097.13 DPWH
07. 11, 2022

Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Manila

JUL 08 2022

DEPARTMENT ORDER)
)
NO. 158)
Series of 2022 dtd 7/11/2022)

SUBJECT: Implementation of a Data Governance Program

In recognition that data is a valuable asset and quality data is critical in meeting the mandate of the Department, and in the interest of improving and ensuring data quality, the Department-wide Data Governance Program shall establish, implement, operate, monitor, review, maintain and improve a Data Governance framework to ensure that appropriate controls are applied to data, and that the data is accurately collected, used, and reported in line with its legislative and other compliance obligations.

1.0 Data Governance Policy

Data shall be categorized according to subject areas. It shall be managed and protected as a Department resource. It shall be named and defined consistently across the Department to be readily accessible to all, except where restrictions can be justified. It shall not be collected redundantly without justification, it shall be assigned to an organizational unit "data steward" and it shall be created and maintained as close to the source as feasible. This policy will be implemented through a Data Governance Program which was prepared and developed jointly by the Data Governance Program Office (DGPO) and the Data Governance Technical Working Group (TWG) of Information Management Service and can be downloaded at the DPWH Intranet (http://dpwhweb/DataGovernanceProgram/DPWHDataGovernanceProgram.pdf), for easy reference.

The aforementioned Program outlines the goals, structure, participants, data owners, and responsibilities involved over data assets. This program applies to all data users, processes and systems that collect, analyze, use, disseminate, and store data. It guides the Department in handling data as an enterprise asset and ensuring sound data management practices through partnerships with the different data stakeholders of the Department. This document should be disseminated throughout the Department and to new employees during the employee orientation training.

(a) Data Inventory and Ownership

All data assets shall be clearly identified and maintained. All data assets shall be assigned a dedicated owner and steward.

Data collected or produced by the Department cannot be "owned" by an employee, organizational unit, district, region, project management office, bureau, or service. Data generated by the Department to conduct business activities belongs to the Department.

(b) Data Collection

Data Collection should be obtained only for a specific purpose. It should be adequate, relevant, accurate, up to date, and should not be held for any longer than necessary. It must be processed following the rights of data subjects under the RA 10173, Data Privacy Act of 2012, applicable Government mandates, and Department Policies.

Data shall be collected once and must be used by many to minimize the cost of data collection and avoid duplication of efforts.

(c) Data Validation

Data should be validated to ensure that the finished data meets a set of quality standards.

(d) Data Sharing

For sharing within agencies, a Data Sharing Agreement shall be signed by both parties and properly reviewed by the Department's Legal Service to ensure compliance with applicable Philippine Government mandates, legislation, and Department Policies.

For the data sharing workflow, refer to Department Order No. 144, Series of 2018.

(e) Data Integration

For application development and enhancement, data shall be integrated to give application users with consistent access and delivery of data across a variety of subjects and structure types and to meet the information demands of all applications and business processes.

(f) Data Security

Data shall remain protected and secured following the requirements of applicable legislation, Philippine government mandates, and Department policies.

(g) Data Privacy

Disclosure of data to authorized parties in line with the RA 10173, Data Privacy Act of 2012, the Freedom of Information (FOI) Executive Order No. 2, 2016, and other applicable legislation, Philippine government mandates, and Department policies shall be ensured.

(h) Data Availability, Retention, and Disposal

Per Department Memorandum Circular (DMC) No. 47, Series of 2012 and DMC No. 16, Series of 2014, data shall be retained and disposed of lawfully and appropriately. Appropriate controls shall be applied to ensure that data remains available to bona fide persons as per applicable laws, rules and regulations, and Department's policies.

(i) Business Continuity and Disaster Recovery

The Department shall have a Business Continuity and Disaster Recovery Plan to ensure resilience and risk management. The purpose of the business continuity policy is to organize what is required to keep the Department's ICT Infrastructure running on normal business days as well as during emergencies.

(j) Data Integrity

Appropriate controls shall be applied to ensure that data remains complete and accurate.

(k) Data Compliance

Data shall remain compliant with the Department's various obligations including those specified within relevant legislation Philippine government mandates and Department's policies and procedures, as well as other obligations such as contractual or Memorandum of Agreement requirements.

2.0 Data Governance Accountability

Data Governance involves the processes associated with the management of data as an asset. Data Governance ensures that data can be trusted and that people can be made accountable for any adverse event that happens because of low data quality.

To ensure the quality and value of the Department's data assets, the partners responsible for realizing these are the following:

a) Secretary

The Secretary has ultimate authority and responsibility for the data governance program ensuring that data governance efforts address all relevant and mission-critical needs of the Department.

b) Data Governance Steering Committee (DGSC)

The Performance Governance System (PGS) Committee shall serve as the Data Governance Steering Committee (DGSC) and review Data Governance policies to improve the quality, accuracy, and integrity of data.

Responsibilities of the DGSC:

- Articulate the mission and strategic goals of the data governance program.
- Secure the support, resources, and cooperation needed to operate the program.
- Resolve problems and unresolved issues that are escalated from the Data Governance Program Office.

c) Chief Information Officer

The Chief Information Officer (CIO) is responsible for the development of the Data Governance Program and ensure it is published and communicated to all relevant employees and relevant

external parties. The CIO is the Undersecretary of the Information Management Service who shall also serve on the DGSC.

d) Data Governance Program Office (DGPO)

The Data Administration Section (DAS) of the IMS is designated as the Data Governance Program Office (DGPO) responsible for running the Data Governance Program including documentation, communication, and enforcement. The Section Chief of the DAS serves as the Chief Data Steward.

Responsibilities of the DGPO:

- Supports, documents, and publishes the activities of the Data Governance Steering Committee.
- Defines and documents best practices in Data Governance.
- Disseminates the Data Governance Program of the Department to include its mission, vision, goals, strategy, processes, and value.
- Creates and makes available education curricula and training delivery programs to support Data Governance, including training for Data Stewards, Application Project Managers, Application Development Team, and IT support staff.
- Enforces data-related policies and procedures, and escalates where necessary. This would include data analysis on compliance with business rules and quality standards.
- Manages logs to document risks and issues.
- Documents, publishes and maintains data-related policies, procedures, and standards.
- Maintains and publishes the Data Architecture and Data Glossary.

e) Business Data Stewards

The Business Data Stewards, being the data owners and having the understanding of what data is held by the Department, shall provide the business knowledge of what data needs to be collected and stored, applicable business rules to ensure data quality, and who should have access to which data. They shall be responsible for ensuring the overall quality of data in the Department. Some categories of data have both Primary and Secondary Business Data Stewards to ensure coordination and collaboration for data used across organizational boundaries.

Responsibilities of Business Data Stewards:

- Provide the business knowledge of data collection and storage needs.
- Ensure applicable business rules are defined to safeguard data quality and identify personnel for data access.

Objectives of the Business Data Stewards:

- Improve accountability for data accuracy.
- Attain a "single point of truth" for data (identify the "master" source of data, who is the true "owner" of data, and minimize redundancy in data collection).
- Improve productivity by having a central and efficient electronic data reporting process in place.
- Improve reusability and understanding of data.
- Improve reporting capability and timeliness.

f) Technical Data Stewards

The primary role of the Technical Data Stewards is to provide technical expertise in support of the Data Governance efforts concerning applications and application impact analysis for proposed changes and data quality issues. Responding to requests for assistance from the Data Governance Program Office promptly shall be part of their regular duties. These individuals are led by the Business Analysts (BA).

Responsibilities of the Technical Data Stewards:

- Provide technical expertise in support of the Data Governance efforts concerning applications.
- Provide application impact analysis for proposed changes and data quality issues.
- Respond to requests for assistance from the Data Governance Program promptly as part of their regular duties.
- Secure and safeguard the Department's database structure and content.

Objectives of the Technical Data Stewards:

- Improve data quality to reduce the cost of work efforts concerning data clean up and analysis.

g) Data Users

The Data Users are all personnel of the Department collecting, updating, and utilizing the Data.

Responsibilities of Data Users:

- Assist in promoting good practice and resolving data issues by providing a communication interface between data users and the Business Data Stewards who are responsible for each category of enterprise data.

A Data Governance Guidebook, which emphasizes the above roles, shall be made available by the Data Governance Program Office and shall be posted on the Department's intranet website.

