

Information Technology Governance Audit Using COBIT Framework 2019 (Case Study: Mandiri University)

Hanifa Nurcahya¹, Erwan Setiawan², Budi Permana³

^{1,2,3}Sekolah Tinggi Manajemen Informatika Komputer LIKMI Bandung, Indonesia
nurcahyahanifa@gmail.com, erwan123@gmail.com, budipermana@likmi.ac.id

Abstract

Mandiri University is an educational institution that has used information technology assistance in a series of work procedures in its business activities. Utilization of IT as one of the factors that support the achievement of the organization's vision and mission. Where it must be managed optimally considering that Mandiri University is a potential campus if the operational process is really carried out optimally. In order to achieve the expected results, it is necessary to conduct an audit that examines the current state of governance, as well as the expected governance, so that gaps or gaps are known between the two. Then provide recommendations for improvement proposals so that Mandiri University can maximize the use of IT in the activities carried out.

Keywords

audit; governance; information technology; COBIT 2019; Mandiri University



I. Introduction

Information Technology (IT) has been applied by almost all organizations, be it Government, Private, Industrial Sector, and even Education. This is because IT is believed to help make it easier for humans to carry out their activities. The success and sustainability of a company and organization today relies heavily on IT, in terms of speed and results that can help improve the effectiveness and efficiency of business processes to achieve goals. Organization must have a goal to be achieved by the organizational members (Niati et al., 2021).

This encourages the author to mention that IT involvement is very influential in achieving company or organizational goals, in the field of education it has begun to maximize its use, not least by Mandiri University, which is a private university located in Subang and Bandung that has implemented and utilized technology in operational processes. Such as the existence of academic information systems, new student admissions information systems, financial information systems and so on.

This fact triggers the author to make the place an object of research. Regarding the case study of this research, namely at the Faculty of Engineering, Universitas Mandiri, the author chose this place because it is one of the role models of universities that implement IT and has enough potential.

Because seeing the relevance to the place of research conducted by the author, as well as the prospects for the application of the results of this research in the organization. From the explanation above, the author takes the title "Information Technology Governance Audit Using the 2019 COBIT Framework (Case Study: Faculty of Engineering, Universitas Mandiri)". The output of this research will be in the form of a blueprint of audit results using the COBIT 2019 framework that is aligned with the vision and mission of the organization concerned, as well as future evaluations and recommendations so that it is useful for relevant stakeholders now and in the future.

II. Review of Literature

2.1 Definition of Audit

Auditing is basically a systematic and objective process in obtaining and evaluating evidence of economic actions, in order to provide assertions/statements and assess how far economic actions are in accordance with applicable criteria and communicate the results to related parties. (Syaroh, S. 2011)

2.2 Definition of Governance

Governance is a series of processes, habits, policies, rules, and institutions that influence the direction, management, and control of a company or corporation. Governance is a system and process to ensure good accountability, appropriateness and openness in running a business organization.

2.3 Information

Information technology, or in English known as Information technology is a general term for any technology that helps humans to create, change, store, communicate and/or disseminate information.

2.4 COBIT 2019

According to ISACA (2012): COBIT (*Control Objectives for Information and related Technology*) is a collection of documentation and guidelines that have been used by many organizations, which are primarily responsible for business-oriented and technology-based managerial processes. Based on the operational convenience it offers, COBIT is a best-practical framework. This technology combines many of the fundamental concepts and theories from the academic literature in the field of general management and IT.

To apply COBIT 2019 to a company, the first step that must be done is to make a design first by paying attention to the factors that are in the design factor (*Design Factor*).

COBIT 2019 provides design *factors* which consist of:

- a. Corporate Strategy (*Enterprise Strategy*)
- b. Corporate Goals (*Enterprise Goals*)
- c. Compliance with regulations (*Compliance Requirements*)
- d. Role of Information Technology (*Role Of IT*)
- e. Information Technology Provision Model (*Sourcing Model for IT*)
- f. Company Size (*Enterprise Size*)

2.5 Process Assessment Model

One of the measuring tools of the performance of an information technology system is the *maturity level model*, the maturity model is used to control information technology processes with a *method*. scoring knowing the current position of information technology maturity and the organization can continue to be sustainable and try to increase its level to the highest level so that aspects of governance of information technology can run smoothly.

