



Analysis of Information Technology Governance of the Tasikmalaya City Manpower Service Using Framework COBIT 2019

Tasya Nurul Annisa ^a, Heni Sulastrri ^{b,*}

^aDepartment of Informatics, Universitas Siliwangi, Tasikmalaya, Indonesia

^bDepartment of Information System, Universitas Siliwangi, Tasikmalaya, Indonesia

Corresponding author: *henisulastrri@unsil.ac.id

Abstract— Currently, the success and continuity of a company or organization is very much based on IT, in terms of speed and results that can help increase the effectiveness and efficiency of business processes to achieve goals. In its implementation, the Tasikmalaya City Manpower Department had problems with software frequently occurring applications *error* (system failure to operate), while problems with the website was the loss and damage of information due to attacks from hackers. To overcome this, the agency does not yet have a special section that has full control over IT governance due to the lack of staff or employees who are IT experts. These problems can be identified thoroughly with governance using the COBIT 2019 framework. The form and content of the COBIT 2019 model are updated from the previous COBIT method and many new functions are added, including enabling improvements to the IT governance system. By conducting analysis, you can provide recommendations to improve the organization's capabilities to meet the agency's expectations and goals regarding IT governance in supporting its performance. *Domain* The COBIT 2019 used is APO and BAI with details of the APO07, APO08, APO13 and BAI08 processes. The results of measuring the capability level of the APO07 domain at the Tasikmalaya City Power Service get a capability level 3 value, the APO08 and BAI08 domains get a capability level 2 value, and the APO13 domain gets a capability level 1 value. Providing recommendations for improving the agency's information technology governance is expected to be able to carry out immediately improving the management of agency information technology so that it immediately reaches the expected level of capability.

Keywords— *Capability, COBIT 2019, Governance, Information Technology.*

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I. INTRODUCTION

All organizations have implemented Information Technology (IT), be it government, private sector, industrial sector, even education. This is because IT is believed to make it easier for humans to carry out their activities. Currently, the success and continuity of a company or organization is very much based on IT, in terms of speed and results that can help increase the effectiveness and efficiency of business processes to achieve goals. Organizations need to have goals that organizational members want to achieve [1]. Human resources have an important role in helping an institution achieve its goals. Knowledge and experience in the use, maintenance, and development of information technology activities is required for optimal operations. Therefore, the effective use of information technology is essential for smooth governance operations.

Company or organizational problems can be resolved through governance [2]. Companies must find various strategic breakthroughs that can combine the use of IT to

achieve company goals along with advances in science and technology [3].

The Tasikmalaya City Manpower Service is a Regional Service agency within the Tasikmalaya City Government which carries out the task of employment and transmigration affairs in the City of Tasikmalaya and has a mission to create and maintain public services based on Good Governance based on principles Government Entrepreneurship so that it is able to produce an independent and participatory climate at all levels of society in the City of Tasikmalaya. The Tasikmalaya City Manpower Department has an official information system with the URL address: *disnaker.tasikmalayakota.go.id* in website Tasikmalaya City Manpower Department has various types of information related to job vacancies, dashboard Tasikmalaya City employment data, and AK-1/Yellow Card registration. However, based on interviews conducted by the author with the Head of the General and Civil Service Sub-Division, Mr Iking Mutakin, S.Sos there is a problem on software frequent application *error*, while problems with information services (website) is the loss and damage of information due to attacks from hacker. This

problem has quite a bad impact on the continuity of business processes and can reduce IT quality performance. To overcome this, the agency does not yet have a special section that has full control over IT governance due to the lack of staff or employees who are skilled in IT, which causes difficulties in handling sudden changes or disruptions to the system. These obstacles can become obstacles for the Tasikmalaya City Manpower Department to achieve its goals.

These problems can be identified thoroughly with governance using the COBIT 2019 framework. The 2019 COBIT model was updated in form and content, and many new functions were added, including enabling improvements to the IT governance system. In the COBIT 2019 framework there is a model to measure how well an IT governance and management process has been running, namely the COBIT model *Performance Management* (CPM).

Therefore, it is necessary to analyze information technology governance in the Tasikmalaya City Manpower Service. By conducting analysis, you can provide recommendations to improve the organization's capabilities to meet the agency's expectations and goals regarding IT governance in supporting its performance. *Domain* The COBIT 2019 used is APO and BAI with details of the APO07, APO08, APO13 and BAI08 processes.