Special Orders shall be issued for the assignment of personnel for these responsibilities along with the accountable office/entity by data domain/category.

This Order supersedes Department Order No. 20, Series of 2016, and shall take effect immediately.

MANUEL M. BONOAN
Secretary

11.1.1 EMS/ETC/MNP/RBC

Department of Public Works and Highways
Office of the Secretary
WIN2P01787

DPWH Data Governance Program

Version 1.0

This document outlines the purpose, structure, goals, participants, and responsibilities of the data governance program of the Department of Public Works and Highways (DPWH). This document should be disseminated throughout the Department and given to new employees during the orientation training. It should be updated regularly whenever it is necessary.

Prepared by:

Data Governance Program Office and Data Governance Technical Working Group
Information Management Service

Table of Contents

1 Introduction

In accordance with the Department Order No. 20, Series of 2016" Implementation of a Data Governance Program", the Data Governance Program Technical Working Group and the Data Governance Program Office (DGPO) developed the Data Governance Program. This program applies to all data users, processes, and systems that collect, analyze, use, disseminate, and store data. It guides the Department in handling data as an enterprise asset and ensuring sound data management.

1.1 Data Governance Definition

"Organizations that do not understand the overwhelming importance of managing data and information as tangible assets in the new economy will not survive".[1] *Tom Peters, 2001*

What Data Governance Is

Data Governance is the exercise of decision-making and authority for data-related matters. It is a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods.[2]

Data Governance includes the people, processes, and technologies needed to manage and protect the organization's data assets to guarantee generally understandable, correct, complete, trustworthy, secure, and discoverable corporate data.

Data governance is important to ensure quality data which is critical for the following reasons:

- Accurate and timely information to manage services and accountability.
- Determine and manage service and mandate effectiveness.
- To prioritize and ensure the best use of resources.
- Report to management, auditors, oversight agencies, and the public, who will make judgments about the Department's performance and governance.

Data governance ensures that data can be trusted and that people can be made accountable for any adverse event that happens because of low data quality. Through data governance, organizations are looking to exercise positive control over the processes and methods used by their data stewards and data custodians to handle data.

What Data Governance Is Not

Understanding *what data governance is not* can help focus on what it is.

Data governance is NOT terms definition, database design, data warehousing, project management, data cleansing or extract, transform, and load data. While each of these is affected by or related to the data governance program, data governance addresses more than these disciplines and each of these areas has facets beyond data governance, such as technological and architectural solutions.

1.2 Mission, Vision, Goals, and Success Measures

[1] The DAMA Guide to Data Management Body of Knowledge, 1st Edition, 2010
[2] Data Stewardship: An Actionable Guide to effective Data Management and Data Governance, 2014

1.2.1 Mission

To institutionalize Data Governance by ensuring the data quality, security, and privacy across the Department.

1.2.2 Vision

By 2030, Department data is consistent, secured, accurate, and readily available across the Department.

1.2.3 Goals

1. Provide an environment that promotes a common understanding of data for communications and decision-making for data stakeholders.

2. Promote responsible sharing of data across organizational boundaries.

3. Promote a Data Architecture-driven application development responsive to changing business needs.

4. Reduce redundancy to minimize the cost of gathering, processing, maintaining, and accessing data.

5. Establish authority, responsibility, confidentiality, and accountability for data management.

6. Ensure the integration of data with business activities to guarantee the authenticity and accuracy of information.

7. Establish business continuity measures to ensure the availability of data *at all times*.

1.2.4 Success Measures

The ability to measure success will be crucial to maturing data governance. Articulating success will ensure continued commitment from stakeholders at all levels. Success measures are best described by statements of quantifiable business value and will be determined by the Data Governance Steering Committee. Metrics can help get an organization aligned with a set of shared goals and can also provide an opportunity for engagement with stakeholders.

There are two (2) distinct categories to measure Data Governance Program performance:

1. Acceptability of Program by the Organization
   - Implementation of the Data Governance Program
   - Internal Customer Satisfaction
   - Successful Completion of Working Team Activities
2. Business Value Established by the Organization
   - Data Standardization
   - Availability/Use of Data Documentation
   - Improvement of Data Understanding
   - Data Quality Improvement

- Data Protection

Success will be measured over ten years, with specific deliverables set for each Goal.

Figure 1: Success Measure

A- Acceptability B- Business Value → -Roadmap

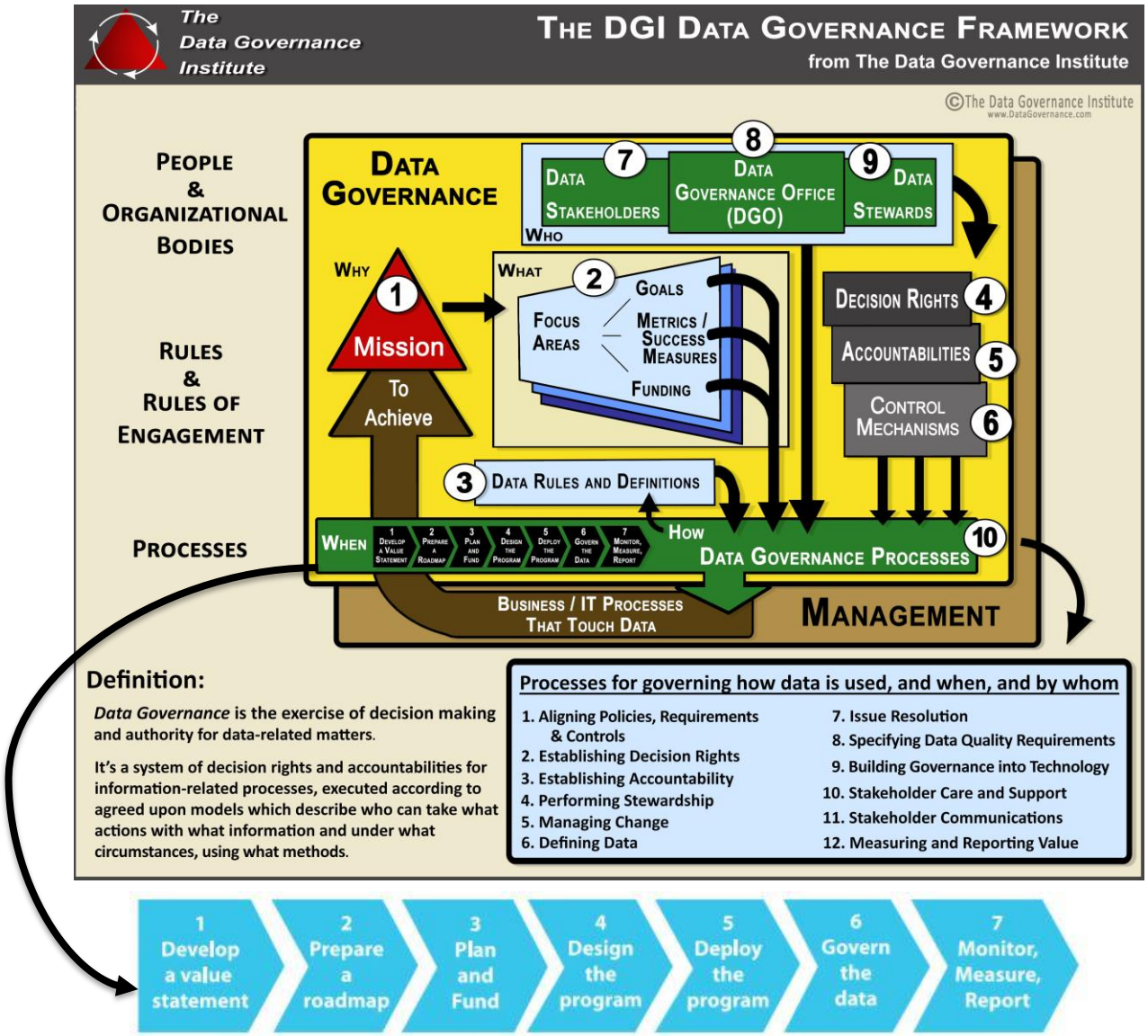
No.	Goals (2030)		2022	2023	2024	2025	2026	2027	2028	2029	2030
1	Provide an environment that promotes a common understanding of data for communications and decision-making for data stakeholders.	METRICS			100% Awareness of Enterprise Data Glossary		Publish DPWH Data Inventory				100% Awareness of Data Inventory
			A	A	A	A	B	A	A	A	A
2	Promote responsible sharing of data across organizational boundaries.	METRICS	Issue a DO on Data Governance Program- Policy on Data Sharing (General)	Issue a Policy on DSA (Detailed)			100% Awareness of the Policy on DSA				
			B	B	A						
3	Promote a Data Architecture-driven application development responsive to changing business needs.	METRICS	Updated Data and Process Models for Developed Performance Governance System (PGS) Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps	Updated Data and Process Models for Developed PGS Apps
			B	B	B	B	B	B	B	B	B
4	Reduce redundancy to minimize the cost of gathering, processing, maintaining, and accessing data.	METRICS					Publish DPWH Data Inventory	Establish a Platform for Accessing DPWH Data (Internal)	Awareness of Data Inventory		100% Awareness of Data Inventory
							B	B	A		A
5	Establish authority, responsibility, confidentiality, and accountability for data management.	METRICS	DO on Data Governance Program Reissue the SO on the Assignments of Business Data Stewards		Publish Data Stewards Guidebook	100% Awareness on Data Stewards Guidebook					
			B	B	B	A					
6	Ensure the integration of data with business activities to guarantee the authenticity and accuracy of information.	METRICS	Issue a DO on Data Governance Program Policy on Data Integration and Validation		100% Awareness of DG Program						
			B	B	A						
7	Establish business continuity measures to ensure the availability of data at all times.	METRICS				Establish the DPWH Business Continuity and Disaster Recovery Plan	Revisit DPWH Business Continuity and Disaster Recovery Plan	Revisit DPWH Business Continuity and Disaster Recovery Plan	Revisit DPWH Business Continuity and Disaster Recovery Plan	Revisit DPWH Business Continuity and Disaster Recovery Plan	Revisit DPWH Business Continuity and Disaster Recovery Plan
						B	A	A	A	A	A

