Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Bonifacio Drive, Port Area Manila

BAGONG PILIPINAS

DPT.13 DPWH
06.19.2025

JUN 18 2025

DEPARTMENT ORDER NO. 108 Series of 2025 dtd 6/19/2025

SUBJECT: Implementation of a Data Governance Program

In recognition of data as a critical asset in fulfilling the Department's mandate, and to ensure its quality, integrity, security, and accessibility, the Department shall continue to strengthen and advance its Data Governance Program. This program establishes a framework to ensure that data is accurately collected, managed, used, and reported in compliance with legislative and regulatory requirements.

To align with the Department's evolving policies and improvements, the attached Data Governance Program (DGP) has been updated and reiterated for guidance and compliance by all concerned. This program defines the principles, structure, and responsibilities for managing data across the Department. It applies to all data users, processes, and systems involved in data collection, analysis, usage, dissemination, and storage. It ensures sound data management practices through collaboration with Department stakeholders and shall be disseminated across all offices, including new employees, during orientation training.

To support implementation, the Data Governance Guidebook (DGG), a one-stop reference consolidating salient features of all Data Governance-related issuances and policies, is hereby issued and published on the DPWH Intranet.

This Order supersedes Department Order No. 158, Series of 2022, and shall take effect immediately.

Department of Public Works and Highways
Office of the Secretary
WIN5P01867

MANUEL M. BONOAN
Secretary

Encl: (1) Data Governance Program (DGP)
(2) Data Governance Guidebook (DGG)

11.1.1 RBC/AGC

DPWH Data Governance Program

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

Prepared by:

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

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Revision Sheet

Release No.	Date	Revision Description
Version 1.0	July 8, 2022	Publication of the Data Governance Program
Version 2.0	March 2025	Revision of the Data Governance Program, including: • Adoption of the latest Data Governance Institute (DGI) Data Governance Framework; • Update of the Data Governance Program Success Measures; • Inclusion of unique elements from the Data Governance Guidebook; and • Update of Data Governance related issuances.

1 Introduction

In accordance with Department Order on the *"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 that describe who can take what actions with what information and when, under what circumstances, and 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 vital 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 judge 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 due to 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 extracting, transforming, and loading data. While each of these is affected by or related to the data governance program, data governance addresses more than these disciplines. Each area has facets beyond data governance, such as technological and architectural solutions.[3]

[1] The DAMA Guide to Data Management Body of Knowledge, 1st Edition, 2010
[2] David Plotkin, Data Stewardship: An Actionable Guide to effective Data Management and Data Governance, 2014
[3] Adapted from Office of Management and Enterprise Services (OMES), Data Governance Program Office, June 30, 2016

1.2 Mission, Vision, Goals, and Success Measures

1.2.1 Mission

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

1.2.2 Vision

By 2040, 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.
2. Promote responsible sharing of data across organizational boundaries.
3. Promote data architecture-driven application development that is 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 data integration 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 align an organization with a set of shared goals and provide an opportunity for stakeholder engagement.

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

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

Success will be measured in alignment with the DPWH vision, with specific deliverables defined for each goal.

Figure 1: Success Measures

A- Acceptability **B**- Business Value → -Roadmap

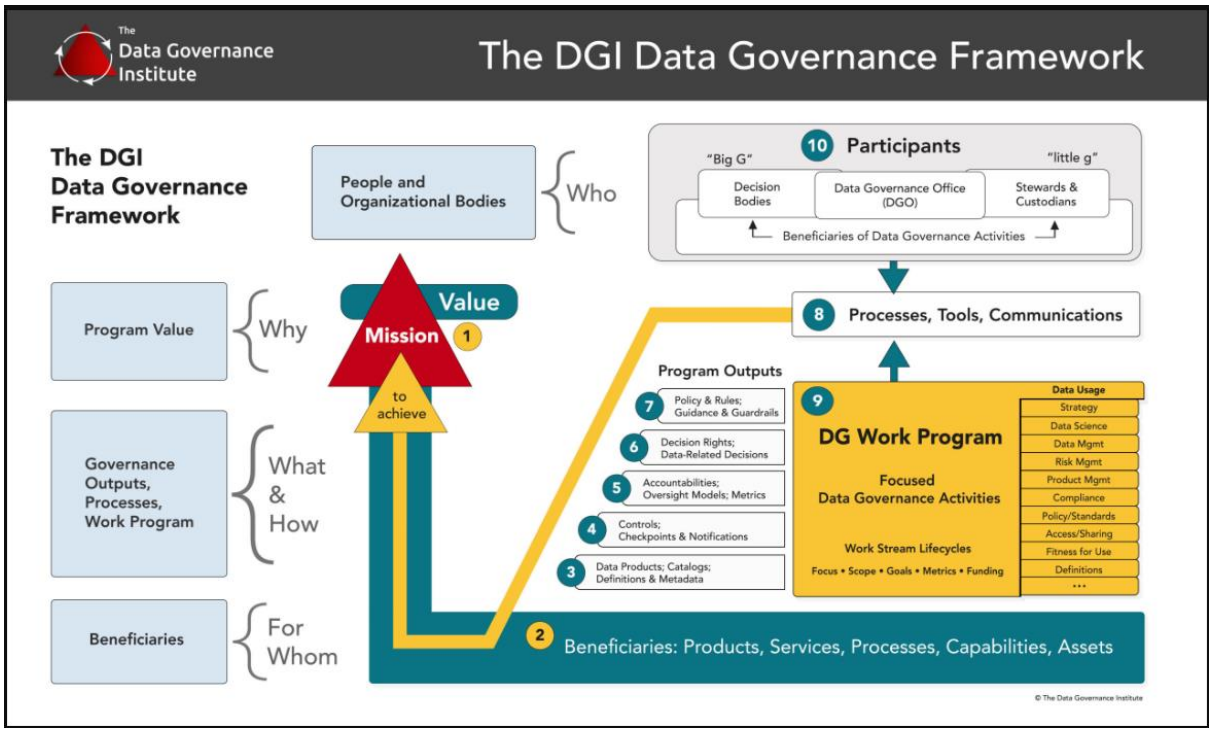
No.	Goals (2040)		2022	2023	2024	2025	2026	2027	2028	2029	2030	2040-2031
1	Provide an environment that promotes a common understanding of data for communications and decision-making for data stakeholders.	METRICS			Reissue DO on EDG	100% Awareness of Enterprise Data Glossary	Publish DPWH Data Inventory		100% Awareness of DPWH Data Inventory	Reissue DO on EDG	100% Awareness of Data Inventory	Reissue DO on EDG **(2031 & 2040)**
			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)				Publish a Data Sharing Agreement (DSA) and Non-Disclosure Agreement Templates for all stakeholders	Publish the Data Governance Awareness Video	Develop a Data Governance Communication Plan (FAQs)			
			Conduct Workshop/Training on Sharing of Data to Business Data Stewards (As needed)									
			B	A	A	B	B	B	B	A	A	A
3	Promote a Data Architecture-driven application development responsive to changing business needs.	METRICS	Update Data and Process Models for Developed Performance Governance System (PGS) Apps									
									Develop API and Data Integration Guidelines			
			B	B	B	B	B	B	A	B	B	B
4	Reduce redundancy to minimize the cost of gathering, processing, maintaining, and accessing data.	METRICS						Establish a Platform for Accessing DPWH Data (Internal)				
								Conduct Data Redundancy Audits				
			Conduct Data Issue Resolution Meeting as needed									
			B	B	B	B	B	A	B	B	B	B
5	Establish authority, responsibility, confidentiality, and accountability for data management.	METRICS	Issue SO on Data Governance Program		Reissue the SO on the Assignments of Business Data Stewards	Publish Data Governance Guidebook Update the CRU Matrix	100% Awareness on Data Stewards Guidebook	Publish a Non-disclosure Agreement Template for Data Users Role-Based Access Control (RBAC) Prepare Publish the CRU Matrix		Publish Role-Based Access Control (RBAC) Policy		
			Reissue the SO on the Assignments of Business Data Stewards as needed									
			B	A	B	B	A	A	B	A	B	B
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		Awareness of DG Program							
			Conduct Data Integration Meetings/Workshops for Business Activities									
			B	A	A	B	B	B	B	B	B	B
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 Prepare Risk Assessment Report	Revisit DPWH Business Continuity and Disaster Recovery Plan	Revisit DPWH Business Continuity and Disaster Recovery Plan	Establish an Infrastructure & System Resilience (Cybersecurity Incident Response Plan and Uninterruptible Power Supply (UPS) & Disaster Recovery Sites) **(2031)**
						B	A	A	A	A	A	B

2 Data Governance Framework

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. According to the Data Governance Institute (DGI), the DGI Data Governance framework is a logical structure for classifying, organizing, and communicating complex activities involved in making decisions about and taking action on enterprise data.[4]

The Data Governance Institute recommends ten (10) universal components of data governance that organizations should include to build a successful data governance foundation. One way to organize these components is by looking at WHY the program exists, WHAT it is doing, WHO is involved in the efforts, and HOW to perform processes to provide value to the organization.[5]

Figure 2: The DGI Data Governance Framework



[4] The Data Governance Institute https://datagovernance.com/the-dgi-data-governance-framework/
[5] The Data Governance Institute https://datagovernance.com/the-dgi-data-governance-framework/dgi-data-governance-framework- components/

The DGI Data Governance Framework: 10 Universal Components

The DGI Data Governance Framework provides a structured approach to managing enterprise data by defining WHY a Data Governance program exists, WHAT it delivers, WHO participates, and HOW it operates.[6]

- WHY Data Governance Programs Exist? *(Program Value)*

    1. Mission and Value – Establishes the program's purpose to deliver measurable value through improved data management, risk reduction, and compliance.

- FOR WHOM Does the Program Provide Value? *(Beneficiaries)*

    2. Beneficiaries – Ensures data governance benefits the organization's products, services, processes, capabilities, and assets.

- WHAT the Program Delivers & HOW Outputs Are Delivered *(Governance Outputs, Processes, Work Program)*

    3. Data Products – Outputs include Data Catalogs, Glossaries, Metadata, and structured definitions to improve data accessibility and usability.

    4. Controls – Implement policies, checkpoints, and automated safeguards to mitigate risks and enforce governance policies.

    5. Accountabilities – Defines oversight models and metrics for data-related tasks to ensure clear roles and responsibilities.

    6. Decision Rights – Establishes governance over data-related decisions to ensure clear ownership and accountability.

    7. Policies and Rules – Provides guidance and guardrails to align business, legal, and technical standards.

    8. Processes, Tools, and Communication – Utilizes structured workflows, technology solutions, and clear communication strategies to operationalize governance initiatives.

    9. DG Work Program – Organizes governance activities into structured workstreams with defined focus, scope, goals, metrics, and funding. It ensures comprehensive Data Usage, incorporating strategy, data science, risk management, compliance, policy standards, and access control.

- WHO Participates? *(People and Organizational Bodies)*

    10. Participants – Governance is driven by decision-making bodies ("Big G"), the Data Governance Office (DGO), and data stewards & custodians ("Little G"), ensuring enterprise-wide collaboration.