Process Assessment Model (PAM) is a maturity measurement model used in the COBIT framework, otherwise known as the COBIT maturity model. Process Assessment Model (PAM) is used to support the assessment of the raters in the assessment process, ratings are given based on objectives, validated evidence for each process attribute. Traceability needs to be maintained between an attribute rating and the objective evidence used in determining that rating (ISACA 2011).

III. Research Method

The object of Mandiri University are four high schools in Subang and Bandung which were merged into one based on a copy of the Decree of the Minister of Education and Culture of the Republic of Indonesia Number: 45/E/0/2021 concerning the merger permit, including: Educational Sciences (STKIP) Subang, College of Computer Informatics Management (STMIK) Subang, College of Economics Kridatama Bandung City and Polytechnic Kridatama City of Bandung. From those four high schools, Mandiri University was born.

Universitas Mandiri or abbreviated as UM organizes academic education and vocational education located at:

- a. Jalan Marsinu no 5 Subang for campus A
- b. Jalan Borobudur no 25 Cibaduyut Bandung for Campus B.

Mandiri University motto: *Mandiri University through its religious, scientific, organizational, and entrepreneurial campus is the Gateway of the Future*

1. Vision

To be the center of education, research and community service that is dignified, reliable in mastering science and technology based on love for the nation, state and religion.

2. Mission

- a) active role in educating the nation
- b) Educate a generation that is ready to face change by mastering science and technology skills based on faith and piety.
- c) Upholding the values of character in professionalism, community, nation and state

The methodology used in this research based on the design description above, for more details, see the image below:

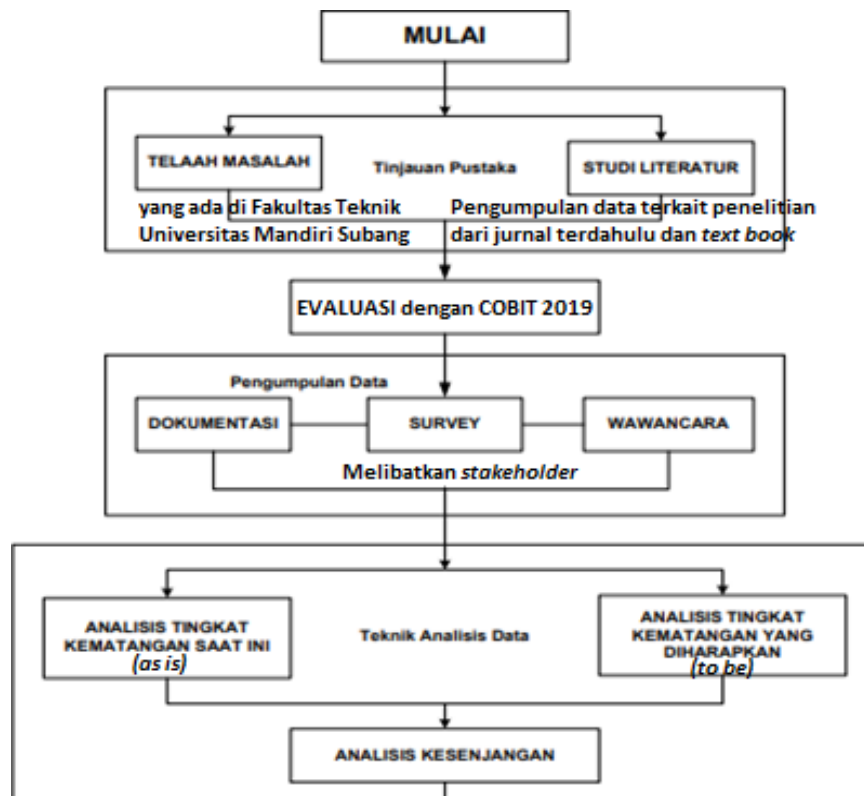




Figure 1. Research Flow

To understand the research flow, so the authors detail the stages of audit implementation in the following explanation:

1) Current Maturity Analysis (*as-is*)

Based on the data from the questionnaire survey, interviews, and document studies, the analysis carried out at this stage is an analysis to assess the maturity level of information technology governance in current activities. this (*as-is*). At this stage the authors assess each activity based on the results of the questionnaires for all respondents. After each activity gets a score, the writer combines all activity values and looks for an average to get the current maturity level (*as-is*) in the domain used in the assessment.