2 Data Governance Framework

According to the Data Governance Institute (DGI), Data Governance is a practical and actionable framework to help data stakeholders across any organization identify and meet their information needs. To operate the Data Governance Program sustainably, the Department will adopt the Data Governance Institute (DGI) Framework which provides a comprehensive process for establishing and sustaining a data governance initiative. At a high level, the Data Governance Framework describes how the Data Governance Program Office (DGPO) proposes to manage the Department's data.

The Data Governance Institute recommends ten (10) universal components of data governance that organizations should include to build a successful data governance foundation following the "who, what, when, why, and how" model and broken into three (3) main areas.[3]

Figure 2: DGI Data Governance Framework



[3] http://www.datagovernance.com/fwk_dgi_data_governance_framework_components.html

Area 1: Rules and Rules of Engagement
These describe rules in terms of policies, requirements, standards, accountabilities, and controls. Rules of engagement then describe how different groups will share and delegate responsibilities for establishing these rules and executing them.

1. Mission and Vision
2. Goals, Governance Metrics and Success Measures, and Funding Strategies
3. Data Rules and Definitions
4. Decision Rights
5. Accountabilities
6. Controls

Area 2: People and Organizational Bodies
This component describes how data governance will be organized, and what roles and responsibilities will be defined.

7. Data Stakeholders
8. A Data Governance Office
9. Data Stewards

Area 3: Processes
These are the processes, methods, and procedures for creating and maintaining a sustained effort in data governance.

10. Proactive, Reactive, and Ongoing Data Governance Processes

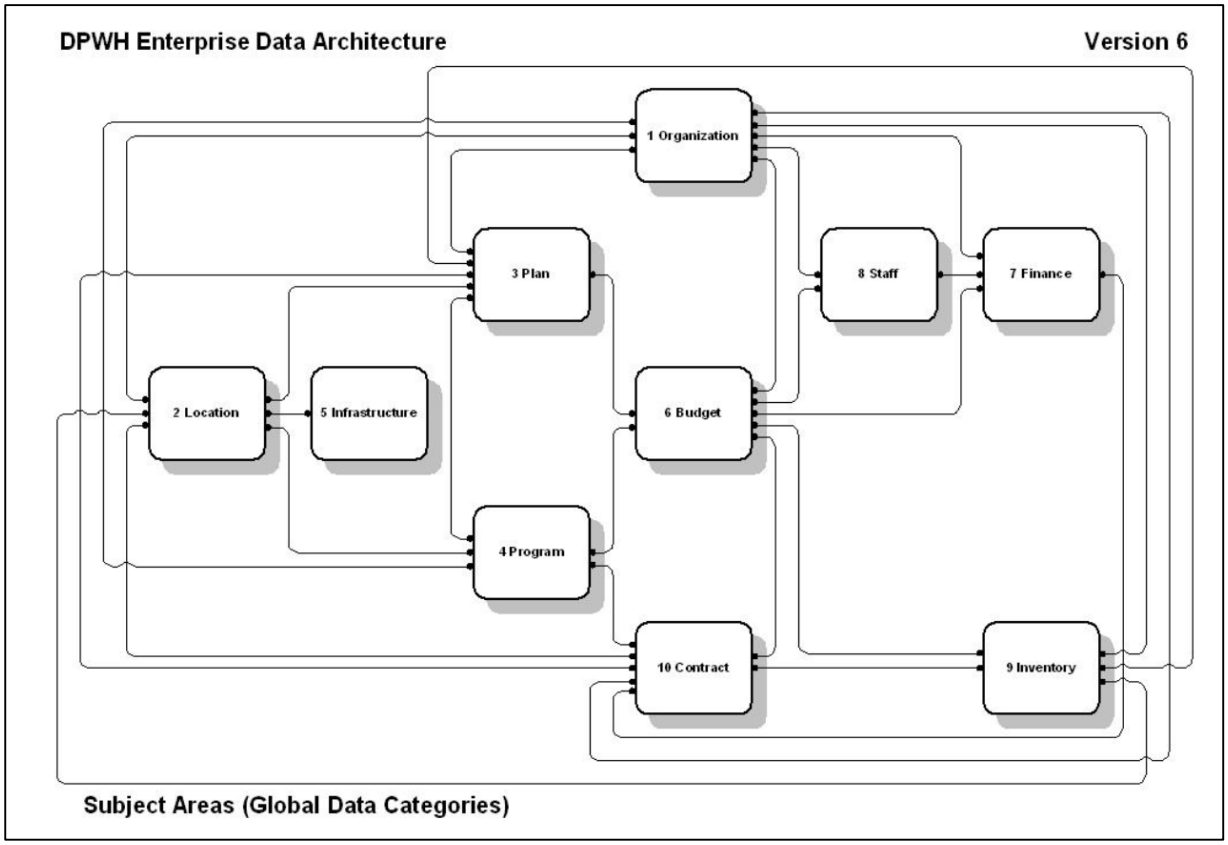
This framework will help the Department move toward the goal of implementing data governance and will help to identify potential organizational models–characteristics for effectively institutionalizing the management of Department's data resources.

3 Data Categories

Data shall be categorized according to Department's Subject Areas. It shall be managed and protected as a Department resource. It shall be named and defined consistently across the Department to be readily accessible to all, except where restrictions can be justified. It shall not be maintained redundantly without justification. It shall be assigned to an organizational unit "data steward" and it shall be created and maintained as close to the source as feasible.

The Subject Areas are presented in the diagram shown in the DPWH Enterprise Data Architecture.

Figure 3: DPWH Enterprise Data Architecture-Global Data Categories



Below is a brief explanation of each data categories:

3.1 Organization

This contains the subject entity representing the administrative and functional structure of a private sector business or other governmental agency associated with the Department, and the Department itself, as well as related participant entities including a person.

3.2 Location

This contains a view of entities representing both real-world and mapped (geographical) positions and sites. This category is a generic type for point, line, and area features, including the Road Network (made up of points and lines).

3.3 Plan

This is a formulation and means to resolve a gap between an existing situation and needs for the future, as related to goals, objectives, and strategy. Also included are reference entities to indicate both specific needs and the degree of achievement of requirements.

3.4 Program

This category is closely related to Plan and includes the subject entity which is an allocation and sequencing of solutions and resources. It also includes related entities for assessment and feasibility as used for the definition of programs and projects.

3.5 Infrastructure

This represents actual, 'on the ground' objects such as structures, pavement, fixtures, and traffic events with entities to help locate and position them, by links to related entities in the Location category.

