



DCMA Manual 4502-15

Enterprise Data Governance

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Purpose: Enterprise data governance is established to orchestrate people, processes, structures, and technology that enable the Agency to leverage data as an enterprise asset. This issuance, in accordance with the authority in DoD Directive 5105.64, “Defense Contract Management Agency (DCMA)”:

- Implements policy in accordance with DCMA Instruction 4502, “Corporate Governance”
- Assigns responsibilities for promoting and managing data requirements
- Provides and defines procedures and processes for strategic data management

- Provides principles, processes, frameworks, metrics, and oversight required to effectively manage data from creation to disposition, in accordance with the DoD Data Strategy, “Unleashing Data to Advance the National Defense Strategy”
- Supports DoD and Agency initiatives to protect data while enabling data sharing

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SECTION 1: GENERAL ISSUANCE INFORMATION

1.1. APPLICABILITY. This issuance applies to all DCMA organizational elements/activities, as well as DCMA data governance unless higher-level regulations, policy, guidance, or agreements take precedence. As the Agency evolves in its modernization initiatives, it must consider its role in supporting data standardization and interoperability.

1.2. POLICY. It is DCMA policy to:

- a. Establish Agency strategic data governance standards, processes and procedures.
- b. Provide direction regarding the management of Agency data throughout the information life cycle.
- c. Implement a unified strategic approach to data management and database architecture, starting with an enterprise-level strategy vested in the Agency Business Data Management Committee (DMC).
- d. Execute this Manual in a safe, efficient, effective, and ethical manner.

SECTION 2: RESPONSIBILITIES

2.1. DMC CHAIR. In accordance with (IAW) the DCMA Business Data Management Committee Charter, the DMC Chair will:

- a. Provide leadership, direction, and strategic advice on the planning and delivery of data management functions throughout the data life cycle.
- b. Lead the Data Governance Process.
- c. Oversee Data Quality (DQ), and integrity of data.
- d. Ensure that roles identified as part of Agency data governance (i.e., Data Stewards, Functional Data Managers, capability/product owners) and assigned responsibilities are executed.
- e. Collaborate with Business Capability Framework (BCF) Capability Boards (Cap Bd) and Information Technology (IT) to lead the revision of the current data model.
- f. Ensure the review and approval of data changes.

2.2. DATA STEWARDS. IAW the DoD Data Strategy, Data Stewards will:

- a. Serve as the primary capability and/or solution point of contact for preserving the data architecture and implementing the procedures in this Manual.
- b. Participate in the Data Standards Process to ensure that data is created and maintained pursuant to DoD standards for the line of business represented.
- c. Work closely with the Data Architect to design a data structure.
- d. Help translate business needs into data and system solutions.
- e. Identify appropriate data sources for identified requirements.
- f. Review and report data metrics.
- g. Establish disposition principles for data.
- h. Report DQ issues to the DMC and collaborate with other Data Stewards for resolution.

2.3. DATA CUSTODIAN. IAW the DoD Data Strategy, the Data Custodian will:

- a. Grant, edit, and remove data asset access IAW Agency access control policies.
- b. Promote the value of data integration and interoperability.

- c. Ensure compliance with the DoD Data Strategy, regulations, policies, and standards.
- d. Ensure system backups are conducted and disaster recovery plans tested IAW DoD Directive 3020.26, “DoD Continuity Policy.”
- e. Be accountable for the integrity, confidentiality, and availability of data assets to serve their business purpose.

2.4. FUNCTIONAL DATA MANAGERS. IAW the DoD Data Strategy, Data Managers will:

- a. Ensure compliance with existing data standards throughout the data life cycle (e.g., creation, ingestion, archiving, and destruction) pursuant to DoD Directive 8000.01, “Management of the Department of Defense Information Enterprise (DoD IE).”
- b. Ensure DQ is maintained pursuant to the DoD Chief Data Officer (CDO), “DoD Data Stewardship Guidebook.”
- c. Represent the functional user community in tandem with the Operational Sponsors, Capability Owners, and Product Owners.

