

1. Enterprise Data Planning

Introduction:

Enterprise data planning is a strategy for CMS business-focused data standardization. Its objective is to strengthen the agency's ability to manage and share data and information.

NOTE: There are references within this section that refer the reader to the Operating Procedures and Guidelines section. Please download the Operating Procedures and Guidelines section to view these references.

The major Enterprise Data Planning products are:

- Enterprise data objects in the form of *Subject Areas* and *Enterprise Data Entities (Supertypes)*; and *Enterprise Attributes (Data Elements)*; and
- *Information Security Category* settings that establish the controls for appropriate use of CMS data resources.

The [Enterprise Data Planning process diagram](#) depicts the milestones, control points, and deliverables as they occur during the following steps:

- [Initiate Enterprise Data Planning](#)
- [Define Enterprise Subject Areas](#)
- [Model Enterprise Data](#)
- [Assign Information Security Categories](#)
- [Create the EDM Metadata Repository](#)
- [Publish the Enterprise Data Model](#)

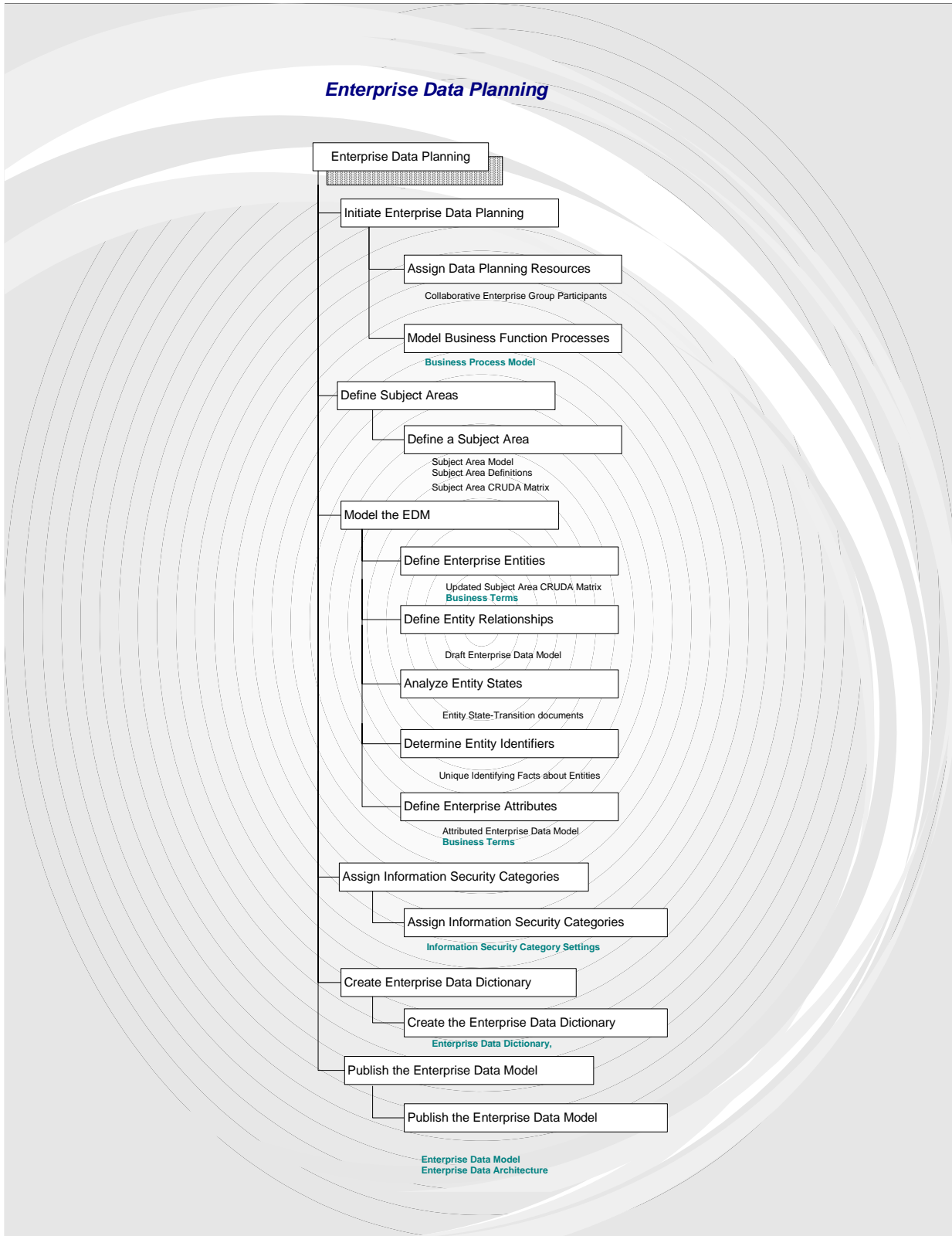
Activities in this process are directed by the [CMS Enterprise Data Architecture Approach](#).

