Analysis of the Governance of One Data Indonesia (SDI) at the Communication and Information Office of Sukabumi City

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Abstract. Presidential Regulation Number 39 of 2019 concerning One Data Indonesia (SDI) mandates the openness and transparency of government data that is accurate, up-to-date, integrated, easily accessible and accountable. However, currently SDI management is not running optimally. This can be seen from sectoral statistical data for 2017–2022 which shows that data from Regional Apparatus Organizations (OPD) are still not integrated; data is not standardized and is not accompanied by metadata. The author's goal is to analyze data governance in the implementation of One Data Indonesia (SDI) at the Communication and Information Agency (Diskominfo) of Sukabumi City in realizing the availability of quality data from OPD. The research method uses a qualitative approach with an approach from the concept of data governance that has been researched by (Abraham et al., 2019), then conducting assessments at the maturity level of data governance, designing questionnaires, distributing questionnaires and more in-depth interviews. The standard referred to is Stanford Data Governance Maturity, which is then adjusted to organizational conditions. The result of this study is an analysis of data governance maturity and recommendations for data governance initiatives to achieve the expected conditions at Diskominfo Kota Sukabumi.

Keywords: Data Governance · One Data Indonesia (SDI) · Data Governance Manurity

1 Introduction

In Article 1 paragraph (1) of Presidential Regulation (Perpres) Number 39 of 2019 concerning One Data Indonesia (SDI) that in government data governance policies in producing accurate, up-to-date, integrated, and accountable data/information, then easily accessible and shared between Central Agencies and Regional Agencies, it must be through the fulfillment of Data Standards, Metadata, Data Interoperability and using Reference Codes and Master Data [1].

Based on the description that has been conveyed above that the Government of Indonesia issued the One Data Indonesia (SDI) policy program as an effort to strengthen

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the data governance process in agencies, institutions, and local governments throughout Indonesia, in fact the implementation of the One Data Indonesia (SDI) program policy is still hampered due to various problems and obstacles. The Communication and Information Office of Sukabumi City in this case is acting as Walidata to implement the One Data Indonesia (SDI) policy program which strives with all energy to integrate diverse sectoral statistical data managed in each OPD within the Sukabumi City Government. In this regard, the One Data Indonesia (SDI) program should be able to bring changes and make data interoperability of each OPD even better, especially in terms of data governance, because the more progress in the technological era is now very much data or information is needed and needed, then all of it needs to be improved Good Data Governance in a government system. Because this is very important for the government and all citizens to be able to easily obtain and know about the comprehensive relationship of the implementation of one data so that quality data can be obtained or data that can be processed and can be used as the main basic material for decision making and policy making carried out by the government and non-government circles.

Quality data or accurate data will be very useful for the government as a basic material for planning, coordinating, and synchronizing government policies so that they are always right with the targets that have been set, that is, quality or accurate data has a very strategic role in all parts of the human life sector tables are provided. The formatter needs to create these components, combining the prevailing criteria that follow them.

At the MPR Annual Session and the Joint Session of the House of Representatives and DPD on August 16, 2021, in a speech by the President of the Republic of Indonesia Joko Widodo conveyed the message that "In making decisions, the government must continue to refer to data, as well as to the latest science and technology".

Based on Sukabumi Mayor Regulation Number 9 of 2022 concerning One Indonesian Data at the Sukabumi City Level, the Communication and Information Service acts as a Mayordata who has the main duties, namely:

- collect data, check the suitability of data, and manage data submitted by Data Producers in accordance with the principle of One Data Indonesia;
- disseminate DATA, METADATA, reference codes, and master data on Portal Satu Data Indonesia; and
- assist Data Coaches in fostering Data Producers.

In the implementation of One Data Indonesia at the Communication and Information Office of Sukabumi City, there are several problems, namely:

1.1 Data Collection

- Until now, the provision of various types and diversity of sectoral statistical data and information needed in Sukabumi City has not been fulfilled as a whole.
- Low awareness of data managers to update data when data changes occur.
- The public has difficulty getting access to accurate and timely data because data is spread everywhere.
- Inconsistent data between one government party and another party and obtaining data must be with the Mou
- There is still a lack of availability of data management human resources.

1.2 Data Check

Data quality varies and does not have data standards, and the data obtained is often not in accordance with needs and is not accompanied by metadata.

