



Evaluation Of Information Technology Governance at Mikroskil University Using COBIT 2019 Framework with BAI11 Domain

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Abstract. IT Governance evaluation can help organizations to improve the quality of IT service, reduce risks, maximize IT performance and achieve their goal effectively. Mikroskil University is one of the universities that utilize the use of IT in supporting its business processes. Mikroskil University has an IT unit/department that is responsible for IT management and IT governance as well as dealing with IT/IS-related issue, namely the Information System and Digital Transformation (SITD). Based on the initial study conducted, several problems arise in higher education IT governance, so it is necessary to carry out an evaluation. This evaluation uses the COBIT 2019 framework because it is more flexible and there are design factors that can make it easier to get process objectives that will be evaluated as the main focus of the organization. This framework makes it easier for researchers to evaluate processes in universities. The domain that becomes the objective of IT governance in this research is BAI11 (Managed projects). The results of this study indicate that the capability level of Mikroskil University is at level 1 (performed). Meanwhile, the maturity level is at level 2 (managed). Based on the results of the capability and maturity level values, a gap value will be sought to be used as a basis for making recommendations for improvement. The results of this study provide recommendations for improvement to achieve the expected targets of higher education. Mikroskil University's capability level is at level 1 (performed). Meanwhile, the maturity level is at level 2 (managed). Based on the results of the capability and maturity level values, a gap value will be sought to be used as a basis for making recommendations for improvement. The results of this study provide recommendation for improvement to achieve the expected targets of higher education. Mikroskil University's capability level is at level 1 (performed). Meanwhile, the maturity level is at level 2 (managed). Based on the result of the capability and maturity level values, a gap value will be sought to be used as a basis for masking recommendations for improvement. The results of this study provide recommendation for improvement to achieve the expected targets of higher education.

1. Introduction

Information and Technology (I&T) has now become a major need and has an important influence in supporting organizational sustainability and growth. IT implementation is beneficial if it is aligned with the organization's goals, vision, mission, business strategy, and IT processes of the organization. However, in its implementation, IT does not always run as expected. For this reason, it is necessary to improve IT governance to guide organizations in managing IT investments and to achieve organizational goals. By evaluating IT governance, organizations can improve the quality of IT services, minimize risk, and maximize IT performance so that organizational goals can be achieved effectively [1][2].

Currently, all types of organizations are paying attention to business trends and trying to manage technology and information well. One of them is Mikroskil University. Mikroskil University aims to instill a mindset to constantly develop themselves and be able to adapt to changes in lecturers and education staff, implement effective and efficient governance, establish cooperation with various institutions both at home and abroad, produce graduates who have a technopreneur spirit, and produce work. innovative technology supported by technology that can benefit the business world and industry, as well as society. Mikroskil University has a unit/department that is responsible for IT management and IT Governance and handles all issues related to IT and IS, namely the Information System and Digital Transformation (SITD).

The framework used in this research is the COBIT 2019 framework. COBIT 2019 is the latest version and is an improvement from COBIT 5. COBIT 2019 was released by adding the latest developments that can affect information and technology within an organization. In COBIT 5 there're 5 domains with 37 governance processes that generally exist in the company's multiple domains [3]. The domain in COBIT 2019 prioritizes the results achieved so that it is more focused and the processes in the domain are more comprehensive because there are additions to the domain. Compared to the previous version, COBIT 2019 is better because it can adapt to organizational goals and there are design factors that can help organizations design governance systems and focus more on determining specific process strategies [4]. The COBIT 2019 Framework can provide recommendations to organizations in managing IT governance and provide business flexibility to create practical governance solutions that align with organizational goals and objectives [2][3]. So, by using the COBIT 2019 framework, it will make it easier for researchers to evaluate existing processes in higher education, plus there are design factors that make it easier to get process objectives that will be evaluated as the main focus for the organization.

Based on the information provided by the Head of Information System and Digital Transformation (SITD), the IT governance conditions that have been implemented have not run as expected. There are still some problems encountered in managing IT performance and IT governance, namely the condition of IT not following the correct IT management guidelines. The management of IT performance at Mikroskil University is still less than optimal, coupled with the work/activities carried out based on the needs of stakeholders, and the targets to be achieved by Mikroskil University are not yet clear. In addition, there are still business processes in the academic section whose procedures are still too complex. Organizational needs, organizational conditions, and stakeholder needs are evaluated to determine organizational goals that can be followed up. To overcome the existing problems and meet the needs of stakeholders, it is necessary to evaluate IT governance to determine the extent to which the implementation of IT governance and management at Mikroskil

University. By evaluating IT governance, it is expected to be able to identify gaps and help optimize performance to achieve the vision, mission, and goals of the university.

