO3	Determine technology direction
PO4	Defining IT processes, organizations and their relationships
PO5	Manage IT investments
PO6	Communicate management goals and direction
PO7	Manage IT resources
PO8	Manage quality
PO9	Estimating and managing IT risk
PO10	Manage projects

B. Acquisition and Implementation

In the Acquire and Implement domain, an information technology solution is identified, developed, implemented and integrated into business processes. The AI domain consists of seven information technology processes as shown in Table 2.

TABLE II. THE PROCESS OF INFORMATION TECHNOLOGY IN AI DOMAINS

AI1	Identify automated solutions
AI2	Obtain and maintain application software
AI3	Obtain and maintain technology infrastructure
AI4	Enables operation and use
AI5	Meet IT resources
AI6	Manage changes
AI7	Installation and accreditation of solutions and their changes

C. Delivery and Support

This domain focuses on aspects of delivering information technology to information technology support and services including information technology support and services to businesses, ranging from handling security and sustainability, support to users and data management. This DS domain consists of thirteen information technology processes as shown in Table 3.

TABLE III. INFORMATION TECHNOLOGY PROCESSES IN THE DS DOMAIN

DS1	Define and manage service levels
DS2	Manage third party services
DS3	Manage performance and capacity
DS4	Ensure continuous service
DS5	Ensuring system security
DS6	Identify and allocate costs
DS7	Educate and train users
DS8	Manage service desks and incidents
DS9	Manage configuration
DS10	Manage problems
DS11	Manage data
DS12	Manage physical environment
DS13	Manage operations

D. Monitor and Evaluate

In this domain, it will be emphasized on the importance of all information technology processes that need to be accessed



periodically to maintain the quality and conformity with established standards. This ME domain consists of four information technology processes as shown in Table 4.

TABLE IV. INFORMATION TECHNOLOGY PROCESS IN ME DOMAIN

ME1	Supervise and evaluate IT performance
ME2	Oversee and evaluate internal controls
ME3	Ensuring compliance with external needs
ME4	Provides IT governance

V. AUDIT OBJECTIVES

One of the factors of success and sustainability of an organization is the effective management of information and information technology. The scope of the organization to be audited includes the process of information technology governance services in the AIS of UIN Sunan Kalijaga based on the COBIT framework. Therefore, the purpose of this audit is to evaluate the governance of the AIS of UIN Sunan Kalijaga Yogyakarta based on the Deliver and Support domain, which includes supervision and review of IT system performance, including IT support audit of software itself and system users that have not been done periodically, human error that may still occur due to supervision and assessment of IT is only done if there is a complaint from the work unit regarding IT services and the lack of official procedural procedures for implementing the services and documentation.

This academic information system audit aims to:

- 1) Optimizing resource use.
- 2) Improve the delivery of information that is relevant and related to business processes such as delivering information correctly, consistently, accurately, quickly, reliably, and on time.
- 3) Increase protection against important information from people who do not have authorization rights.
- 4) Providing information when needed in current and future business processes.
- 5) Improve compliance with policies according to laws, regulations and agreement plans for business processes.
- 6) Improve documentation.

VI. AUDIT PLANNING

AIS Audit is carried out by making direct observations of the current condition of the organization or governance of the application of the system. Then collect data and facts by conducting interviews or interviews. Interviews were conducted with those responsible for implementing the system which was a staff of PTIPD (Center for Information Technology and Database) UIN Sunan Kalijaga Yogyakarta. In the audit plan also arranged the schedule for the implementation of the audit and the audit team.

VII. AUDIT RESULTS ANALYSIS

In the audit process of the Academic Information System that has been carried out obtained the results of the audit data to be able to draw conclusions as follows:

1) DS1 Defining and Managing Service Levels

Based on the results of the DS1 domain assessment review, it is known that there is an agreement on service level even though it is still informal. Responsibilities are well defined but with authority given to employees is limited.

Maturity Score on DS1.1 service level management framework, DS1.2 definition of existing services and DS1.3 service level procedures or approvals are 2. Based on the DS Maturity Model audit standard means there is a service level agreement even though it is still informal, which includes definitions and management procedures for the framework. Although the procedures and frameworks created do not cover all organizational structures. Control and supervision as well as reporting on service levels are still informal and incidental.

Maturity Score on DS1.4 process procedure or operating level approval, DS1.5 supervision, and reporting of service level achievement and DS1.6 preview of procedure or approval of service level are 3. Based on DS1 Maturity Model audit standard means Control and supervision and reporting the level of service is also informal and incidental. Staff who are responsible for service affairs despite having a clear assignment but have limited authority. Reporting in helping to achieve service levels for users is still incidental, and not periodic. Service level review procedures are performed by relevant staff and are subject to regulation. There is no work catalog for both staff and users. There is no documentation related to existing services.

2) DS2 Manage Third Party Services

Based on the results of the DS2 domain assessment review, it is known that supervision, measurement, and regulation of third parties related to the mechanism of risk management and delivery of services is still informal, this is because no specific identification has been made to determine the relationship of third parties. No procedure is carried out in dealing with the risks that might occur to relationships with third parties.