Regarding the existing problem, there is previous research that can be used as a reference. The reference in this research is previous research by Hario Putro Prasajo and Pujiono entitled "Analysis of Information Technology Governance Using Framework COBIT 5 Domain DSS01 (Manage Operations) At BPS Central Java Province" [4]. The results of this research obtained the achievement of capability level level 1 Performed by category Largely Achieved of 68.88% or equivalent to 1.68 which means that the process monitoring The implemented IT operations do not yet have a complete process monitoring good IT operations. Further research was conducted by Rifqi Anugrah, Ema Utami and Alva Hendi Muhammad entitled "Analysis of IT Risk Management at XYZ Universities Based on COBIT 2019 with Considerations Domain APO12"[5] only focuses on the APO12 domain reaching level 2 capability level (Managed) with an average value of 2.88 or 0.028 in percent units. When compared with the maximum score of 5, it can be concluded that XYZ College has not maximized its IT governance process so that several considerations are needed to improve IT governance for the better in the future.

Research on the IT governance framework COBIT has been widely used in case studies of government agencies and companies. However, IT governance research using COBIT 2019 is still very limited, especially in government agencies [6]. This research aims to analyze IT governance to support the performance of Tasikmalaya City Manpower Department employees using the COBIT 2019 framework. Then the results of the research are recommendations for

improving the IT governance capabilities of the Tasikmalaya City Manpower Department.

II. RESEARCH METHODOLOGY

The flow of research methods that will be carried out uses a research framework as in Figure 1 which begins with observations and interviews, literature studies, determining the COBIT 2019 domain process, questionnaires, and making recommendations to agencies.

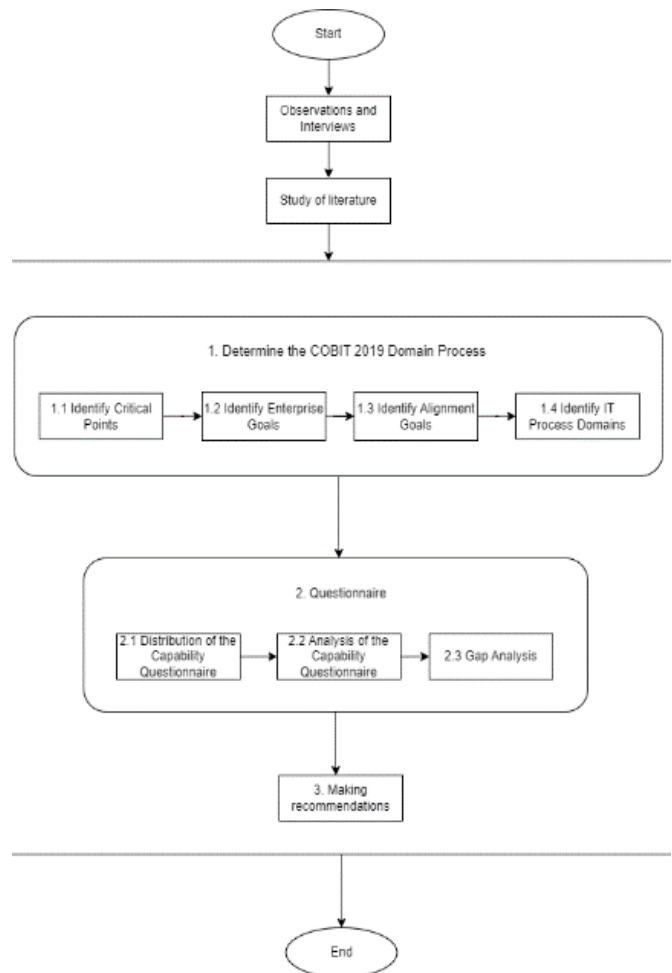


Figure 1 Research Stages

A. Observations and Interviews

Observation is observing by recording the facts needed by the researcher [7]. In this research, observations were carried out at the Tasikmalaya City Manpower Office with the aim of identifying and looking for some information that could be collected. This observation was carried out by making direct observations of the research object on how information technology is managed at the Tasikmalaya City Manpower Service [8].

An interview is a question and answer session between two or more people directly with a specific purpose. In this research, interviews were conducted with the Head of the General and Civil Service Sub-Division, MrKing Mud too, S.Sos is useful for obtaining information needed in the

analysis of ongoing activities, especially in the information technology (IT) section at the Tasikmalaya City Manpower Service [8]

B. Study Literature

Literature study or preliminary study is an attempt to study a research problem before the research is actually carried out [9]. In this research, a literature study was carried out by studying theories obtained from journals related to information technology governance using the COBIT framework regarding the framework and methods used. The literature study which is the main reference for this research is the ebook issued by ISACA in 2018-2019 with the title COBIT 2019: *Framework Introduction and Methodology*, and COBIT 2019: *Governance and Management Objectives*.