To obtain IT governance objectives that will be evaluated, a mapping stage is carried out and followed by a design factor analysis so that the evaluation can follow the needs. The process of mapping and design factors is adjusted to the problems in the IT governance of the organization. So later it will be determined which process is the main focus and following the problems faced by universities. After conducting a process analysis that is relevant to the current condition of the organization and the needs of stakeholders, this evaluation uses the process domain of BAI11 (Managed Projects). The reason for the need for an evaluation using the BAI11 domain (Managed Projects) is that based on the current organizational conditions, project management has not been defined/organized well enough in IT governance and management. It is hoped that after conducting the IT governance evaluation process, an overview of the capability level and maturity level of Mikroskil University will be obtained in organizational project management. So that it can provide recommendations for improvement to Mikroskil University to prepare for better IT governance

1.1 Information Technology Governance

The enterprise-level structure and decision-making process for IT is called IT governance. IT governance is used to guide the desired processes to maximize the success of IT personnel and generate benefits for stakeholders [5]. The Board of Directors and executive management carry out information technology (IT) Governance activities so that an organization can run according to its objectives [1]. Conformity between the implementation of information technology and organizational goals is a determining factor for the success of information technology governance [6]. The purpose of information technology governance is to control its use in ensuring that IT performance meets and conforms to the following objectives [7]:

1. Align information technology with organizational strategy and achieve the promised benefits of implementing information technology.
2. The use of information technology allows organizations to take advantage of existing opportunities and information technology to the fullest by optimizing the benefits of implementing IT.
3. Responsible use of IT resources.
4. Manage information technology risk management appropriately and effectively.

1.2 COBIT 2019 Framework

COBIT 2019 is most recent version of the COBIT framework for assessing IT governance and management and functions to exercise control and optimize the value of information and technology to help organizations achieve risk optimization, realize benefits and achieve resource optimization [6]. COBIT 2019 provides a model that can be used to measure how well IT governance and management processes perform, namely COBIT Performance Management (CPM)[8].

COBIT 2019 is divided into 2 main areas, namely governance and management. In COBIT 2019, the term COBIT Core Model is used, which is a set of COBIT governance processes consisting of 5 governance objectives and 35 management objectives, for a total of 40 domains. The governance objective consists of the EDM (Evaluate, Direct, and Monitor) domain which has 5 processes. The management objectives consist of the Align, Plans and Organize (APO) domain which has 14 processes, the Build, Acquire and Implement (BAI) domain which has

11 processes, and the Deliver, Service, and Support (DSS) domain which has 6 processes and the Monitor, Evaluate domain. and Assets (MEA) which consists of 4 processes [8]

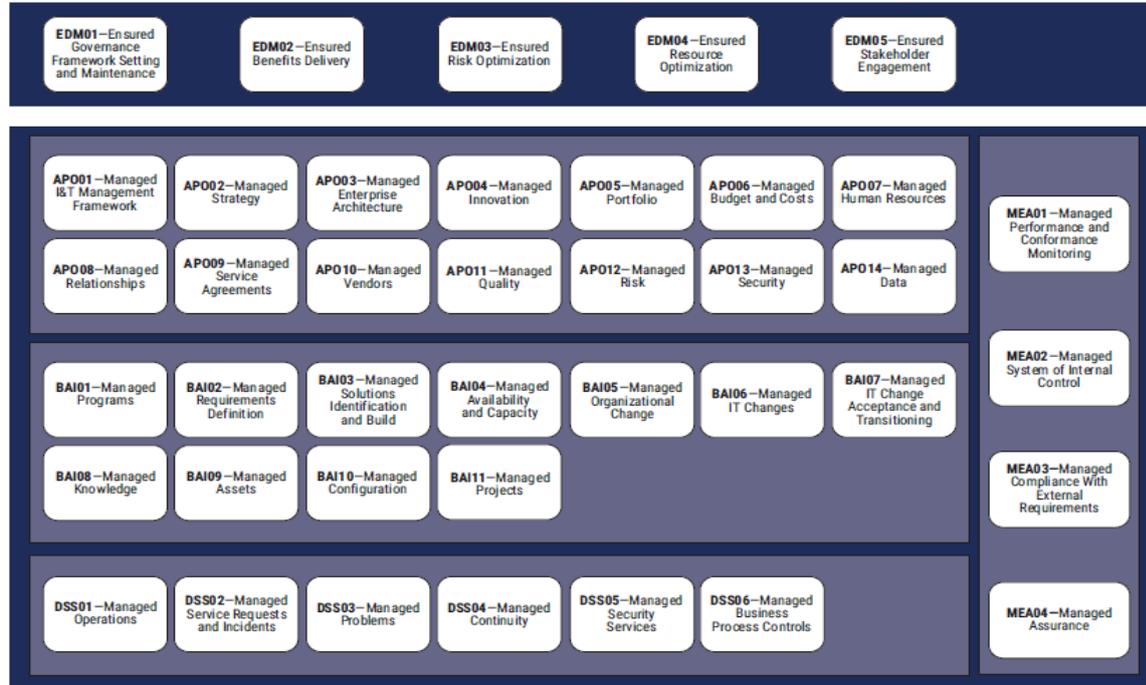


Figure 1. COBIT Core Model

1.3 COBIT Performance Management (CPM)

Performance management is used to show how well the governance and management of systems and all components of the company are performing, as well as how to improve them to achieve the desired results. CPM is an integral part of COBIT 2019 including the capability level and maturity level. In COBIT 2019 CPM, using the CMMI (Capability Maturity Model Integration) version 2.0 reference. In CMMI, there're two different types of assessment, namely capability and maturity level [8][9].