Key Deliverables:

The *Enterprise Data Planning* process creates the following deliverables:

- *Business Process Model*
- *Enterprise Subject Area Definitions,*
- *Subject Area Create Read Update Delete Archive (CRUDA) Matrix,*
- *Enterprise Data Model,*
- *Enterprise Metadata Repository,*
- *Business Terms,*
- *Enterprise Data Architecture for Repository update.*

Exhibit 1. Enterprise Data Planning process diagram



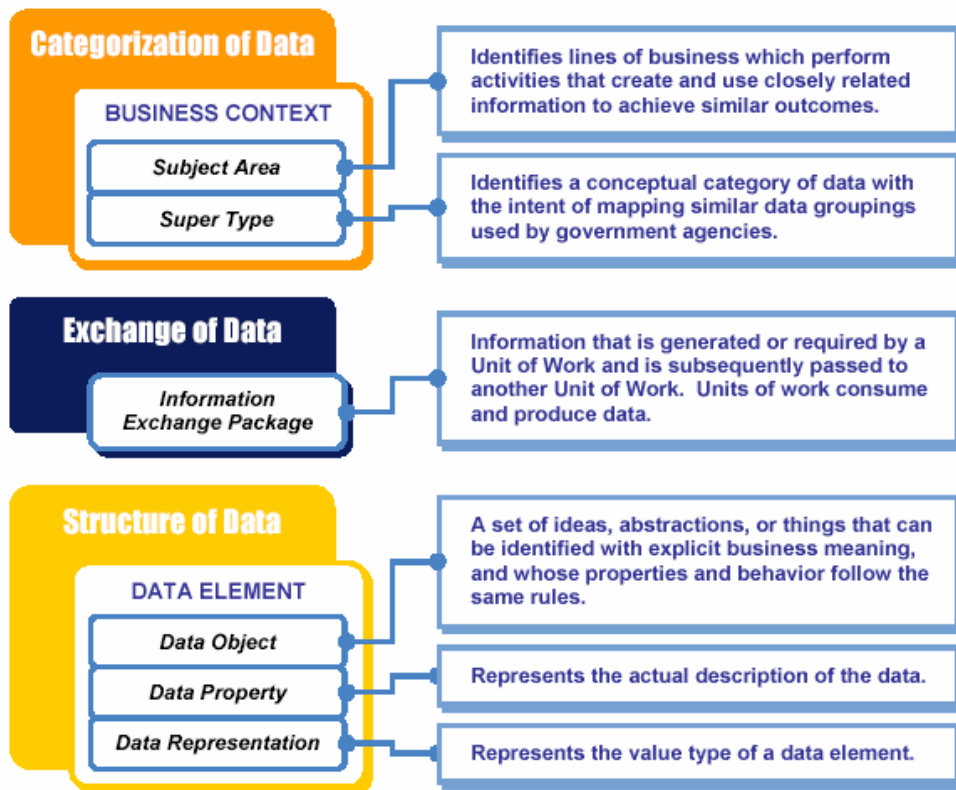
CMS Enterprise Data Architecture Approach

The CMS Enterprise Data Architecture approach is based on the anticipated direction of the Federal Enterprise Architecture Program (FEA).

[Exhibit 2](#) is based on information from the *FEA Data Reference Model (DRM) Volume I, Version 1*. The CMS operating polices comply with this direction.

To confirm the alignment between the FEA and CMS data architectures: compare the DRM Subject Area prototype with the CMS Subject Area; compare the DRM Super Type with the CMS Enterprise Entity; and compare the DRM Data Element to the CMS *Enterprise Attributes*, which are added to the EDM to facilitate the integrity of *Information Flow* across multiple business functions.

Exhibit 2. FEA Data Reference Model (DRM) Structure



1.1. Initiate Enterprise Data Planning

Introduction:

Enterprise Data Planning activities might be initiated by one of several circumstances:

1. In response to mandates from Federal Enterprise Architecture (FEA) Program Management Office for managed data architecture;
2. In response to needs for sharing data and interoperability between internal and external organizations;
3. On behalf of CMS management to promote the quality and integrity of business function data; and
4. To accommodate the data architecture requirements precipitated by change in agency business line functions.

This process describes the first step in enterprise data planning, which establishes an enterprise-level decision making task group(s) –*Business Intelligence Council (BIC)*-- by assigning participants from CMS's EA team, business organizations, and the IT data management organization.

Analysis of the business processes starts with written descriptions and ends with diagrams to aid *BIC* work session communication.

The following processes depict the participant roles, milestones, control points, and deliverables occur during data planning activities:

- [Assign Data Planning Participants](#)
 - [DM G-012 Guideline for Assigning Data Planning Participants](#)
 - [DM G-013 Guideline for Guidelines for Conducting Enterprise Data work sessions](#)
- [Model Business Function Processes](#)
 - [DM G-014 Guideline for Creating a Business Process Diagram](#)

Deliverable(s):

- *List of Business Intelligence Council Participants*
- *Business Process Model(s)*

1.1.1 Assign Data Planning Participants

Enterprise Business Line Architect

- A. When the need arises for business alignment of the data architecture, contact the respective *Business Intelligence Council* participant (participants shall be established for each major CMS business line). Follow the guidelines in [DM G-012 Guidelines for Assigning Data Planning Participants](#).

Update the *Business Intelligence Council (BIC) Matrix* to document any newly organized groups and individual participants.

*Enterprise Business Line
Architect*

- B. Schedule *Business Intelligence Council* work sessions. See [DM G-013 Guideline for Guidelines for Conducting Enterprise Data work sessions](#).

1.1.2 Model Business Function Processes

BIC Participants:
*Facilitator,
Enterprise Business Line
Architect, Business Owner /
Partner,
Data Stewards,
Data Architect*

Note: This process guides the development of an enterprise business process from Level 0, which coincides with charted CMS agency functions as designated in the *FEA-BRM*. See [CMS Business Reference Model](#).