C. Determining the COBIT 2019 Domain Process

Determining the process object or COBIT Domain is done by determining identification Stakeholder Needs & Enterprise Goals. The first stage carried out is to identify stakeholder needs and agency goals. Stakeholders Needs is a need from stakeholders in an agency. Then the results of Stakeholders Needs This can later be used as a basis for making determinations Enterprises Goals of the agency [10].

Next is identification IT Goals from related agencies. After getting it IT Goals from the relevant agency, then determine the IT Domain and process. The COBIT 2019 domain process is determined using identification critical points, identify enterprise goals, identify alignment goals, and identification domain process TI.

D. Questionnaire

A questionnaire or questionnaire is a data collection method that is carried out by giving several questions or written statements to respondents to the answer. A questionnaire or list of certain questions submitted by researchers to respondents is related to the field of study being researched [11]. Done by distributing questionnaires *Capability* to Tasikmalaya City Manpower Department employees, *Capability Questionnaire Analysis* which refers to the COBIT 2019 module [12], and gap analysis, obtained by analyzing the current level of ability (*as-is*) and expected level of ability (*to-be*) by the agency.

E. Improvement Recommendations

Recommendations for improvements are needed to minimize or eliminate deficiencies related to the organization's IT resources. The goal of making recommendations for improvement is to make existing IT systems or resources operate more efficiently. Recommendations are given based on the results of the values capability referred to *Framework* COBIT 2019 [6].

III. RESULTS AND DISCUSSION

A. Identification Enterprise Goals

Initial identification is carried out by identifying the goals and objectives of the Tasikmalaya City Manpower Service which will be aligned with *Enterprise Goals* in accordance with the COBIT 2019 standardization in the COBIT 2019 module *Framework Introduction and Methodology* and COBIT 2019 module *Governance and Management Object* in accordance with the vision, mission, and results of interviews with the Head of the General and Personnel Sub-Division of the Tasikmalaya City Manpower Service. Below in table 1 are the mapping results *Enterprise Goals*.

Table 1. Mapping Results Enterprise Goals

No	Critical Point	Reference	Enterprise Goals
1	Not optimal yet link and match between the world of education and training and the world of business	EG02	Managed business risks
2	Loss and damage to information due to attacks from hacker	EG07	Quality of management information
3	Limited quality of human resources who have full control over IT governance and there is no special section that has full control over IT governance	EG10	Staff skills, motivation and productivity
4	Information updates on website as a digital information medium is quite slow	EG12	Managed digital transformation program
5	Industrial relations, job introductions and employment training instructors are not yet optimal	EG13	Product and business innovation

B. Identification Alignment Goals

The steps taken at this stage are to use a mapping table *Enterprise Goals and Alignment Goals* found in the COBIT 2019 module *Governance and Management Object* as a reference for selecting each selected process. To clarify the results of mapping company objectives (*Enterprise Goals*) towards alignment goals. The detailed mapping of alignment objectives is shown in Table 2.

Table 2. Mapping Alignment Goals

No	Reference	Enterprise Goals	Alignment Goals
1	EG02	Managed business risks	AG02 AG07
2	EG07	Quality of management information	AG04 AG10
3	EG10	Staff skills, motivation and productivity	AG12

No	Reference	Enterprise Goals	Alignment Goals		
4	EG12	Managed digital transformation program	AG03	AG08	AG09
	EG13	Product and business innovation	AG13		

It can be seen in table 2, namely mapping *Alignment Goals* from *Enterprise Goals*, then the identification mapping results *Alignment Goals* can be seen in table 3.

Table 3. Results Mapping Alignment Goals

No	Reference	Alignment Goals
1	AG02	Managed I&T related risks
	AG03	Benefits realized from I&T enabled investments and service portfolios
	AG04	The quality of technology-related financial information
2	AG07	Information security, processing infrastructure and applications, and privacy
	AG08	Enable and support business processes by integrating applications and technology
	AG09	Delivery of programs on time, within budget and meeting quality requirements and standards
	AG10	Quality of I&T management information
3	AG12	Competent and motivated staff with a shared understanding of technology and business
	AG13	Knowledge, expertise and initiative for business innovation

C. COBIT 2019 Domain Determination Results

Based on interview results, vision and mission, identification *Enterprise Goals*, *Alignment Goals*, and *Governance and Management Objective* Tasikmalaya City Manpower Department obtained domain The COBIT 2019 selected and used as a reference for the questionnaire were APO07, APO08, APO13 and BAI08.