1.4 Determination of Domains COBIT 2019

a. Goals Cascade

Goals cascade COBIT has been completely updated at COBIT 2019. Here's an explanation of the COBIT Cascade Goals 2019 [8][9]:

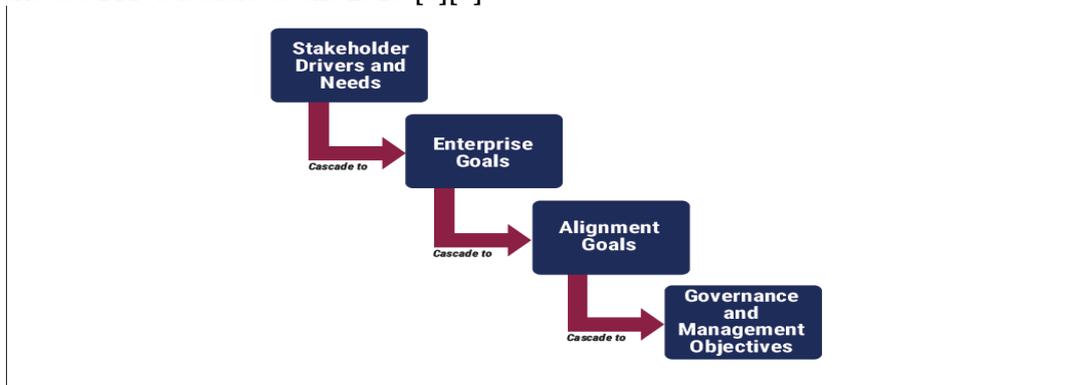


Figure 2. COBIT 2019 Goals Cascade

Identification of Stakeholder Drivers and Needs Cascade to Enterprise Goals is aligning stakeholder needs is a corporate strategy that can be followed up to create value and meet stakeholder needs. COBIT 2019 provides a guide that contains 13 generic lists of corporate objectives that can be tailored to the needs of stakeholders. After the stakeholder needs are aligned with the company's goals, the next stage is the cascade to alignment goals. COBIT 2019 provides a guidance table that contains a generic list of enterprise goals, alignment goals, and their interrelationships. The Goals alignment stage is an updated and improved stage of COBIT 5 which aims to avoid misunderstandings that often occur when the previously mapped company only shows the IT department purely

b. Identify Design Factor

COBIT 2019 helps companies in designing governance systems by using several design factors that have been provided. Design factors are factors that can influence the design of a company's governance system and position it for success in the use of information and technology[8].

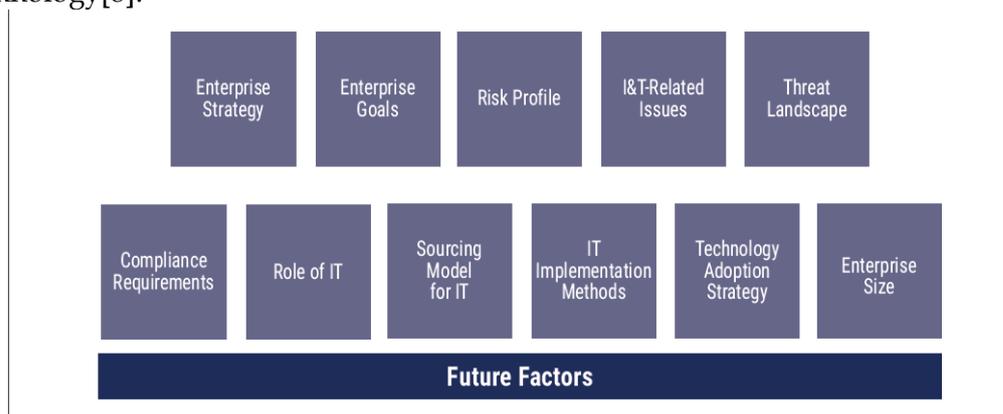


Figure 3. COBIT 2019 Design Factor

In the governance system design process, there are 11 design factors to consider [10]:

- **Design Factors 1- 4 (Initial determination of the scope of the governance system)**

At this stage, the initial scope of the governance system is determined. The values of the organization's strategy, organizational objectives, risk profile, and IT issues are translated into prioritized governance components to produce a customized initial governance system for the company. In the step of determining the initial scope of the governance system, four design factors are presented: DF1-Enterprise Strategy; DF2-Enterprise Goals; DF3-IT Risk Profile; and DF4- I&T Related Issues. The selection of values on design factors will determine the priority of governance and management objectives [10].

- **Design Factors 5-11 (Improved governance systems)**

Design factor 5-11 can be used to improve the scope of the governance system. At this stage, not all design factors apply to the organization or company, so those that are not related can be ignored. The design factors assessed are DF5- Threat Landscape; DF6-Compliance Requirement; DF7-Role of IT; DF8-Sourcing Model of IT; DF9-IT Implementation Methods; DF10-Technology Adoption Strategy; and DF11-Enterprise Size [10]. With the COBIT 2019 design factor component, companies are more focused on determining process strategies, are

more flexible in creating practical governance solutions, and can provide recommendations to companies in managing IT governance [8].

1.5 Focus Areas of IT Governance Evaluation

The determination of the domain is based on the identification of stakeholder needs and the identification of problems that exist within the university. The goal is that the evaluation process carried out provides results that are efficient and on target. Based on the determination of the domain that has been carried out, this evaluation uses the focus of the BAI11 (Managed Projects) domain. The purpose of the BAI11 domain is to manage all projects initiated within the company according to the company strategy and in a coordinated manner based on the standard project management approach [11]. The BAI11 domain consists of 9 process subdomains, and 52 process activities, namely 31 activities for level 2, 15 activities for level 3 and 6 activities for level 4 [11].

2. Method

The COBIT 2019 framework was used as the basis for conducting this research. The type of research used is qualitative research. Data collection techniques through primary data by conducting interviews and questionnaires. While the secondary data is collected by conducting a literature study that is relevant to the research topic. The questionnaires were distributed using the Guttman scale calculation, with a score of 1 (one) and the lowest (0) [1]. The following is explained in the form of pictures regarding the research design path.