1.3 Data Interoperability

- Not optimal utilization of Open Data Portal.
- Lack of digital infrastructure readiness.
- Organizational culture is not yet accustomed to centralized data management.
- Does not have a mechanism so that data can be shared (integrated) between applications or systems in Regional Device Organizations so that there is the potential for misinterpretation of data

From the various problems faced above, the Communication and Information Office of Sukabumi City as Walidata will strive to become a service center for the utilization and development of data literacy for the government and the community through the provision of quality data and information so that it can realize data driven decision making and become an integrated, secure, credible and interactive data center platform using the latest technology by paying attention to user needs Data so that the government or the public can easily and quickly find and access quality and accurate data to facilitate data processing and analysis as needed. Thus the information and information data presented completely and clearly will make it easier for data users to understand and interpret the data.

2 Literature Review

2.1 Data Governance

Data governance is often relied upon as a solution to organizational data quality problems. According to Olson [2], quality data is accurate, timely, relevant, complete, specific and trustworthy. Lee [3] states that there are 10 main factors that can reduce data quality, namely, diverse data sources, subjectivity in data production, limited computing resources, access needs that sacrifice security, variations in data codification between fields, complex data representation, large data volumes, data entry rules are too strict or non-existent, changing data needs, and the application of distributed and heterogeneous systems. The existence of these factors carries data quality risks for organizations. An important aspect of data governance implementation is the design of a structure that governs the roles and functions responsible for the implementation of data governance processes. As with IT Governance [4], organizational structure is one of the important components alongside process and leadership in data governance. Without clear roles and responsibilities, it will be difficult to ensure that governance processes are carried out regularly and correctly. Some data governance frameworks such as those of the *Data Governance Institute* only require a *data governance council* with membership representing relevant stakeholders. According to Prasetyo & Surendro [5], data governance itself has an understanding of processes, policies, standards, organizations and

technologies needed by organizations in managing and ensuring the availability, accessibility, quality, consistency, auditability and security of data in an organization Data governance has 3 driving factors in common, namely organizational structure, leadership and processes, which ensure the data governance process is carried out correctly and routinely Yuwono & Arinanda [6]. From this opinion that in accordance with the Implementation of One Data Indonesia (SDI) is a Government Data Governance policy to produce accurate, up-to-date, integrated and accountable data, as well as easily accessible and shared between central agencies and regional agencies through the principle of data datu, namely meeting Data Standards, Metadata, Data Interoperability, and using Reference Codes or Master Data. The policy, which is outlined through Presidential Regulation Number 39 of 2019 concerning One Data Indonesia [1], mandates the Steering Board to coordinate the establishment, implementation, and monitoring of the One Data Indonesia Policy. The goal of data governance is to increase the value of data and minimize data-related costs and risks. Although data governance has grown in importance in recent years, a holistic view of data governance, which can guide practitioners and researchers has rarely been lost. In this study, the author aims to close the gap and develop a conceptual strategy or framework for the implementation of data governance, synthesize literature, and provide a research agenda to support future research related to data governance. Furthermore, the author seeks to provide an overview of the data governance mechanism in the implementation of one Indonesian data to assist practitioners in approaching data governance in a structured and regulatory manner.

2.2 Governance Challenges of Implementing One Data Indonesia at the Communication and Information Office of Sukabumi City

The challenges of data governance at the Communication and Information Office of Sukabumi City provide an overview of how the research of Abraham et al. [7], about the sequence of structural mechanisms, procedural mechanisms, and mechanisms really needs attention, the challenge of creating institutional structures that suit needs, the challenge of creating and implementing detailed procedures from the center to the regions, and the challenge of maintaining relationships in integrated coordination. In the procedural mechanism there is still miscommunication with the data input officer, and in the relational mechanism there is still a problem in terms of cultivating information-conscious empathy in the data input officer.

Abraham et al. [7], explained that data governance has 6 dimensions, namely *governance mechanisms, organizational scope, domain scope, data scope, antecedents, and consequences*. In this study, researchers focus on data governance mechanisms where this dimension is very strategic in striving for data governance in the implementation of one Indonesian data. Abraham et al. [7] concluded that data governance mechanisms consist of structural mechanisms, procedural mechanisms, and relationship mechanisms.

- Structural mechanisms include roles and responsibilities and allocation of decision-making authority. Key roles and data governance bodies comprise executive support, data governance leaders, data owners, data stewards, data governance boards, data governance offices, data producers, and data consumers. Allocation of decision-making authority determines which organizational units have a mandate for actions related to data governance.