3.6 Budget

This represents the level of expenditures at which an organization can perform its basic function, and related entities including budget agency, appropriation, and allotment, with subtypes of cash and fund.

3.7 Finance

This focuses on account for recording classified financial transactions, as well as different types of transactions. Also included are related entities representing books of original and final entry and financial statements.

3.8 Staff

This represents Employee's Record which is the record of facts relevant to a specific employee of the Department, and related entities representing compensation, performance, position, and training.

3.9 Inventory

This represents the subject entity of Inventory Item, which is a member of a set of physical resources that contribute to the net worth of the Department. Related entities represent events of requisition, assignment, and maintenance.

3.10 Contract

This is organized around the subject entity, which is an enforceable agreement between two or more participants, and the closely related Bid entity, and their related entities representing eligibility to bid and assessment of work.

4 Data Governance Guidelines

For a successful implementation of the Data Governance Program, the following shall be observed:

4.1 Data Inventory and Ownership

All data assets shall be clearly identified and maintained. All data assets shall be assigned a dedicated owner and steward.

Data collected or produced by the Department cannot be "owned" by an employee, organizational unit, district, region, project management office, bureau, or service. Data generated by the Department to conduct business activities belongs to the Department.

4.2 Data Collection

Data Collection should be obtained only for a specific purpose. It should be adequate, relevant, accurate, up to date, and should not be held for any longer than necessary. It must be processed following the rights of data subjects under the RA 10173, Data Privacy Act of 2012, applicable Government mandates, and Department Policies.

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Data should be validated to ensure that the finished data meets a set of quality standards.

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For sharing within agencies, a Data Sharing Agreement shall be signed by both parties and properly reviewed by the Department's Legal Service to ensure compliance with applicable Philippine Government mandates, legislation, and Department Policies.

For the data sharing workflow, refer to Department Order No. 144, Series of 2018.

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For application development and enhancement, data shall be integrated to give application users with consistent access and delivery of data across a variety of subjects and structure types and to meet the information demands of all applications and business processes.

4.6 Data Security

Data shall remain protected and secured following the requirements of applicable legislation, Philippine government mandates, and Department policies.

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Disclosure of data to authorized parties in line with the RA 10173, Data Privacy Act of 2012, the Freedom of Information (FOI) Executive Order No. 2, 2016, and other applicable legislation, Philippine government mandates, and Department policies shall be ensured.

4.8 Data Availability, Retention, and Disposal

Per Department Memorandum Circular (DMC) No. 47, Series of 2012 and DMC No. 16, Series of 2014, data shall be retained and disposed of lawfully and appropriately. Appropriate controls shall be applied to ensure that data remains available to bona fide persons as per applicable laws, rules and regulations, and Department's policies.

4.9 Business Continuity and Disaster Recovery

The Department shall have a Business Continuity and Disaster Recovery Plan to ensure resilience and risk management. The purpose of the business continuity policy is to organize what is required to keep the Department's ICT Infrastructure running on normal business days as well as during emergencies.

4.10 Data Integrity

Appropriate controls shall be applied to ensure that data remains complete and accurate.

4.11 Data Compliance

Data shall remain compliant with the Department's various obligations including those specified within relevant legislation Philippine government mandates and Department's policies and procedures, as well as other obligations such as contractual or Memorandum of Agreement requirements.

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Data Governance involves the processes associated with the management of data as an asset. Data Governance ensures that data can be trusted and that people can be made accountable for any adverse event that happens because of low data quality.

To ensure the quality and value of the Department's data assets, the partners responsible for realizing these are the following:

5.1 Data Governance Roles

a) Secretary

The Secretary has ultimate authority and responsibility for the data governance program ensuring that data governance efforts address all relevant and mission-critical needs of the Department.

b) Data Governance Steering Committee (DGSC)

The Performance Governance System (PGS) Committee shall serve as the Data Governance Steering Committee (DGSC) and review Data Governance policies to improve the quality, accuracy, and integrity of data. [4]

Responsibilities of the DGSC:

- Articulate the mission and strategic goals of the data governance program.
- Secure the support, resources, and cooperation needed to operate the program.
- Resolve problems and unresolved issues that are escalated from the Data Governance Program Office.

c) Chief Information Officer

The Chief Information Officer (CIO) is responsible for the development of the Data Governance Program and ensuring it is published and communicated to all relevant employees and relevant external parties. The CIO is the Undersecretary for the Information Management Service who shall also serve as the Chairperson of the DGSC.

d) Data Governance Program Office (DGPO)

The Data Administration Section (DAS) of the IMS is designated as the Data Governance Program Office (DGPO) responsible for running the Data Governance Program including documentation, communication, and enforcement. The Section Chief of the DAS serves as the Chief Data Steward.

Responsibilities of the DGPO:

- Supports, documents, and publishes the activities of the Data Governance Steering Committee.
- Defines and documents best practices in Data Governance.

[4] Department Order No. 06 Series of 2018: Alignment of the Reform Institutionalization and Management Support Systems Steering Committee with Performance Governance System, Designation and Roles of Project Managers, and Responsibility of Head of Offices

- Disseminates the Data Governance Program of the Department to include its mission, vision, goals, strategy, processes, and value.
- Creates and makes available education curricula and training delivery programs to support Data Governance, including training for Data Stewards, Application Project Managers, Application Development Team, and IT support staff.
- Enforces data-related policies and procedures, and escalates where necessary. This would include data analysis on compliance with business rules and quality standards.
- Manages logs to document risks and issues.
- Documents, publishes and maintains data-related policies, procedures, and standards.
- Maintains and publishes the Data Architecture and Data Glossary.

Objectives of the DGPO:

- Maintains and publishes the Data Architecture and Data Glossary.
- Publish data related policies, procedures, and standards.

e) Business Data Stewards

The Business Data Stewards, being the data owners and having the understanding of what data is held by the Department, shall provide the business knowledge of what data needs to be collected and stored, applicable business rules to ensure data quality, and who should have access to which data. They shall be responsible for ensuring the overall quality of data in the Department. Some categories of data have both Primary and Secondary Business Data Stewards to ensure coordination and collaboration for data used across organizational boundaries.

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Objectives of the Technical Data Stewards:

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g) Data Users

The Data Users are all personnel of the Department collecting, updating, and utilizing the Data.

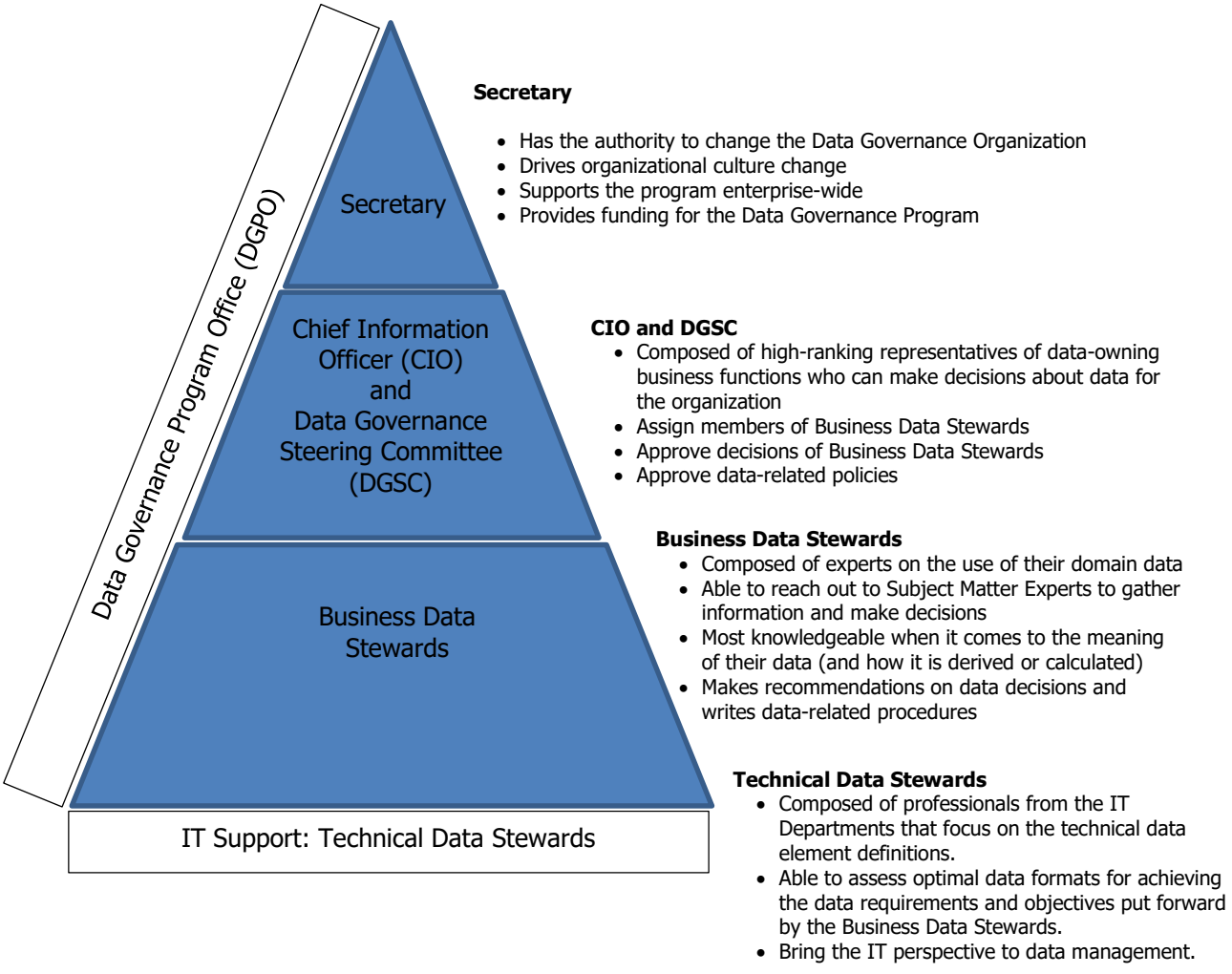
Responsibilities of Data Users:

- Assist in promoting good practice and resolving data issues by providing a communication interface between data users and the Business Data Stewards who are responsible for each category of enterprise data.

5.2 Data Governance Organizational Chart

The figure below shows the hierarchy of Data Governance Accountability.

Figure 4: DPWH Data Governance Organizational Chart



5.3 Decision Rights

A responsibility assignment matrix is a simple roles and responsibilities matrix. The persons involved in a project activity will be Responsible, Accountable, Consulted, or Informed (RACI) for the relevant task, milestone, or decision, according to a RACI chart.

Figure 5: Roles and Responsibilities Matrix

Roles Communication Item	Secretary	Data Governance Steering Committee (DGSC)	Chief Information Officer	Data Governance Program Office (DGPO)	Business Data Stewards	Technical Data Stewards	Data Users/ Associate
Sponsorship and Charter	A	R	R	C	C	C	I
Data Ownership	A	C	R	R	A	A	I
Policies and Standards	A	C	A	R	A	A	I
Business Rules and Guidelines	I	I	A	R	C	A	I
Data Quality Issues, Reports and Metrics	I	I	R	R	A	A	I
Data Models	I	I	A	R	C	C	I
Data Dictionaries	I	I	A	R	C	C	I
Processes and Procedures	I	I	R	R	A	A	I

A RACI chart indicates the roles assigned to different team members involved with each task. A detailed description of each role is as follows:

- **Responsible**: Those assigned the role of responsible are actively involved in completing a specific task. At a minimum, one team member should be responsible for each task, but you may have more than one, depending on the project scope. That said, there should never be more people assigned to this role than needed.

- **Accountable**: The member assigned to the accountable role is responsible for signing off on the task, i.e., approving its completion. It is almost always best that this is a single person. This role typically falls on the project manager, but it might be assigned to someone else.

- **Consulted**: Consulted team members may be leveraged for their expertise, or contribute in other ways, for example, when it comes to verifying information or reviewing the work product and how it fits in with the larger scope of the overall project. There is no minimum or a maximum number of members who may fall into the consulted category; need determines this designation.

- **Informed**: Individuals who need to be aware of progress or the completion of a particular task fall into the informed category. The reason they may need to be informed varies but often relates to how the particular task ties into other tasks they might be responsible for concurrently or in the future as a next step.[5]

[5] https://www.workfront.com/project-management/life-cycle/planning/raci-chart

6 Data Governance Program Products/Services

The following lists the Data Governance program products and/or services that the Department will need:

6.1 Information Repository

The Data Administration Section maintains detailed records of all the Department's enterprise data in standard documents such as Process Models, Data Models, Enterprise Data Glossary, and Enterprise Architecture, which form the "Information Repository". This includes details of every item of data, and which of the software applications users make use of which data.

The Data Administration Section will maintain and use most of the detailed information held in the Information Repository, and interpret and explain this information to the Data Stewards whenever required.

The part of the Information Repository of most direct relevance to the Data Stewards is the Enterprise Glossary. This glossary will be a summary of standard business terms to be used throughout the Department, presented in terminology understandable by business data users rather than computer specialists.

A business term is defined as a word or phrase used to identify a process, event, or thing of importance to the Department.

All Data Stewards have an understanding of what data is held by the Department and understand in principle why each different type of data is held, who needs to use the data, and how it is used.

The Data Stewards must be familiar with which types of data are in each of these categories.

6.2 Enterprise Data Glossary

The Data Administration Section maintains and updates the Enterprise Data Glossary at least once a year or when a new application is developed and implemented in the Department. It contains definitive descriptions of common business terms and data items used in major processes and applications in the Department. Business terms are common words, phrases, or vocabularies used by the Department in its day-to-day operation and/or in the conduct of its business.

6.3 IT Glossary

The Information Technology (IT) Glossary contains definitive descriptions of common IT terms used in major processes and applications in the Department.

This consists of common technical words, phrases, or vocabularies used by the Department in its day-to-day operation and/or in the conduct of its business.

6.4 Data Inventory

A data inventory is a list of datasets with metadata that describes their contents, source, licensing, and other useful information.

A data inventory can help to:

- *Improve data discovery* – to understand the extent of the data that the Department manages, uses, or publishes. Publishing a data inventory under an open license can help others to find, access, and use the datasets that the Department may be able to share publicly. An inventory might also be compiled to provide a list of datasets that are useful to tackle a particular problem or challenge.

- *Improve data governance* – the process of compiling and managing a data inventory can help the user to take stock of the data that the Department is managing. Creating an inventory is often the first step in improving data governance. The inventory can help to identify duplicates, be used to improve best practices, and ensure that there are clear roles and responsibilities associated with managing data as an asset.

- *Inform decision-making around data management* – to understand the status of the data. A data inventory can help to prioritize resources, e.g., to improve data quality, rationalize technical platforms used to manage and publish data, or avoid duplication in collecting or purchasing data that is already available.

- *Create a legal record* – an inventory can provide a legal record of the data that the Department manages. The Department may have to do this for compliance reasons, such as maintaining a data asset register for the recently introduced Data Privacy Act of 2012 or maintaining a list of third-party datasets the Department accesses and the licensing and data sharing agreements that govern their use.[6]

The Data Administration Section (DAS) has established the DPWH Data Inventory based on the Department's Application Systems and complies with the Data Privacy Act of 2012. Maintenance of the data inventory will be performed once new applications are to be developed.

[6] https://www.researchgate.net/publication/327631764_How_to_create_a_data_inventory#pf3

Figure 6: DPWH Data Inventory

Administrative Area

ENTITY NAME	**Administrative Area**
ENTITY DESCRIPTION	An area of jurisdiction of a level of government or a governmental organization.
SOURCE OF DATA (Actual Application)	Administrative Area Management System (AAMS)
CREDITS	Statistics Division (SD), Planning Service (PS)
FREQUENCY OF UPDATE	As needed
MAINTENANCE RESPONSIBILITY	Statistics Division (SD), Planning Service (PS)

ATTRIBUTE TABLE:

FIELD NAME	FIELD DESCRIPTION	DATA TYPE	FIELD LENGTH	ATTRIBUTE TYPE
Feature Code	A composite key that includes an identifier for the entire class of Admin Area, and a unique ID for the specific occurrence of the Admin Area.	Text	9	[PK]
Area ID	Allows direct access to Stormwater Area entity from the closely related Area entity.	Text	10	[PK]
Public Sector ID	Provides an identifying link to an external governmental Organization having jurisdiction over the area.	Text	20	[FK]
Admin Area Name	A word or phrase that constitutes a distinctive designation for a jurisdiction.	Text	50	[NA]

6.5 Data Dictionary

The Data Dictionary is part of the overall Information Repository. The Data Dictionary contains organizational metadata, including data definitions, relationships, user privileges, etc.