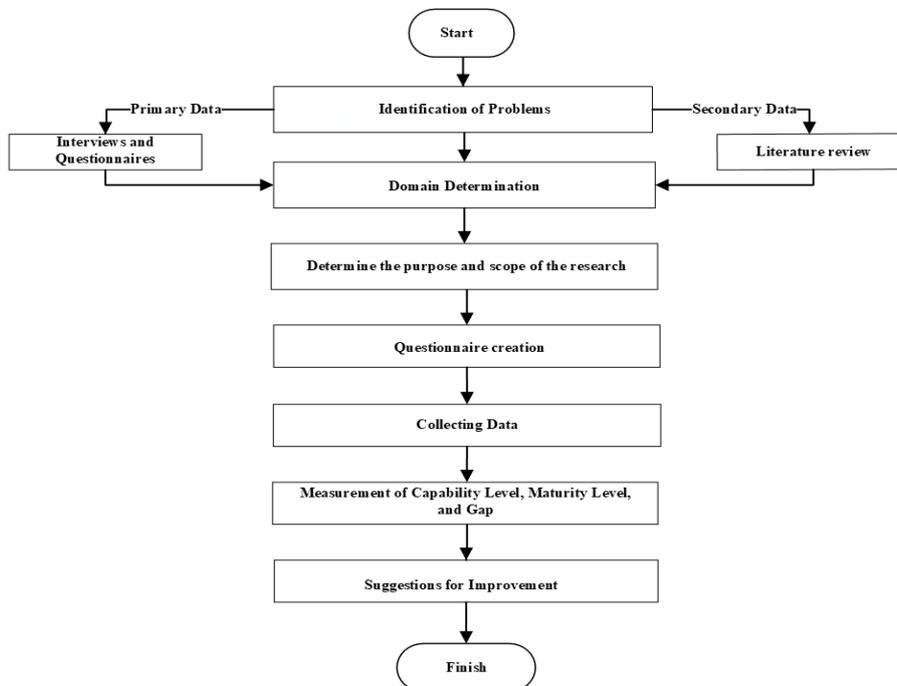


Figure 4. Research Flow

The stages of this research are as follows:

1. Identifying problems that exist in Mikroskil University so that appropriate research topics are obtained by conducting preliminary studies through interviews, literature studies, and

distributing pre-research questionnaires. An evaluation plan will be drawn up based on the identification of the problem.

2. Determination of the evaluation domain is done by mapping using the goals cascade and followed by identification of design factors. The data used for determining the domain is based on the existing problems.
3. Determine the purpose and scope of the research to find the process that is the focus of the research. This aims to clarify the target of the research and provide boundaries for the problem being studied so that the results are specific and on target.
4. Conducting interviews and compiling research questionnaires based on the 2019 COBIT e-book guidelines. Furthermore, the questionnaires were distributed to research respondents through Google Forms
5. To measure capability level, maturity level and gap by referring to the COBIT Performance Management Model. The level of process capability is measured by referring to the CMMI (Capability Maturity Model Integration) model. The capability level and maturity level are assessed from level 0, level 1, level 2, level 3, level 4, and level 5. The results of the obtained capability and maturity level values will be compared with the expected values, resulting in a gap value.
6. Based on the results of the gap analysis, appropriate recommendations for improvement are given based on the achievement of the capability level and maturity level concerning the COBIT 2019 framework. This will assist the organization in managing IT governance and provide flexibility to create practical solution governance.

2.1 Respondent

The target respondents who will receive the questionnaire refer to the BAI11 domain RACI chart table. According to COBIT 2019, roles C (Consulted) and I (Informed) are not included in the guide. This means that the RACI Chart is only the RA table. The RACI chart describes the activities or processes that will be carried out by each individual involved [11].

B. Component: Organizational Structures											
Key Management Practice	Chief Executive Officer	Chief Risk Officer	Chief Information Officer	Chief Technology Officer	Business Process Owners	Steering (Programs/Projects) Committee	Program Manager	Project Manager	Project Management Office	Head Development	Information Security Manager
BAI11.01 Maintain a standard approach for project management.	A		R								
BAI11.02 Start up and initiate a project.		R			R	R	A	R	R	R	
BAI11.03 Manage stakeholder engagement.			R				A	R			
BAI11.04 Develop and maintain the project plan.							A	R	R		
BAI11.05 Manage project quality.		R	R				A	R			R
BAI11.06 Manage project risk.			R				A	R			R
BAI11.07 Monitor and control projects.					R	A		R	R	R	
BAI11.08 Manage project resources and work packages.					R	A	R		R	R	
BAI11.09 Close a project or iteration.						A		R	R		
Related Guidance (Standards, Frameworks, Compliance Requirements)	Detailed Reference										
PMBOK Guide Sixth Edition, 2017	Part 1: 3. The role of the project manager										

Figure 5. RACI Chart BAI11

2.2. Scoring Scale

The ranking of process activities is a level of capability that can be achieved to different degrees, which can be expressed by a series of ratings, that is [8]:

- N - Not achieved- The capability achieved by the process <15%
- P - Partially achieved - The capability level achieved by the process is between 15% - 49%
- L - Largely achieved - The capability level achieved by the process is between 50% - 84%
- F - Fully achieved - The level of capability achieved by the process is >85%

An assessment can be continued to the next stage if the process has reached an F rating (Fully Achieved).