2.5. ENTERPRISE DATA ARCHITECT. The Enterprise Data Architect will:

- a. Provide input and direction for the design, creation, deployment, and management of the DCMA data architecture to ensure its alignment with Business Enterprise Architecture and other key references.
- b. Coordinate and collaborate with stakeholders to define how data will be stored, consumed, integrated and managed by different data entities and IT systems, as well as all applications using or processing data.
- c. Ensure logical and physical data assets and management resources are aligned with business, application, and technology capabilities.
- d. Oversee and guide the development effort to create, implement, and manage viewpoints required to accurately document the data architecture.
- e. Ensure the data architecture is maintained in the DCMA Enterprise Architecture Repository, and aligns with the established DoD framework.
- f. Coordinate with external organizations on the availability and compatibility of data.

2.6. ENTERPRISE DQ TEAM. The Enterprise DQ Team will:

- a. Review all DQ issues with enterprise impacts. Evaluate and monitor key DQ issues based on the core dimensions of DQ (e.g., accuracy, completeness, consistency, timeliness, uniqueness, validity) from initial analysis to final resolution.

- b. Recommend DQ process improvement efforts to the DMC.

SECTION 3: DATA REQUIREMENTS

3.1. OVERVIEW. Data is an Agency asset that must be understood, documented, integrated, and managed with a data governance process. This Manual establishes processes used to identify, prioritize, formulate, and validate data needed to achieve business objectives. Data policies must direct maximum use of standardized data elements to facilitate usability and interoperability throughout the Agency and DoD. This extends to Agency information users who rely on common understandings of data definitions and relationships within the enterprise data model and the BCF.

3.2. IDENTIFICATION. Data elements are critical to performing capability analysis in support of DCMA's strategic objectives. As such, data considerations will be included across the spectrum of DCMA's capability management activities, including both business and technology analysis and design. Key considerations for data include:

a. **Strategic Alignment of Enterprise Data.** Strategic alignment of enterprise data is required to ensure data is treated as a strategic asset and adequately supports the Agency's mission. Data will be visible, accessible, understandable, linked, trustworthy, interoperable, and secure.

b. **Authoritative Process List (APL).** Documented, detailed Enterprise business processes will be used to align data requirements to Agency strategic objectives IAW Volume 1 of DCMA Manual (DCMA-MAN) 4301-11, "Management Controls: Managers' Internal Control Program."

(1) The APL delineates lines of business to functional capability and product owners.

(2) The DMC will review data, its linkage to the APL and requirements, to avoid unnecessary customizations, overlaps, or redundancies.

c. **Data Structure.** Data attributes must be well defined, structured, and understood to enable improved business intelligence, and drive process efficiencies that lead to more effective solutions.

d. **Data Definitions and Standards.** Data definitions and standards will be required for each new unique data element prior to introduction into DCMA enterprise data. Data will include source and any customization to create and preserve a data pedigree.

e. **Master Data Management.** Master data management is a technology-enabled discipline in which business and IT work together to ensure the uniformity, accuracy, stewardship, semantic consistency and accountability of the Agency's official shared master data assets. One product is a Data Dictionary, used to control access to and manipulation of the database.

f. **Cybersecurity.** Cybersecurity is of paramount concern to operational security and is required to maintain the confidentiality, integrity, and availability of data.

g. **Data Producer.** Data produced from interfaces with the ability to collect, share, and integrate data must be authenticated and validated with each new requirement, and must be relevant to data consumers performing Agency business.

h. **Process Mapping.** Process Mapping is required to articulate business needs and uses of data (e.g., the APL provides an authorized list of DCMA processes with supporting tasks, tools, doctrine, training, and interdependencies aligned to their governing BCF Cap Bd). These are critical to documenting and understanding business data requirements, used by the producers and consumers.

3.3. PROCESS ENTRY. All new and recurring requirements must be submitted through DCMA's Intake System IAW DCMA-MAN 4502-01, "Corporate Governance Structure and Procedures." A review by Corporate Governance may result in a DMC review and analysis. Process Flows are posted on the Resource Page of this Manual.

3.4. REVIEW. The DMC, as independent and objective reviewers, will review proposed requirements and recommend to the BCF Cap Bd/Stakeholder whether the requirement is valid. The DMC will further review:

a. **Major Changes to Data Structure.** Proposed major changes and customizations to authoritative data sources, and new data structures that impact interfaces and integration must be reviewed. (See Paragraphs 3.2.a. through 3.2.h.) The review must include a conformity analysis summary pursuant to Enclosure 3, DoD Instruction (DoDI) 8320.07, "Implementing the Sharing of Data, Information, and Information Technology (IT) Services in the Department of Defense," Paragraphs 3.a. through 3.f. All major changes must be communicated to the Agency's data consumers.

b. **Minor Changes to Data Structure.** Minor changes not meeting the criteria for major (e.g., labeling) will be vetted, and approved by the cognizant Data Stewards in coordination with the BCF Cap Bd. (See Paragraphs 3.2.d. and 3.2.e.)

