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# Analysis of Information Technology Governance on Communication and Information Service of Papua Province Using COBIT 2019

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**Abstract**

The Communication and Informatics Service of Papua Province is one of the government agencies that has the main task of organizing government affairs in the field of communication and informatics known Diskominfo. The Communication and Informatics Service of Papua Province has implemented IT in its operational processes. In this study using COBIT 2019, determining the domain process to be studied based on the data obtained resulted in capability levels in different MEA Domains. MEA01 is at capability level 4 Customer Focus. MEA02 is at capability level 3 Service/Product Focus. MEA03 is at capability level 5 Business Led. MEA04 is at capability level 4 Customer Focus. IT Governance at the Communication and Informatics Service of Papua Province has been running well but still needs to be developed.

**Keywords**: Information Technology Governance, Frameworks, COBIT 2019

## 1. INTRODUCTION

Information technology is a very important tool today, especially the use of information technology in government can increase efficiency and effectiveness as well as accountability of government administration. In planning the management of information technology, an information technology governance is needed. This is very much needed so that organizational goals can be achieved with the right and efficient process. Nowadays IT governance is closely related to organizational governance because the success of organizational governance can be seen from the extent to which IT governance is carried out in the organization. The very perceived benefits of this information technology are about the efficiency and effectiveness of each set of activities of the organization, which benefits will be difficult to obtain if the organization's activities are still carried out traditionally.

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The use of information technology in government is needed to create a good governance operational process . The characteristics of a government that has implemented a good governance process are to have a transparent, accountable, effective, and efficient government. The Communication and Information Service of Papua Province is one of the Daerah Apparatus Organizations that has the main task of carrying out government affairs in the fields of communication and informatics, encoding and statistics based on the principle of autonomy and assistance tasks and other tasks assigned by the Governor. Such as the vision and mission of Diskominfo, namely "The Realization of Informative Papua towards e-Government and a cultured society of information and communication" ( Vision) and "Acceleration of infrastructure development and connectivity between regions and between regions by prioritizing the principle of sustainable development" (Mission).

Information Technology (IT) has been widely utilized by various organizations (including government institutions) around the world. The use of communion and information technology in the government-resistant process (e-government) will increase the efficiency, effectiveness, transparency, and accountability of government administration. This, in accordance with the purpose of developing e-government in Indonesia based on Presidential Instruction No. 3 of 2003, is to promote the implementation of electronic-based government (using) in order to improve the quality of public services effectively and efficiently [1]. The development of Information Technology spurs a new way of life, from life to the end, this kind of life is known as e-life, meaning that this life has been influenced by various needs electronically. And now it is lively with various letters starting with the prefix e such as e-commerce, e-government, e-education, e-library, e-journal, e-medicine, e- laboratory, e-biodiversity, and others based on electronics [2].

The use of appropriate information technology and supported by the expertise of the personnel who operate it can improve the performance of the company and the performance of the individual concerned [3]. Information technology governance is part of the implementation of Good Corporate Governance. The purpose of the Good Corporate Governance principle is to make data more open, credible, and calculated. With this, agencies large and small have begun to use the working principles of information technology governance in making standards, decision making that is more transparent, clear, accurate, and organized [4]. The Communication and Informatics Service of Papua Province is one of the Government agencies that has applied IT in its operational processes such as attendance information systems, personnel information systems, PPID library information systems (Information and Document Management Officers). All information systems in the agency need to be maintained and supervised properly and need to be developed. To supervise and maintain the information system, IT

analysis is needed, IT analysis can be done with various frameworks. In this study, I will use the 2019 version of the COBIT (Control Objective for Information and related Technology) framework to evaluate and measure the extent of the role of information technology in the Papua Province Communication and Informatics Service.

COBIT is a network, supporting toolset, and model designed to control IT functions and bridge the gap between goals for control purposes, engineering problems, and business risks and communicate the level of control to stakeholders. The COBIT 2019 framework helps ensure that corporate governance for Technology and Information is effective, supports easier implementation processes and customized data, and strengthens COBIT's role on an ongoing basis as a key driver of innovation and business transformation. To find out whether the IT in the Communication and Informatics Service of Prov Papua is running well and correctly, it is necessary to have an IT analysis. For the advantages of COBIT 2019, namely in terms of the principles of COBIT 2019, it is more flexible so that it can adjust to changing times, the domain emphasizes more on the results achieved so that it will be more directed, the process on the domain is more complete because there are additional processes in a domain, the purpose of COBIT 2019 is better, because it adapts to the company's goals and the design of factors, so that it can facilitate adjustments with the company [5].