This framework supports the Department in implementing data governance and identifying the best organizational models for managing its data resources effectively.

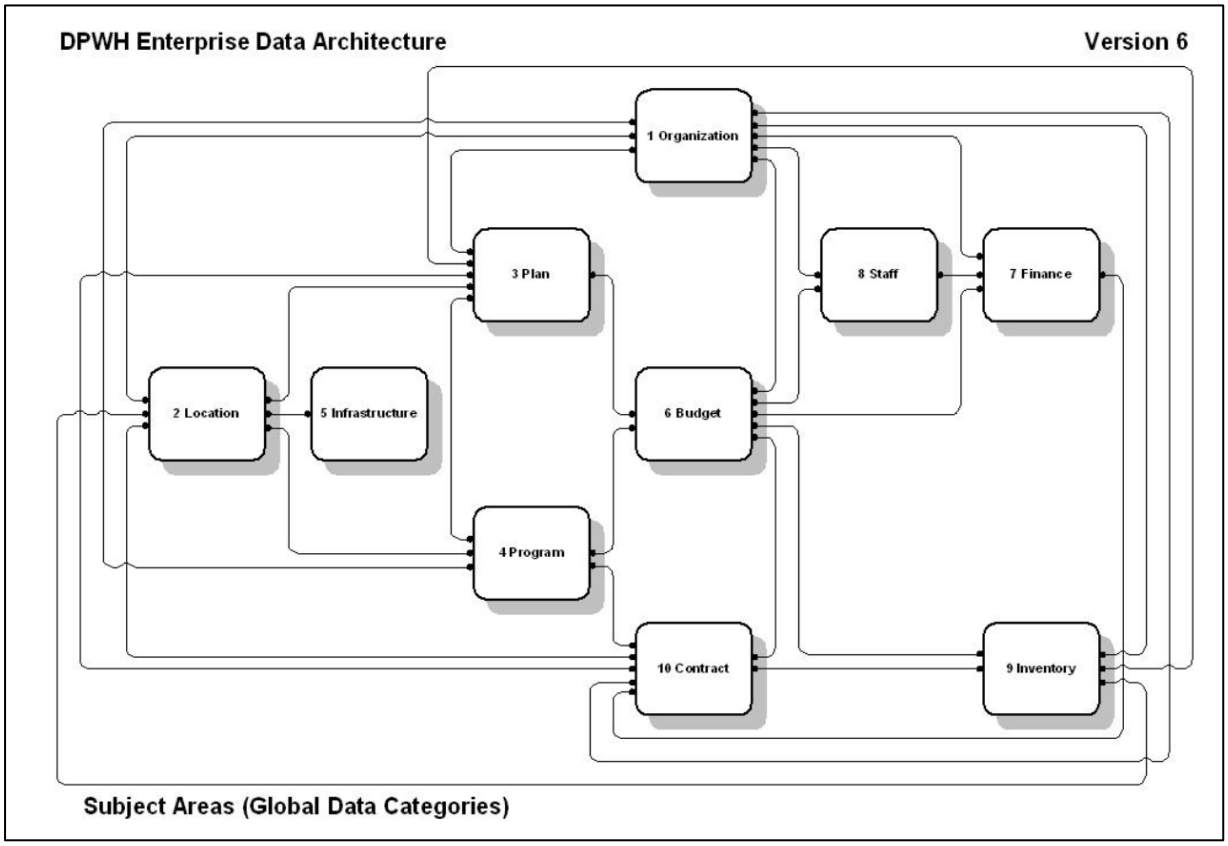
[6] The Data Governance Institute, "DGI Data Governance Framework."

3 Data Categories

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

The diagram on the next page presents the subject areas based on the DPWH Enterprise Data Architecture (EDA).

Figure 3: DPWH Enterprise Data Architecture - Global Data Categories



Below is a brief explanation of each data category:

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, the Department itself, and related participant entities, including a person.

3.2 Location

This contains a view of entities representing 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 the Plan and includes the subject entity, which is allocating and sequencing solutions and resources. It also includes related entities for assessment and feasibility to define 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 funds.

3.7 Finance

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

3.8 Staff

This represents the 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, an enforceable agreement between two or more participants, 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 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 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.

4.3 Data Validation

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

4.4 Data Sharing

For sharing within agencies, a Data Sharing Agreement shall be signed by both parties and adequately 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 on the *Issuance of Freedom of Information (FOI) People's Manual* and *Re-issuance of FOI Agency Manual*.[7]

4.5 Data Integration

For application development and enhancement, data shall be integrated to give application users with consistent access and delivery of data various subjects and structure types and 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.

[7] DPWH FOI Agency Manual

4.7 Data Privacy

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

4.8 Data Availability, Retention, and Disposal

Per the applicable Department Memorandum Circulars issued by the National Archives of the Philippines (NAP) on the "Records Disposition Schedule" and on "Guidelines on Records Recovery and Disposal Measures", 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 the 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 business continuity policy aims to organize what is required to keep the Department's ICT Infrastructure running on regular business days and during emergencies.

4.10 Data Integrity

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

4.11 Data Compliance

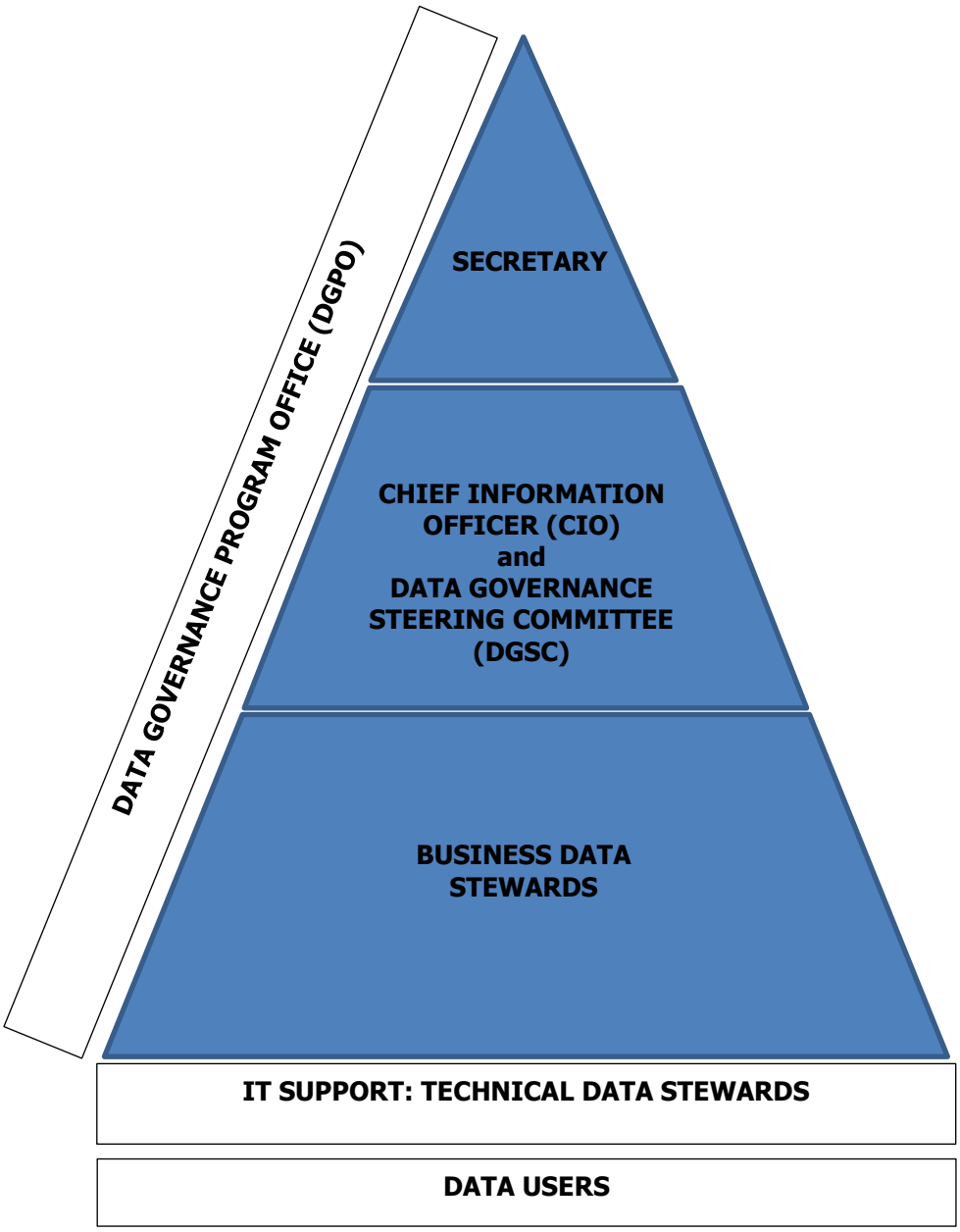
Data shall remain compliant with the Department's various obligations, including those specified within relevant legislation, Philippine government mandates, and the Department's policies and procedures, as well as other obligations such as contractual or Memorandum of Agreement requirements.

5 Data Governance Accountability

5.1 Data Governance Team (Organizational Chart)

The figure below shows the hierarchy of accountability for Data Governance.

Figure 4: DPWH Data Governance Organizational Chart



5.2 Data Governance Roles

Data Governance involves the processes associated with managing data as an asset. Data Governance ensures that data can be trusted and people can be accountable for any adverse event 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) Department Secretary

The Department Secretary shall have the ultimate authority and responsibility for the Data Governance Program, ensuring that data governance efforts address all relevant and mission-critical needs of the Department. He has the authority to change the Data Governance Organization.

Responsibilities of the Department Secretary:

- Drives organizational culture change.
- Supports the program enterprise-wide.
- Provides funding for the Data Governance Program.

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. [8]

Responsibilities of the DGSC:

- Articulate the mission and strategic goals of the data governance program.
- Secure the support, resources, and cooperation needed for the Data Governance program.
- Resolve problems and unresolved issues escalated from the Data Governance Program Office.
- Composed of high-ranking representatives of data-owning business functions who can make decisions about data for the organization.
- Assign members of Business Data Stewards.
- Approve decisions of Business Data Stewards.
- Approve data-related policies

c) Chief Information Officer

The Chief Information Officer (CIO) shall develop the Data Governance Program and ensure it is published and communicated to all employees and relevant external parties. The CIO is the Undersecretary for the Information Management Service and shall also serve on the Data Governance Steering Committee (DGSC).

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[8]Department Order on the 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

d) Data Governance Program Office (DGPO)

The IMS's Data Administration Section (DAS) shall be designated the Data Governance Program Office (DGPO) responsible for running the Data Governance Program, including documentation, communication, and enforcement. The Section Chief of the DAS shall serve as 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 Department's data governance program, including its mission, vision, goals, strategy, processes, and values.
- 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.
- 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 understanding of what the Department holds data, 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 business knowledge of data collection and storage needs.
- Define business rules to safeguard data quality and manage data access.
- Recommend data decisions and consult Subject Matter Experts.
- Establish a 'single point of truth' to enhance data understanding and reusability.
- Assist in the implementation of the Department's Data Governance Program.