All BIC participants

- A. Participate in the work session to create an enterprise process model. This will help the business personnel and IT architects to visualize enterprise activities.
- B. Develop a *Statement of Purpose* for the enterprise process model to ensure that the BIC participants are fully aware of the model's scope and the business function being represented. Without this defined scope, the model might over reach or under represent the scope of the business-line's functions.

All BIC participants

- C. Identify the *inputs, outputs, controls, and activities* that make up the business functions to show what information is transformed by the business functions. Later, this information will be analyzed in terms of its business *Subject Area* and the core enterprise entities the business-line functions need to know about.

*Enterprise Business Line
Architect,
Data Architect*

- D. Based on work session analyses develop a business process diagram to document business processes and information flows. See [DM G-014 Guideline for Creating a Business Process Diagram](#).

1.2. Define Subject Areas

Introduction:

Subject Areas are group classifications of business data entities at their highest level of data object abstraction. They are defined during *Enterprise Data Planning* and are not usually affected by project-level changes in business data. Only on those rare occasions when CMS is chartered with a new line of business or the charter for an existing line of business changes or ends, will a *Subject Area* be added, redefined, or removed. See the current [CMS Subject Area Model](#), CMS [Subject Area Definitions](#), and [Business Intelligence Council \(BIC\) Participants](#).

Despite rarely being changed, *Subject Areas* are routinely used in the strategic management of the agency's data architecture. First, *Subject Areas* anchor the starting points and end points for data architecture business alignment. Second, they support data sharing across agency business functions and interoperability with other organizations. This concept is illustrated in [Subject Areas: Alignment and Shared Data Architecture](#).

The following processes depict the participant roles, milestones, control points, and deliverables occur during subject area definition activities:

- [Define Subject Areas](#)
 - [DM G-015 Guidelines for Defining a Subject Area](#)

Deliverable(s):

- *Updated Subject Area Model and Subject Area Definition(s)*
- *Subject Area CRUDA Matrix*

1.2.1 Define a Subject Area

Enterprise Business Line Architect

A. Contact the *Business Intelligence Council* for the *Subject Area* and schedule work sessions. See [DM G-012 Guidelines for Assigning Data Planning Participants](#).

BIC Participants:
Enterprise Business Line Architect,
Data Architect,
Business Owner /Partner,
Data Steward

B. Collaborate to define the business line *Subject Area* and the core business entities that are used in the course of business line operation. Follow [DM G-015 Guidelines for Defining a Subject Area](#).

All BIC participants

C. Define a *Subject Area* in a manner that: 1.) explains the business functions that use it; 2.) represents the entity group it contains; and 3.) identifies the business organizations that are *primarily* responsible for its upkeep.

All BIC participants

D. Create an Enterprise *Subject Area CRUDA Matrix* and make an entry for each core Subject Area entity. See [Example CRUDA Matrix](#). This matrix will be used during entity analysis to document processes that *Create, Read, Update, Delete, and Archive* the *Subject Area* entities. Entity analysis activities are described under topic [Model Enterprise Data](#).

*Business Owner /Partner,
Business Sponsor*

E. Approve the *Subject Area* name and definition.

Data Architect

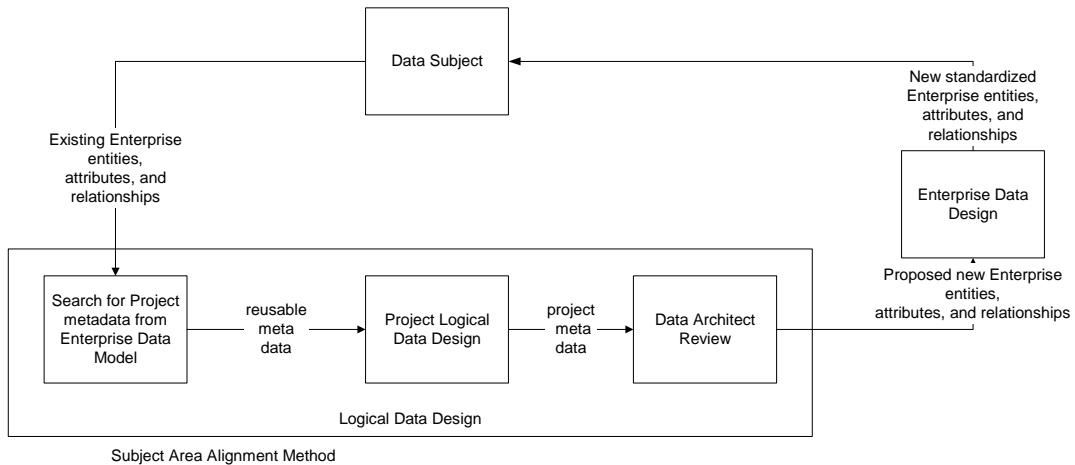
F. Publish *Subject Area* name and definition.

