Analysis of IT Governance Capability Level in the Development of SIPANDA SUMUT at the Leadership Administration Bureau of the Regional Secretariat of North Sumatra Province

Efriansyah Putra Bahari Barus, Andysah Putera Utama Siahaan

Abstract

Digital transformation in the government sector drives the importance of implementing information technology governance to support the effectiveness of SIPANDA SUMUT (Sumatera Utara Presentation and Data Information System) at the Bureau of Leadership Administration of the Regional Secretariat of North Sumatra Province to provide strategic information and presentation materials for regional leaders. However, an evaluation of the IT governance management of SIPANDA SUMUT is still needed to determine the effectiveness of the processes used. The objective of this research is to use the COBIT 2019 framework and focus on the APO02 (Managed Strategy) and DSS01 (Managed Operations) domains. This research uses a descriptive quantitative approach and collects data thru observation, documentation, and the distribution of questionnaires to Civil Servants involved in the management and use of the system. The Guttman scale was used to collect data. The research results show that the APO02 domain received a capability level score of 48% in the Partially Achieved category, and the DSS01 domain received a score of 53% in the Largely Achieved category. The results indicate that both domains are still at capability level 2 or supervised processes, which shows that the IT governance processes have been implemented but are not yet fully documented, standardized, and consistently applied. This study assists in evaluating IT governance on the strategic information systems of local governments and suggests improvements such as strengthening IT governance policies, standardizing operational procedures, and better monitoring of system services to support the enhancement of the capability level of SIPANDA SUMUT.

Keywords: COBIT 2019, IT Governance, Capability Level, SIPANDA SUMUT, APO02, DSS01.

Efriansyah Putra Bahari Barus[1]
[1]Information Technology, Universitas Pembangunan Panca Budi, Indonesia e-mail: efriansyahbarus@gmail.com[1]

Andysah Putera Utama Siahaan[2]
[2]Information Technology, Universitas Pembangunan Panca Budi, Indonesia e-mail: andiesiahaan@gmail.com[2]

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Introduction

Digital transformation has become one of the main agendas in modernizing the public sector to improve service effectiveness, decision-making quality, and government transparency. The use of information systems in the government environment no longer functions merely as an administrative support tool, but has evolved into a strategic instrument that provides information for leaders in formulating policies and making decisions. The success of this digital transformation is greatly influenced by the organization's ability to manage information technology in a structured manner thru the implementation of effective IT governance. Organizations with good IT governance tend to be able to optimize the use of information technology to support the achievement of organizational goals and improve the quality of services provided to stakeholders[1]. Therefore, IT governance becomes an important element in ensuring that investments in information technology can provide optimal added value for the organization.

In the context of regional governance, the need for accurate, fast, and integrated information is increasing along with the complexity of data management and the demand for better public services. The Bureau of Leadership Administration of the Regional Secretariat of North Sumatra Province developed SIPANDA SUMUT (Information System for Presentations and Data for North Sumatra) as a means to provide strategic information, presentation materials, and supporting data for regional leaders. This system plays an important role in supporting coordination, the preparation of welcome materials, and the presentation of information used in various government activities. However, the success of information system implementation is not only determined by the technological capabilities used but also by the quality of IT governance that regulates the processes of planning, management, and continuous control of the system. The failure of organizations to implement adequate IT governance can lead to low effectiveness of information systems, weak process control, and a mismatch between organizational needs and the IT services provided[2].

Various studies show that public sector organizations still face challenges in the implementation of information technology governance. Many government agencies are still at a suboptimal level of capability due to limitations in aspects of planning, process management, and monitoring information system performance[3]. This condition has the potential to cause inconsistencies in information management and reduce the effectiveness of the system in supporting the organization's business processes. Additionally, the evaluation of IT governance using the COBIT 2019 framework can objectively identify the capability levels of processes and provide recommendations that can be used to improve the quality of information system management in government organizations[4]. The findings indicate that the evaluation of capability levels is an important step in measuring the actual condition of IT governance and determining areas that require improvement.

Based on the aforementioned issues, this research aims to analyze the level of information technology governance capability at SIPANDA SUMUT using the COBIT 2019 framework with a focus on the APO02 (Managed Strategy) and DSS01 (Managed Operations) domains. The selection of these two domains is based on the need to evaluate the alignment of system development strategies with organizational goals and the operational effectiveness of services that support the use of SIPANDA SUMUT. This research is expected to provide an overview of the current state of IT governance capabilities, identify gaps between the actual conditions and the expected conditions, and produce improvement recommendations that can support the enhancement of IT governance quality within the Bureau of Leadership Administration of the Regional Secretariat of North Sumatra Province. In addition to providing practical contributions to the organization, this research is also expected to enrich empirical

studies on the implementation of COBIT 2019 in strategic information systems in the regional government sector.