Researchers used the COBIT 2019 framework of the MEA domain to analyze IT Governance at Diskominfo. The objectives of COBIT 2019 are to help ensure that corporate governance for technology and information is effective, support easier implementation processes and customized data, and strengthen COBIT's role on an ongoing basis as a key driver of innovation and business transformation. According to ISACA there are 7 components in COBIT 2019 to build and maintain a Governance system that includes processes, organizational structures, policies and procedures, information flows, culture &behavior, skills, and infrastructure. This study obtained the results of MEA01 being at capability level 4 with a gap value of 1, MEA02 at capability level 3 with an ability value of 2, MEA03 at capability level 5 with a gap value of 0, and MEA04 at capability level 4 with a gap value of 1. From the gap values that have been analyzed, the researcher will then provide IT recommendations at the Communication and Informatics Service of Papua Province.

## 2. TINJAUAN PUSTAKA

Designing Information Technology Governance Using COBIT 2019 at Pt Telekomunikasi Indonesia Regional VI Kalimantan by Belo, Wiranti & Atrinawati (2019), it was concluded that the design was carried out starting from the stage of understanding the enterprise context and strategy, determining the initial scope of the governance system by assessing the design factor 1 – design factor 4, refine

the scope of the governance system by assessing the design factor 5 – design factor 11 and conclude the governance system design. Producing it governance/management design with 14 processes that are important for PT Telekomunikasi Indonesia Regional VI Kalimantan [6].

Analysis and Design of State-Owned Information Technology Governance in the Process of Service Management and Management of Information Technology Security Using COBIT 2019 (Case Study: Pt Nindya Karya (Persero)) by Widyatama, Amalia & Santosa (2020) concluded that the conditions for implementing IT Governance in the process of managing Third Party Services and Monitoring and Evaluating IT Performance at PT. Nindya Karya has not been fully implemented and is still in the early stages of implementing Governance so it cannot be said to be effective. Analysis and application of IT Governance in the process of managing Third Party Services and Monitoring and Evaluating IT Performance at PT. Nindya Karya is carried out by analyzing the risk criteria in the company, conducting a risk assessment that has been carried out through the interview stage and mapping the handling based on the APO10 Managed Vendors and MEA01 Managed Performance and Conformance Monitoring domain processes. IT Governance Recommendations on the process of managing Third Party Services and Monitoring and Evaluating IT Performance at PT. Nindya Karya result found two gaps in the MEA01 (Managed Performance and Conformanfe Monitoring.) process but no gaps were found in the APO10 (Managed Vendors) process because based on the interview results in the APO10 process, Third Party Services have been met in accordance with COBIT 2019, so that what requires recommendations for company reference is only in the MEA01 process which discusses MONITOR AND EVALUATION OF IT Performance to be better for the future future for PT. Nindya Works. Nindya Works [7].

Analysis and Design of Information Technology Governance at the Communication and Informatics Service of Bojonegoro Regency Using the 2019 Cobit Framework by Hikmah, Ramadhani & Nugraha (2021) concluded that the current conditions on the implementation of IT governance in DISKOMINFO Bojonegoro Regency have been explained in the results of factor design and capability assessment results carried out using the COBIT 2019 framework in the APO07 domain, BAI08, DSS01, DSS02 and DSS03. Based on these results, the management of IT services is still not optimal, especially in the BAI08, DSS01, DSS02 and DSS03 domains, because there are several activities that have not been carried out official documentation. Recommendations for the implementation of IT governance in the BAI08 Managed Knowledge domain process are the addition of policy points in Law No.46 of 2015 concerning Information and Communication Technology Governance and Information Security Systems at the Bojonegoro Regency Government. Other recommendations for the DSS01 Managed Operation domain process are the selection of applications or software to support the incident management process, the preparation of draft work

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instructions related to the identification and classification of problems. The recommendations in DSS02 are drafting policies related to request classification, adding new issue logs, and verifying fulfilled service requests. And The recommendation for the DSS03 domain process is the drafting of work instructions related to the identification and classification of incidents and problems and the work instructions for monitoring problem handling [8].

The Design of Information Technology Governance Using the COBIT Framework 2019 (Case Study: PT XYZ) by Fikri, Priastika & Trinawati (2020) concluded that based on the governance analysis of PT XYZ that has been carried out, the capability level value for each domain and the maturity level value of PT XYZ were obtained. Furthermore, an analysis will also be carried out related to the maturity level value at PT XYZ. 1). BAI02 has a capability value at levels 2, 2). BAI03 has capability values at levels 1, 3). BAI06 has capability values at levels 1, 4). DSS02 has capability values at levels 2, 5). DSS04 has a capability value at level 2. Therefore, it can be concluded from the value of the capability level, the maturity level value is obtained, which is 1. Capability level can be increased by carrying out activities that have not been carried out by the company until it reaches a fully value for each level. Maturity level can be increased by systematically managing processes with a combination of process optimization and improving continuous processes at PT XYZ. [9].