Exhibit 3. Example Hypothetical CRUD Matrix

<div style="text-align: right;">ENTITY NAME</div> <div style="text-align: left;">SUBJECT AREA</div>	EMPLOYEE	FACILITY	PROVIDER	CLAIM	BENEFICIARY	PLAN	ENTITLEMENT
BENEFICIARY ENROLLMENT					CRUDA	R	
CLAIMS PROCESSING				CRUDA	R	R	R
SUPPLIER CERTIFICATION			U				
HUMAN RESOURCES		CRUDA					
RESEARCH STATISTICS	R	R	R	R	R	R	R
FACILITIES ADMINISTRATION		CRUDA					

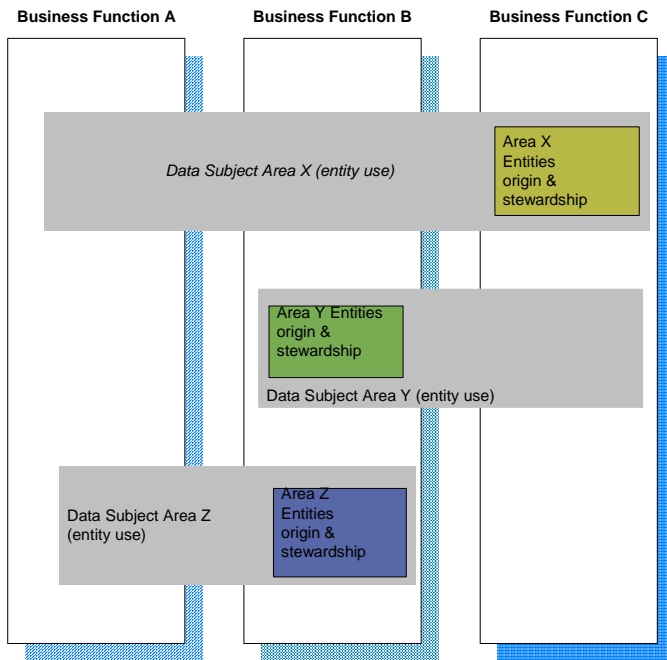
Exhibit 4. Subject Areas: Alignment and Shared Data Architecture

Subject Areas: Alignment and Shared Data Architecture



The top figure shows how Subject Areas anchor the starting points and end points for data architecture business alignment.

The bottom figure shows how Subject Areas support data sharing across agency business functions and interoperability with other organizations.



Subject Area Shared Data Architecture

1.3. Model Enterprise Data

Introduction:

This process creates the Enterprise Data Model (EDM), which is a *conceptual* or *semantic* data model for business use. Its objective is to synthesize common entity meanings across agency business functions and to move the agency toward interoperable data architecture through stable, non-redundant shared data and reusable information exchange structures.

- The EDM is a “living” model. As such, it provides reusable data artifacts to new projects and, during the course of project logical data modeling, is updated with new and discovered data artifacts whose make-up suggest their potential for reuse across multiple business-line information processes.
- The EDM serves as the reference of the ideal description and security designation of important business data entities.

The following processes depict the participant roles, milestones, control points, and deliverables occur during enterprise data design activities:

- [Define Enterprise Business Entities](#)
- [Define Entity Relationships](#)
- [Analyze Entity States](#)
- [Determine Entity Identifiers](#)
- [Define Enterprise Attributes](#)

Additional information related to enterprise data design is:

- [Contents Comparison: An Enterprise Data Model to A Project Logical Data Model](#)
- [Maintaining the EDM Architecture diagram](#)

Key Deliverables:

The *Enterprise Data Design* process creates the following *SDLC* deliverables:

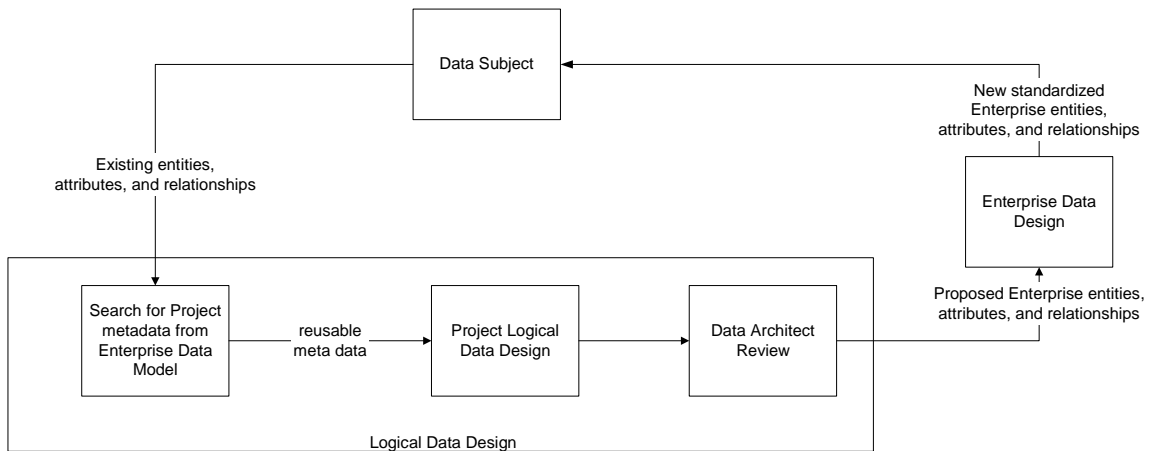
- *Entity State-Transition documents*
- *Updated Subject Area CRUDA Matrix*
- *Business Terms*
- *Draft Enterprise Data Model*

Exhibit 5. Contents Comparison: An Enterprise Data Model to A Project Logical Data Model

<i>Usual Components of a Data Model (Exceptions may apply)</i>	<i>Enterprise Data Model</i>	<i>Project Logical Data Model</i>
Proper Entities	√	√
Weak Entities		√
Relationships	√	√
Constraints		√
Some Attributes	√	√
Domain Values	√	√
Normalized Entities		√