2) Analysis of the expected maturity level (*to-be*)

The target or expected maturity of the IT process is the ideal condition for the expected maturity level of the activity, which will be a reference in the IT governance model. Based on the results of interviews, the expectations of IT process maturity according to the leadership of the educational foundation are determined by looking at the internal environment of the University such as the vision and mission of the institution, it can be determined that in order to support the achievement of objectives, at least the level of maturity carried out must reach level 5 (*optimizing*). The gap between what is currently obtained and what is intended is an indicator in the formulation of recommendations for improving governance.

3) Gap Analysis

After the current maturity level of information technology governance (*as-is*) and the expected maturity level of information technology governance (*to-be*) are obtained, the authors perform a *gap analysis* on that maturity level. In this step of analyzing the gap in the maturity level of information technology governance, the authors conduct a gap analysis by comparing each activity of the expected maturity level of information technology governance (*to-be*) with the current information technology governance maturity level (*as-is*). From the comparison of the maturity level, it is obtained which activities are not in accordance with the desired maturity level, then improvements are made to the activities that are not in accordance with the expected maturity level (level 5- *optimizing*).

4) Recommendations

After obtaining the results of the analysis, improvements are obtained from the results of the analysis carried out on the current maturity level and the expected maturity level. Obtaining these recommendations is expected to be able to provide maximum results in the management of information technology at the University. Recommendations are prepared taking into account the condition of the University in terms of human resources, system performance, and future University targets. Several recommendations were taken from the sub-domain of *framework* COBIT 2019 Recommendations can be implemented in stages so that these recommendations can be developed by the University.

IV. Results and Discussion

Having described the research flow, the results and discussion this time are the core of the audit process itself. Here is the explanation.

4.1 Preparation and Planning Audit

Before conducting the audit, first determine a plan to review how the audit will be carried out, at this stage an analysis of the current condition is carried out, explaining further about the steps in identifying conditions at Universitas Mandiri for the purposes of conducting an audit. Identification is carried out on information related to company information, business strategy, use of technology and strategies carried out by the data center and information technology section.

4.2 Documentation and Field Review

To support this research, relevant and accountable data is needed, so a field review is carried out. Data collection techniques in this study were used to identify and analyze the current conditions that occurred, including the analysis of the results of observations, interviews and surveys using questionnaires. The purpose of this data collection technique is to complete the information expected by the researcher. The discussion of each data collection technique is as follows: The main instrument in this qualitative research is the researcher who is assisted by data collection tools in the form of a list of questions (questionnaires), interview guidelines, and notebooks. The relationship between problems, data sources, methods, and instruments is described in Table 1 below.

Table 1. Relationships between Problems, Data Sources, Techniques and Research Instruments

Problem	Data Sources	Engineering	Instrument
How the implementation of information technology governance is evaluated using the COBIT 2019 framework at the Faculty of Engineering, Universitas Mandiri?	Head of IT Staff Unit Faculty	of Interview Survey Document study	Questionnaire Interview guide Note book
What is the maturity level of information technology governance at the Faculty of Engineering, Universitas Mandiri?	Head of IT Staff Unit Faculty	Interview Survey	Questionnaire Interview guide Note book
What recommendations can be given in an effort to improve information technology governance at Mandiri University?	Head of IT Staff Unit, Faculty of	Interview	guide,

a. Observation

Results of the observation process in this research in the field of information technology were carried out based on business objectives which through a business plan were poured into business development targets in the field of information technology which were carried out in accordance with the information technology strategy, with the results of observations as follows:

Table 2. Observation Results

No	Objects Observation	Results
1	Standard Operating Procedures for each technological device	Several SOPs were found regarding several uses of information systems that have been created, these SOPs are used as a guide in using the system to be effective and efficient in all procedures existing.
2	Monitoring Periodic security system	The use of all systems has used usernames and passwords for users who will enter the system, where <i>usernames</i> and <i>passwords</i> are periodically changed by administrators in order to reduce system abuse actions and prevent things that can damage the system.
3	Reporting on tuition fees is carried out using the system	In the existing information system, tuition payment transactions are automatically recorded by the system and integrated into the academic system.
4	Satisfaction <i>Stake Holder</i> with <i>maintenance</i> periodic <i>backups data</i> , and the provision of alternative servers	With a good and effective information system, all the best services can be felt by system users, all because of good IT management and monitoring as well, thus giving satisfaction to all parties.
5	The overall business process that runs can use information systems	This information system is a change from manual business processes to digitized business processes so that current business processes are more effective and efficient compared to previous business processes that were carried out manually.
6	Development of an information system is completed on time and in accordance with the specified budget	Develop an information system based on existing problems, therefore it must be made and developed on time so that these problems are immediately resolved and become a solution while also adjusting to a predetermined budget.
7	Website Campus	In introducing campus globally or globally, a <i>website</i> that contains campus profile data, both in the form of vision and mission, number of study programs, to campus activities, so that without the need to visit the campus directly, everyone can find out.

8	Data Academic Information System	On campus ranging from lecturer data and student data are all inputted and stored in the academic information system, besides that academic activities can be carried out by the system, starting from guardianship at the beginning of each semester, downloading lecture materials to inputting grades by lecturers whose results can be seen directly by students. What is currently being developed is in the form of <i>e-learning</i> due to distance learning.
9	Information Systems PMB	The use of the website is very beneficial, one of which is <i>website</i> , where prospective students who want to register do not need to come all the way to campus, just enter and register through the PMB website, all and all information about PMB is available on the website, starting from how to register, details of costs to fill in the personal data of prospective students are all available on the <i>website</i> .

b. Interview

The interview process was conducted to find out the business processes in the field of information technology at the Mandiri University. The interview process was carried out for approximately 3 months which was carried out on the parties responsible for the information technology process, namely the Faculty Leader, Head of the Academic Section, Head of the Data and Information Technology Center and Staff from each division below, interviews were conducted in person and online. The questions asked are based on the selected domain from COBIT 2019 based on the results of the *goal cascade mapping*, namely the MEA (*Monitor, Evaluate, Asses*).

c. Questionnaire

The questions posed in this questionnaire to research subjects are regarding the assessment of the level of capability adapted to the COBIT 2019 framework. Questions were given to a questionnaire as many as 8 respondents in the Faculty of Engineering, Universitas Mandiri and conducted using Google Form as a medium to fill out the questionnaire.

d. Determination Capability Level

The determination of the capability *level* is carried out using the reference from the COBIT 2019 framework.

Table 3. Determining Capability Level

Objective		Rating Scale and Capability Level				
		1	2	3	4	5
ME A01	Managed Performance and Compliance Monitoring		F	F		
ME A02	Control System Internally managed		F	L		
ME A03	Compliance is managed with external requirements		F	F		

ME A04	Guaranteed managed		F	F		
-----------	--------------------	--	---	---	--	--

e. Gap Analysis

Based on the results of the calculation of the level of capability, governance and information technology management that has been carried out by Mandiri University has reached level 2 capability, this can be interpreted as The activities carried out by the Mandiri University management have achieved their goals through the implementation of a complete set of basic activities and categorized as running operationally and processes that should be carried out in accordance with the objectives rather than the process. The target of information technology governance is at the level of capability level 3 so that between the achievement and the target to be achieved there is a gap.

The following is an analysis of the gap between the achievement and the target described in the table below:

Table 4. Gap Analysis

Objective		Gap		
		Achievement	Target	GAP
ME A01	Managed Performance and Compliance Monitoring	2	3	1
ME A02	Internal Control System managed	2	3	1
ME A03	Compliance is managed with requirements External	2	3	1
ME A04	Guarantees that are managed	2	3	1

V. Conclusion

Based on the results of research through information technology governance audits conducted at Mandiri University, the following conclusions can be drawn:

1. Information technology governance that has been implemented by Mandiri University in carrying out activities which should have been carried out in accordance with the expected objectives through a complete set of basic activities that can be categorized as governance has been running operationally. These activities can be seen from the level of capability that has been achieved by governance and information technology management which has reached the level of capability level 2.
2. Mandiri University has a target of achieving governance for the expected level of capability which is at level 3 where the activities carried out have achieved their goals by a much more organized way of using organizational assets. Activities are usually well defined, between achievement and the desired target there is a gap (GAP). Of all process components that are considered to have an average GAP of 1, which is obtained from the difference between achievement and target.