It can be viewed online by selected users and data administration personnel.

For each data item, the Data Dictionary contains the following:

- Name of the data item
- Definition of the data item
- Enterprise Data Category to which it belongs (if any)
- Aliases for the data item
- List of attributes
- Identifying key
- Physical database in which it is held
- Any known data redundancy relating to this item
- Access rights for the data item
- Relationships with other data items

The Data Dictionary is useful for application and project-level data administration activities. The seven major uses of a Data Dictionary are:

1. **Project planning:** As a part of the planning phase, a high-level data model should be created. The Data Dictionary is a design aid and data map to support planning. The outputs are documented in the data dictionary.

2. **Requirements definition:** Considerable detail is captured during requirements definition. Database developers collect facts and opinions from users on current and future uses of data. Data items, reports, and transactions are defined and described. The captured data requirements are stored in the data dictionary. Thus, the Data Dictionary is used as a documentation tool and design aid during requirements definition.

3. **Database design and testing:** The data dictionary is used as a documentation tool, design aid, schema generator, and data map during these two phases. Database design results in a conceptual data model that can be implemented in the target DBMS. During testing, the data model is tested in terms of database operations and integrity controls. The data dictionary is used as a design aid and data map in developing data models. The Data Dictionary is also used to generate schemas for DBMS and application programs, and to generate data to test database operations and controls. Finally, the conceptual data model and physical database are documented in the data dictionary and used to generate application documentation.

4. **Database implementation:** During database implementation**,** the Data Dictionary is used primarily for documentation support and change control. For example, users require data descriptions so they can practice writing queries during training. In terms of control, data administration uses a data dictionary to resolve inconsistencies when loading the database and enforcing standards during implementation.

5. **Database use:** Database use involves the ongoing update and retrieval of data from a database. A data map created by the Data Dictionary helps users locate and understand stored data. It also becomes a primary control tool when it is used to enforce integrity controls such as data validation.

6. **Database evolution:** The data dictionary is useful for planning growth change. Data administration utilizes performance monitoring software to document use and evaluate performance. This information, plus user's change requests, leads to potential enhancements to database systems. The Data Dictionary is a primary tool for planning and evaluating these enhancements. For example, it can be employed to perform an impact analysis of proposed changes, such as adding new relationships or data items.

6.6 GIS Data Dictionary

The GIS Data Dictionary is a compilation of information about the geospatial datasets available in the Department. It provides a definition of terms, feature class table definition, names, and descriptions of attribute tables and fields in each layer, plus additional details, like the type and length of each data element. The dictionary also shares the naming conventions and data standards used by the Department.

The table below shows the format and table definition of the DPWH GIS Data Dictionary:

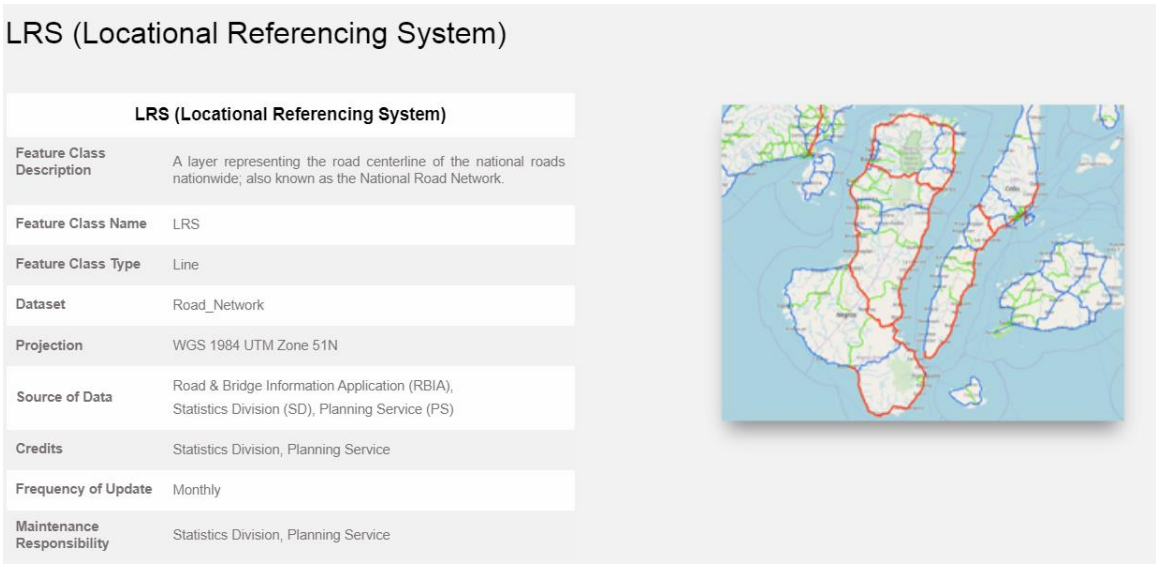
Table 1: Feature Class Table Definition

FEATURE CLASS TABLE	TABLE DETAILS
FEATURE CLASS DESCRIPTION	Description of the Feature Class or Map Layer
FEATURE CLASS NAME	Name of the Feature Class in the geodatabase.
FEATURE CLASS TYPE	Geometry type (i.e., point, line, polygon, or area) in vector form of the Feature Class.
DATASET	The folder where the Feature Class is stored is in the geodatabase.
SOURCE OF DATA	The organization or application (e.g., RBIA) where the Feature Class was originally obtained or derived (e.g., shapefiles, geotagged photos, Excel files, PDFs)
CREDITS	The office responsible for consolidating and/or converting the data gathered to map layer fit for the Department's use.
FREQUENCY OF UPDATE	The time interval for updating the Feature Class.
MAINTENANCE RESPONSIBILITY	The organization responsible for ensuring the data is updated.

The GIS Data Dictionary contains additional information not usually found in a data dictionary for tabular data. This includes:

- Projection of the spatial data
- Source of the spatial data

Figure 7: Sample Feature Class Definition



6.7 DPWH Enterprise Data Architecture

The Data Administration Section shall promote the use of the Enterprise Data Architecture as a means to greatly assist in the integration of new business applications and with legacy systems.

The Data Architecture is the conceptual description of the data needed to support the business process of the Department. It is a forward-looking model that emphasizes the data needed not the data that exists. It represents the framework that should be used for directing future business application developments.

6.8 Training and Awareness

The Data Governance Program Office (DGPO) shall define and implement the training and education necessary for effective data management.

A one-day training will be provided for Business and Technical Data Stewards. This training will outline the role of the Data Stewards and explain their duties to the Data Users.

The Chief Information Officer (CIO) and Data Governance Steering Committee (DGSC) shall actively participate and provide business insights in the Department's Strategic Information Systems Planning efforts.

7 Data Governance Policies and Procedures

A great deal of time, effort, and cost go into collecting and organizing data, and Data Governance activities seek to ensure that:

- The quality of data is maintained.
- Data collection is not duplicated.
- Data is properly structured.
- Data is available where and when it is needed.
- Data is secured.
- Standard definitions of data are used throughout the Department.

The Business Data Stewards provide the business knowledge of what data needs to be collected and stored, and who should have access to which data.

Important data that is relevant to more than one Department's organizational unit is referred to as "enterprise data".