Objectives of the Business Data Stewards:

- To improve accountability for data accuracy.
- To 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).
- To improve productivity by having a central and efficient electronic data reporting process.
- To improve reusability and understanding of data.
- To improve reporting capability and timeliness.
- To establish and implement data-related policies, procedures, and standards.

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 promptly to requests for assistance from the Data Governance Program Office shall be part of their regular duties. These people are the quality management team members: business analysts, data analysts, quality assurance analysts, systems analysts, and database analysts.

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 promptly to requests for assistance from the Data Governance Program Office as part of their regular duties.
- Secure and safeguard the Department's database structure and content.
- Able to assess optimal data formats for achieving the data requirements and objectives the Business Data Stewards put forward.
- Bring the IT perspective to data management.

Objectives of the Technical Data Stewards:

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

g) Data Users

The Data Users are all Department personnel 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 responsible for each enterprise data category.
- Provide a communication interface between data users and the Business Data Stewards.

5.3 Decision Rights

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

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 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, who 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 large scope of the overall project. No minimum or maximum number of members may fall into the consulted category; the 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 specific task ties into other tasks they might be responsible for concurrently or in the future as a next step.[9]

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

5.4 Competencies and Responsibilities of Business Data Stewards

A Business Data Steward formalizes the accountability for data ownership into the broader business and policy framework. These are the competencies a Business Data Steward should have:

- **Organizational Knowledge**
  Deep awareness of their business area, including knowledge of the processes, rules, requirements, and data standards. Expertise in the data flows, and sources will be crucial in addition to functional understanding.[10]

[9] "RACI Chart", Workfront, https://www.workfront.com/project-management/life-cycle/planning/raci-chart
[10] "Qualities of a Data Steward", Data Vault Alliance, https://www.data-vault.co.uk/qualities-data-steward/

- **Communication skills**
  The ability to interpret and communicate policy or business rules to end users. At the same time, working with the technology and policy owners to ensure ideas are fed back.

- **Collaboration skills**
  Working with other data stewards and stakeholders across the organization to ensure data flows smoothly.

Given the deep understanding of the functional area and data flows, Data Steward roles are generally assigned to someone who has been in the post for some time. It will be suited to someone with enthusiasm for improving the business and commands the respect of users. Data Stewards should be familiar with which data types are in each of the Data Categories identified in Section 3.

Based on the ten (10) Data Domains/Categories, the following Business Data Stewards are hereby appointed accordingly in their respective offices/areas and/or as Application User Coordinators (AUC) for related computerized applications:

Table 1: Primary and Secondary Data Stewards

1. ORGANIZATION	
Primary Data Steward	• Office of the Secretary (OSEC) • Planning Service (PS) – Statistic Division
Secondary Data Stewards	• Human Resource and Administrative Service (HRAS) – Human Resource Management Division
2. LOCATION	
Primary Data Steward	• Planning Service (PS) – Statistics Division • Planning Service (PS) – Development Planning Division • Bureau of Maintenance (BOM) – Safety and Disaster Management Coordination Division
Secondary Data Stewards	• Bureau of Maintenance (BOM) – Road Condition Monitoring and Evaluation Division • Unified Project Management Office (UPMO) - Flood Control Management Cluster
3. PLAN	
○ **Plan and Program (Multi-Year) Data:**	
Primary Data Steward	• Planning Service (PS) – Development Planning Division
Secondary Data Stewards	• Bureau of Construction (BOC) – Project Monitoring Division • Bureau of Maintenance (BOM) – National Building Services Division • Planning Service (PS) – Development Planning Division

	• Planning Service – Project Preparation Division • Unified Project Monitoring Office (UPMO) – Flood Control Management Cluster • Bureau of Design – Bridges Division • Bureau of Construction – Pre-Construction Division • Unified Project Monitoring Office (UPMO) – Roads Management Cluster 1 Bilateral
○ **Socio-Economic Data:**	
Primary Data Steward	• Planning Service (PS) – Statistics Division
Secondary Data Stewards	• Planning Service (PS) – Project Preparation Division
○ **Environment and Social:**	
Primary Data Steward	• Planning Service (PS) – Environmental and Social Safeguards Division
Secondary Data Stewards	• Planning Service (PS) – Environmental and Social Safeguards Division
○ **Traffic Data:**	
Primary Data Steward	• Bureau of Quality and Safety (BQS) – Traffic Engineering Division
Secondary Data Stewards	• Planning Service (PS) – Project Preparation Division • Bureau of Quality and Safety (BQS) – Traffic Engineering Division
○ **Road Crash Data:**	
Primary Data Steward	• Bureau of Quality and Safety (BQS) – Road and Safety Program Division
4. PROGRAM	
Primary Data Steward	• Planning Service (PS) – Development Planning Division • Planning Service (PS) – Programming Division • Planning Service (PS) – Project Preparation Division
Secondary Data Stewards	• Planning Service (PS) – Project Preparation Division • Bureau of Construction (BOC) – Project Monitoring Division • Bureau of Maintenance (BOM) – Road Condition Monitoring and Evaluation Division • Planning Service (PS) – Development Planning Division • Planning Service – Programming Division • Unified Project Management Office (UPMO) - Flood Control Management Cluster

5. INFRASTRACTURE	
Primary Data Steward	• Planning Service (PS) – Statistics Division • Planning Service (PS) – Development Planning Division • Bureau of Maintenance (BOM) – Safety and Disaster Management Coordination Division
Secondary Data Stewards	• Finance Service (FS) – Accounting Division • Bureau of Maintenance (BOM) – Road Condition Monitoring and Evaluation Division • Bureau of Maintenance (BOM) – National Building Services Division • Unified Project Management Office (UPMO) - Flood Control Management Cluster • Bureau of Quality and Safety (BQS) – Road Safety Program Division
6. BUDGET	
Primary Data Steward	• Finance Service (FS) – Budget Division
Secondary Data Stewards	• Planning Service (PS) – Programming Division • Bureau of Maintenance (BOM) – Policy and Standards Division • Bureau of Maintenance (BOM) – Safety and Disaster Management Coordination Division • Finance Service (FS) – Budget Division
7. FINANCE	
Primary Data Steward	• Finance Service (FS) – Accounting Division
Secondary Data Stewards	• Planning Service (PS) – Development Planning Division • Finance Service (FS) – Accounting Division
8. STAFF	
Primary Data Steward	• Human Resource and Administrative Service (HRAS) – Human Resource Management Division
Secondary Data Stewards	• Bureau of Quality and Safety (BQS) – Quality System Analysis Division • Bureau of Research and Standards (BRS) – Office of the Director • Planning Service (PS) – Development Planning Division

9. INVENTORY	
Primary Data Steward	• Bureau of Equipment (BOE) – Equipment Planning Division
Secondary Data Stewards	• Human Resource and Administrative Service (HRAS) – Supply and Property Management Division • Information Management Service (IMS) – User Support Division • Human Resource and Administrative Service (HRAS) – Facilities Maintenance Division • Bureau of Maintenance (BOM) – National Buildings Services Division • Finance Service (FS) – Accounting Division
10. CONTRACT	
Primary Data Steward	• Bureau of Construction (BOC) – Project Monitoring Division • Procurement Service (PrS) – Civil Works Division
Secondary Data Stewards	• Procurement Service (PrS) – Goods and Services Division • Procurement Service (PrS) – Consultancy Services Division • Bureau of Construction (BOC) –Claims Review Division • Legal Service (LS) – Contract Letting and Litigation Division

5.5 Primary and Secondary Data Stewards

5.5.1 Responsibilities of Primary Data Stewards

The accountability of the Primary Data Steward for each data category is given in **Table 1**. The Data Governance Program Office (DGPO) should assist the data stewards in contacting them when needed. Wherever a Secondary Data Steward has been appointed for the same category of data, the Primary Data Steward must consult the Secondary Data Steward on all matters and attempt to reach a consensus on a decision.

Wherever difficulties are encountered in reaching decisions on any of the tasks of the Primary Data Steward, the DGPO should refer the matter to the Data Governance Steering Committee (DGSC).

1. Keeping data users informed about Data Governance Issues:

    - Maintain a record of inquiries forwarded to the Data Governance Program Office (DGPO). These records should be reviewed regularly to ensure all inquiries are answered.
    - The Business Data Stewards will receive occasional updates from the DGPO, including information that needs to be conveyed to all data users who need the answers/information.
    - The Business Data Steward may need to display posters, distribute leaflets, and hold meetings as directed in such communications.

2. Answering inquiries about what data is available

    Data users may inquire about the following:
    - Where can certain data be found/obtained?

- When will new data become available?
- Who is the Data Owner of a particular data?

3. Answering inquiries about who can access what data.

   Standard access privileges to most data will already be defined.

   Where there is a request for additional Staff to access specific data, this request must be forwarded to the appropriate Primary Data Steward for consideration and coordination with DGPO.

4. Investigating possible changes in data to be considered as "enterprise data." In such cases, the Data users should forward details to the appropriate Primary Data Steward for consideration.

5. Ensuring data quality, data definition, and privacy standards are met.

6. Attending data gatherings related to application development/enhancement to ensure that applicable business rules are defined.

7. Assist in the implementation of the Data Governance Program. Participate in the Data Governance Framework to provide feedback on existing practices and recommend improvements.

5.5.2 Responsibilities of Secondary Data Stewards

The Secondary Data Steward will work with the Primary Data Steward in each activity as appropriate but representing the viewpoint of a different group of users of the same Data Category.

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 software applications users make use of which data.

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

The Enterprise Glossary is the part of the Information Repository most directly relevant to the Data Stewards. This glossary summarizes standard business terms used throughout the Department, presented in terminology understandable by business data users rather than computer specialists.

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

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

The data stewards must be familiar with the types of data 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 dataset list with metadata describing their contents, source, licensing, and other useful information.

A data inventory can help to:

- *Improve data discovery* – to understand the extent of the data the Department manages, uses or publishes. Publishing a data inventory under an open license can help others 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 useful datasets to tackle a particular problem or challenge.

- *Improve data governance* – compiling and managing a data inventory can help the user 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 identify duplicates, improve best practices, and ensure clear roles and responsibilities are 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 prioritize resources, e.g., to improve data quality, rationalize technical platforms used to manage and publish data, or avoid duplication in collecting or purchasing already available data.

- *Create a legal record* – an inventory can provide a legal record of the Department's data. 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.[11]

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.

Figure 5: 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]

[11] Tim Beale et al., How to Create a Data Inventory, ResearchGate, https://www.researchgate.net/publication/327631764_How_to_create_a_data_inventory#pf3

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 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. The data model is tested in terms of database operations and integrity controls. The data dictionary is a design aid and map for 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 to 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.[12]

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 the Department uses.