Literature Review

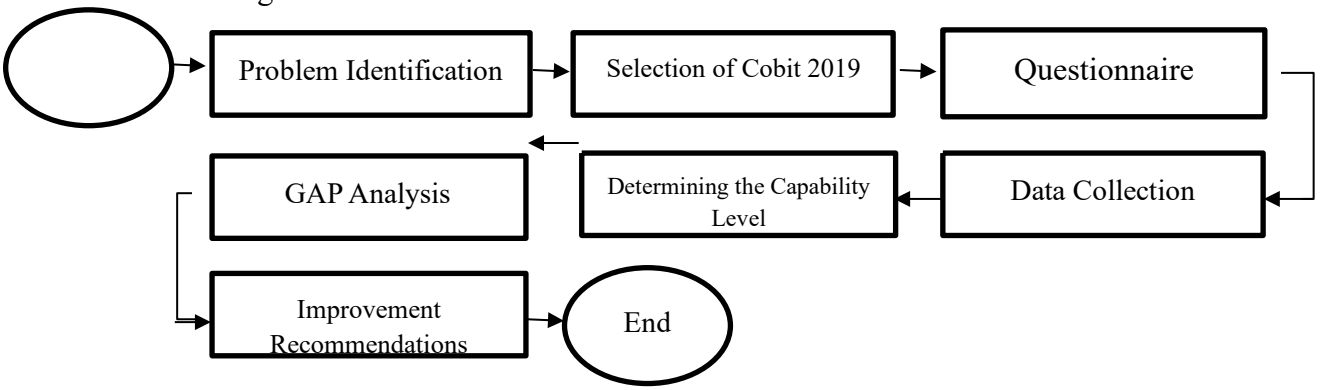
Information technology governance is a series of mechanisms, processes, and structures used by organizations to ensure that the utilization of information technology can support the achievement of organizational goals, optimize resources, and control risks related to the use of information technology. One of the frameworks widely used to evaluate IT governance is COBIT 2019, developed by ISACA. COBIT 2019 provides a comprehensive approach to help organizations manage and control information technology to remain aligned with business objectives[5]. This framework also provides flexible guidance in adapting IT governance practices to the characteristics and needs of each organization

One of the main concepts in COBIT 2019 is the measurement of Capability Level, which is a method used to assess the capability level of an IT governance process. The measurement of capability level aims to determine the extent to which a process has been effectively implemented and managed within the organization. Capability level can be used as an objective indicator to evaluate the condition of IT governance and determine the necessary improvement steps[6]. In line with this, measuring capability level allows organizations to identify gaps between the current condition and the expected condition, thus serving as a basis for formulating a sustainable IT governance improvement strategy[7].

Previous research shows that the implementation of COBIT 2019 in public sector organizations can provide a clear picture of the level of IT governance capability. Most government agencies are still at a medium capability level due to suboptimal process documentation, policy standardization, and system operational control[8]. Similar findings indicate that public sector organizations tend to have higher capability levels in operational aspects compared to strategic aspects[9]. Based on the research findings, the evaluation of IT governance in SIPANDA SUMUT becomes important to determine the level of process capabilities that have been implemented and to identify areas that require improvement to support the management of strategic information more effectively and sustainably.

Research Methodology

This research is designed as a descriptive and evaluative quantitative study. The purpose of this research is to determine how well IT management can develop SIPANDA SUMUT in the Bureau of Leadership Administration of the Regional Secretariat of North Sumatra Province. Based on the COBIT 2019 framework used in the evaluation of IT governance in local government agencies, a quantitative approach is the right choice because it can provide reliable and unbiased measurements of IT governance process capabilities. The research methodology is illustrated in Figure 1.



Start

Figure 1. Research Methodology

2.1 Problem Identification

The problem identification stage is conducted to identify and understand the main issues related to the governance of information technology in the Sumatera Utara Exposure and Welcome Data Information System (SIPANDA SUMUT). In this section, initial considerations are made regarding system management, whether the system meets organizational requirements, and the issues that arise during the operation and development of the information system. The purpose of problem identification is to determine the focus of the research and to ascertain whether the applied IT governance has helped local leaders obtain strategic information more effectively.