3.5. APPROVAL. The DMC, BCF Cap Bds, and IT will work together to review and arbitrate any relevant conflicts arising from a requirement to revise the current data model, and assess impact to both existing, and planned, approved, and prioritized downstream capabilities to ensure data uniformity. If the review criteria are met, the action will be approved; if not met, it will be rejected and returned to the requester. (See Paragraphs 3.4.a. and 3.4.b.)

3.6. IMPLEMENTATION. Upon approval, the package will be returned to the referring BCF Cap Bd for implementation. BCF Cap Bds will follow the intake and implementation processes pursuant to DCMA's Intake Users Guide. A link to the guide is posted on the Resource Page for this Manual.

SECTION 4: DATA ARCHITECTURE

4.1. OVERVIEW. Data Architecture is a key component of data governance. It provides a framework for managing and governing data.

a. Data Architecture provides a description of where data exists and how it travels throughout the organization and its systems. It provides the information and tools the Data Governance Team needs to properly make decisions about data policies and standards. These artifacts also help the Data Governance Team, application owners, and system owners (i.e., business, IT) perform root cause analysis when data issues are raised by users, and the artifacts help to solve those issues.

b. Data Architecture, as part of an integrated enterprise architecture, helps identify the possible business impacts associated with improving DQ in the systems by understanding who uses the systems, and for what purpose. Data Architecture also facilitates the creation of metrics and measurements. Data inventory and data flow diagrams overlaid with data accountability and ownership are key in identifying any gaps in accountability and ownership. These diagrams can help determine how to measure adherence to standards based on who creates and updates data, and in which systems.

4.2. DATA MODELS. Data Architecture will be documented using a variety of artifacts and modeling notations that define data objects, the attributes of those objects, the relationship among the objects, as well as the flow of data (e.g., data exchanges).

a. The Data and Business Enterprise Architects work side by side with requirement owners, solution developers, the DMC, and Data Stewards to help translate business needs into data and system solutions. Collaboratively, they help to design a data structure that best supports our business needs and the automated tools that enable it.

b. Data Architecture artifacts developed by the Data Stewards and the Data Architect must be approved by higher level review, including representation from business, data, and technology perspectives (i.e., BCF Cap Bd/Functional Owners, DMC, IT) as part of the overarching Agency governance process to ensure appropriate integration across each of these domains. Data Stewards will reside in business user organizations.

SECTION 5: DATA MANAGEMENT

5.1. OVERVIEW. DCMA establishes standards, processes and procedures that are aligned with current DoD and Federal guidance pertaining to data management, while developing and maintaining the appropriate data products to support the business enterprise. To fully exploit data throughout the Agency, consideration of data policies must be embodied within the operation of each functional area to ensure data is visible, accessible, understandable, linked, trustworthy, interoperable, and secure.

5.2. ESTABLISHMENT OF BUSINESS DATA GOVERNANCE BODY.

a. Business DMC. Manages the process of establishing and maintaining Agency data. Establishes, documents, and maintains enterprise data management processes and issuances, to include data strategy, data integration, and DQ to synchronize and ensure unity of effort.

(1) Data management issues and opportunities will be reviewed and adjudicated by the DMC to support the business enterprise. The DMC supports operations, mission improvement opportunities, and data management issue resolution.

(2) Data management issues and requests that cannot be resolved will be submitted to the DMC, analyzed, and assigned a priority. The DMC will coordinate with affected Data Stewards to resolve the issue. The DMC will be a key part of the escalation process if an issue cannot be resolved.

b. Requirements. BCF Cap Bds will initially assess requirements identified through the Intake Process against current capabilities and standards. BCF Cap Bds will consult with the DMC and IT technical teams.