Table 4. Determination Results Domain COBIT 2019

No	Domain	TI process	Critical Point
1	APO07	Managing human resources	There is no special section that has full control over IT governance
2	APO08	Managing relationships	Industrial relations, job introductions and employment training instructors are not yet optimal link <i>and match</i> between the world of education and training and the world of business
3	APO13	Managed Security	Loss and damage to information due to attacks from hacker
4	BAI08	Managing knowledge	Limited quality of human resources who have full control over IT governance and information updates website as a digital information medium is quite slow

D. Capability Measurement Results

Capability measurement is used to determine the level of capability in the Tasikmalaya City Manpower Office. Questionnaire Capability level referring to the COBIT 2019 module [12]. Measurements were obtained by starting with the RACI Chart identification stage in accordance with the selected COBIT process, resulting in different respondents.

The respondents selected regarding the APO07 process were 6 respondents consisting of the Treasurer, Service Secretary, Head of the Planning, Evaluation, Reporting and Finance Subdivision; Head of Labor Placement and Transmigration Productivity Training Division; Materials Analyst for Increasing Labor Productivity; Head of General and Civil Service Sub-Division.

The calculation results of the APO07 process obtained a capability value at level 3 because in the calculation process at level 4 only gets a capability score of 75% with an L rating (Largely Achieved).

The respondents selected regarding the APO08 process were 5 respondents consisting of the Head of Department, Treasurer, Head of General and Personnel Sub-Division, Human Resources Analyst for Apparatus, and Head of Industrial Relations.

The calculation results of the APO08 process obtained a capability value at level 2 because in the calculation process at level 3 only got a capability score of 68% with rating L (Largely Achieved) then no assessment can be carried out level next, namely level 4. Therefore that process domain APO08 obtained a capability value in level 2.

The respondents selected regarding the APO13 process were 4 respondents consisting of the Head of the Planning, Evaluation, Reporting and Finance Subdivision; Head of Labor Placement and Transmigration Productivity Training Division; Materials Analyst for Increasing Labor Productivity; and Manager of Training Materials and Productivity.

The calculation results of the APO13 process obtain a level 1 capability value due to the calculation process in level 2 only getting a capability score of 73% with rating L (Largely Achieved) then no assessment can be carried out level next, namely level 3. Hence the process domain APO13 obtained a capability value at level 1.

The selected respondents regarding the BAI08 process were 5 respondents consisting of General Administration; Mail Administration; Head of Labor Placement and Transmigration Productivity Training Division; Materials Analyst for Increasing Labor Productivity; and Manager of Training Materials and Productivity.

The BAI08 process calculation results obtained a level 2 capability value due to the calculation process in level 3 only got a capability score of 85% with rating L (Largely Achieved) then no assessment can be carried out level next, namely level 4. Hence the process domain BAI08 obtained a capability value in level 2.

Table 5. Process Capability Measurement Results

Domain	Level Capability	Description of Achievement
APO07 Managed Human Resources	3	The activities carried out have achieved their objectives in a much more organized manner using organizational assets. Activities are usually well defined.
APO08 Managed Relationships	2	The activities carried out have achieved their objectives through the implementation of a complete series of basic activities and can be categorized as ongoing performance.
APO13 Managed Security	1	The activities carried out more or less achieve their objectives through the implementation of an incomplete series of activities that can be categorized as not very organized.
BAI08 Managed Knowledge	2	The activities carried out have achieved their objectives through the implementation of a complete series of basic activities and can be categorized as ongoing performance.

Table 5 shows that there is one process that reaches the level of capability only up to level 1, that's domain APO13 shows that the activities carried out more or less achieve their objectives through the implementation of an incomplete series of activities that can be categorized as not very organized.

Domain APO08 and BAI08 that reach the capability level are only up to level 2, shows that The activities carried out have achieved their objectives through the implementation of a complete series of basic activities and can be categorized as ongoing performance.

Meanwhile Domain APO07 has each proficiency level level 3, where this shows that the process has achieved its goals in a much more organized way using organizational assets. Activities are usually well defined.

The results of the capability level analysis were obtained by processing data on questionnaires filled out by selected respondents according to agency conditions, whether they had been carried out or not from the activity statements (questionnaires) distributed. Activity statements have their respective value weights which have been calculated and determined by COBIT 2019. After obtaining conclusions from the analysis of process capability measurement results, the next step is an analysis of the current condition of capability levels.(as-is) at the agency.