Exhibit 6. Maintaining the EDM

Maintaining the Enterprise Data Model / Architecture



1.3.1 Define Enterprise Business Entities

*Enterprise Business Line
Architect,
Data Architect,
Business Owner /Partner,
Data Steward*

- A. Qualify a core business entity using this criteria:
- 1.) An entity must be a person, place, thing, or event that business personnel would recognize as an asset, occurrence or participant of central importance in the business function. *Weak entities* are typically excluded. (A *weak entity* is an entity which exists only as a subordinate part of a more fundamental entity. For example, the *weak entity* Practice Location has no meaning without the fundamental entity Provider.) *Weak entities* are included when they are themselves the focus of individual data exchanges.
 - 2.) An entity must be something that a business function collects and maintains information about.
 - 3.) The business must have a way to uniquely distinguish occurrences of the entity.
 - 4.) Do not represent data that is only used for system control (such as access control, interface behavior, workflow routing, database auditing).
 - 5.) Do not represent data that is only exchanged between systems and never viewed by the CMS business community or their business partners.

*BIC Participants:
Enterprise Business Line
Architect,
Data Architect,
Business Owner /Partner,
Data Steward*

- B. Definitions of *Enterprise Entities* must be comprehensive, documenting all their aspects in a manner that enables appropriate data sharing and information exchange by multiple organizations. See [Example Enterprise Entity Definition](#).

Data Architect

- C. Before naming new entities, have the list of approved business *Standard Terms* available. This information is available in the Standard Terms and Abbreviations List. The *Standard and Abbreviations Terms List* is available from the Standards Terms page (accessible from the Data Administration home web page). If a needed term is not on the list, follow the procedure outlined on the Standard Terms page.

This enterprise data analysis activity is one of the key sources for selecting the business terms that form the agency's approved term glossary.

Project Data Analyst

- D. Assign meaningful entity names using approved business terms according to [DM OP-009 Operating Procedure for Naming New Data Entities](#). The objective of naming standards is to foster a common reference of CMS data.
A shortened version of the naming procedure is available as a quick reference in [DM OP-009-QR Quick Reference for Naming Data Entities](#).

Data Architect

- E. Add each qualified entity to the EDM using the standard data modeling tool. See [Data Modeling tool standard for Creating Conceptual Data Models](#)

*Business Owner /Partner,
Data Steward*

- F. Serve as the primary arbiters and final authorities of *Enterprise Entity* definitions.

Exhibit 7. Example Entity Definition

<i>Name</i>	BENEFICIARY
<i>Abbreviation</i>	BENE
<i>Type</i>	Prime
<i>Dependency</i>	N/A
<i>Definition</i>	A person who has been registered by CMS to receive beneficiary entitlements of Medicare services.
<i>Business Rules</i>	Title XVIII of the Social Security Act
<i>Allowable States</i>	<p><u>Activity States</u></p> <ol style="list-style-type: none"> 1. <i>Active</i>: Beneficiary has made claims within the last (1) year. 2. <i>Inactive</i>: Beneficiary has made no claims within the last (1) year. 3. <i>Inactive</i>: Beneficiary is deceased. <p><u>Privilege States</u></p> <ol style="list-style-type: none"> 1. <i>Eligible for Part A</i>: Beneficiary is able to receive paid services under Medicare Part A. 2. <i>Ineligible for Part A</i>: Beneficiary is not to receive paid services under Medicare Part A. 3. <i>Eligible for Part B</i>: Beneficiary is able to receive paid services under Medicare Part B. 4. <i>Ineligible for Part B</i>: Beneficiary is not to receive paid services under Medicare Part B.
<i>Create Rules</i>	<p>A BENEFICIARY is created upon successful completion of the enrollment process. BENEFICIARY is created:</p> <p style="padding-left: 40px;">Activity State =<i>Active</i>;</p> <p style="padding-left: 40px;">Privilege States = <i>Eligible for Part A, Ineligible for Part B.</i></p>
<i>State Change</i>	<ol style="list-style-type: none"> 1. A BENEFICIARY is changed from <i>Active</i> state to <i>Inactive</i> if they have made no claims in past one (1) year. 2. A BENEFICIARY in <i>Active</i> state may enter privilege state <i>Eligible for Part A</i> upon registration in the program 3. A BENEFICIARY in <i>Active</i> state may enter privilege state <i>Eligible for Part B</i> if “Part B <i>fit</i> and paid” 4. A BENEFICIARY in <i>Active</i> state may re-enter privilege state <i>Ineligible for Part A</i> if: voluntary withdrawal, unpaid Premium, qualifying relationship ends, cessation of disability 5. A BENEFICIARY in <i>Active</i> state may enter privilege state <i>Ineligible for Part B</i> if : voluntary withdrawal, unpaid Premium, qualifying relationship ends, cessation of disability, and disabled
<i>Primary Identifier</i>	MEDICARE CLAIM NUMBER (HICN)
<i>Information Security Categories</i>	<p>Confidentiality – HIGH</p> <p>Integrity – HIGH</p> <p>Availability – MODERATE</p>
<i>Primary Subject Area</i>	Enrollment and Eligibility

1.3.2 Define Entity Relationships

*BIC Participants:
Enterprise Business Line
Architect,
Data Architect,
Business Owner /Partner,
Data Steward*

- A. Qualify relationships between enterprise entities using this criteria:
- 1.) The relationship must be an important association between occurrences of one or more *Enterprise Entities* that has some information value for the business.
 - 2.) The relationship must represent something that the business tracks and stores.
 - 3.) The relationship must have a name that describes the relationship.
 - 4.) The relationship is to represent a static association. See [Example Entity / Relationship Diagram](#)

Data Architect

- B. Add each qualified relationship between entities using the standard data modeling tool as described in [Data Modeling Tool Standard For Creating Conceptual Data Models](#).