5.3. DATA AND CYBER SECURITY.

a. Enterprise data must be made available for use by all authorized individuals and non-person entities through appropriate mechanisms.

b. Access to enterprise data must be protected proportionate to the sensitivity of the information processed by the systems IAW security policy, and DoDI 8310.01, "Information Technology Standards in the DoD."

c. Data and all information systems storing, processing, transmitting, or where data is otherwise introduced must be safeguarded IAW DoDI 5200.48, "Controlled Unclassified Information (CUI)," and Volume 3 of DoD Manual 5200.01, "DoD Information Security Program: Protection of Classified Information."

5.4. AUTHORITATIVE DATA SOURCES. DCMA will use authoritative data sources established through regulations, policy, public law, etc., as the basis for validating data requirements to eliminate redundancy, ambiguity, and increase data sharing IAW DoDI 8310.01 and DoDI 8320.07.

a. Data Stewards, Subject Matter Experts, and Functional Data Managers will specify and document appropriate data sources for identified requirements in the Intake Endorsement Package. (See Paragraphs 3.3. and 3.6.)

b. The data structure, to include specific characteristics and customization for each requirement, must be clearly defined. Requirements must have definitive characteristics that quantify, identify, or describe a representational, administrative, or relational concept. All data exchanged between two or more systems will be documented in an Interface Control Document and updated as changes occur. All data exchanges, data elements and metadata requirements will be documented IAW the Interface Control Document.

5.5. DQ.

a. DQ planning and implementation of quality management techniques will be focused on business, operational, and metadata; gathering specific DQ issues identified by the functional community; analyzing them for possible solutions; facilitating solution implementation; and establishing control mechanisms to mitigate reoccurrence.

b. The measurement of Agency DQ must begin at the point of data entry and continue throughout the data life cycle. The Enterprise DQ Program's goal is to improve DQ by integrating controls into the system development life cycle while providing processes for measuring, monitoring, and reporting conformance to the highest level possible.

c. The Enterprise DQ Team functions as an integral part of the enterprise DQ Process and is fundamental to the strategic, tactical, and operational level planning required for a sustainable data program. The Enterprise DQ Team will evaluate and monitor key DQ issues based on the core dimensions of DQ (i.e., accuracy, completeness, consistency, timeliness, uniqueness, validity) from initial analysis to final resolution. All DQ issues with enterprise impact, to include any problems not resolved through normal channels, must be submitted to the DMC for evaluation.

5.6. DATA INTEGRATION AND INTEROPERABILITY. Data Integration and Interoperability describes processes related to the movement and consolidation of data within and between data stores, applications, and organizations. Data Integration consolidates data into consistent forms, either physical or virtual. Data Interoperability facilitates communication between multiple systems. Data Integration and Interoperability control is critical for interoperability of cloud based systems and Business Intelligence solutions because the opportunity to ingest non-validated or out dated data exists.

a. The Data Architect will coordinate with external organizations to integrate data through collaboration and the definition of data models, data objects, and the attributes of those objects.

b. Interoperability will be achieved through the use of Application Programming Interfaces between data stores, applications, and external systems to the greatest extent possible.

5.7. DATA RECORDS. Data management, records management, and accessibility must be properly implemented throughout the Agency IAW Volume 1 of DCMA-MAN 4501-04, “Records and Information Management Program,” and DoDI 8320.02, “Sharing Data, Information, and Information Technology (IT) Services in the Department of Defense.” This includes localized system decisions affecting data, all the way through full records management of critical data assets within DCMA.

5.8. DATA LIFE CYCLE MANAGEMENT. Data Stewards, Data Custodians, and Functional Data Managers will comply with established data disposition procedures. Disposition must be identified early in the data life cycle IAW Volume 1 of DCMA-MAN 4501-04.

SECTION 6: DATA METRICS

The DMC must identify and maintain metrics to measure the effectiveness of the enterprise data governance processes. These metrics will be presented to the Data Stewards and Data Custodians at a minimum twice a year. Metrics will include, but not be limited to:

- Data profiling to identify missing, malformed, or incomplete data, or data that does not meet enterprise values
- Various process cycle times and touch times
- Consistency of authoritative data sources

GLOSSARY

G.1. DEFINITIONS.

Capability Owner. Owns the Capability Needs Statement/Business Case Requirements and ensures at least one user representative is assigned to the capability.

Data. A representation of facts, concepts, or instructions, such as text, numbers, graphics, documents, images, sound, or video, in a form suitable for communication, interpretation, or processing. An Agency asset that must be understood, documented, integrated, and managed with a data governance process.