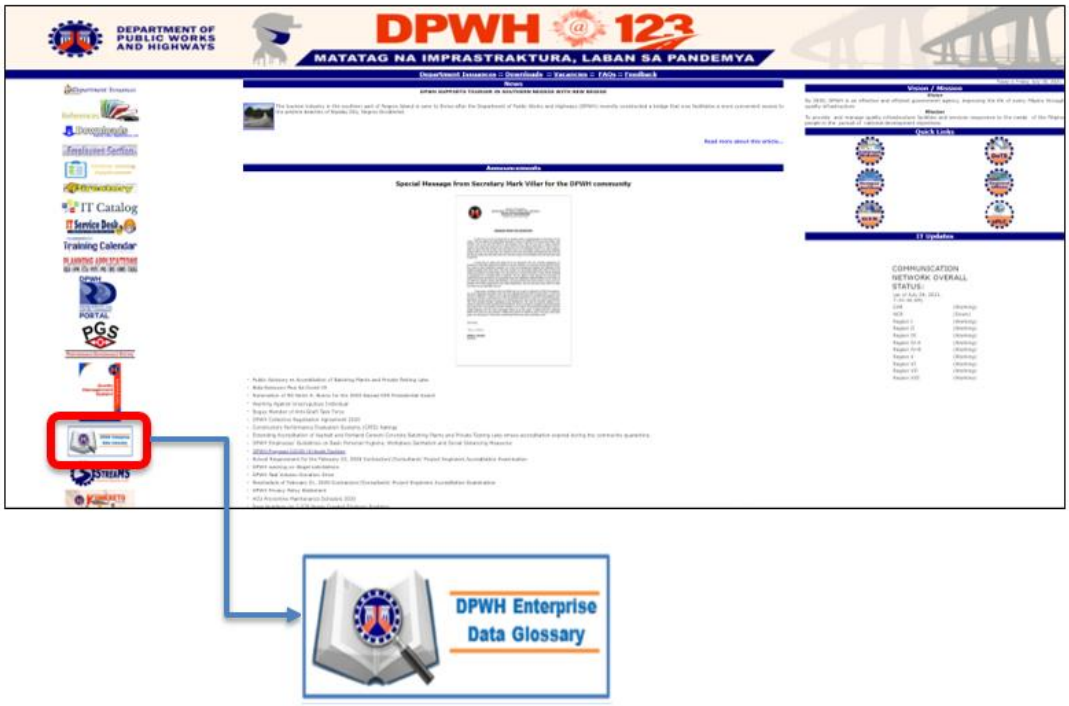
7.1 Definition of Terms in the Enterprise Data Glossary

All Offices and personnel are instructed through Department Order No. 134, Series of 2018 (See Annex D. DPWH Enterprise Data Glossary) to refer and use the terms and definitions prescribed in the Enterprise Data Glossary when creating manuals, policies, reports, and applications. Further, existing documents and applications should be reviewed and revised accordingly to ensure consistency with the terms and definitions in the Enterprise Data Glossary.

The definition of business terms is to be coordinated with the Data Administration Section (DAS), Business Innovation Division (BID), Information Management Service (IMS) by the respective Business Data Stewards as identified in Special Order No. 4, Series of 2017. Roles such as Project Manager, Project Engineer, Bridge Engineer, etc. are not included in the Enterprise Data Glossary. The Enterprise Data Glossary shall be updated at least once a year or when a new application is developed and implemented in the Department.

The updated Enterprise Data Glossary is available at the DPWH Intranet Site.

Figure 8: Intranet's Enterprise Data Glossary



7.2 Data Assets Renaming in Primary Application Systems

The respective Business Data Stewards shall coordinate with the Data Administration Section to conduct an impact analysis report.

The Primary Data Steward may need to consider requests for changes to what is defined as enterprise data for the category of data that they are responsible for. The Data Administration Section will be able to offer advice and guidance on processing any such request.

Requests for considering changes to the enterprise data may come either from data users through their Local Data Steward or from developers and implementers setting up new business applications.

7.3 Effectivity Dates in the Creation and Renaming of DEO Names

The Department's District Engineering Offices (DEOs) are created or renamed through legislation, and Department Orders (DOs) are issued for its implementation. This results in inconsistencies of current and historical data used by the application systems. To address this, the following effectivity of implementation are prescribed:

1. For DOs on the creation and/or renaming of DEOs released in January to June of the current year, the implementation in the (a) preparation of the Department's Infrastructure Program using Multi-Year Planning and Scheduling (MYPS) and Road and Bridge Information Application (RBIA), (b) Finance process using Electronic New Government Accounting System (eNGAS) and Electronic Budget System (eBudget), and (c) Human Resource (HR) process using Personnel Information System (PIS), Time and Attendance System (TAS), Training Management System (TMS), and Regular Payroll System (RPS) shall be the following fiscal year.

Whereas, all other activities conducted for funding purposes as well as advance procurement such as Program of Works (POW) using Cost Estimation Application (CEA), Preliminary Engineering Design (PED) using Design Management Application (DMA), Indicative Project Procurement Management Plan (PPMP) using Project Procurement Management Plan Application (PPMPA), and Eligibility Processing using Civil Works Application (CWA), the implementation shall be the current year.

Example 1
Release of DO: May 2022

Table 2: Example 1-Effectivity Dates in the Creation and Renaming of DEO Names

Process	Activity	Applications	Implementation
DPWH Infrastructure Program FY 2023			
	PLAN • Regional Budget Proposal	MYPS, RBIA	May 2022
	Design • Preliminary Engineering Design (PED)	DMA	May 2022
	Build • Program of Works for funding	CEA	May 2022
	Procure • Indicative PPMP/APP • Eligibility Processing	PPMPA CWA	May 2022
Finance			
	• Financial Management	eNGAS, eBudget	January 2023
HR			
	• Human Resource (HR) Management	PIS, TAS, TMS, RPS	January 2023
Construct			
	• Contract Management	PCMA	January 2023

Acronyms
APP: Annual Procurement Plan
CEA: Cost Estimation Application
CWA: Civil Works Application
DMA: Design Management Application
eBudget: Electronic Budget System
eNGAS: Electronic New Government Accounting System
MYPS: Multi-Year Planning and Scheduling
PCMA: Project and Contract Management Application
PIS: Personnel Information System
PPMPA: Project Procurement Management Plan Application
RBIA: Road and Bridge Information Application
RPS: Regular Payroll System
TAS: Time and Attendance System
TMS: Training Management System

2. For DOs released in July to December of the current year, the implementation in the preparation of the Department's Infrastructure Program using MYPS and RBIA, (b) Finance process using eNGAS and eBudget, and (c) Human Resource (HR) data using PIS, TAS, TMS, and RPS shall be the year after the following fiscal year.

   Whereas, all other activities conducted for funding purposes as well as advance procurement, such as Program of Works (POW) using CEA, Preliminary Engineering Design (PED) using DMA, and Indicative PPMP using PPMPA, and Eligibility Processing using CWA, the implementation shall be the following fiscal year.

Example 2
Release of DO: November 2022

Table 3: Example 2-Effectivity Dates in the Creation and Renaming of DEO Names

Process	Activity	Applications	Implementation
DPWH Infrastructure Program FY 2024			
	PLAN • Regional Budget Proposal	MYPS, RBIA	January 2023
	Design • Preliminary Engineering Design (PED)	DMA	January 2023
	Build • Program of Works for funding	CEA	January 2023
	Procure • Indicative PPMP/APP • Eligibility Processing	PPMPA CWA	January 2023
Finance			
	• Financial Management	eNGAS, eBudget	January 2024
HR			
	• Human Resource (HR) Management	PIS, TAS, TMS, RPS	January 2024
Construct			
	• Contract Management	PCMA	January 2024