All BIC participants

- C. The definitions of *Enterprise Relationships* must be comprehensive, documenting all their aspects in a manner that enables appropriate shared use by multiple organizations. See [Example Enterprise Relationship Definition](#).

*Business Owner /Partner,
Data Steward*

- D. Serve as the primary arbiters and final authorities of *Enterprise Relationship* definitions.

Exhibit 8. Example Enterprise Relationship Definition

<i>Name</i>	FILING
<i>Abbreviation</i>	FILG
<i>Definition</i>	A resulting relationship indicates that a CLAIM was filed for payment of services rendered on behalf of a Medicare BENEFICIARY.
<i>Business Rules</i>	Only <i>Active</i> PROVIDER sources are recognized.
<i>Allowable States</i>	<u>Activity States</u> 4. <i>Past</i> : Indicates that the FILING took place.
<i>Create Rules</i>	1. A resulting relationship is created whenever a particular CLAIM was made as a result of qualifying services.
<i>Delete Rules</i>	1. A resulting relationship is deleted whenever a particular CLAIM was deemed erroneous. 2. A resulting relationship is deleted whenever a particular PROVIDER is deleted.
<i>State Change</i>	N/A
<i>Primary Identifier</i>	N/A
<i>Primary Subject Area</i>	Claims & Utilization

1.3.3 Analyze and Define Entity States

*BIC Participants:
Enterprise Business Line
Architect,
Data Architect,
Business Owner /Partner,
Data Steward*

A. For each entity and relationship that has a possibility of multiple states, create an *entity state / transition* diagram. This helps to ensure that all possible entity states are identified.

All BIC participants

B. Determine whether the business function needs only current information or if past and/or cumulative states are also required for business operation.

All BIC participants

C. Name each entity *state* using an adjective; name the *transition* with a noun or verb phrase that describes what is happening.

*Enterprise Business Line
Architect*

D. Provide the *Data Architect* with a graphical representation of the entity's state and transition, using an automated drawing tool that produces a graphical image. The documents will be electronically stored with the EDM. See [Example State/Transition Diagram](#).

*Enterprise Business Line
Architect*

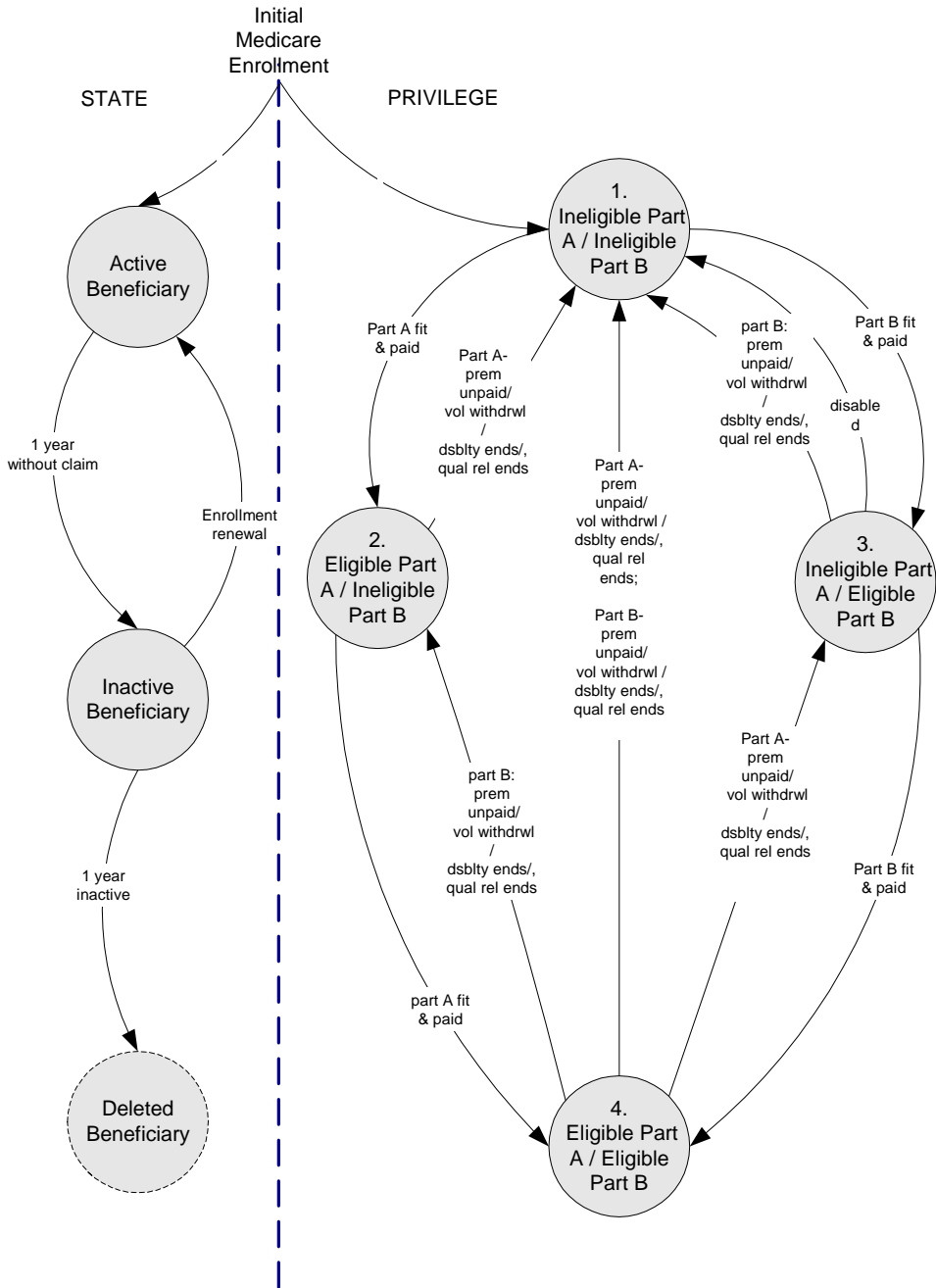
E. Document the business processes that create, read, update, delete or archive the entity in the Enterprise *Subject Area CRUDA Matrix*. (See related Subject Area activities in topic [Define Subject Area](#).)