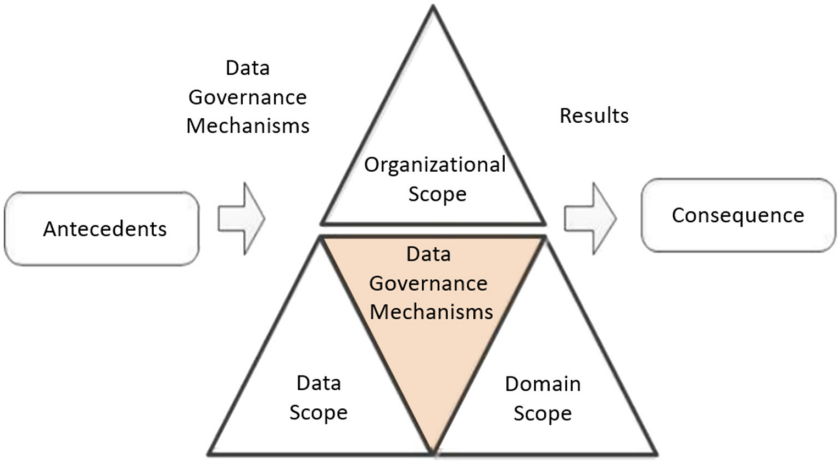

Fig. 1. Data governance concept framework.

- Procedural governance mechanisms aim to ensure that data is accurately recorded, stored securely, used effectively, and shared appropriately [8]. The procedural mechanism consists of: Data strategy; Policy; Standard; Process; Procedures; Contractual agreements; Performance measurement; Compliance monitoring; and Problem management.
- Relational governance mechanisms facilitate collaboration between stakeholders [8]. Relational governance mechanisms include Communication; Training; and Coordination of decision making.

The framework of the concept of data governance from Abraham et al. [7] is as follows (Fig. 1) :

2.3 Data Governance Maturity Level and Data Governance Maturity Assessment

Developed by the Software Engineering Institute (SEI) in 1984, the Capability Maturity Model (CMM) is a methodology used to develop and improve software development processes in organizations and can be easily applied to organizational data governance programs and processes. CMM describes 5 levels of maturity as shown in the Fig. 2 below [9].

Maturity Level 1 (Initial), the process is usually ad hoc, and the environment is unstable. Success reflects individual competence within the organization, rather than the use of proven processes. Level 1 organizational maturity often results in functioning products and services, which exceed their budget and project schedule [9]. Maturity Level 2 (Managed), success may be repeatable, but the process may not be repeatable for all projects in the organization. Basic project management helps track costs and schedules, while disciplinary processes help ensure that existing practices are maintained. When these practices exist, projects are carried out and managed according to their documented plans, but there is still a risk of exceeding cost and time estimates [9]. Maturity Level 3 (Defined), a set of organizational standard processes used to establish consistency across

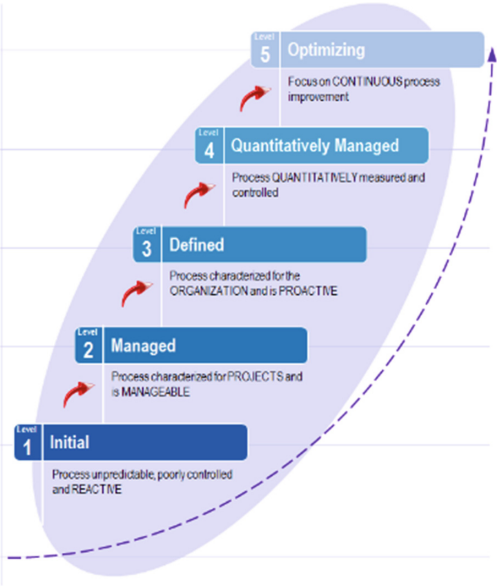

Fig. 2. Maturity level.

the organization. The standards, process descriptions, and procedures for a project are designed from an organization's standard set of processes that correspond to a specific project or organizational unit [9]. Maturity Level 4 (Quantitatively Managed), the organization sets quantitative quality goals for processes and maintenance. The selected sub-processes contribute significantly to overall process performance and are controlled using other statistical and quantitative techniques [9]. Maturity Level 5 (Optimizing), quantitative process improvement objectives for organizations are set steadily and continuously revised to reflect changing business objectives, and are used as criteria in managing process improvement [9].