## 3. METHODS

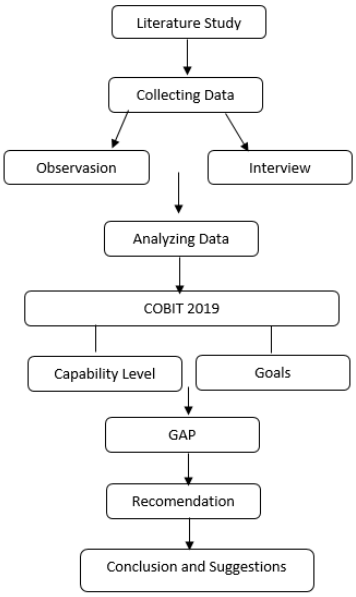


Figure 1. Research Phase

The research carried out took objects from the Communication and Informatics Service of Papua Province in the field of Information and Communication Technology as show on Figure 1. This research uses qualitative research methods to achieve the research objectives, namely making in-depth observations to produce a more comprehensive study or phenomenon. In this study, researchers used one of the COBIT domains, namely MEA ( Monitor, Evaluate and Assess) which will focus more on organizational management and monitor processes and activities that are already running. The stages carried out during the study are:

1. The first stage is a Literature Study, at this stage researchers' study about COBIT 2019 to analyze IT governance at Diskominfo
2. The data collection stage is carried out in 2 (two) ways, namely observation and interviews. Observations were carried out for 6 months at the Papua Diskominfo by directly appointing speakers to conduct interviews. The interviewee was Mr. Thomas Sibi as Head of the Technology and Information Section at the Diskominfo Prov Papua.
3. The third stage of data analysis, analyzing the results of observations and interviews referring to COBIT 2019, interview results in the analysis to get capability levels at Diskominfo, knowing the current IT conditions of the targets to be achieved and avoiding the gap value.
4. The next stage, from the results of the gap analysis, the researcher provides recommendations – IT recommendations at Diskominfo.
5. The fifth stage is the last stage, researchers will draw conclusions and provide suggestions from the results of data analysis obtained, both using the COBIT 2019 framework and from the results of observations and interviews that have been carried out since the beginning.

In this study, a RACI table was made to identify the roles and responsibilities of the resource persons. RACI stands for Responsible, Accountable, Consulted, Informed.

| Respondent | Head of ICT | Head of Communication and Data Network Management Section | Head of Data Management Section | Head of Multimedia Section |
|---|---|---|---|---|
| Preparing programs in the field of ICT | **R** | **C** | **A** | **I** |
| Program controller | **A** | **C** | **R** | **I** |
| Providing IT-related advice | **I** | **R** | **A** | **I** |
| Monitor the progress of ICT programs | **I** | **R** | **I** | **A** |
| Processing data | **R** | **A** | **R** | **C** |
| Maintain information security | **A** | **R** | **R** | **C** |
| Monitor data communication network | **C** | **R** | **A** | **R** |

Figure 2. RACI table

## 4. RESULT AND DISCUSSION

From the results of exploration and interviews with the Head of Technology and Information of Diskominfo Prov Papua, get a mapping of business goals into Enterprise Goals, and there are several enterprise goals that can be seen in the following table.

| Reference | BSC Dimenssion | Enterprise Goal | Business Goals |
|---|---|---|---|
| EG01 | Financial | Portofolio of competitive products and services | Improving public services to the community by organizing government affairs and public services in the field of communication and informatics |
| EG03 | | Compliance with external laws and regulation | Carry out and organize government affairs and public services in the field of communication and information technology and other tasks given by the governor following the applicable SOPs to succeed the governor's vision and mission |
| EG05 | Customer | Customer – oriented services culture | Providing the best internet access in Papua Province, and also providing internet access services to people in remote areas |
| EG06 | | Business services continuity and availability | Build a free internet facility in every city and district in Papua and also build a Videotron to display regional development information |
| EG10 | Internal | Staff skills, motivation and productivity | Build various applications for use in other agencies to build service processes |
| EG12 | Growth | Managed digital transformatio programs | Realizing an e-government-based government system and an information and communication culture society |