Maturity Score in DS2.1 process identification of all relationships with providers, DS2.2 management relationship with providers, and DS2.3 risk management with providers is 3. Based on the audit standard Maturity Model DS2 means that the contractual relationship with a third party is clear, but in general existing contracts are based on the terms and conditions of the vendor and the faculty. There is no documentation yet on the management of third party services because relations with third parties are based solely on agreements.

Maturity Score on DS2.4 process supervision of provider performance is 2. Based on DS2 Maturity Model audit standards means that supervision, measurement, and regulation of third parties related to risk handling mechanisms and delivery of services are still informal, this is because there is no specific identification done to determine third party relationships.

3) DS4 Ensures Sustainable Services

Based on the results of the DS4 domain assessment review, it is known that the assignment to guarantee the continuity of the service already exists, where the only possible problem that occurs is the system and data loss that is overcome by regular back-up data that is handled directly by the relevant unit, and



there is an offsite back-up facility system although not periodically.

Maturity Score on DS4.1 process sustainable IT framework, DS4.6 training on ongoing IT planning, and DS4.9 backup storage from offsite is 3. Based on DS4 Maturity Model audit standards it is known that assignments to ensure service continuity already exist, where the possibility of a problem that occurs is only a system and loss of data that is overcome by regular data back-up which is handled directly by the relevant unit, and there is a system of offsite back-up facilities, although not periodically. Management consistently communicates the need for planning to ensure service continuity.

Maturity Score in DS4.2 ongoing IT planning processes, DS4.4 improvements to sustainable IT planning, DS4.5 trials on sustainable IT planning, DS4.7 distribution of sustainable IT planning, DS4.8 recovery and continuation of services TI and DS4.10 post-continuation preview are 2. Based on the Maturity Model DS4 audit standards it is known that planning and procedures for ensuring continuity of services are still informal in public communication meetings, even though there are reviews that are done incidentally and not periodically. In practice, the service continues, but its success is still based on the abilities of each individual. A continuous and official IT framework that is not yet owned. This has caused no IT continuity plan testing to be carried out. Training on the IT framework is also still general. There is no documentation to ensure sustainable services. Based on the results of the analysis, it can be seen that ensuring sustainable service is very important so that the system can continue to be used by users.

The Maturity Score in the DS4.3 process of critical IT resources is 1. Based on the audit standard of the Maturity Model DS4 it is known that the responsibility for continuity of service is informal and the authority to carry out responsibilities is limited. There are no official definitions of procedures made in the operation of critical IT resources, operational according to generally applied standards. The application response and IT personnel to the disorder are reactive and without preparation.

4) *DS8 Manage Service Tables and Incidents*

Based on the results of the DS8 domain assessment review, it is known that there is a service desk available as a communication medium to accommodate questions and complaints that can be submitted via e-mail or via telephone directly to PTIPD. Some individuals are responsible for monitoring as a manifestation of organizational awareness of the needs of functions for the service section and those related to business process management.

Maturity Score on the DS8.1 table and service process, DS8.2 registration of user questions / complaints, DS8.3 incident escalation, and DS8.4 closing / addressing incidents are 3. Based on the DS8 Maturity Model audit standards it is known that the service needs of the service part and relating to the management process are recognized and accepted. Procedures have been standardized and documented and informal training takes place. However, it is left to individuals to get training and follow standards. Queries and incidents are searched on a manual basis and are personally monitored, but no formal reporting system

exists. Timely responses are not measured. The user has clearly communicated where and how to report problems and incidents.

Maturity Score in the DS8.5 process of reporting and trend analysis is 2. Based on the Maturity Model DS8 audit standard it is known that there are no written procedures in handling questions or complaints. Assistance is available on an information base through a network of many influential individuals where there is collaboration with other management regarding servers, other issues will be directly addressed by individuals. Problems that occur have not been analyzed and recapitulated also periodic reporting to prevent future events. Documentation about the problem in the form of questions or complaints from users already exists and has not been scheduled even though every problem and question from the user is always given a response.

VIII. CONCLUSION

Based on the results of audit studies that have been carried out, the following conclusions can be drawn:

1) This study succeeded in planning the AIS Audit of UIN Sunan Kalijaga Yogyakarta by producing interview documents and worksheets which are the results of data collection.

2) This research succeeded in auditing the AIS of UIN Sunan Kalijaga Yogyakarta by analyzing the level of maturity, analyzing control objectives, analyzing key performance indicators, analyzing key goal indicators (for process and IT), as well as analyzing model maturity and generating potential priority areas that need attention, managed and continuously monitored in the application of AIS that are in the DS4 process (ensuring continuity of service), because they have the highest importance of the results of analysis of objective control, maturity level analysis and KPI analysis, KGI for processes and KGI for IT, and are below the standard of ISACA.

3) This research succeeded in formulating the audit results of the AIS of UIN Sunan Kalijaga Yogyakarta by evaluating audit results or audit findings, conducting maturity level research, then compiling audit results in the form of findings, conclusions, and recommendations. Where the conclusion is that almost all IT activities in the Deliver and Support domain have been carried out. Each DS sub-domain has a different maturity level. The average calculation result of the DS domain is 2.56, this shows that the maturity level of the AIS of UIN Sunan Kalijaga Yogyakarta is close to the Defined Process. This means that activities and processes have been implemented, but official procedures in writing and well documented have not been made. Shown by the findings of the Academic Information System audit, that is, most of the activities carried out are already in good control, but the documentation process has not been consistent.

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