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

Table 2: 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

[12] RIMSS, Data Administration Plan and Implementation Arrangements

Figure 6: Sample Feature Class Definition

LRS (Locational Referencing System)

LRS (Locational Referencing System)	
Feature Class Description	A layer representing the road centerline of the national roads nationwide; also known as the National Road Network.
Feature Class Name	LRS
Feature Class Type	Line
Dataset	Road_Network
Projection	WGS 1984 UTM Zone 51N
Source of Data	Road & Bridge Information Application (RBIA), Statistics Division (SD), Planning Service (PS)
Credits	Statistics Division, Planning Service
Frequency of Update	Monthly
Maintenance Responsibility	Statistics Division, Planning Service

6.7 DPWH Enterprise Data Architecture

The Data Administration Section shall promote the use of the Enterprise Data Architecture to assist in integrating new business applications and legacy systems.

The data architecture is the conceptual description of the data needed to support the Department's business process. It is a forward-looking model that emphasizes the data needed, not the existing data. 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.

One day of 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 goes 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 with knowledge of what data needs to be collected and stored and who should have access to which data.

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

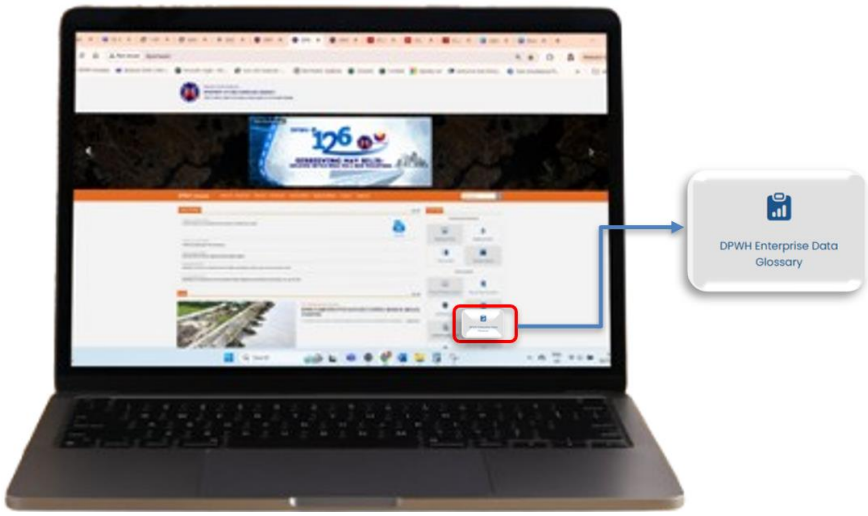
7.1 Definition of Terms in the Enterprise Data Glossary

All Offices and personnel are instructed through the Department Order on the *DPWH Enterprise Data Glossary*, to refer to 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 the applicable Special Order on the *Assignment of Business Data Stewards for Data Governance*. 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 7: Intranet's Enterprise Data Glossary



7.2 Data Assets Renaming in Primary Application Systems

The 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 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 from data users through their Business Data Steward or developers and implementers setting up new business applications.

7.3 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.

7.4 Data Integration and Validation Policy

The most crucial role of data governance is to increase data quality. Having a systematic approach to data integration and validation and involving end users of the data in the process can significantly boost confidence and promote data-driven decision-making.

7.4.1 Data Validation

Data systems and/or processes involved in creating organization reports should incorporate data integrity and validation rules to achieve the highest levels of data integrity.

Validation rules within data systems should include reconciliation routines (checksums, hash totals, record counts) to ensure that software performance meets expected outcomes. Data verification programs such as consistency and reasonableness checks shall be implemented to identify data tampering, errors, and omissions.

The Business Data Stewards and Technical Data Stewards shall ensure that the data they use and share has been validated and is accurate. The exact procedure for validating data will vary depending on the data type.

7.4.2 Data Integration

Data Integration refers to the ability of data to be assimilated across information systems. It is contingent upon the integrity of the data and the development of a data model, corresponding data structures, and domains. System-to-system interfaces are a standard practice to move data from one system to another to streamline processes that extend across systems and contribute to using data efficiently and effectively.

Operational processes often require systems to exchange information. System interfaces are usually developed between systems to facilitate the exchange of such information. The systems that exchange information fall into two broad categories:

Internal:
Systems that are implemented within the organization's computer systems network. They can either be procured, procured but modified or custom-developed products.

External:
Systems that do not reside on the organization's computer network. These systems are hosted by vendors and/or through sub-contracts managed by vendors.

Downloading of individually identifiable data from central systems to electronic files to upload or connect the data to non-central systems (e.g., shadow systems, external vendors). Without the knowledge of the Data Steward should not be allowed as it introduces risks associated with IT systems' data integrity, security, and long-term sustainability.[13]

Documented agreements regarding data use, retention, and responsibility should exist with the Data Stewards (and vendors regarding data integration with external entities) of the systems providing and utilizing data. Data extraction practices already in use should be registered, and a documented agreement should be developed with the appropriate data steward member.

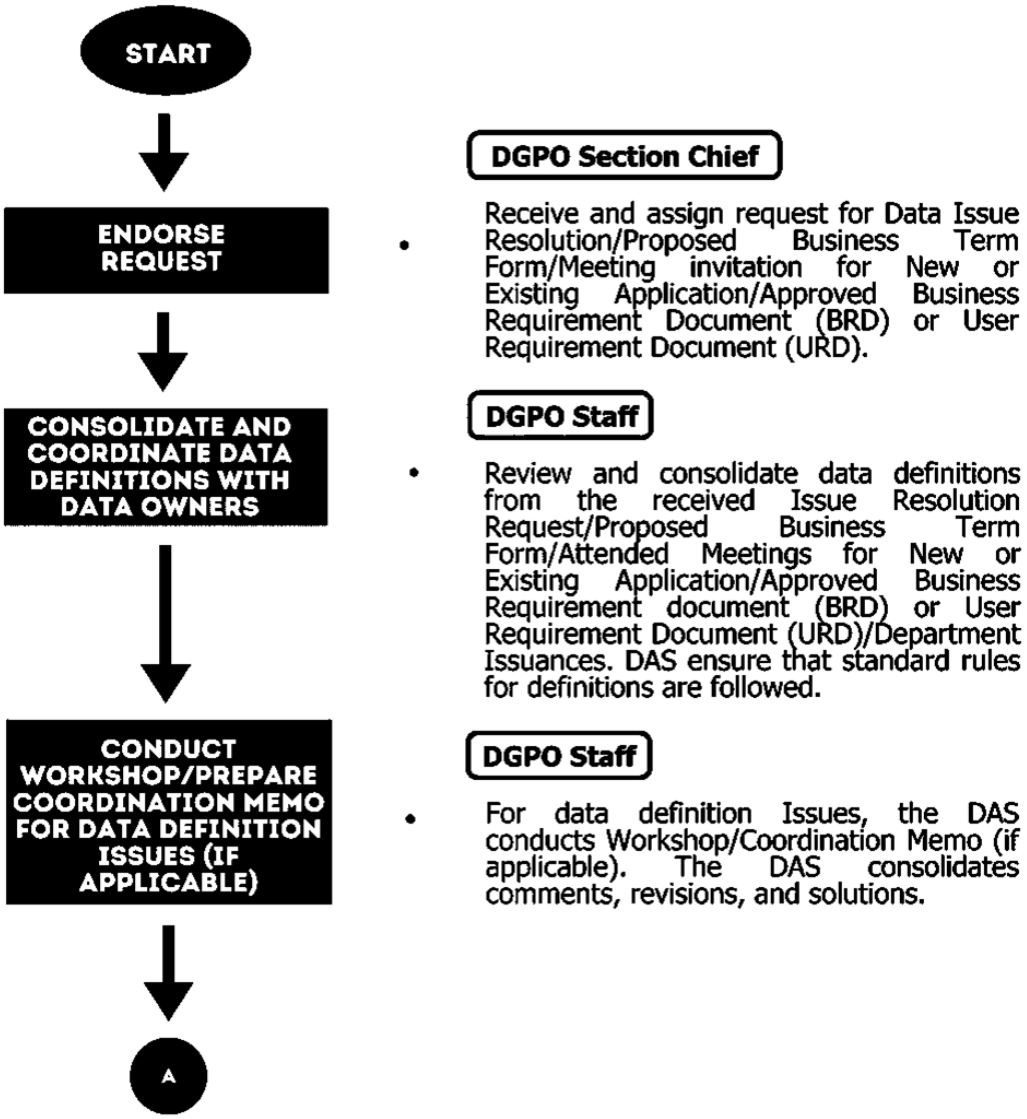
[13] Adapted from Center for Care Innovations, Data Governance Handbook

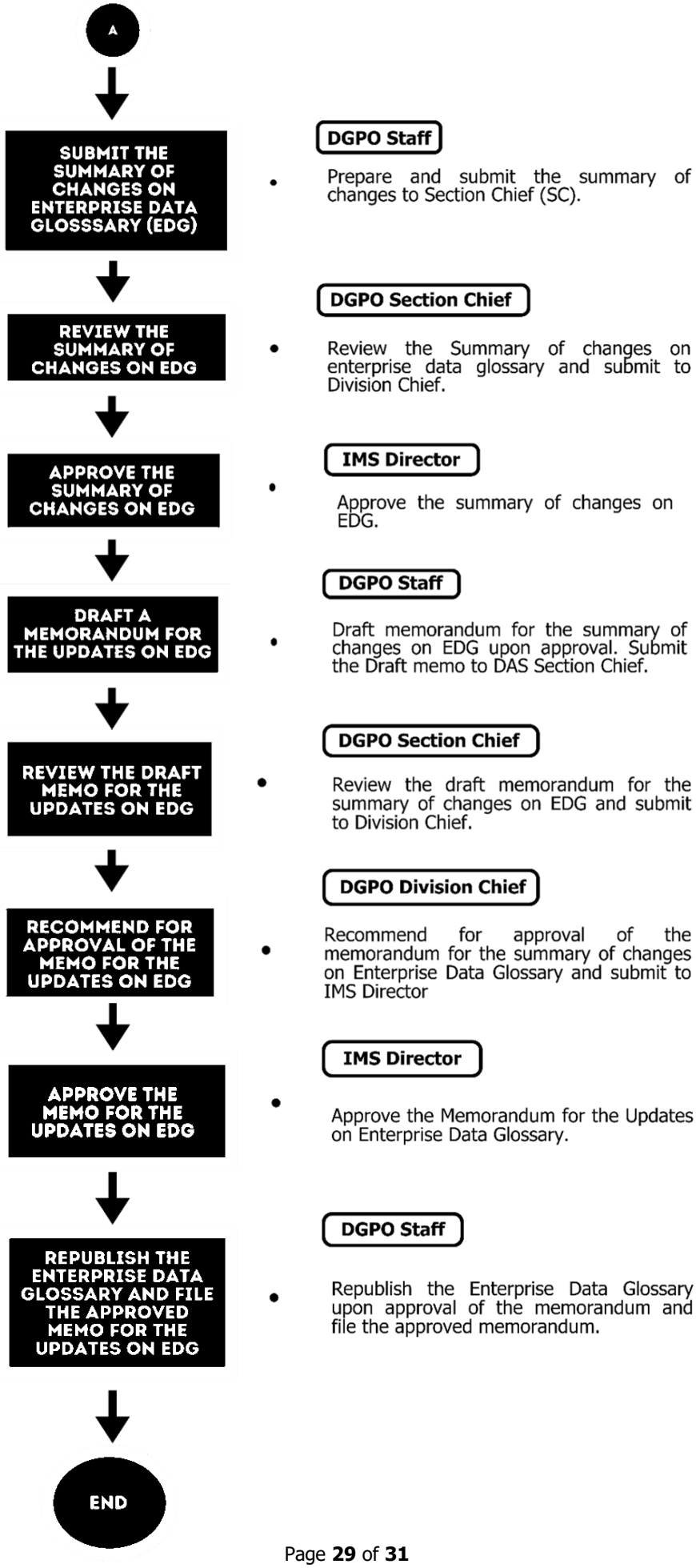
7.5 Data Issue Resolution

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

- To resolve various 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 8: Data Issue Resolution Process Flow