2.2 Selection of Cobit 2019

Domains In this study, the APO (Align, Plan, and Organize) and DSS (Deliver, Service, and Support) domains are used, specifically the APO02 (Managed Strategy) and DSS01 (Managed Operations) subdomains. The APO02 subdomain is used to evaluate the alignment of the SIPANDA SUMUT development strategy with organizational goals and the needs of regional leaders. The DSS01 subdomain is also used to assess how effectively the system's operations and services support the management of strategic information.

2.3 Questionnaire

Design To complete the questionnaire design stage, the research instrument based on management practices and activities in the APO and DSS domains of COBIT 2019 was prepared. Capability level method with NPFL (Not Achieved, Partially Achieved, Largely Achieved, and Fully Achieved) assessment scale. used to design each question. A survey was created to determine how structured and consistent the IT governance activities have been implemented in SIPANDA SUMUT according to the COBIT 2019 standards.

2.4. Data Collection

For the data collection stage, questionnaires were distributed to individuals directly involved in the management and use of SIPANDA SUMUT based on the RACI table, such as the Head of Materials and Leadership Communication, IT managers, and system users. The research also utilized secondary data such as organizational documents, IT policies, and information system operational procedures.

Table 1. RACI Chart

Respondent	RACI Chart
Head of Materials and Leadership Communication	Strategic direction & policy
IT Coordinator	IT operations & management

SIPANDA SUMUT ASN Staff	Users Daily system usage

2.5 Determining the Capability Level

The COBIT 2019 assessment method is used to process the questionnaire results to perform the capability level calculation stage. To determine the capability level of the process, each activity in the APO and DSS domains is calculated using the NPFL category. The achievement level is then converted into a percentage of achievement. The results of the capability level calculation are used to determine how effective the IT governance of SIPANDA SUMUT has been utilized and whether it has met the organization's capability targets.

2.6 GAP Analysis

The current capability level, or the current capability level, compared to the expected capability level, or the expected capability level, to conduct the gap analysis stage. The purpose of this analysis is to identify errors in any IT governance procedures that are not yet optimal. The results of the gap analysis provide an overview of the aspects of planning, resource management, and operational oversight of information systems that require improvement.

2.7 Improvement Recommendations

The results of the analysis of capability levels and gaps found in the APO and DSS domains serve as the basis for improvement recommendations. These recommendations focus on improving IT governance to achieve a higher level of capability; this includes creating formal policies, standardizing processes, enhancing documentation, strengthening IT human resource management, and periodically evaluating system services. It is hoped that these recommendations can serve as a reference for organizations in the recycling of IT human resources.

Results

This research was conducted to analyze the level of information technology governance capability in the Sumatera Utara Exposure and Welcome Data Information System (SIPANDA SUMUT) using the COBIT 2019 framework, focusing on the APO02 (Managed Strategy) and DSS01 (Managed Operations) domains. Data collection was conducted thru the distribution of questionnaires using the Guttman scale to three main respondents, namely the Head of Leadership Material and Communication, IT Coordinator, and ASN Staff users of SIPANDA SUMUT. The results of the capability level measurement were obtained by calculating the number of activities that have been implemented compared to the total activities in each domain.

3.1 Calculation Results of the APO02 Domain (Managed Strategy)

Based on the calculation results in the APO02 domain, a total of 28 activities were obtained, with 40 "Yes" responses indicating successful implementation out of a total of 84 respondent activities. The capability level calculation results show a value of 48%.

Table 2. Results of Domain APO02

Domain	Total Activities	Activities Completed	Percentage	Category
APO02	84	40	48%	Partially Achieved

The results indicate that the APO02 domain falls into the Partially Achieved category, meaning that some planning activities and development strategies for SIPANDA SUMUT have

been implemented, but not comprehensively and consistently. This condition suggests that the development of IT strategies and the alignment of SIPANDA SUMUT with organizational goals still require improvement, particularly in the aspects of strategy documentation, system goal communication, and the management of information technology development direction.

3.2 Results of the DSS01 Domain Calculation (Managed Operations)

In the DSS01 domain, a total of 33 activities were obtained, with 52 activities having been implemented as "Yes" responses out of a total of 99 respondent activities. The capability level result shows a value of 53%.

Table 3. Results of Domain DSS01

Domain	Total Activities	Activities Completed	Percentage	Category
DSS01	99	52	53%	Largely Achieved

The results indicate that the DSS01 domain falls into the Largely Achieved category, meaning that most of the operational activities of SIPANDA SUMUT have been carried out quite well. System operations, service management, activity monitoring, and system usage support have been functioning, although there are still some activities that have not been optimally performed and formally documented.