2.3 Capability Level Assessment Model

The process capability level is a measure of how well a process is implemented and performed. Each level of process capability can be achieved if the level below it is fully achieved [9]. The capability level assessment starts from level 2 because at COBIT 2019 the organization is considered to have carried out activities at the previous level [11]. Management and calculation of questionnaire data in determining the 2019 COBIT capability level from each activity is calculated and processed using the following formula [12] [13]:

1. Calculating the capability level for each subdomain with Equation 1 below:

$$CL: \frac{\sum \text{activity that have been done}}{\sum \text{activities}} \times 100\% \quad (1)$$

2. After calculating each BAI11 subdomain capability value, then calculate the overall capability level value with the following Equation 2:

Capability level 2 BAI11 is as follows:

$$CL \frac{\sum BAI11.01 + \sum BAI11.02 + \dots + \sum BAI11.09}{\sum \text{Subdomain proses}} \quad (2)$$

If level 2 is reached, it can be continued at the next level until level 5.

2.4 Maturity Level Assessment Model

COBIT 2019 identifies maturity level as a performance indicator at the focus area level. A certain level of maturity can be reached when all processes in the focus area reach a certain level of capability [9]. The maturity level assessment model is carried out with the following Equation 3 and 4 [14]:

1. Index Maturity BAI11 subdomain

$$IM = \frac{\sum \text{Questionnaire answers}}{\text{Subdomain activity}} \quad (3)$$

2. Calculating the overall maturity level of BAI11

$$ML = \frac{\sum \text{Maturity level subdomain}}{\text{many processes}} \quad (4)$$

2.5 Gap Analysis

A gap analysis is a comparison between the value of the expected level minus the value of the current level. The current capability level value and the current maturity level value will be compared with the expected target. Analysis of significant gaps in improving the IT governance performance of Mikroskil University [15].

3. Results and Discussion

In this section, the researcher describes the results of the analysis in determining the focus of the domain to be evaluated at Mikroskil University as well as the results of measuring capability maturity levels, gaps, and related recommendations.

3.1 Domain Determination

The process for obtaining the domain (IT governance objective) in this study refers to the mapping of goals cascade and identification of design factors. The determination of this domain is adjusted to the problems in IT governance and IT management within Mikroskil University. This stage is an important part of this research.

The practice of the COBIT 2019 goals cascade stages is to identify stakeholder needs and then adjust them to enterprise goals. To identify the needs of higher education stakeholders, pre-research and interviews with the Head of the division SITD. Stakeholder needs are the needs of stakeholders in the organization, so they become an important value in the process of identifying enterprise goals. The results of the identification of stakeholder needs with enterprise goals can be seen in the following table:

Table 1. Stakeholder Needs Cascade to Enterprise Goals

Stakeholder Needs	Enterprise Goals
Information systems that can handle business processes in every part and accelerate digital transformation to keep pace with today's IT developments.	EG12.Managed digital transformation programs EG13. Product and business innovation.
The need to prepare the realization of the work program so that each unit has a target in encouraging the achievement of organizational goals.	EG06.Business service continuity and availability EG10.Staff skills, motivation and productivity
Adequate IT capabilities.	EG13.Product and business innovation. EG06. Business service continuity and availability
Making Strategic Plans and work programs then executed and evaluated. The business strategy is well supported by the IT strategy.	EG12.Managed digital transformation program
Each division performs its duties and responsibilities well.	EG10.Staff skills, motivation and productivity
In carrying out work, Mikroskil University must have responsibilities to employees such as the academic community, lecturers, and other employees.	EG10.Staff skills, motivation and productivity

The design factor identification stage uses the Design Factor Toolkit provided by COBIT 2019. The purpose of the design factor identification is to find out which process is a priority compared to other priorities in the COBIT Core Model. The data used was obtained

from the results of interviews with the Head of the Division SITD and several university internal stakeholders.

- **DF1-Enterprise Strategy**

Mikroskil University focuses more on stable and client-oriented services (client service/stability) with a score of 5, and on product/innovation (innovation/differentiation) with a score of 4.

- **DF2-Enterprise Goals**

Mikroskil University's goals are more focused on EG06-Business-service continuity and availability, EG10-Staff skills, motivation, and productivity, EG12-Managed digital transformation programs, and EG13- Product and business innovation. Where EG06 got a score of 4, while EG10, EG12, and EG13 got the highest score of 5.

- **DF3-Risk Profile**

In this design factor, the results show that 7 risks often arise and have a large enough impact on universities, which are marked with an impact value of 4 and a likelihood 4.

- **DF4-I&T Related Issue**

Design factor 4 shows that there are some common IT-related problems that are often experienced by Mikroskil University. There are several problems that are considered important or become serious issues in higher education which are given an importance value of 3

- **DF5-Threat Landscape**

Design factor 5 shows that Mikroskil University is fully operating in a normal business environment.

- **DF6-Compliance Requirements**

Design factor 6, the compliance requirements applied by Mikroskil University is a completely normal type of regulation.

- **DF7-Role of IT**

On design factor 6 the role of IT in Mikroskil University is dominant as support (given the importance of 5). Mikroskil University views IT as important to carry out the continuity of business processes and services as well as innovation. Other IT roles, such as factory, turnaround, and strategic are given importance 4.

- **DF8-Sourcing Model of IT**

For design factor 8, Outsourcing and Insourced have the highest percentage of IT modeling in Mikroskil University with each of 50%. Outsourcing means that Mikroskil University requests a third service provider to provide IT services. Meanwhile, Insourced means that Mikroskil University provides and operates its own IT staff and services.