Figure 3. Enterprise Goals

From the selected Enterprise Goals, it is aligned with BUSINESS objectives. IT alignment is carried out using Alignment Goals ( AG) and obtains AG01 "I&T compliance and support for business compliance with external laws and regulations", AG05 "Delivery of I&T services in line with business requirements", AG06 "Agility to turn business requirements into operational solutions", AG07 "Security of information, processing infrastructure and applications, and privacy", AG08 "Enabling and supporting business processes by integrating applications and technology", AG09 " Delivery of programs on time, on budget and meeting requirements and quality standards", AG10 "Quality of I&T management information", and AG13 " Knowledge, expertise and initiatives for business innovation".

| No | Enterprise Goals | Aligment Goals |
|---|---|---|
| 1. | EG01, EG03 | AG01 |
| 2 | EG05 | AG05 |
| 3. | EG06 | AG06 |
| 4. | EG10 | AG07,AG08,AG09,AG10 |
| 5. | EG12 | AG13 |

Figure 4. Alignment Goals

Furthermore, from the alignment of IT with business objectives, another alignment is carried out to the IT Process, which in Cobit 2019 is called governance and management object. It can be seen in the table below.

| No | Aligment Goals | GaMO |
|---|---|---|
| 1. | AG01 | EDM01 MEA03 |
| 2. | AG05 | APO05, APO08, APO09, APO10, BAI02, BAI03, BAI04, DSS01,DSS02, DSS03, DSS044, MEA01 |
| 3. | AG06 | APO03, APO04, APO08, BAI02,BAI03, BAI06, BAI07,BAI10 |
| 4. | AG07 | EDM03, APO12, APO13, BAI10,DSS04, DSS05 |
| 5. | AG08 | APO02, APO03, BAI05, BAI11 |
| 6. | AG09 | EDM04, APO06, APO11, BAI01, BAI02, BAI03, BAI04, BAI11 |
| 7. | AG10 | EDM05, APO11, APO14, MEA01 |
| 8. | AG13 | APO04, APO07, APO08, BAI08 |

Figure 5. Governance and Management Object

After alignment into governance and management objects, there are several COBIT 2019 domains that have been implemented at Diskominfo, namely EDM, APO, BAI, DSS and MEA. Furthermore, researchers will use one of the domains in the COBIT Framework 2019, namely the MEA domain to measure the level of maturity in Diskominfo. The MEA domain in COBIT 2019 consists of 4 controls, namely MEA01, MEA02, MEA03 and MEA04.

**MEA01 – Managed Performance and Conformance Monitoring**

Analysis of IT governance at the Diskominfo office, the information technology used in the Papua provincial government, especially in Diskominfo, is considered very good. There are many applications that have been made to strengthen the government performance process, one of which is the Attendance Information System and the TPP of the Papua Provincial Government (attendance application). The attendance information system used by all OPDs (regional apparatus organizations) within the scope of the Papua provincial government is in accordance with national standards, with the existence of attendance applications can speed up services in the government. Employees fill in activities in the attendance information system and the daily report will be sent automatically to the staffing department. Attendance applications provide systematic and timely reporting. Based on the results of my discussions with Mr. Thomas Sibi as the head of Technology and Information at Diskominfo Papua, it can be seen and said that the IT performance is very good and can be used by all OPDs well, in accordance with local government policies. The level of process capability according to COBIT 2019, Diskominfo is at level 4 Customer Focus.

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**MEA02 – Managed System of Internal Control**

The internal control system contained in Diskominfo is based on an assessment for internal control. To access the attendance information system, employees can use a username and password. The username uses a NIP (employee identification number) so that each employee can access the attendance application. Reviewing the effectiveness of internal control in the attendance information system is carried out effectively to validate control, update and maintain attendance applications carried out by the Diskominfo application field. The performance standardization used in Diskominfo is in accordance with work standardization that has been set by regional leaders in accordance with ministerial regulations, by setting annual performance plans, work plans and budgets, and so on. From the results of the interview, it can be said that each employee is given access to operate the attendance information system. To achieve its goals, Diskominfo has a managed internal control system to support the achievement of its organization. The capability level of COBIT 2019 at Diskominfo is at level 3 Service / Product Focus.

**MEA03 – Managed Compliance with External Requirments**

In the next process, evaluate the IT processes and business processes supported by IT, are in accordance with applicable laws, regulations, and laws. Based on the results of the interview and the results of observations, it can be said that every operational process in Diskominfo has complied with applicable laws and regulations, both in the policies and decisions of the Governor and the applicable ministerial regulations. IT processes and IT business processes at Diskominfo are in accordance with the standards and policies that apply in the Government, so that the level of process capability based on COBIT 2019, Dikominfo is at level 5 – Business Led.