A
SUBMIT THE SUMMARY OF CHANGES ON ENTERPRISE DATA GLOSSSARY (EDG)
DGPO Staff
Prepare and submit the summary of changes to Section Chief (SC).
REVIEW THE SUMMARY OF CHANGES ON EDG
DGPO Section Chief
Review the Summary of changes on enterprise data glossary and submit to Division Chief.
APPROVE THE SUMMARY OF CHANGES ON EDG
IMS Director
Approve the summary of changes on EDG.
DRAFT A MEMORANDUM FOR THE UPDATES ON EDG
DGPO Staff
Draft memorandum for the summary of changes on EDG upon approval. Submit the Draft memo to DAS Section Chief.
REVIEW THE DRAFT MEMO FOR THE UPDATES ON EDG
DGPO Section Chief
Review the draft memorandum for the summary of changes on EDG and submit to Division Chief.
RECOMMEND FOR APPROVAL OF THE MEMO FOR THE UPDATES ON EDG
DGPO Division Chief
Recommend for approval of the memorandum for the summary of changes on Enterprise Data Glossary and submit to IMS Director
APPROVE THE MEMO FOR THE UPDATES ON EDG
IMS Director
Approve the Memorandum for the Updates on Enterprise Data Glossary.
REPUBLISH THE ENTERPRISE DATA GLOSSARY AND FILE THE APPROVED MEMO FOR THE UPDATES ON EDG
DGPO Staff
Republish the Enterprise Data Glossary upon approval of the memorandum and file the approved memorandum.
END

8 References

Department Order on the Implementation of a Data Governance Program

Special Order on the Assignment of Business Stewards for Data Governance

Department Order on the 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 on the DPWH Enterprise Data Glossary

Department Order on the Issuance of Freedom of Information (FOI) People's Manual and Re-issuance of FOI Agency Manual

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

Department Memorandum Circular - National Archives of the Philippines (NAP) letter dated October 9, 2012, "Approved Copy of DPWH Records Disposition Schedule".

9 Appendices

9.1. Figures

9.2. Tables

Department of Public Works and Highways

DATA GOVERNANCE GUIDEBOOK

DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

DATA GOVERNANCE GUIDEBOOK

2025

Contents

1. Importance of Data Governance

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 that describe who can take what actions with what information and when, under what circumstances, and 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 vital 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 judge the Department's performance and governance.

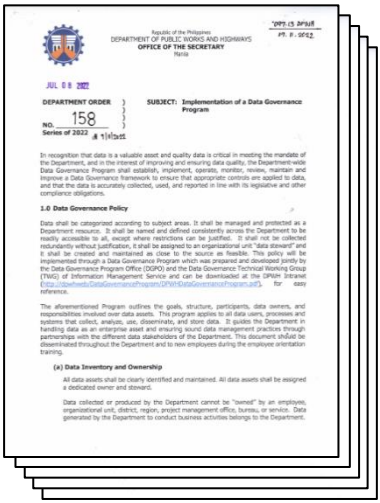
[1] The DAMA Guide to Data Management Body of Knowledge, 1st Edition, 2010
[2] Data Stewardship: An Actionable Guide to Effective Data Management and Data Governance, 2014

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 extracting, transforming, and loading data. While each of these is affected by or related to the data governance program, data governance addresses more than these disciplines. Each area has facets beyond data governance, such as technological and architectural solutions.[3]

1.2 Department Order



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

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 shall 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.

In accordance with Department Order on the *"Implementation of a Data Governance Program",* the Data Governance Program Technical Working Group and the Data Governance Program Office (DGPO) developed the Data Governance Guidebook. This guidebook applies to all data users, processes, and systems that collect, analyze, use, disseminate, and store data. It guides the Department's data stewards in handling data as an enterprise asset and ensuring sound data management.

[3] Adapted from Office of Management and Enterprise Services (OMES), Data Governance Program Office, June 30, 2016

2. Establishing the Components

2.1 Mission, Vision, and Goals

2.1.1 Mission

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

2.1.2 Vision

- By 2040, Department data is consistent, secured, accurate, and readily available across the Department.

2.1.3 Goals

- Provide an environment that promotes a common understanding of data for communications and decision-making for data.
- Promote responsible sharing of data across organizational boundaries.
- Promote data architecture-driven application development that is responsive to changing business needs.
- Reduce redundancy to minimize the cost of gathering, processing, maintaining, and accessing data.
- Establish authority, responsibility, confidentiality, and accountability for data management.
- Ensure data integration with business activities to guarantee the authenticity and accuracy of information.
- Establish business continuity measures to ensure the availability of data at all times.

2.2 Data Governance Framework

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. According to the Data Governance Institute (DGI), the DGI Data Governance framework is a logical structure for classifying, organizing, and communicating complex activities involved in making decisions about and taking action on enterprise data.

The Data Governance Institute recommends ten (10) universal components of data governance that organizations should include to build a successful data governance foundation. One way to organize these components is by looking at WHY the program exists, WHAT it is doing, WHO is involved in the efforts, and HOW to perform processes to provide value to the organization.[4]

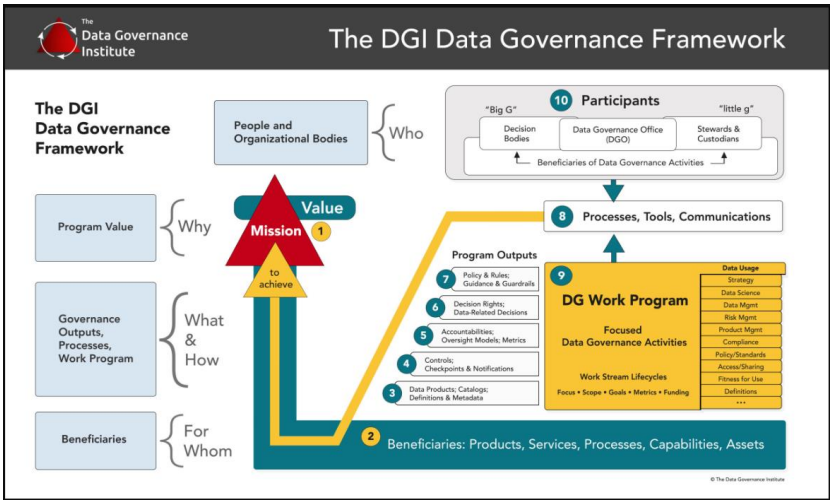


Figure 1: DGI Data Governance Framework

[4] The Data Governance Institute https://datagovernance.com/the-dgi-data-governance-framework/dgi-data-governance-framework- components/

The DGI Data Governance Framework: 10 Universal Components

The DGI Data Governance Framework provides a structured approach to managing enterprise data by defining WHY a Data Governance program exists, WHAT it delivers, WHO participates, and HOW it operates.[5]

- WHY Data Governance Programs Exist? (Program Value)

1. Mission and Value – Establishes the program's purpose to deliver measurable value through improved data management, risk reduction, and compliance.

- FOR WHOM Does the Program Provide Value? (Beneficiaries)

2. Beneficiaries – Ensures data governance benefits the organization's products, services, processes, capabilities, and assets.

- WHAT the Program Delivers & HOW Outputs Are Delivered (Governance Outputs, Processes, Work Program)

3. Data Products – Outputs include Data Catalogs, Glossaries, Metadata, and structured definitions to improve data accessibility and usability.
4. Controls – Implement policies, checkpoints, and automated safeguards to mitigate risks and enforce governance policies.
5. Accountabilities – Defines oversight models and metrics for data-related tasks, to ensure clear roles and responsibilities.
6. Decision Rights – Establishes governance over data-related decisions to ensure clear ownership and accountability.
7. Policies and Rules – Provides guidance and guardrails to align business, legal, and technical standards.

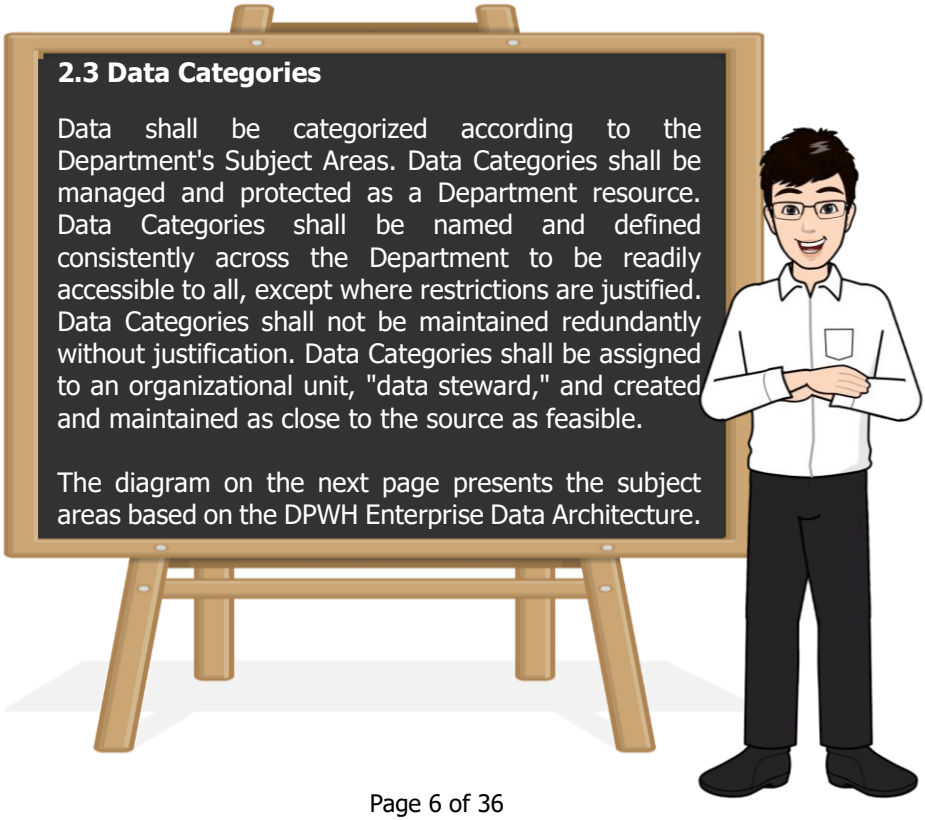
[5] Data Governance Institute https://datagovernance.com/wp content/uploads/2020/07/dgi_data_governance_framework.pdf

8. Processes, Tools, and Communication – Utilizes structured workflows, technology solutions, and clear communication strategies to operationalize governance initiatives.
9. DG Work Program – Organizes governance activities into structured workstreams with defined focus, scope, goals, metrics, and funding. It ensures comprehensive Data Usage, incorporating strategy, data science, risk management, compliance, policy standards, and access control.