All BIC participants

F. Any subsequent *Project Logical Data Entity* derived from an *Enterprise Entity* must comply with its identified *entity states*. Any new *states* discovered in project logical data analysis must be submitted to the *Business Intelligence Council* and the entity's *state transition documents* appropriately updated in order that the *Enterprise Entity* stays aligned with the business-line charter and mission.

Exhibit 9. Example State Transition Diagram

Example State Transition Diagram
 Purpose: To assist business analyst in identifying possible object states



1.3.4 Determine Entity Identifiers

BIC Participants:
Enterprise Business Line
Architect,
Data Architect,
Business Owner /Partner,
Data Steward

G. Determine the primary entity identifier that is unique, stable, and minimal for each entity in the EDM. This is the identifier that a business line uses to distinguish individual occurrences of an entity.

All BIC Participants

H. Do not use software “generated” values as enterprise entity identifiers.

1.3.5 Define Enterprise Attributes

Participants:
Data Architect,
Business Owner /Partner,
Data Steward

- A. Here are the rules-of thumb for creating an *Enterprise Attribute*:
- Limit *Enterprise Attributes* to *major* facts about an entity.
 - Create an *Enterprise Attribute* when it represents a *Data Element* that is essential to multi-organization *Information Flow* about the entity. (See [CMS Enterprise Data Architecture Approach](#) to understand how *Enterprise Attributes* contribute to *Information Flow*.)
 - Create an *Enterprise Attribute* when strict compliance to a value domain or datatype domain is essential to a critical business line operation.
 - The major details about an enterprise entity are usually described by less than a dozen attributes.

All BIC Participants

- B. Define the new *Enterprise Attribute*. The definition of a new attribute shall comply with the Operating Procedure described in [DM OP-010 Operating Procedure for Defining Data Attributes](#).

The above procedure is compliant with a prerequisite standard *ISO IEC 11179-4 Rules and guidelines for the formulation of data definitions*.

All BIC Participants

- C. The other factors to consider when creating a new attribute require data analysis. The purpose of that analysis is to classify new attributes into one of the following categories.

<i>Attribute type</i>	<i>Definition</i>	<i>Example</i>	<i>Description</i>
Prime / Atomic	A basic business fact	Department	Basic information about the business
Derived	A value that can be formulated using values from other attributes.	Invoice Total	Computed from the sum of invoice lines.
Cohesive	Attributes that are usually processed together for business meaning	Employee First Name and Employee Last Name	Neither is very meaningful without the other.
Transaction / Interface	Interface Data	Activity Data	Business required data exchange

See [DM OP-011 Operating Procedure for Analyzing Data Attributes Types](#) for methods that can improve how the attributes types are best modeled.

All BIC Participants

- D. Determine the types of data values that the attribute will eventually represent then identify the appropriate data type for each new attribute. See [DM G-004 Guidelines for Designating Representation Term and Data Type](#).

All BIC Participants

- E. Before new attributes are named, it would be helpful to have a list of approved *Standard Terms* and uses on hand. The *Standard and Abbreviations Terms List* is available from the Standards Terms page (accessible from the Data Administration home web page). If a needed term is not on the list, follow the procedure outlined on the Standard Terms page.

This activity in the enterprise data analysis process is one of the key sources for identifying the business terms that form the agency's list of approved standard terms.

All BIC Participants

F. Assign each new attribute a business name of the following structure:

Position	Component	M/O
1	Object Class Term (Prime Word)	One mandatory <i>Object Class Term</i>
2	Qualifier Term, Property Term, (Modifier Word)	One or more optional <i>Qualifier Term</i> and/or <i>Property Term</i>
3	Representation Term (Class Word)	Limited to one mandatory <i>Representation Term.</i>

All BIC Participants

G. Verify that the new attribute name is compliant using the full Operating Procedure for naming attributes [DM OP-012 Operating Procedure for Naming Data Attributes](#) or the quick reference [DM OP-012-QR Quick Reference for Naming Data Attributes](#).