The assessment of the maturity level of data governance used is the Maturity Data Governance Model which is based on the Stanford Maturity Data Governance Model. This assessment tool will be used to assess the maturity of data governance (University of Stanford, 2011). In this study, it adopts Stanford data governance measurement standards, which focus on the components of awareness (HR) and formalization (organization) aspects as basic aspects, to measure competence and data governance development. And the component of the project aspect consisting of stewardship aspects that focus on measuring how the management of the concept of Data Governance is carried out. In addition to components, there are dimensions used in the Stanford measurement standard contained in each component, namely:

- People: The role and structure of the organization;
- Policies: Development, auditing and enforcement against data policies, standards, and best practices;
- Capabilities: Related to technology and engineering.

Measurements are made for two conditions, namely existing and expectation. Existing is the current or current state of the object to be analyzed. Meanwhile, expectation is the condition that is expected after repairs. This is done to get the gap between current conditions and conditions that are expected to be analyzed. To get the gap, an analysis was carried out on both conditions. The Stanford maturity data governance questionnaire consists of two parts, namely the existing questionnaire and the expected questionnaire. The questionnaire was distributed to all stakeholders involved in the Communication and Information Office of Sukabumi City in organizing One Data Indonesia. The way to fill out the questionnaire is to choose the appropriate conditions and those expected by the assessed unit. The choices in the questionnaire consist of 5 choices for each component (people, capability, and policy). Each question can only choose one of the 5 levels of choice provided.

3 Research Methods

This research method uses qualitative research methods, according to Cresswell [10], research methods are related to data collection, analysis, and interpretation procedures. Creswell also explained that researchers need to consider a number of data collection methods and organize them systematically. Meanwhile, according to Sugiyono, research methods are scientific ways to obtain data with specific purposes and uses [11].

Based on the description above, it can be concluded that the research method is a series of scientific analysis procedures that must be carried out by a researcher in conducting research and the results can be scientifically accounted for so that a new understanding is obtained that is more complex, detailed and comprehensive than a research. The reason this qualitative research method was chosen is because the method allows researchers to see and understand the context in which research phenomena for example: certain decisions and actions can only be understood by talking to certain people who know and have experience regarding research phenomena [12].

For the data collection stage, an agenda will be carried out to fill in verified and approved data regarding the condition of Data Governance as well as conduct interviews and field observations at the Communication Office, Informatics of Sukabumi City. Furthermore, a data analysis is needed when the author has collected the documents obtained in the previous process. This research is the first step for the implementation of further data governance activities. The research begins with an assessment of the maturity of data governance in the components of formalization, awareness, and stewardship. The results of this research are the basis for development to carry out further research, namely the development of data governance models and operational models of data governance needed at the Communication and Information Office of Sukabumi City. The method carried out is as follows:

- Assess the maturity level of data governance, using Stanford Data Governance Maturity;
- Designing questionnaires;
- Conduct more in-depth interviews;
- Conduct gap analysis that occurs in organizational components, human resources, and business processes;
- Provide recommendations for data governance activity initiatives.

3.1 Informant

Informants are people who provide information related to the substance of research. Hamidi [13], said researchers need informants who are able to express their knowledge and experience, have free time to be interviewed and are willing to provide assistance for data collection purposes. Moleong [14], explains that informants can provide views from the side of internal people about the values, attitudes, processes, and culture that are the background of local research.

Informants are one of the important sources in obtaining information needed in research, so accuracy in determining or selecting informants must be considered. The informant is determined based on his role in the Sukabumi City Local Government One Data Forum team. The informant in this study is the composition of the Personnel team and Technical Team of the One Data Forum of the Regional Government of Sukabumi City consisting of Regional Leaders and OPD who specifically have the core task to:

- Coordinate and establish policies related to strengthening and improving government data governance,
- Coordinate the resolution of problems and obstacles to the implementation of government data governance,
- As a forum to strengthen the coordination of Data Coaches, Data Guardians, and Data Producers,
- Prepare a draft data list that integrates central and regional, to ensure data availability and prevent data duplication
- Prepare and implement integrated central and regional Action Plans,
- To ensure the availability of programs and activities from central and regional agencies that support the achievement of SDI including budget support.

3.2 Data Collection Instruments and Techniques

According to M. Yusuf [15], researchers are the main research instrument, which conducts direct interviews with informants, documents/photographs, or records dialogues. In obtaining clear and specific data, appropriate data collection techniques must be needed and in accordance with the object under study and the information to be obtained. In this study, the data collection techniques used were observation, interviews and review of existing documents. Once the data is collected, it checks the validity of the data using triangulation techniques. The data collection technique, if associated with this study, observation and interviews are used as core techniques in data collection, because this research is a qualitative interactive research. Then review the document as a reinforcement / support technique.