- WHO Participates? (People and Organizational Bodies)

10. Participants – Governance is driven by decision-making bodies ("Big G"), the Data Governance Office (DGO), and data stewards & custodians ("Little G"), ensuring enterprise-wide collaboration.

This framework supports the Department in implementing data governance and identifying the best organizational models for managing its data resources effectively.



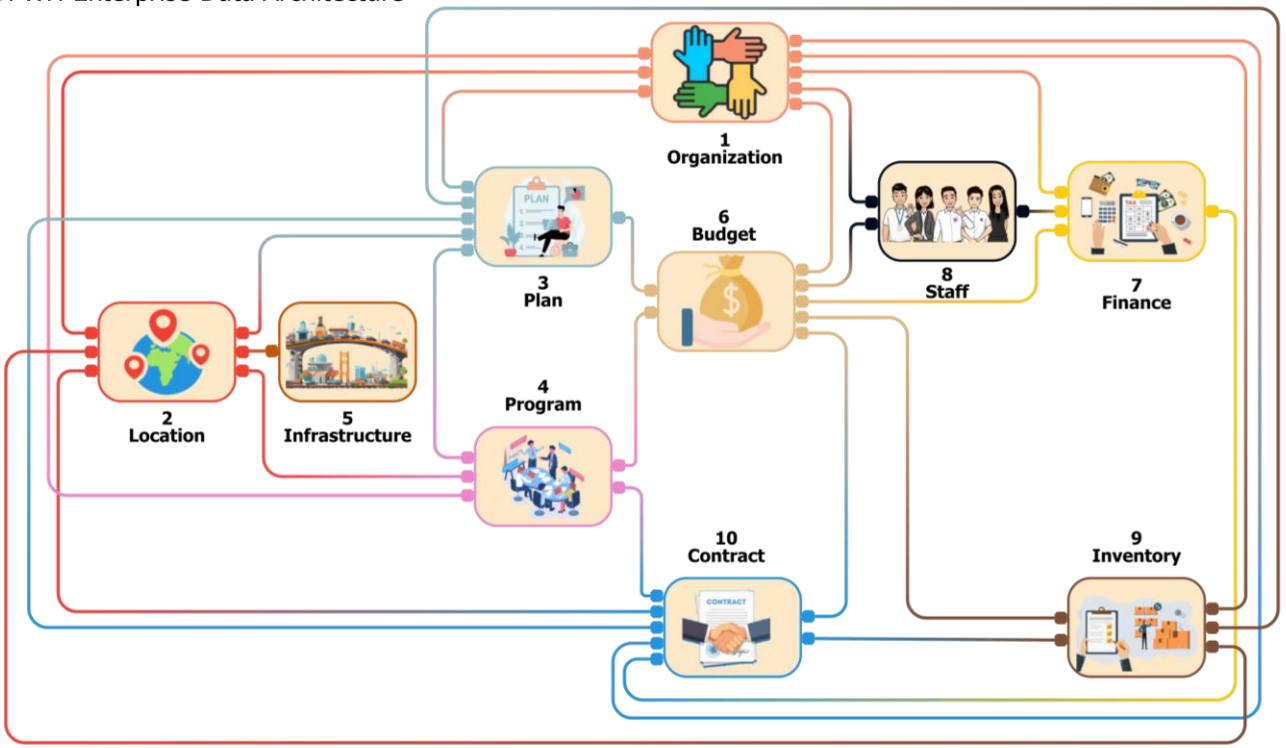


Figure 2: DPWH Enterprise Data Architecture-Global Data Categories

Below is a brief explanation of each data category:

2.3.1 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, the Department itself, and related participant entities, including a person.

2.3.2 Location

This contains a view of entities representing 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).

2.3.3 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.

2.3.4 Program

This category is closely related to the Plan and includes the subject entity, which is allocating and sequencing solutions and resources. It also includes related entities for assessment and feasibility to define programs and projects.

2.3.5 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.

2.3.6 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 funds.

2.3.7 Finance

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

2.3.8 Staff

This represents the 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.

2.3.9 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.

2.3.10 Contract

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

2.4 Data Governance Guidelines

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

2.4.1 Data Inventory and Ownership

All data assets shall be 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.

2.4.2 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 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.

2.4.3 Data Validation

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

2.4.4 Data Sharing

For sharing within agencies, a Data Sharing Agreement shall be signed by both parties and adequately 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 on the *Issuance of Freedom of Information (FOI) People's Manual and Re-issuance of FOI Agency Manual*.[6]

2.4.5 Data Integration

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

2.4.6 Data Security

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

2.4.7 Data Privacy

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

[6] DPWH FOI Agency Manual

2.4.8 Data Availability, Retention, and Disposal

Per the applicable Department Memorandum Circulars (DMC) issued by the National Archives of the Philippines (NAP) on the "Records Disposition Schedule" and on "Guidelines on Records Recovery and Disposal Measures", 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 per applicable laws, rules and regulations, and Department's policies.

2.4.9 Business Continuity and Disaster Recovery

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

2.4.10 Data Integrity

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

2.4.11 Data Compliance

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

3. Team Composition and Requirements

3.1 Data Governance Team (Organizational Chart)

The figure below shows the hierarchy of accountability for Data Governance.

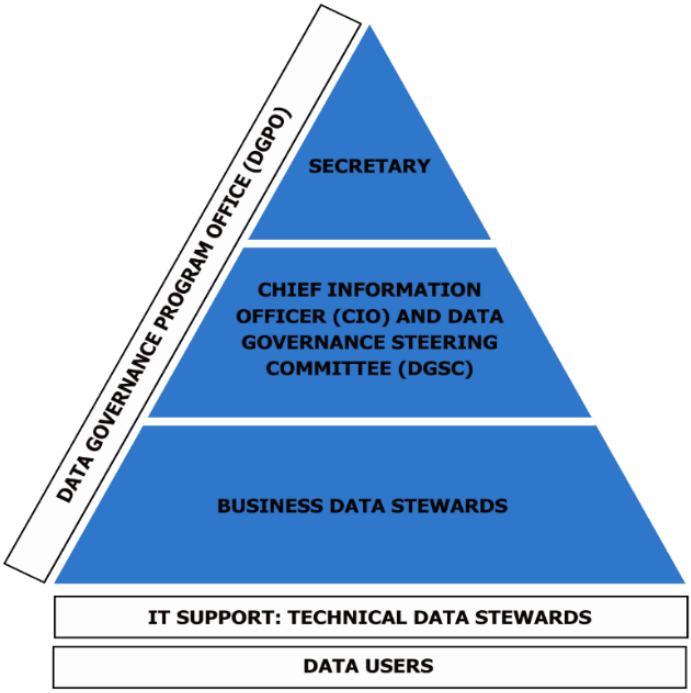


Figure 3: DPWH Data Governance Organizational Chart

3.2 Their Roles and Accountability

Data Governance involves the processes associated with managing data as an asset. Data Governance ensures that data can be trusted and people can be accountable for any adverse event 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) Department Secretary

The Department Secretary shall have the ultimate authority and responsibility for the Data Governance Program, ensuring that data governance efforts address all relevant and mission-critical needs of the Department. He has the authority to change the Data Governance Organization.

Responsibilities of the Department Secretary:

- Drives organizational culture change.
- Supports the program enterprise-wide.
- Provides funding for the Data Governance Program.

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. [7]

Responsibilities of the DGSC:

- Articulate the mission and strategic goals of the Data Governance Program.
- Secure the support, resources, and cooperation needed for the Data Governance Program.
- Resolve problems and unresolved issues escalated from the Data Governance Program Office.

[7] Department Order on the 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

- Composed of high-ranking representatives of data-owning business functions who can make decisions about data for the organization.
- Assign members of Business Data Stewards.
- Approve decisions of Business Data Stewards.
- Approve data-related policies.

c) Chief Information Officer

The Chief Information Officer (CIO) shall develop the Data Governance Program and ensure it is published and communicated to all employees and relevant external parties. The CIO is the Undersecretary for the Information Management Service and shall also serve on the Data Governance Steering Committee (DGSC).

d) Data Governance Program Office (DGPO)

The IMS's Data Administration Section (DAS) shall be designated the Data Governance Program Office (DGPO) responsible for running the Data Governance Program, including documentation, communication, and enforcement. The Section Chief of the DAS shall serve as 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 Department's data governance program, including its mission, vision, goals, strategy, processes, and values.
- 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 when necessary. This would include data analysis on compliance with business rules and quality standards.
- Documents 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 understanding of what the Department holds data, 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.

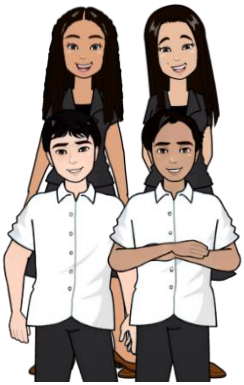
Responsibilities of Business Data Stewards:

- Provide business knowledge of data collection and storage needs.
- Define business rules to safeguard data quality and manage data access.
- Recommend data decisions and consult Subject Matter Experts.
- Establish a 'single point of truth' to enhance data understanding and reusability.
- Assist in the implementation of the Department's Data Governance Program.

Objectives of the Business Data Stewards:

- To improve accountability for data accuracy.
- To 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).
- To improve productivity by having a central and efficient electronic data reporting process.
- To improve reusability and understanding of data.
- To improve reporting capability and timeliness.
- To establish and implement data-related policies, procedures, and standards.

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 promptly to requests for assistance from the Data Governance Program Office shall be part of their regular duties. These people are the quality management team members, which consists of business analysts, data analysts, quality assurance analysts, systems analysts, and database analysts.

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 promptly to requests for assistance from the Data Governance Program Office as part of their regular duties.
- Secure and safeguard the Department's database structure and content.
- Able to assess optimal data formats for achieving the data requirements and objectives the Business Data Stewards put forward.
- Bring the IT perspective to data management.

Objectives of the Technical Data Stewards:

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

g) Data Users

The Data Users are all Department personnel 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 responsible for each enterprise data category.
- Provide a communication interface between data users and the Business Data Stewards

3.3 Decision Rights

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

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 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, who 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 large scope of the overall project. No minimum or maximum number of members may fall into the consulted category; the 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 specific task ties into other tasks they might be responsible for concurrently or into the future as a next step.[8]

Roles Communication Item	Secretary	Data Governance Steering Committee	Chief Information Officer	Data Governance Program Office	Business Data Stewards	Technical Data Stewards	Data Users
Sponsorship and Charter	A	R	R	C	C	C	I
Data Ownership	A	C	R	R	A	A	I
Policies and Standard	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

Figure 4: Roles and Responsibilities Matrix

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

3.4 Competencies and Responsibilities of Business Data Stewards

A Business Data Steward formalizes the accountability for data ownership into the broader business and policy framework. These are the competencies a Business Data Steward should have:

Organizational Knowledge
Deep awareness of their business area, including knowledge of the processes, rules, requirements, and data standards. Expertise in the data flows and sources will be crucial in addition to functional understanding.[9]

Communication skills
The ability to interpret and communicate policy or business rules to end users. At the same time, working with the technology and policy owners to ensure ideas are fed back.