**MEA04 – Managed Assurance**

This process allows the organization to design and develop effective and efficient assurance. Diskominfo oversees the activities of the Attendance Information System and ensures that all OPDs ( Regional Apparatus Organizations) can use this Attendance Information System, to meet the goals of the organization. Based on the results of the analysis, the level of process capability in accordance with COBIT 2019 at Diskominfo is at level 4 – Customer Focus.

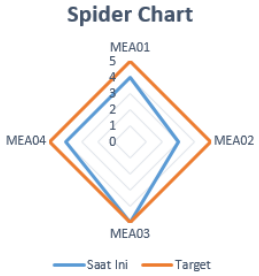


Figure 6. Spider Chart

This Spider Chart explains about the current Capability Level. In MEA01 ( Managed Perfomance and Comformance Monitoring) is at the level of capability level 4 Customer Focus. Information Technology at Diskominfo is considered very good because there have been many applications that have been made, one of which is the Attendance Information System that can be used by all employees within the Papua Provincial Government, and it can be said that Diskominfo has been able to translate stakeholder requests well. In MEA02 ( Managed System of Internal Control) IT governance Diskominfo is at the level of capability level 3 Service / Product Focus because it has supported the service process and has also implemented and followed applicable standards. Where all employees can access the Attendance Information System using a username and password. MEA03 (Managed Compliance with External Requirements) is at the level of capability level 5 Business Led because all its operational processes have followed the laws and rules that apply in government. MEA04 ( Managed Assurance) is at the level of capability level 4 Customer Focus because Diskominfo is considered capable of meeting client demands and can develop effective and efficient guarantees.

| DOMAIN | Capability Level | | |
|---|---|---|---|
| | Present | Goals | GAP |
| MEA01 | 4 | 5 | 1 |
| MEA02 | 3 | 5 | 2 |
| MEA03 | 5 | 5 | 0 |
| MEA04 | 4 | 5 | 1 |

Figure 7. Capability Level

Above this is a table of gap levels and capability levels. The MEA01 sub-domain in the current condition is at capability level 4, from the expected target of 5, and the gap is worth 1, MEA02 the current condition is at capability level 3 of the expected target 5, and the gap is worth 2, MEA03 the current condition is at capability level 5, has reached the expected target of 5, then the gap value is worth 0, MEA04 is currently at capability level 4 of the expected target of 5, and the gap value is worth 1.

| Domain | Present | GAP | Recommendation |
|---|---|---|---|
| MEA01 | 4 | 1 | Improving services to the community and providing special training for employees to be able to take advantage of other applications that have been built, because there are still many applications that have not been utilized in their services. |
| MEA02 | 3 | 2 | Build applications that can be used by all employees and provide training so that employees can master IT and can also use other applications. |
| MEA03 | 5 | 0 | Improve performance and continue to provide the best service to the community |
| MEA04 | 4 | 1 | Continue to monitor employee activities and continue to update and develop the presence application. |

Figure 8. Recommendations

From the results of the Capability level analysis of the current conditions and targets to be achieved, you can get the gap value. Above this is a table of IT recommendations at Diskominfo to continue to improve its services. From the results of the analysis and discussion carried out, it produced many other domains that already exist in Diskominfo, such as EDM01, EDM02, APO05, APO08, APO09, APO10, APO12, APO13, BAI02, BAI03, BAI07, DSS01, DSS02, DSS03, DSS04, MEA01, MEA02. In this study, researchers only used the MEA Domain to evaluate information technology governance at Diskominfo.

## 5. CONCLUSION

From the results of the research that has been carried out, based on the analysis of IT governance using COBIT 2019 at the Communication and Informatics Service of Papua Province. It was concluded that Diskominfo had fulfilled its purpose, from the data obtained and processed by researchers produced different levels of capability and there was the same in each sub-domain. Where in MEA01 capability level is worth 4 because Diskominfo is considered to be able to translate and meet stakeholder requests properly, MEA02 capability level is worth 3 because Diskominfo has supported services and has implemented certain standards, MEA03 is at Capability level 5 because Diskominfo has carried out business transformation well and performs services in the government and serves the needs of the community well, at MEA04 it is at level 4 because Diskominfo is considered capable of meeting client demands and can develop effective and efficient guarantees. Based on the results of research Diskominfo has implemented IT governance, this research uses the Cobit 2019 Domain MEA framework, producing and explaining that IT governance on Diskominfo has been running very well. Further research suggestions can be to use other domains in Cobit 2019 such as EDM, BAI, DSS, APO, can use the Implementation of Cobit 2019 Guide, or use other Governance analysis frameworks.

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