Research systematics is a general description of the steps used in solving problems in the research being conducted. The stages in research systematics can be explained as follows. 1) Initiation Stage, namely understanding the condition of data governance problems in the Sukabumi City Communication and Information Office used in this study, namely the Stanford Data Governance Maturity Model. The author also specifies some regulations. The purpose of determining regulations is as a reference in designing recommendation solutions in this study. 2) Data Collection Stage, namely conducting interviews with related parties, document analysis, and literature studies to be able to find

out the existing conditions of data governance activities in Diskominfo Sukabumi City. The purpose of the data collection stage is to run the process of analyzing data governance conditions and risk analysis at Diskominfo Sukabumi City. 3) Data Analysis Stage, which is to find After the assessment is carried out, the author carries out a risk analysis. 4) Recommendation Design Stage, which is to recommend the missing parts to be improved again in accordance with the expected reference. After making a recommendation, it is tested with suitability and compliance with regulations. Namely in the form of designing recommendations related to functions and responsibilities that are felt to need to be added. Then the process aspect, which is in the form of SOP recommendations, policies, and work instructions. Finally, the technology aspect is expected to have a positive impact on the management of Masterdata at Diskominfo Sukabumi City in running its organization. 5) Conclusion and Suggestion Stage, namely In this last stage, conclusions will be made from the results of research to complete the formulation of problems related to the problem issues identified at the initiation stage. Then suggestions were made as input for the object of this research, namely the Communication and Information Office of Sukabumi City.

One Data Implementation Regulation in Sukabumi City:

- Law Number 16 of 1997 concerning Statistics confirms that statistics are data obtained by collecting, processing, presenting, and analyzing as well as a system that regulates the relationship between elements in the implementation of statistics, then the type of statistics based on the purpose of its use based on Law Number 16 of 1997 consists of basic statistics fully organized by the Agency, sectoral statistics carried out by government agencies independently or jointly with the Agency, as well as special statistics organized by institutions, organizations, individuals, and/or other elements of society independently or jointly with the Agency.
- Law Number 25 of 2004 concerning the National Development Planning System explains that in Article 31 "Development planning is based on accurate and accountable data and information". What is meant by "data" is objective information about a fact both in quantitative, qualitative, and visual images obtained either through direct observation or from those that have been collected in the form of prints or other storage devices. While "information" is processed data that is used to obtain interpretations of a fact. According to Turban et al. [16], data is a basic description of something, events, activities, and transactions that are captured, recorded, stored, and classified but not organized to convey a specific meaning. According to McLeod and Schell [17], data consists of facts and images that generally cannot be used by users (need to be processed). From the two definitions above, it can be concluded that data is a fact that is still raw and has no meaning for users because it has not been processed.
- Law Number 23 of 2014 concerning Regional Government explains that Compulsory Government Affairs that are not related to Basic Services as referred to in Article 11 paragraph (2) include communication and informatics and statistics, In Law Number 23 of 2014 concerning Regional Government it is stated in Article 274 that regional development planning is based on data and information managed in the Regional Development Information System, and in article 391 it is stated that the Regional

Government must provide local government information (regional development and financial information) managed in an information system.

- Presidential Regulation Number 39 of 2019 concerning One Indonesian Data. Satu Data Indonesia is a government Data Governance Policy to produce accurate, up-to-date, integrated, and accountable data, as well as easily accessible and shared between Central Agencies and Regional Agencies through compliance with Data Standards, Metadata, Data Interoperability, and using Reference Codes and Master Data:

  - Data Standards are the standards that underlie certain Data.
  - Metadata is information in the form of a standard structure and format to describe Data, describe Data, and facilitate the search, use, and management of Data information.
  - Data interoperability is the ability of data to be shared between interacting electronic systems.
  - Reference Code is a sign containing characters that contain or describe certain meanings, intentions, or norms as a reference to the identity of unique Data.
  - Master Data is Data that represents objects in government business processes determined in accordance with the provisions in the Regulation.