Data Architect. A practitioner of data architecture. Data architects define how data will be stored, consumed, integrated, and managed by different data entities and IT systems, as well as any applications using or processing data.

Data Architecture. A data management discipline concerned with designing, creating, deploying and managing an organization's data architecture. It is closely allied with business architecture and is considered to be one of the four domains of enterprise architecture.

Data Dictionary. A set of information describing the contents, format, and structure of a database, and the relationship between its elements; used to control access to and manipulation of the database.

Data Governance. Discipline comprised of responsibilities, roles, functions, and practices supported by authorities, policies, and decisional processes which together administer data and information assets across a component to ensure that data is managed as a critical asset consistent with the organization's mission and business performance objectives.

Data Governance Body. Manages the collaboration and coordination between Data Stewards and the Data Architect and representation from business, data, and technology perspectives (i.e., BCF Cap Bd/Functional Owners, IT).

Data Integration and Interoperability. Describes processes related to the movement and consolidation of data within and between data stores, applications, and organizations.

Data Life Cycle. The sequence of stages that a particular unit of data goes through from its initial generation or capture to its eventual archival and/or deletion at the end of its useful life.

Data Management. Development and execution of plans, policies, programs, and practices that acquire, control, protect, and enhance the value of data assets throughout the lifecycle.

Data Steward. The primary Agency point of contact for informing the Data Architect. Data Stewards reside in business user organizations.

Data Structure. Core building blocks of data that are relevant to the enterprise.

DCMA Agency Intake System. The authoritative system for processing, coordinating, and archiving unclassified capability requirement documents, validation memorandums, and related action items. Consistently using this system will ensure reliable handling, processing, transparency, cross-functional review and management of all proposed and validated requirements.

DMC. Manages the process of establishing and maintaining Agency Data. The DMC will establish and maintain enterprise data management processes and issuances, to include data strategy, data integration, and DQ to synchronize and ensure unity of effort. Manages the collaboration and coordination between Data Stewards and the Data Architect and representation from business, data, and technology perspectives (i.e., BCF Cap Bd/Functional Owners, IT).

DMC Chair. The Strategic Planning and Analysis Director, Corporate Operations Directorate, pursuant to the DMC Charter.

DQ. DQ is the planning and implementation of quality management techniques to measure, assess, and improve data for use throughout the Agency.

Operation Sponsors. Approves the Capability Needs Statement and designates a representative to be the Product Owner for a specific capability.

Product Owners. Understands the User Organization, the capability being developed, and advocates for the product.

GLOSSARY

G.2. ACRONYMS

APL	Authoritative Process List
BCF	Business Capability Framework
Cap Bd	Capability Board
DCMA-MAN	DCMA Manual
DMC	Data Management Committee
DoDI	DoD Instruction
DQ	Data Quality
IAW	in accordance with
IT	Information Technology

REFERENCES

- DCMA “Business Data Management Committee Charter,” November 9, 2020
- DCMA Manual 4301-11, Volume 1, “Management Controls: Managers’ Internal Control Program,” June 24, 2019
- DCMA Manual 4501-04, Volume 1, “Records and Information Management Program,” April 16, 2021
- DCMA Manual 4502-01, “Corporate Governance Structure and Procedures,” July 22, 2019
- DoD Chief Data Officer (CDO), “DoD Data Stewardship Guidebook,” September 1, 2021
- DoD Data Strategy, “Unleashing Data to Advance the National Defense Strategy,” September 30, 2020
- DoD Directive 3020.26, “DoD Continuity Policy,” February 14, 2018
- DoD Directive 5105.64, “Defense Contract Management Agency (DCMA),” January 10, 2013
- DoD Directive 8000.01, “Management of the Department of Defense Information Enterprise (DoD IE),” March 17, 2016, as amended
- DoD Instruction 5200.48, “Controlled Unclassified Information (CUI),” March 6, 2020
- DoD Instruction 8310.01, “Information Technology Standards in the DoD,” February 2, 2015
- DoD Instruction 8320.02, “Sharing Data, Information, and Information Technology (IT) Services in the Department of Defense,” August 5, 2013, as amended
- DoD Instruction 8320.07, “Implementing the Sharing of Data, Information, and Information Technology (IT) Services in the Department of Defense,” August 3, 2015, as amended
- DoD Manual 5200.01, Volume 3, “DoD Information Security Program: Protection of Classified Information,” February 24, 2012, as amended