Collaboration skills
Working with other data stewards and stakeholders across the organization to ensure data flows smoothly.

Given the deep understanding of the functional area and data flows, Data Steward roles are generally assigned to someone who has been in the post for some time. It will be suited to someone with enthusiasm for improving the business and commands the respect of users.

Data Stewards should be familiar with which data types are in each of the Data Categories identified in 2.3 Data Categories.

[9] https://www.data-vault.co.uk/qualities-data-steward/

Based on the ten (10) Data Domains/Categories, the following Business Data Stewards are hereby appointed accordingly in their respective offices/areas and/or as Application User Coordinators (AUC) for related computerized applications:

Table 1: Primary and Secondary Data Stewards

1. ORGANIZATION	
Primary Data Steward	• Office of the Secretary (OSEC) • Planning Service (PS) – Statistic Division
Secondary Data Stewards	• Human Resource and Administrative Service (HRAS) – Human Resource Management Division
2. LOCATION	
Primary Data Steward	• Planning Service (PS) – Statistics Division • Planning Service (PS) – Development Planning Division • Bureau of Maintenance (BOM) – Safety and Disaster Management Coordination Division
Secondary Data Stewards	• Bureau of Maintenance (BOM) – Road Condition Monitoring and Evaluation Division • Unified Project Management Office (UPMO) - Flood Control Management Cluster
3. PLAN	
○ **Plan and Program (Multi-Year) Data:**	
Primary Data Steward	• Planning Service (PS) – Development Planning Division
Secondary Data Stewards	• Bureau of Construction (BOC) – Project Monitoring Division • Bureau of Maintenance (BOM) – National Building Services Division • Planning Service (PS) – Development Planning Division

	• Planning Service – Project Preparation Division • Unified Project Monitoring Office (UPMO) – Flood Control Management Cluster • Bureau of Design – Bridges Division • Bureau of Construction – Pre-Construction Division • Unified Project Monitoring Office (UPMO) – Roads Management Cluster 1 Bilateral
○ **Socio-Economic Data:**	
Primary Data Steward	• Planning Service (PS) – Statistics Division
Secondary Data Stewards	• Planning Service (PS) – Project Preparation Division
○ **Environment and Social:**	
Primary Data Steward	• Planning Service (PS) – Environmental and Social Safeguards Division
Secondary Data Stewards	• Planning Service (PS) – Environmental and Social Safeguards Division
○ **Traffic Data:**	
Primary Data Steward	• Bureau of Quality and Safety (BQS) – Traffic Engineering Division
Secondary Data Stewards	• Planning Service (PS) – Project Preparation Division • Bureau of Quality and Safety (BQS) – Traffic Engineering Division
○ **Road Crash Data:**	
Primary Data Steward	• Bureau of Quality and Safety (BQS) – Road and Safety Program Division

4. PROGRAM	
	• Planning Service (PS) – Development Planning Division • Planning Service (PS) – Programming Division • Planning Service (PS) – Project Preparation Division
Secondary Data Stewards	• Planning Service (PS) – Project Preparation Division • Bureau of Construction (BOC) – Project Monitoring Division • Bureau of Maintenance (BOM) – Road Condition Monitoring and Evaluation Division • Planning Service (PS) – Development Planning Division • Planning Service – Programming Division • Unified Project Management Office (UPMO) - Flood Control Management Cluster
5. INFRASTRACTURE	
Primary Data Steward	• Planning Service (PS) – Statistics Division • Planning Service (PS) – Development Planning Division • Bureau of Maintenance (BOM) – Safety and Disaster Management Coordination Division
Secondary Data Stewards	• Finance Service (FS) – Accounting Division • Bureau of Maintenance (BOM) – Road Condition Monitoring and Evaluation Division • Bureau of Maintenance (BOM) – National Building Services Division • Unified Project Management Office (UPMO) - Flood Control Management Cluster • Bureau of Quality and Safety (BQS) – Road Safety Program Division
6. BUDGET	
Primary Data Steward	• Finance Service (FS) – Budget Division

Secondary Data Stewards	• Planning Service (PS) – Programming Division • Bureau of Maintenance (BOM) – Policy and Standards Division • Bureau of Maintenance (BOM) – Safety and Disaster Management Coordination Division • Finance Service (FS) – Budget Division
7. FINANCE	
Primary Data Steward	• Finance Service (FS) – Accounting Division
Secondary Data Stewards	• Planning Service (PS) – Development Planning Division • Finance Service (FS) – Accounting Division
8. STAFF	
Primary Data Steward	• Human Resource and Administrative Service (HRAS) – Human Resource Management Division
Secondary Data Stewards	• Bureau of Quality and Safety (BQS) – Quality System Analysis Division • Bureau of Research and Standards (BRS) – Office of the Director • Planning Service (PS) – Development Planning Division
9. INVENTORY	
Primary Data Steward	• Bureau of Equipment (BOE) – Equipment Planning Division
Secondary Data Stewards	• Human Resource and Administrative Service (HRAS) – Supply and Property Management Division • Information Management Service (IMS) – User Support Division • Human Resource and Administrative Service (HRAS) – Facilities Maintenance Division • Bureau of Maintenance (BOM) – National Buildings Services Division • Finance Service (FS) – Accounting Division

10. CONTRACT	
Primary Data Steward	• Bureau of Construction (BOC) – Project Monitoring Division • Procurement Service (PrS) – Civil Works Division
Secondary Data Stewards	• Procurement Service (PrS) – Goods and Services Division • Procurement Service (PrS) – Consultancy Services Division • Bureau of Construction (BOC) –Claims Review Division • Legal Service (LS) – Contract Letting and Litigation Division

3.5 Primary and Secondary Data Stewards

3.5.1 Responsibilities of Primary Data Stewards

The accountability of the Primary Data Steward for each data category is given in **Table 1**. The Data Governance Program Office (DGPO) should assist the data stewards in contacting them when needed. Wherever a Secondary Data Steward has been appointed for the same category of data, the Primary Data Steward must consult the Secondary Data Steward on all matters and attempt to reach a consensus on a decision.

Wherever difficulties are encountered in reaching decisions on any of the tasks of the Primary Data Steward, the DGPO should refer the matter to the Data Governance Steering Committee (DGSC).

1. Keeping data users informed about Data Governance Issues:

- Maintain a record of inquiries forwarded to the Data Governance Program Office (DGPO). These records should be reviewed regularly to ensure all inquiries are answered.
- The Business Data Stewards will receive occasional updates from the DGPO, including information that needs to be conveyed to all data users who need the answers/information.
- The Business Data Steward may need to display posters, distribute leaflets, and hold meetings as directed in such communications.

2. Answering inquiries about what data is available

- Data users may inquire about the following:
- Where can certain data be found/obtained?
- When will new data become available?
- Who is the Data Owner of a particular data?

3. Answering inquiries about who can access what data.

Standard access privileges to most data will already be defined.

Where there is a request for additional Staff to access specific data, this request must be forwarded to the appropriate Primary Data Steward for consideration and coordination with DGPO.

4. Investigating possible changes in data to be considered as "enterprise data." In such cases, the Data users should

forward details to the appropriate Primary Data Steward for consideration.

5. Ensuring data quality, data definition, and privacy standards are met.

6. Attending data gatherings related to application development/enhancement to ensure that applicable business rules are defined.

7. Assist in the implementation of the Data Governance Program. Participate in the Data Governance Framework to provide feedback on existing practices and recommend improvements.

3.5.2 Responsibilities of Secondary Data Stewards

The Secondary Data Steward will work with the Primary Data Steward in each activity as appropriate but representing the viewpoint of a different group of users of the same Data Category.

4. Moving Towards a Data Governance Landscape

4.1 Data Governance Policies and Procedures

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

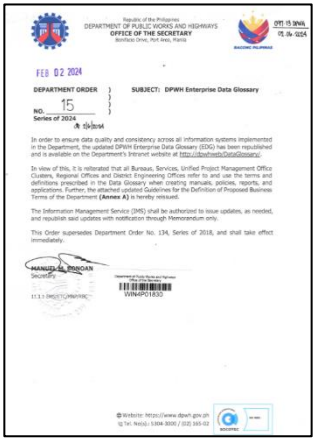
- The quality of data is maintained.
- Data collection is not duplicated.
- Data is appropriately structured.
- Data is available where and when it is needed.
- Data is secured.
- Standard definitions of data are used throughout the Department.

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

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

4.2 The Enterprise Data Glossary

All Offices and personnel are instructed through *Department Order on the DPWH Enterprise Data Glossary* to refer to 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.



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Bonifacio Drive, Port Area, Manila

FEB 02 2024

DEPARTMENT ORDER
NO. 15
Series of 2024.

SUBJECT: DPWH Enterprise Data Glossary

In order to ensure data quality and consistency across all information systems implemented in the Department, the updated DPWH Enterprise Data Glossary (EDG) has been republished and is available on the Department's Intranet website at http://dowhweb/DataGlossary/.

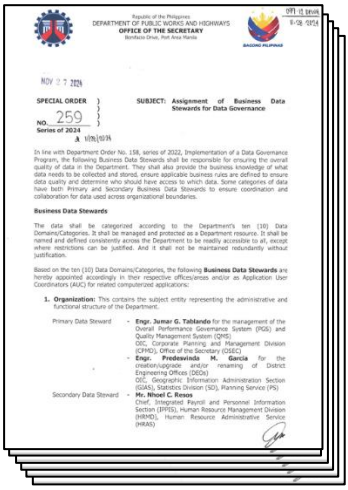
In view of this, it is reiterated that all Bureaus, Services, Unified Project Management Office Clusters, Regional Offices and District Engineering Offices refer to and use the terms and definitions prescribed in the Data Glossary when creating manuals, policies, reports, and applications. Further, the attached updated Guidelines for the Definition of Proposed Business Terms of the Department **(Annex A)** is hereby released.

The Information Management Service (IMS) shall be authorized to issue updates, as needed, and republish said updates with notification through Memorandum only.

This Order supersedes Department Order No. 134, Series of 2018, and shall take effect immediately.

MANUEL M. BONOAN
Secretary

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 on the Assignment of Business Data Stewards for Data Governance.* 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.



Republic of the Philippines
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
OFFICE OF THE SECRETARY
Bonifacio Drive, Port Area Manila

NOV 22 2024

SPECIAL ORDER
NO. 259
Series of 2024

SUBJECT: Assignment of Business Data Stewards for Data Governance

In line with Department Order No. 158, series of 2022, Implementation of a Data Governance Program, the following Business Data Stewards shall be responsible for ensuring the overall quality of data in the Department. They shall also provide the business knowledge of what data needs to be collected and stored, ensure applicable business rules are defined to ensure data quality and determine who should have access to which data. Some categories of data have both Primary and Secondary Business Data Stewards to ensure coordination and collaboration for data used across organizational boundaries.