4 Discussion

That to realize the integration of development planning, implementation, evaluation, and control, it needs to be supported by accurate, up-to-date, integrated, accountable, easily accessible, and shared data, as well as carefully managed, integrated, and sustainable. Planning according to Abe [18] is a systematic arrangement (formulation) of steps (actions) that will be carried out in the future, based on careful considerations of potential, external factors and interested parties in order to achieve a certain goal. Planning is also defined as a fact-based decision-making process regarding activities that must be carried out in order to achieve the expected or desired goals. Riyadi and Deddy Supriadi [19], define development planning as a process of formulating alternatives or decisions based on data and facts that will be used as material to carry out a series of community activities, both physical (material) and nonphysical (mental spiritual), in order to achieve better goals. Development planning is an important and critical stage in the development process, so this process must be carried out comprehensively supported by adequate statistical data. Because development planning will determine the direction of regional development in the future, it is necessary to formulate goals and objectives to be achieved in the future period [20]. Author and Affiliation.

According to Turban et al. [16] data is a basic description of something, events, activities, and transactions that are captured, recorded, stored, and classified but not organized to convey a specific meaning.

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According to Mark Mosley [21] in his book "Dictionary of Data Management" the definition of data quality is the level of data that states the data as follows:

Accurate. Data accuracy is difficult to measure, generally data accuracy depends on comparison with data sources that have been verified or declared as accurate and reliable data sources.

Complete. Completeness refers to whether all the required data is present. Completeness can be measured on datasets, records, or columns in a database.

Timely (timeliness). The concept of timeliness on data refers to several characteristics of data. A measure of timeliness needs to be understood in terms of expected volatility – how often data is likely to change and for what reasons. Relatively static data, such as some reference data such as country and region codes, may remain valid for an extended period of time. While volatile data is needed to always be up to date for a short time. For example, the amount of kwh production on the electricity production monitoring page, will often change over time, so that data consumers understand the risk that data has changed since it was recorded.

Uniqueness. No data is stored more than once.

Consistency. *Consistency* can refer to ensuring that data values are consistently represented in one dataset and among other datasets, and consistently across datasets. Consistency can also be used to refer to the consistency of data formats. The expected characteristics of consistency within and across datasets can be used as a basis for standardizing data. Data standardization refers to conditioning input data to ensure that the data meets the rules for content and formatting.

Valid Compatibility Valid Compatibility of data with its definition and purpose (format, type, condition, range etc.).

In this study articulated data governance as one of the key issues in building an Enterprise Data Warehouse. Its main objectives are:

- Define strategies in Data Governance processes and procedures;
- Define the scope and identify key components of the data governance process;
- Comply with Government Data Management standards, principles, and guidelines;
- Articulate a vision to build, manage, and maintain a foundation of government data. Planning will be unsuccessful if it is caused by unreliable and non-transparent data. It is becoming increasingly clear and apparent that data should be managed like any other asset such as finance and human resources and should have a set of defined and mandated controls where compliance can be objectively measured and reported.

This research uses input in the form of information and data regarding data governance contained in the Communication and Information Office of Sukabumi City. After obtaining input in the form of information, proceed to the process section. In the process part, a self-assessment will be carried out which will be submitted to the Communication and Information Office of Sukabumi City which will then be analyzed so that the author is able to find out the existing condition of One Data governance at the Communication and Information Office of Sukabumi City. The Data Governance Maturity Assessment was carried out to get an overview of the maturity conditions that currently occur in the Communication and Information Office of Sukabumi City. Data Governance special

maturity analysis is carried out based on the Stanford maturity framework, covering 3 (three) components, namely:

- Awareness-human resources
- Formalization-organization, and
- Stewardship of business process governance.

The analysis is carried out by looking at the gap or difference in value between existing conditions and expected or expected conditions. Assessment is carried out using interview and questionnaire methods. The questionnaire was used to determine the level of maturity of data governance in the Communication and Information Office of Sukabumi City and interviews to dig deeper into the expected conditions. The questionnaire was distributed to 32 respondents from all personnel at the Communication and Information Office of Sukabumi City spread across 3 fields and 9 sections. Based on the results of the Maturity assessment, the average maturity level of Data Governance covering 3 components (HR, formalization, stewardship) is 1.88 and the average value of expectations for improvement is 4. It presents the current state as follows:

- Human Resources
  - Some leaders are already aware of the purpose and role of data governance;
  - Data policies have not been established and documented;
  - Some employees know and understand in general about the ability to use data governance.
- Organization Most of the roles and organizational structures have not been defined related to the role of data governance, but there are some that define these roles and responsibilities according to their respective business processes.
- Business Processes / Stewardship Data management business processes have been carried out by some organizations to improve the quality of data managed in several units, but have not been formalized as data governance activities.