- **DF9-IT Implementation Methods**

The implementation method used by Mikroskil University is Agile and Traditional, each of which has a percentage of 50%.

- **DF10-Technology Adoption Strategy**

Mikroskil University acts completely as a follower in adopting IT. This means that Mikroskil University waits for new technology that has been proven to be well used and then adopts the technology.

Of the 40 processes/core models in the COBIT Core Model, domains that have a priority value of ≥ 60 include APO04 with a value of 60%, BAI01 of 60%, BAI02 of 70%, BAI05 of 60%, and BAI11 of 85%. From this data, it can be concluded that the process that has the highest value is the main priority/focus for the evaluation of IT governance. After obtaining the results of the design factor, an interview was conducted with the Head of the SITD regarding the recommendation of the domain that would be the main focus of the research. Based on the results of the discussion, finally this evaluation uses the BAI11 (Managed Projects) process domain which has the highest value of 85%, with a target capability level request and a maturity level of level 3.

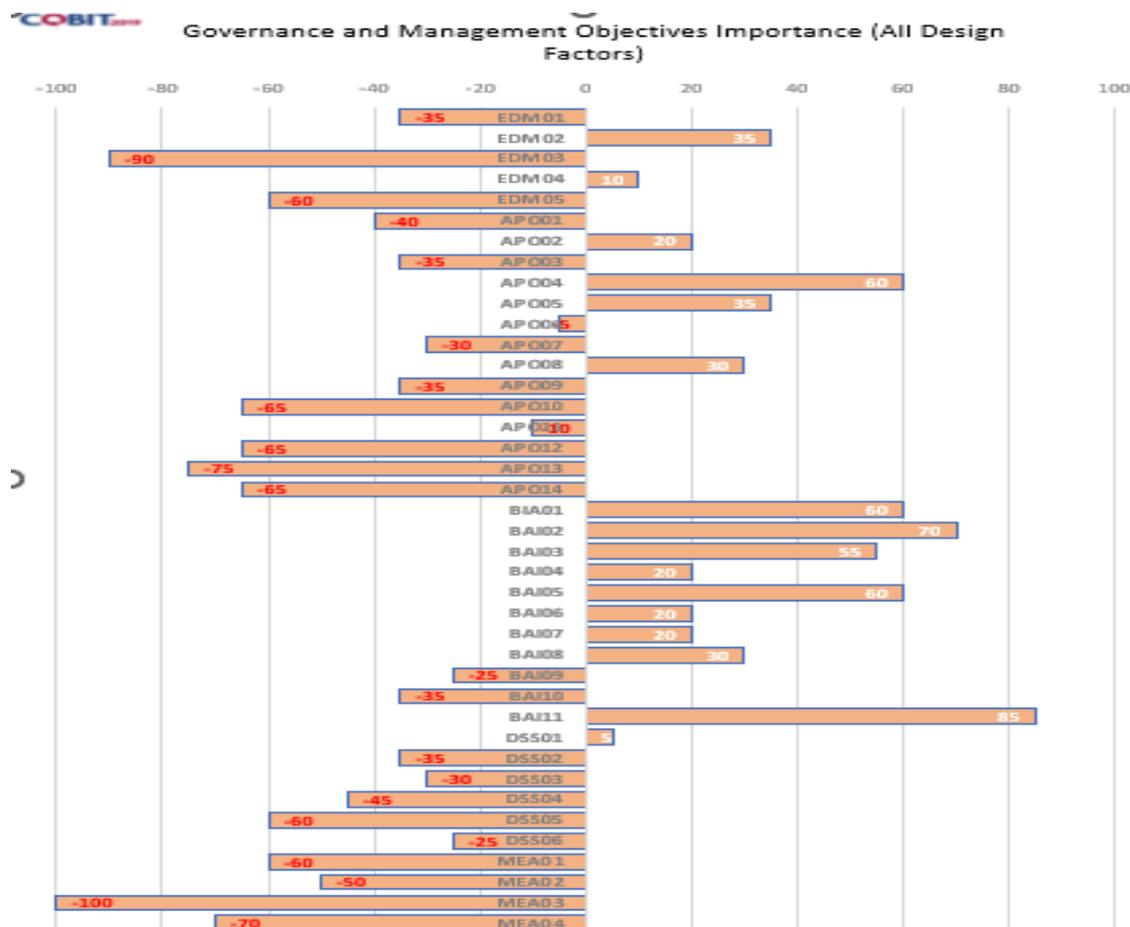


Figure 6. Process Domain Result

3.2 Capability Level and Maturity Level Measurement

Measurement questionnaires that have been prepared previously will be distributed to the target respondents who have been determined based on the mapping of the RACI table. After being given time, the questionnaires were collected again for analysis. The calculated results from this questionnaire will be used to assess the capability level and maturity level of

project management in universities. The following are the results of the capability level assessment obtained from the recapitulation of the answers to the previously collected questionnaires.

Table 2. Capability Level Measurement

Subdomain	Questionnaire answers				rating
	Yes	No	Total	%	
BAI11.01	5	1	6	84%	L
BAI11.02	12	9	21	57%	L
BAI11.04	11	7	18	61%	L
BAI11.05	2	1	3	67%	L
BAI11.06	6	3	9	67%	L
BAI11.07	9	3	12	75%	L
BAI11.08	14	7	21	80%	L
BAI11.09	3	0	3	100%	F
Capability level				73%	L

A process is considered to have reached a certain level of capability if the implementation of process activities at that level has reached > 85% (fully achieved). Mikroskil University has not yet reached capability level 2 because all activities are considered not to have achieved a Fully achieved rating at level 2. Based on the results of the assessment, capability level 2 only reached 73% with an L rating (largely achieved) with evaluation status was not achieved, so that the assessment cannot be continued to the next stage. It can be concluded that Mikroskil University still reaches capability level 1 (performing), meaning that the process of achieving its goals is through a series of incomplete basic activities that can be categorized as not very organized.