The above procedure is compliant with a prerequisite standard *ISO IEC 11179-5 Naming and identification principles for data elements*.

All BIC Participants

H. Apply the following information to each new attribute:

- optionality
- length
- data type
- security category

Project Data Analyst

I. Attributes that represent dates must follow the rules outlined in [DM G-006 Standard for Assigning Date Formats](#).

All BIC Participants

J. Consider long-term management for electronic records when adding new attributes to record types. Appropriate classification of data types will facilitate easier archival for those records with federal archival mandates.

1.4. Assign Information Security Categories

Introduction:

This process provides the standards for documenting information security categories for agency data assets.

The following processes depict the participant roles, milestones, control points, and deliverables occur during information security definition activities:

Activities and Related Standards in this chapter:

- [Assign Information Security Categories](#)
 - [DM OP 021 Standards for Assigning Information Security Categories](#)

Deliverable(s):

Information Security Category Settings

1.4.1 Assign Information Security Categories

*Enterprise Business Line
Architect,
Data Architect,
Business Owner /Partner,
Data Steward*

- A. Analyze the security categories for the *Enterprise Entities* and attributes using standards and guidelines in [DM OP-021 Operating Procedure for Assigning Information Security Categories](#).

See [Levels of Impact for Security Objectives](#) for setting descriptions.

This procedure supports the federal government requirements outlined in *FIPS Publication 199 – Standards for Security Categorization of Federal Information and Information Systems*.

Data Architect

- B. Document the security and sensitivity rules and levels of impact (low, moderate, and high) in the EDM or project data models [where new attributes are defined] following the format in [Data Modeling Tool Standard for Creating Conceptual Data Models](#)

Exhibit 10. Levels of Impact for Security Objectives

Security Objective	POTENTIAL IMPACTS		
	LOW	MODERATE	HIGH
<p>Confidentiality Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information. [44 USC,SEC.3542]</p>	<p>The authorized disclosure of information could be expected to have a limited adverse effect on organizational operations, organizational assets, or individuals.</p>	<p>The authorized disclosure of information could be expected to have a serious adverse effect on organizational operations, organizational assets, or individuals</p>	<p>The authorized disclosure of information could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets, or individuals</p>
<p>Integrity Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity. [44 USC,SEC.3542]</p>	<p>The unauthorized modification or destruction of information could be expected to have a limited adverse effect on organizational operations, organization assets, or individuals.</p>	<p>The unauthorized modification or destruction of information could be expected to have a serious adverse effect on organizational operations, organization assets, or individuals.</p>	<p>The unauthorized modification or destruction of information could be expected to have a severe or catastrophic adverse effect on organizational operations, organization assets, or individuals.</p>
<p>Availability Ensuring timely and reliable access to and use of information. [44 USC,SEC.3542]</p>	<p>The disruption of access to or use of information or an information system could be expected to have a limited adverse effect on organizational operations, organizational assets, or individuals.</p>	<p>The disruption of access to or use of information or an information system could be expected to have a serious adverse effect on organizational operations, organizational assets, or individuals.</p>	<p>The disruption of access to or use of information or an information system could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets, or individuals.</p>

1.5. Create the Enterprise Metadata Repository

Introduction

The Enterprise Metadata Repository reports information about *Enterprise Entities* and *Attributes*.

The following processes depict the participant roles, milestones, control points, and deliverables occur during Metadata Repository preparation:

- [Create the Enterprise Metadata Repository](#)
 - [DM OP-022 Operating Procedure for Creating the Project Metadata Repository](#)

Deliverable(s):

- *Enterprise Metadata Repository*

1.5.1 Creating the Enterprise Metadata Repository

- | | |
|-----------------------|---|
| <i>Data Architect</i> | A. Draft an Enterprise Metadata Repository following DM OP-022 Operating Procedure for Creating the Project Metadata Repository . |
| <i>Data Architect</i> | B. Generate the Enterprise Metadata Repository using the <i>Custom Report - Metadata Repository report</i> options available in Data Modeling Tool Standard for Creating Project Logical Data Models |
| <i>Data Architect</i> | C. Validate the <i>Enterprise Metadata Repository</i> with the appropriate Data Steward(s). |
| <i>Data Architect</i> | D. Submit the <i>Metadata Repository Report</i> to Subject Area BIC Participants: <i>Business Owner Partner</i> and <i>Data Stewards</i> for approval, making revisions as needed until all parties are satisfied with dictionary contents. |

1.6. Publish the Enterprise Data Model

Introduction:

This process describes the change control activities that catalogs and stores the EDM in the appropriate model library and repository.

After the development work on the EDM ends, it must be published to facilitate ongoing analysis of business line data and future business system changes. This will be accomplished through an automated library and a repository. As the CMS data architecture mature, different analysts will be able to view their interests in Enterprise Data, tracing them from abstract business data concepts to actual physical data locations.

The following processes depict the participant roles, milestones, control points, and deliverables occur during enterprise model publication:

- [Publish the Enterprise Data Model](#)

Deliverable(s):

- *Published Enterprise Data Model*
- *Updated Enterprise Data Architecture* (repository updates)

1.6.1 Publish the Enterprise Data Model

Data Administration Analyst A. Accept the new EDM and publish the model according to instructions in [Production Change Control for Model Management](#).

Note: All models shall be appropriately stored in the agency's data model management tool when work is completed (or halted in an incomplete or unapproved status).

Data Architect B. Confirm EDM publication.