From the results of the calculation above (Table 1), a portrait of the maturity condition of 3 components of data governance management based on the Stanford maturity framework is obtained.

Table 1. Manurity data processing table.

Component	Dimension			Existing	Expectation
	Browse	Policy	Capabilities		
Awareness - Human Resources	2	2	2	2	0
Formalization - Organization	2	2	2	2	0
Stewardship	2	1	1	1	4

For the maturity level condition the expected level is level 4, which means the organization hopes to reach the maturity level conditions 3 and 4. The expected condition is that the organization has established and used the organization's standards, processes, and projects to establish consistency across the organization (level 3) and level 4 with the condition that the organization has set quantitative quality goals for processes and maintenance, the selected sub-processes have contributed significantly to overall process performance and are controlled using statistical and other quantitative techniques. The following is the result of a gap analysis of the current maturity level conditions with representatives of the targets to be achieved, as well as proposed activity initiatives that can be carried out to achieve the expected conditions.

Awareness Component – Human Resources (HR), with a current maturity level of 2 and a target of 4.

Table 2. Current maturity State and current activity.

Component	Existing Score	Existing Conditions	Current activity
Awareness – Human Resources	2.0	1. Leaders already know about the purpose and role of data governance; 2. Data policies have been documented but not administrated consistently; 3. A small percentage of HR knows and understands in general about the ability to use data governance.	• The leadership approves and supports the implementation of data management activities at the Communication and Information Office of Sukabumi City, including to formulate data policies • Data standards are still documented in the application usage guide document for data users at the Sukabumi City Communication and Information Office and are still incomplete in accordance with the standards. • Some employees have carried out data governance activities but do not understand and have not been equipped with optimal data governance capabilities.

(*continued*)

Table 2. (*continued*)

Component	Existing Score	Existing Conditions	Current activity
Formalization - Organization	2.0	1. Roles and responsibilities for data governance have been defined according to the business process organizer/owner. 2. General categories of data policy needs have been mapped for the Sukabumi City Communication and Information Office. 3. Data governance groupings are technically defined and can be used by every part of the field and section.	• Currently, data management activities are being carried out at the Communication and Information Office of Sukabumi City to design and define the roles, responsibilities and activities of data governance. • There is no definition of data governance roles and responsibilities set at the Communication and Information Office of Sukabumi City
Stewardship	2.0	1. There has been no specific role assignment, responsibility and stewardship related to data management policies/tasks because the data is generated by the software development team; 2. Documents related to the stewardship policy of the data management process are still limited; 3. The availability of data stewardship capabilities is still limited.	• Some employees have carried out data governance activities but there has been no formal determination of roles, responsibilities and stewardship of data governance. • Within the Sukabumi City Communication and Information Office, data needs are coordinated by the Sectoral Statistics Organizing Unit; • There are already SOPs related to data management but have not programmed data governance activities; • Employees still carry out data quality activities (data profiling and data cleansing) manually and incidentally

Table 3. Gap analysis and awareness component activities initiative.

Existing Conditions (Maturity Level 2)	Target Representation (Maturity Level 4)	Gap Analysis	Activity Initiatives
1. Leaders already know about the purpose and role of data governance; 2. Data policies have been documented but not administrated consistently; 3. A small percentage of HR knows and understands in general about the ability to use data governance.	1. Leaders understand the long-term benefits of data governance programs for their teams and other people's teams and keep their teams reminded. Data policies have been documented and have been stored in a repository and provide notifications to all data users. 2. All users have been properly grouped according to the data needed based on data governance at the Sukabumi City Communication and Information Office	• There is no media awareness and communication regarding data governance programs • There are still some undocumented data policies such as data policies and data standards (metadata). • There is no organizational model and data grouping in the Communication and Information Office of Sukabumi City. • Employees are not equipped with optimal data governance capabilities.	• There is a data governance program awareness program • Activities are carried out to design organizational models, grouping data, metadata, and formulating data policies and data standards • Training was conducted on the implementation of data governance activities
Formalization Component – An organization with a current maturity level of 2 and a target of 4.			
Existing Conditions (Maturity Level 2)	Target Representation (Maturity Level 4)	Gap Analysis	Activity Initiatives
1. Roles and responsibilities for data governance have been defined according to the business process organizer/owner. 2. General categories of data policy needs have been mapped for the Sukabumi City Communication and Information Office. 3. Data governance groupings are technically defined and can be used by every part of the field and section.	• The role of Data Governance has been defined in a scheme that can be used repeatedly according to the data function in the Communication and Information Office of Sukabumi City but has not been consistent. • Data policy is the official policy of the Communication and Information Office of Sukabumi City. • The entire use of data governance has a solution to every problem.	• There are no defined roles and responsibilities of data governance activities in the Communication and Information Office of Sukabumi City. • There has been no oversight and control over data governance activities. • There are no tools/technologies that support data governance activities. • No official data policy has been determined at the Sukabumi City Communication and Information Office. • There is no documentation of issues and solutions, as well as mechanisms for resolving data problems	• Designing roles and responsibilities for data governance activities at the Communication and Information Office of Sukabumi City. • Supervision and control of the implementation of data governance activities using tools / technology. • An official data policy is established. • Operational model design and data problem resolution mechanisms are carried out.