Table 3. Capability Level 2 Measurement Results

Management Practice	Description	Level (%)				The final result
		1	2	3	4	
BAI11	Project Management	73% (L)	-	-	-	Level 1

From the results of the achievement of the current capability level, the maturity level is measured. The results of the Maturity Level index assessment are as follows:

Table 4. Maturity Index Measurement Results

Subdomain	Questionnaire Answers	Activity	Maturity Index (IM)
BAI11.01	5	2	2.5
BAI11.02	12	7	1.7
BAI11.04	11	6	1.8
BAI11.05	2	1	2
BAI11.06	6	3	2
BAI11.07	9	4	2.25
BAI11.08	14	7	2

BAI11.09	3	1	3
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The results of the maturity level assessment in the BAI11 process domain (Managed Projects) are as follows in **table 5** below:

Table 5. Maturity Level Assessment Results

Subdomain	Description	IM	Level	Maturity Level
BAI11.01	Maintain a standard approach for project management	2.5	2	Managed
BAI11.02	Start Up and Initiate a Project	1.7	2	Managed
BAI11.04	Develop and Maintain the Project Plan	1.8	2	Managed
BAI11.05	Manage Project Quality	2	2	Managed
BAI11.06	Manage Project Risk	2	2	Managed
BAI11.07	Monitor and Control Projects	2.25	2	Managed
BAI11.08	Manage Project Resources and Work Packages	2	2	Managed
BAI11.09	Close a Project or iteration	3	3	Define
Maturity Level BAI11 (Managed Projects)		2.1	2	Managed

The results of the research on the maturity level of project management for the BAI11 (Managed Projects) domain are at maturity level 2, namely Managed Process. This means that planning and performance measurement are taking place even though they are not standardized. This means that Mikroskil University is familiar with IT activities and can plan, implement, and manage these activities, but they're not formally documented, so that there is no reference to refer to.

Work product assessment at COBIT 2019 is carried out on the Information Flow and Item Components. Checking the completeness of information and documentation aims to find out the documentation and information needed to support all Key Management Practice activities at BAI11. Based on the results of the examination, the documentation for the BAI11 (Managed Projects) process has not yet been standardized/defined at Mikroskil University. Activities related to project management are carried out by universities, but they do not have documentation for the process

3.3 Gap Analysis

The target level expected by Mikroskil University for the capability level and maturity level is level 3. The achievement of the current capability level is still at level 1, so the gap value for the BAI11 process capability level is 2. This means that 2 levels of improvement are needed to achieve the target to the next level (level 3). Meanwhile, the current maturity level is at level 2, so it has a gap value of 1. To reach level 3, an improvement of 1. After obtaining the value of the gap, it will be possible to know the recommendations that can be given to Mikroskil University as a reference for improvement to achieve expected targets.

Table 6. Gap Analysis

Measurement Results	Target Level	Current Level	Gap
Capability level BAI11	3	1	2
Maturity level BAI11	3	2	1

After obtaining the value of the gap, it will be possible to know the recommendations that can be given to Mikroskil University as a reference for improvement to achieve the expected target. Meanwhile, the gap analysis for each subdomain on capability and maturity level is represented in the following spider chart in **figure 7**:

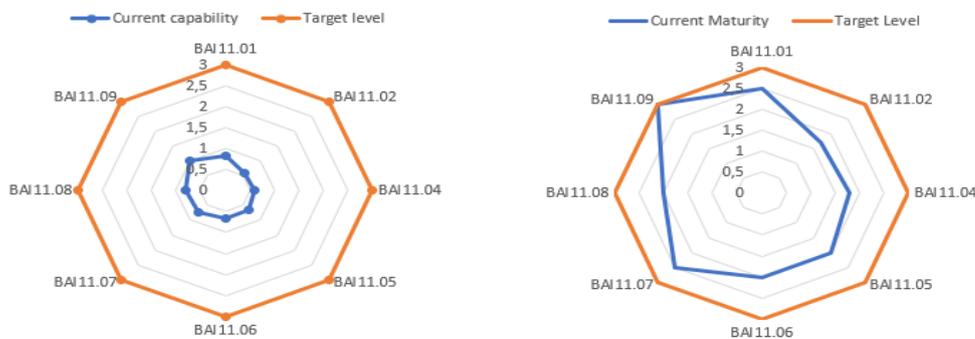


Figure 7. Capability Level and Maturity Level Gap Analysis

3.4 Recommendation

Based on the findings and the value of the gap in the level of capability and maturity level of project management, it is necessary to improve IT governance. The recommendations for improvement are:

- Implement and optimize activities that have not been carried out at level 2.
- It is recommended that the SITD Section begin to develop standards or formal documentation as a reference for overall project management at Mikroskil University.
- Create non-standard documentation/rules related to university project management.
- There are recommendations for guidance regarding the implementation of BAI11 domain activities.
- HR Improvement in the SITD division related to project management.
- Implement activities at level 3.