7.4 Data Recovery

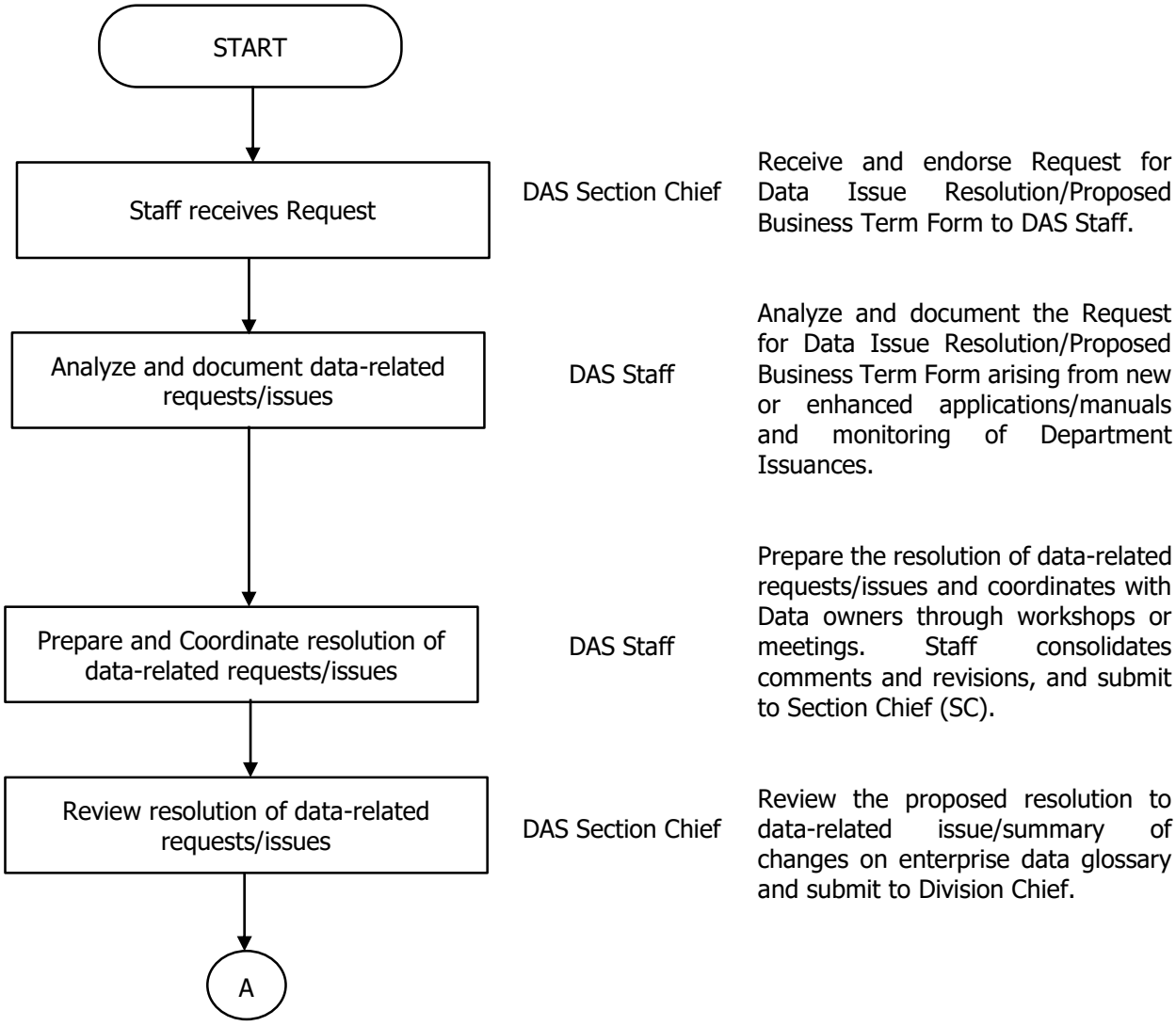
The IMS shall develop a Business Continuity and Disaster Recovery Plan that outlines all of the procedures that must be followed in the event of a disaster, regardless of whether natural or man-made, that may result in data loss, for the Department to resume regular ICT operations in a short time.

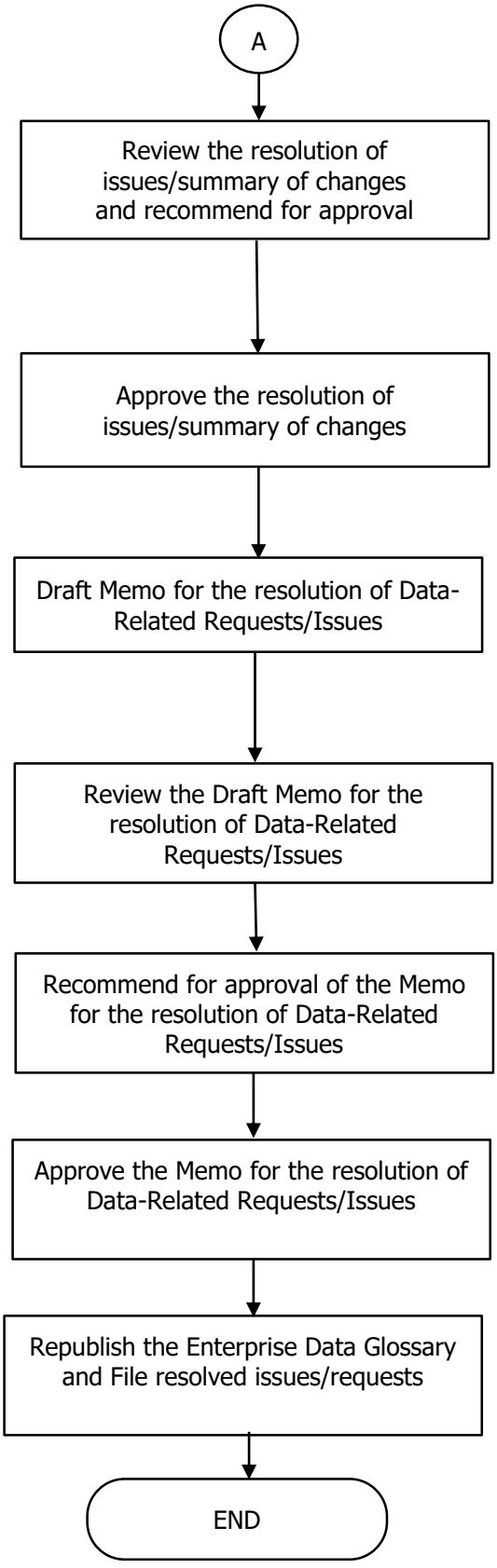
7.5 Data Issue Resolution

All issues will be logged and addressed through the DGPO's established Issue Resolution Process as detailed in below Figure 9.

- To resolve a variety of data-related issues such as definitions, collection, and renaming of data and its attributes.
- To update and maintain Enterprise Data Glossary data items used in major processes and applications in the Department.

Figure 9: Issue Resolution Process Flow



Process Flow	Responsible Person	Details
	BID Division Chief (DC) IMS Director DAS Staff DAS Section Chief BID Division Chief IMS Director DAS Staff	Review proposed resolution to data-related issue/summary of changes and recommends for approval. ❖ For the unresolved data-related issues and definitions, DAS will submit to PGS Steering Committee to analyze and resolve issues. Approve the proposed resolution to the data-related issue/summary of changes in the Enterprise Data Glossary. Draft memorandum for the Resolution of Data-related issues/Summary of Changes on Enterprise Data Glossary upon approval. Submit the Draft memo to DAS Section Chief. Review the draft memorandum for the Resolution of Data-related issues/Summary of Changes on Enterprise Data Glossary and submit to Division Chief. Recommend for approval of the memorandum for the Resolution of Data-related issues/Summary of Changes on Enterprise Data Glossary and submit to IMS Director. Approve the Memorandum for the resolution of Data-related Requests/Issues. Republish the Enterprise Data Glossary upon approval of the memorandum and file the resolved requests/issues.

8 Definition of Terms

1. **Data Governance**. The exercise of decision-making and authority for data-related matters. It is a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods.

2. **Freedom of Information.** The policy of the Executive Branch embodied in Executive Order No. 2, Series of 2016 which recognizes the right of the people to information on matters of public concern, and adopts and implements full public disclosure of all its transactions involving public interest, subject to the procedures and limitations provided in the said EO and other laws, rules, and regulations.[7]

3. **Metadata**. The information that describes various facets of an information asset to improve its usability throughout its life cycle. [8]

[7] DPWH FOI Agency Manual - http://dpwhweb/pdf/issuances/DO/18/DO_144_s2018.pdf
[8] Gartner Glossary- https://www.gartner.com/en/information-technology/glossary/

9 References

Department Order No. 20, Series of 2016 - Implementation of Data Governance Program

Special Order No. 04, Series of 2017 - Assignment of Business Stewards for Data Governance

Department Order No. 06, Series of 2018 - Alignment of the Reform Institutionalization and Management Support Systems Steering Committee with the Performance Governance System, Designation and Roles of Project Managers, and Responsibilities of Head of Offices

Department Order No. 134, Series of 2018 - DPWH Enterprise Data Glossary

Department Order No. 144, Series of 2018 - Issuance of Freedom of Information (FOI) People's Manual and Re-issuance of FOI Agency Manual, Section V

Department Memorandum Circular No.16, Series of 2014 - National Archives of the Philippines (NAP) Memorandum Circular No. 001 released dated January 16, 2014, "Guidelines on Records and Disposal Measures".

Department Memorandum Circular No.47, Series of 2012 - National Archives of the Philippines (NAP) letter dated October 9, 2012, "Approved Copy of DPWH Records Disposition Schedule".

10 Appendices

10.1. Figures

10.2. Tables