(*continued*)

Table 3. (*continued*)

Stewardship component with current maturity level 1 and target is 4.			
Existing Conditions (Maturity Level 2)	Target Representation (Maturity Level 4)	Gap Analysis	Activity Initiatives
1. There has been no specific role assignment, responsibility and stewardship related to data management policies/tasks because the data is generated by the software development team; 2. Documents related to the stewardship policy of the data management process are still limited; 3. The availability of data stewardship capabilities is still limited.	1. The role structure and stewardship structure are representative representations of multi-functional business (concurrent) 2. The audit process has been carried out independently by the data stewardship team has been fulfilled according to the policy. 3. There is a data report quality level monitoring dashboard and exception data to support effective stewardship audits.	1. There has been no determination of roles and responsibilities in the organizational structure of the Data Manager at the Communication and Information Office of Sukabumi City. 2. Data governance is not yet formally defined as a data governance role and program. 3. There is no document and centralized repository for data stewardship documents 4. No data governance audit has been conducted. 5. Data quality activities are still carried out incidentally and manually and there is no data quality monitoring dashboard.	1. Assignment of data governance roles in the organizational structure. 2. Governance and governance operation model design activities are carried out, including data profiling and cleansing activities. 3. An audit of data governance activities is conducted. 4. Availability of a centralized repository for document consolidation and access. 5. The use of data quality tools to help data quality activities efficiently and effectively. 6. Dashboard monitoring development was carried out to improve data quality.

From the assessment and analysis of data governance needs at the Communication and Information Office of Sukabumi City, it can be concluded that the results of the *data governance* maturity analysis using *Stanford* Data Governance Maturity are the average value of *Data Governance* maturity which includes 3 components (*awareness*, formalization, *stewardship*) is 1.88 and the average value of expectations for its improvement is 4. This shows the current condition in the Communication and Information Office of Sukabumi City, some leaders already know about the purpose and role of data governance and some employees know and understand in general about the ability to use data governance. From the organizational side, most of the roles and organizational structures have not been defined related to the role of data governance, but there are some that define these roles and responsibilities according to their respective business processes but have not formally become part of Data Governance activities. In terms of *stewardship*, data management activities have been carried out by some organizations to improve the quality of data managed in several units but have not been formalized as data *governance* activities. And finally, in terms of policy, there is no data policy that has been formally established and used within the Communication and Information Office of Sukabumi City. From the results of this research can be continued to conduct a deeper assessment of the current organizational structure, business processes, and policies, as material for designing organizational models, operational models, and data policies.

5 Conclusion

Based on all the results of analysis related to data governance, Human Resource management, Organization and Business Processes carried out at the Communication and Information Office of Sukabumi City, it can be concluded that based on *The assessment* that has been carried out obtained a *gap* between the target level of *Good Practice* and the existing conditions at the Communication and Information Office of Sukabumi City. Where the *gap* results in risks that may occur in the organization in aspects of *people*, *processes*, and technology. Therefore, it is necessary to make improvements to these risks, then for the recommendations that the author provides related to improvements to the data governance system and *Masterdata* management in The Communication and Information Office of Sukabumi City can be seen in the explanation below:

1. *People*: This aspect provides a new organizational structure design according to competence and tufoksi, namely in the form of adding functions to the Data Management and Application Development section in the field of Government Informatics Applications
2. *Process*: This aspect provides policy proposals related to Masterdata management, SOPs related to Masterdata management activities, and work instructions for the use of *Masterdata* management software
3. *Technology*: This aspect provides recommendations for open data tools that can be applied with the West Java Open Data Portal that is able to support the *Masterdata* management process.

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