Business Data Stewards

The data shall be categorized according to the Department's ten (10) Data Domains/Categories. 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. And it shall not be maintained redundantly without justification.

Based on the ten (10) Data Domains/Categories, the following **Business Data Stewards** are hereby appointed accordingly in their respective offices/areas and/or as Application User Coordinators (AUC) for related computerized applications:

1. **Organization:** This contains the subject entity representing the administrative and functional structure of the Department.

Primary Data Steward - **Engr. Jumar G. Tablando** for the management of the Overall Performance Governance System (PGS) and Quality Management System (QMS).
OIC, Corporate Planning and Management Division (CPMD), Office of the Secretary (OSEC)
- **Engr. Predeswinda M. Garcia** for the creation/upgrade and/or renaming of District Engineering Offices (DEOs)
OIC, Geographic Information Administration Section (GIAS), Statistics Division (SD), Planning Service (PS)

Secondary Data Steward - **Ms. Nhoel C. Reoso**
Chief, Integrated Payroll and Personnel Information Section (IPPIS), Human Resource Management Division (HRMD), Human Resource Administrative Service (HRAS)

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

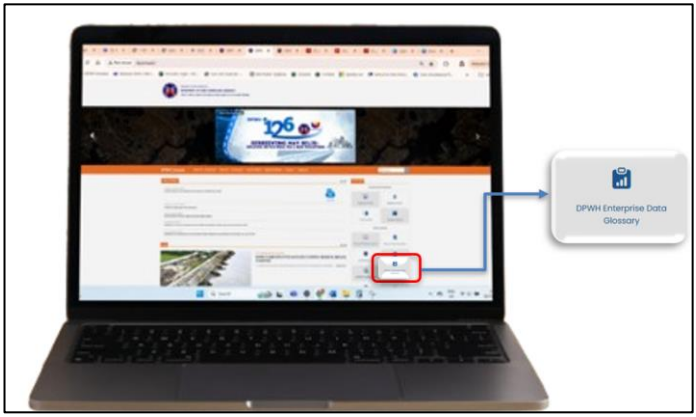


Figure 5: Intranet's Enterprise Data Glossary

4.3 Data Assets Renaming in Primary Application Systems

The 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 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 from data users through their Business Data Steward or developers and implementers setting up new business applications.

4.4 Data Integration and Validation Policy

The most crucial role of data governance is to increase data quality. Having a systematic approach to data integration and validation and involving end users of the data in the process can significantly boost confidence and promote data-driven decision-making.

4.3.1 Data Validation

Data systems and/or processes involved in creating organization reports should incorporate data integrity and validation rules to achieve the highest levels of data integrity.

Validation rules within data systems should include reconciliation routines (checksums, hash totals, record counts) to ensure that software performance meets expected outcomes. Data verification programs such as consistency and reasonableness checks shall be implemented to identify data tampering, errors, and omissions.

The Business Data Stewards and Technical Data Stewards shall ensure that the data they use and share has been validated and is accurate. The exact procedure for validating data will vary depending on the data type.

4.3.2 Data Integration

Data Integration refers to the ability of data to be assimilated across information systems. It is contingent upon the integrity of the data and the development of a data model, corresponding data structures, and domains. System-to-system interfaces are a standard practice to move data from one system to another to streamline processes that extend across systems and contribute to using data efficiently and effectively.

Operational processes often require systems to exchange information. System interfaces are usually developed between systems to facilitate the exchange of such information. The systems that exchange information fall into two broad categories:

Internal:

Systems that are implemented within the organization's computer systems network. They can either be procured, procured but modified or custom-developed products.

External:

Systems that do not reside on the organization's computer network. These systems are hosted by vendors and/or through sub-contracts managed by vendors.

Downloading of individually identifiable data from central systems to electronic files to upload or connect the data to non-central systems (e.g., shadow systems, external vendors). Without the knowledge of the Data Steward should not be allowed as it introduces risks associated with IT systems' data integrity, security, and long-term sustainability.[10]

Documented agreements regarding data use, retention, and responsibility should exist with the Data Stewards (and vendors regarding data integration with external entities) of the systems providing and utilizing data. Data extraction practices already in use should be registered, and a documented agreement should be developed with the appropriate data steward member.

4.4 Data Recovery

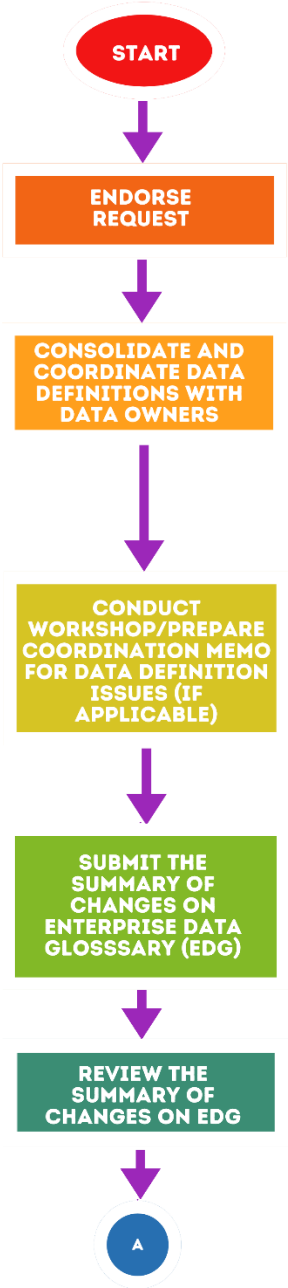
The IMS shall develop a Business Continuity and Disaster Recovery Plan that outlines all of the procedures that must be followed in the event of a disaster, regardless of whether natural or man-made, that may result in data loss, for the Department to resume regular ICT operations in a short time.

4.5 Data Issue Resolution

All issues will be logged and addressed through the DGPO's established Issue Resolution Process, as detailed below in Figure 6.

- To resolve various 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.

[10] Center for Care Innovation, Data Governance Guidebook



DGPO Section Chief

- Receive and assign request for Data Issue Resolution/Proposed Business Term Form/Meeting invitation for New or Existing Application/Approved Business Requirement Document (BRD) or User Requirement Document (URD).

DGPO Staff

- Review and consolidate data definitions from the received Issue Resolution Request/Proposed Business Term Form/Attended Meetings for New or Existing Application/Approved Business Requirement document (BRD) or User Requirement Document (URD)/Department Issuances. DAS ensure that standard rules for definitions are followed.

DGPO Staff

- For data definition Issues, the DAS conducts Workshop/Coordination Memo (if applicable). The DAS consolidates comments, revisions, and solutions.

DGPO Staff

- Prepare and submit the summary of changes to Section Chief (SC).

DGPO Section Chief

- Review the Summary of changes on enterprise data glossary and submit to Division Chief.

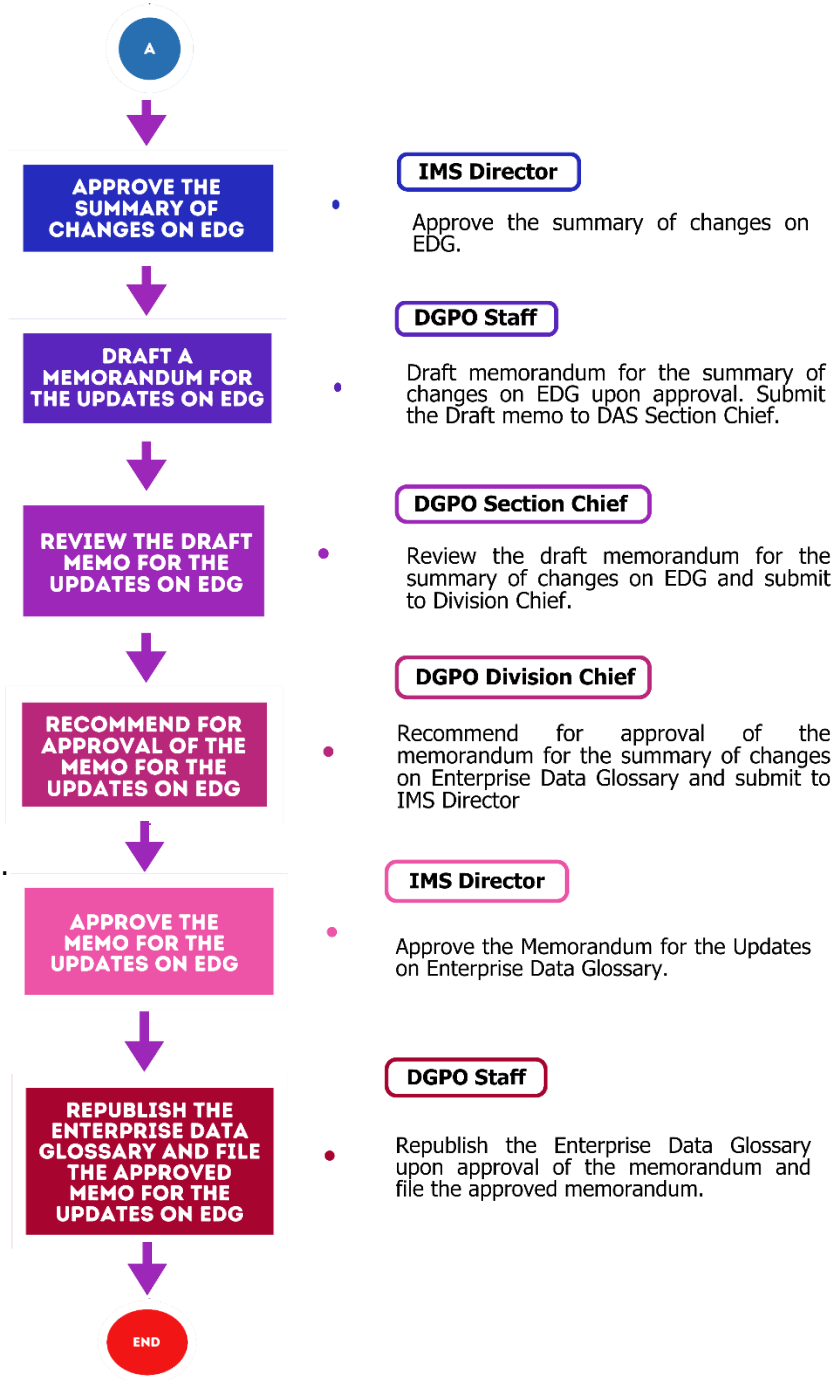


Figure 6: Issue Resolution Process Flow

5 References

Department Order on the Implementation of a Data Governance Program

Special Order on the Assignment of Business Data Stewards for Data Governance

Department Order on the 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 on the DPWH Enterprise Data Glossary

Department Order on the Issuance of Freedom of Information (FOI) People's Manual and Re-issuance of FOI Agency Manual

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

Department Memorandum Circular on the National Archives of the Philippines (NAP) letter dated October 9, 2012, "Approved Copy of DPWH Records Disposition Schedule".

6 Appendices

6.1 List of Figures

6.2 List of Tables