Suggestion

After making some conclusions based on the results of research that has been done, the authors suggest that Information technology Governance at Mandiri University should consider the proposed recommendations for improvement from this research, so that the implementation of Governance and information technology management in the future can run better.

References

- Adikara, Fransiskus. 2013. *Implementasi Tata Kelola Teknologi Informasi Perguruan Tinggi Berdasarkan COBIT 2019* pada Laboratorium Rekayasa Perangkat Lunak. Universitas Esa Unggul, SESINDO.
- Aditya, Mohamad Adhisyanda, Mulyana, R. Dicky, & Mulyawan, Ali. 2019, *Perbandingan Cobit 2019 Dan Itil V4 Sebagai Panduan Tata Kelola Dan Manajemen IT*. Jurnal Computech & Bisnis, 13(2), 100– 105.
- Ajismanto, Fahmi. 2017. *Analisis Domain Proses COBIT 5 Framework Pada Sistem Informasi Worksheet* (Studi Kasus: Perguruan Tinggi STMIK, Politeknik Palcomtech. Cogito Smart Journal/VOL.3/NO. 2/DEC 2017.
- Ekowansyah, Erdis.,Yulison H Chrisnanto, Puspita, Nurul Sabrina. 2017. *Audit Sistem Informasi Akademik Menggunakan COBIT 5 di Universitas Jenderal Achmad Yani*. Prosiding Seminar Nasional Komputer dan Informatika (SENASKI) 2017 (ISBN: 978-602-60250-1-2), Program Studi Informatika, Fakultas MIPA UNJANI.
- Gondodiyoto, Sanyoto. 2006. *Audit Sistem Informasi dengan Pendekatan COBIT* edisi revisi. Jakarta: Mitra Wacana Media
- Iskandar, Indranata. 2008. *Pendekatan Kualitatif Untuk Pengendalian Kualitas*. Jakarta: Universitas Indonesia.
- IT Governance Institute, 2003. *Board Briefing on IT Governance 2nd Edition*, IT Governance Institute.
- ISACA. (2012). *Process Assessment Model (PAM)*. United States: ISACA.
- ISACA. (2019). *Design-Guide*. United States: ISACA
- ISACA. (2019). *Framework-Governance-and-Management-Objectives*. United States.
- ISACA. (2019). *Framework-Introduction-and-Methodology*. UNITE STATE: COBIT 2019.
- Josua Kristian Sitinjak, Ir. Ari Fajar, MT, & Ridha Hanafi, MT. 2015. *PENILAIAN TERHADAP PENERAPAN PROSES IT GOVERNANCE MENGGUNAKAN COBIT VERSI 5 PADA DOMAIN BAI UNTUK PENGEMBANGAN APLIKASI STUDI KASUSIPOS DI PT. POS INDONESIA*. Penilaian kapabilitas proses tata kelola dan manajemen TI, COBIT versi 5, Domain BAI, IPOS.
- Kurnia, Hutari Maulida. Rahmi Nur Shofa, Rianto. 2018. *Audit Tata Kelola Teknologi Informasi Menggunakan Framework COBIT 5 Berdasarkan Domain APO12*. Program Studi Teknik Informatika, Fakultas Teknik, Universitas Siliwangi. Tasikmalaya.
- Maniah, Sri Lestari. 2008. *Model Audit Sistem Informasi Akademik Proses Penyampaian dan Dukungan*. Widyatama. Bandung.
- Miles, Matthew B dan Amichael Huberman. 2007. *Analisis Data Kualitatif Buku. Sumber tentang Metode-Metode Baru. Terjemahan Tjetjep Rohendi*. Rohisi. Jakarta
- Niati, D. R., Siregar, Z. M. E., & Prayoga, Y. (2021). The Effect of Training on Work Performance and Career Development: The Role of Motivation as Intervening Variable. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 4(2), 2385–2393. <https://doi.org/10.33258/birci.v4i2.1940>