E. Gap Analysis

Analysis of the level of gaps in information technology governance aims to provide convenience for improving information technology governance, and this analysis was obtained between differences in current ability level (as-is) with the expected level of ability (to-be). In this way, it will be known which processes have gaps and need improvement. From the comparison of capability levels, an objective will be obtained as to which processes are not in accordance with the desired capability level. And if there are gaps, recommendations will be given based on the findings and the difference between desires and expectations in order to achieve the level of capability expected by the company. The results of the gap analysis can be seen in table 6.

Table 6. Gap Capability Level Domain

Domain	Capability Level		Gap
	As-is	To-be	
APO07	3	4	1
APO08	2	5	3
APO13	1	5	4
BAI08	2	5	3

F. Improvement Recommendations

Recommendations for improvement are given based on value capability from the current Tasikmalaya City Manpower Service, with reference to framework COBIT 2019. Stage of providing recommendations for improving technology governance information The agency is expected to be able to immediately improve the management of the agency's information technology so that it can immediately reach the expected level of capability(to-be) and abandon the current level of ability(as-is). Recommendations for improvements that can be given are based on level capability can be seen in table 7.

Table 7. Results of Improvement Recommendations

Domain	Recommendation
APO07	a. Optimize the ability of the Tasikmalaya City Manpower Department to conduct regular employee skill evaluations and employee background checks when recruitment occurs using existing organizational assets.
APO08	a. Recommended to expand relations so that there are opportunities for collaboration with various parties, including facilitation by the provincial and central governments. b. Recommended to expand the institutions that become partners in preparing prospective workers.
APO13	a. Recommended to form a special section on duty plan, maintain, manage, monitor and organize matters related to information security management to make it more organized.

Domain	Recommendation
	<p>b. Recommended to conduct training for human resources at the Tasikmalaya City Manpower Service regarding safe use of the system.</p> <p>c. The Tasikmalaya City Manpower Service is advised to carry out documentation related to plans for handling information security risks that can cover all aspects of the Tasikmalaya City Manpower Office's information technology so that it is more organized.</p>
BAI08	<p>a. Recommended to periodically assess employee capabilities regarding information technology and assign employee duties and obligations according to their abilities so that each employee makes an appropriate contribution in carrying out tasks related to information technology.</p> <p>b. Recommended that the Tasikmalaya City Manpower Department routinely check the latest information available for the web.</p>

IV. CONCLUSION

The results of measuring the capability level of the APO07 domain at the Tasikmalaya City Energy Service obtained a level 3 capability value with an achievement value of 90%, the APO08 and BAI08 domains received a level 2 capability value with an achievement value of 92% for APO08, and 86% for BAI08, and the APO13 domain received a value capability level 1 because at level 2 you get an achievement score of 73%. For domains APO07, APO08, and BAI08 define that the activities carried out have achieved their objectives in a much more organized way using organizational assets. Activities are usually well defined. For the APO13 domain, it defines that the activities carried out more or less achieve their objectives through the implementation of an incomplete series of activities which can be categorized as not very organized.

Based on the calculation results capability level domain APO07 is a recommendation that can be given by the Tasikmalaya City Manpower Office can optimize the agency's ability to conduct regular employee skill evaluations and employee background checks when recruitment occurs using existing organizational assets. Recommendations that can be given are based on calculations capability level domain APO08 is the Tasikmalaya City Manpower Department expanding relations so that there are opportunities for collaboration with various parties, including facilitation by the provincial and central governments. Agencies are also expected to expand the institutions that become partners in preparing prospective workers. Recommendations that can be given are based on calculations capability level domain BAI08 get level 2 with an achievement value of 86% with the category *Fully Achieved*. So the recommendation that can be given is that the Tasikmalaya City Manpower Department is expected to periodically assess employee capabilities regarding information technology and assign duties and obligations to employees according to their abilities so that each employee makes an appropriate

contribution in carrying out tasks related to information technology and is recommended by the Manpower Department Tasikmalaya City routinely checks the latest information available for website. Recommendations that can be given are based on calculations capability level domain APO13 is where the Tasikmalaya City Manpower Service can form a special section on duty planning, maintain, manage, monitor and organize matters related to information security management to make it more organized. The Department is also advised to conduct training for human resources at the Tasikmalaya City Manpower Department regarding safe use of the system. The Tasikmalaya City Manpower Service is advised to carry out documentation related to plans for handling information security risks that can cover all aspects of the Tasikmalaya City Manpower Services information technology so that it is more organized.

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