3.3 GAP Analysis

In this study, the organization targets a capability level at Level 3 (Established Process), which is the condition when IT governance processes are documented, standardized, and consistently applied throughout the organization. Meanwhile, the research results indicate that the APO02 and DSS01 domains are still at Level 2 (Managed Process), meaning that IT governance processes have been executed and managed, but are not yet fully standardized and formally documented according to COBIT 2019 principles.

Table 4. Gap Analysis

Domain	Current Level	Expected Level	Gap	Category
APO02	Level 2	Level 3	1	Partially Achieved
DSS01	Level 2	Level 3	1	Largely Achieved

Based on Table 3, the APO02 domain has a gap value of 1 level, from Level 2 to Level 3. This indicates that the process of IT strategy planning and the alignment of SIPANDA SUMUT development with organizational goals have not been carried out optimally. Some activities in APO02 still lack formal documentation, standardized operational procedures, and consistent strategy evaluation mechanisms. This condition causes IT strategic governance to remain operational and not fully integrated into organizational policies.

Meanwhile, the DSS01 domain also has a gap of 1 level from the current condition to Level 3. Although the capability level DSS01 achieved the Largely Achieved category with a higher percentage compared to APO02, the operational processes of SIPANDA SUMUT are still not fully documented and formally standardized. Some activities such as service monitoring, operational evaluation, and operational procedure management are still conducted in a limited manner and do not yet have integrated control.

3.4 Improvement Recommendations

Based on the evaluation results of the COBIT 2019 capability level, recommendations to enhance IT and operational systems of SIPANDA SUMUT in the APO02 domain require improvements in strategic planning, policy documentation, and IT management coordination, while the DSS01 domain requires standardization of operational procedures, service monitoring, and system incident management. It is expected that by implementing these recommendations, the IT governance capability of SIPANDA SUMUT will be improved from Level 2 (Managed Process) to Level 3 (Established Process) in accordance with the organization's objectives.

Table 5. Improvement Recommendations

Domain	Findings of Issues	Recommendations for Improvement
APO02 (*Managed Strategy*)	Alignment of IT strategy, policy documentation, and development planning for SIPANDA SUMUT has not been optimal and consistent.	Formulating IT governance policies and SOPs, enhancing coordination between leaders and IT managers, and conducting periodic evaluations of system development strategies.
DSS01 Operational procedures, service monitoring, and system incident management have not been system services, and implementing a thoroughly documented and structured incident recording and standardized. handling mechanism.	Standardizing operational procedures, (*Managed* enhancing monitoring and evaluation of *Operations*)	

Conclusion

By using the COBIT 2019 framework and focusing on the APO02 (Managed Strategy) and DSS01 (Managed Operations) domains, this research successfully analyzed the level of information technology governance capability in the Sumatera Utara Exposure and Reception Data Information System (SIPANDA SUMUT). The research results indicate that the APO02 domain is at capability level 2 (Managed Process), with a percentage of 48% falling into the Partially Achieved category. The results show that IT governance in SIPANDA SUMUT has been implemented and managed to support the company's operations, but it has not yet been fully documented, standardized, and consistently applied according to the characteristics of Level 3 (Established Process) in COBIT 2019.

The research results indicate that the Adpim Bureau of the Provsu Provincial Secretariat tends to be more established in terms of operations than in strategy. Although this situation indicates that the sustainability of system services has become a priority for the organization, there is still a need for improvements in IT strategy, policy documentation, and the standardization of governance processes. Therefore, this research provides concrete evidence that capability level evaluation can be used as a basis for making decisions about the development of better IT governance and enhancing our understanding of the implementation of COBIT 2019 in the local government environment.

This research can assist the Bureau of Leadership Administration of the Regional Secretariat of North Sumatra Province in formulating policies for the development of SIPANDA SUMUT, improving the standardization of operational procedures, enhancing IT governance documentation, and increasing coordination between leadership and IT managers. It is expected that these improvements will enhance the management of strategic information, system service performance, and decision-making processes. This study also shows that COBIT 2019 can be used as a good evaluation tool to measure the IT management's ability to manage government information systems.

Nevertheless, due to the limited number of respondents and the use of only two COBIT 2019 domains, APO02 and DSS01, this research still has limitations. Therefore, additional research is needed to expand the scope of the evaluation by including other domains, such as information security, risk management, or overall IT service management. Future research could also combine quantitative and qualitative methods to conduct a more in-depth analysis of the elements influencing the success of IT management in local government information systems. With this development, IT management evaluations are expected to provide more comprehensive recommendations to support IT-based digital transformation in government.

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