4. Conclusion

Based on the assessment that has been carried out, several conclusions can be drawn as follows:

- The results of the assessment of the capability level and maturity level of the BAI11 domain (Managed Projects) are:
 - The assessment shows that capability level 2 only reaches 73% (Largely achieved) with the evaluation status not being achieved, so the assessment cannot be continued to the next stage. So, the level of process capability of BAI11 (Managed Projects) at Mikroskil University Medan is currently at level 1 (Performed Process).

- b. The overall maturity level obtained by Mikroskil University in project management is level 2 (Managed process) with a value of 2.1.
2. Mikroskil University does not yet have standard documentation or rules in project management, so finding documents/evidence supporting the implementation of the BAI11 (Managed Projects) process is not standardized at all. The capability level has a gap value of 2 with a target level of 3, while the maturity level has a gap value of 1 with a target level of 3.
3. Based on the existing problems, recommendations are given in the form of:
 - a. recommendations for improvement at level 2 by carrying out activities that have never been carried out with the aim of minimizing the value of the gap, as well as recommendations for improvement to reach level 3.
 - b. Start making standard or formal documentation as a reference for overall project management at Mikroskil University. So that in the future, project management at Mikroskil University is more well defined.
 - c. Create non-standardized documents on each BAI11 (Managed Project) subdomain to support the implementation of process activities.

Based on the results of the study, the following suggestions were made:

1. It is hoped that the recommendations for improvement given by researchers can be used as consideration for improving IT governance so that project management at Mikroskil University is more leveraged and supports other business activities.
2. It is hoped that further research will not only focus on one process domain. Perhaps it is possible to develop an IT governance evaluation of other process domains in the COBIT Core Model to determine the progress of implementing process activities in the future. So that Mikroskil University can carry out best practices to the maximum in IT governance.

References

- [1] Toifur, T., Kusriani, K., & Budi, A. (2022). Evaluation of Information Technology Governance Using COBIT 5 and ISO/IEC 38500. *Jurnal Online Informatika*, 7(1), 17-27.
- [2] Noor, A. Z. M., Widodo, A. P., & Adi, K. (2022). Evaluation of Information Technology Governance Using Cobit 2019 on Domain DSS (Deliver, Service, Support) at PT XYZ. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*, 5(2).
- [3] Syuhada, A. M. (2021). Kajian Perbandingan Cobit 5 dengan Cobit 2019 sebagai Framework Audit Tata Kelola Teknologi Informasi. *Syntax Literate; Jurnal Ilmiah Indonesia*, 6(1), 30-39.
- [4] Haay, N. H., & Sitokdana, M. N. (2022). Analysis of Information Technology Governance on Communication and Information Service of Papua Province Using COBIT 2019. *Journal of Information Systems and Informatics*, 4(2), 349-360.
- [5] Yunis, R. (2019, October). A Proposed of IT Governance Model for Manage Suppliers and Operations Using COBIT 5 Framework. In *2019 Fourth International Conference on Informatics and Computing (ICIC)* (pp. 1-6). IEEE.
- [6] Bayastura, S. F., Krisdina, S., & Widodo, A. P. (2021). Analisis Tata Kelola Teknologi Informasi Menggunakan Framework Cobit 2019 Pada PT. XYZ. *JIKO (Jurnal Informatika dan Komputer)*, 4(1), 68-75.

- [7] Erizal, M. A., Fauzi, R., & Nugraha, R. A. (2021). Perancangan Tata Kelola Teknologi Informasi Di Bumn Pt. Angkasa Pura Ii Menggunakan Framework Cobit 5 Pada Domain Dss. *eProceedings of Engineering*, 8(5).
- [8] Information Systems Audit and Control Association. (2018). *COBIT® 2019 Framework: Introduction and Methodology*. ISACA.
- [9] De Haes, S., Van Grembergen, W., Joshi, A., & Huygh, T. (2020). COBIT as a Framework for Enterprise Governance of IT. In *Enterprise governance of information technology* (pp. 125-162). Springer, Cham.
- [10] ISACA, *COBIT® 2019: Designing an Information and Technology Governance Solution*. 2018.
- [11] ISACA, *COBIT® 2019 Framework: Governance and Management Objectives*. USA, 2018.
- [12] Atrinawati, L. H., Ramadhani, E., Fiqar, T. P., Wiranti, Y. T., Abdullah, A. I. N. F., Saputra, H. M. J., & Tandirau, D. B. (2021, February). Assessment of Process Capability Level in University XYZ Based on COBIT 2019. In *Journal of Physics: Conference Series*. 1803(1), pp. 012033.
- [13] Rabhani, A. P., Maharani, A., Putrie, A. A., Anggraeni, D., Azisabil, H. F., Cantika, I., ... & Firmansyah, R. (2020). Audit Sistem Informasi Absensi Pada Kejaksaan Negeri Kota Bandung Menggunakan Framework Cobit 5. *Jurnal Sisfokom (Sistem Informasi dan Komputer)*, 9(2), 275-280.
- [14] Riadi, I., Yanto, I. T. R., & Handoyo, E. (2020, April). Analysis of academic service cybersecurity in university based on framework COBIT 5 using CMMI. In *IOP Conference Series: Materials Science and Engineering*. 821(1), pp. 012003.
- [15] Nachrowi, E., Nurhadryani, Y., & Sukoco, H. (2020). Evaluation of Governance and Management of Information Technology Services Using Cobit 2019 and ITIL 4. *Jurnal RESTI (Rekayasa Sistem Dan Teknologi Informasi)*, 4(4), 764-774.