

# Data Stewardship for Regional/Field Resource Programs

## 1. Data Stewardship for Data Stewards

### *1.1 Data Stewardship for Data Stewards Title*

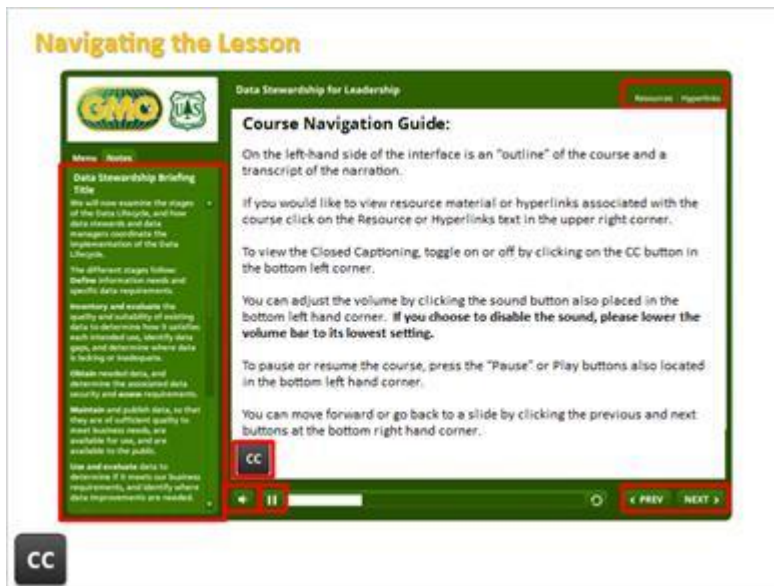


#### **Notes:**

Welcome to "Data Stewardship, the Oversight and Management of Data in the Forest Service". A Training Session for Data Stewards and Data Managers within the US Forest Service. This course is designed for those who collect, maintain, use, or publish data set(s) within their area of expertise. Examples of these positions include; soil scientists, engineers, biologists, range conservationists, fire ecologists, recreation specialists, GIS coordinators, and database analysts.

For supplemental materials, including course references, glossary, and supporting documentation, please visit the resources tab.

## 1.2 How to Navigate the Modules



### Notes:

On the left-hand side of the interface is an “outline” of the course and a transcript of the narration.

If you would like to view resource material or hyperlinks associated with the course click on the Resource or Hyperlinks text in the upper right corner.

To view the Closed Captioning, toggle on or off by clicking on the CC button in the bottom left corner.

You can adjust the volume by clicking the sound button also placed in the bottom left hand corner. **If you choose to disable the sound, please lower the volume bar to its lowest setting.**

To pause or resume the course, press the “Pause” or Play buttons also located in the bottom left hand corner.

You can move forward or go back to a slide by clicking the previous and next buttons at the bottom right hand corner.

### 1.3 A message from the Chief

**A message from the Chief**



"I believe that we could not continue our leadership in natural resources, nor be responsive to our partners or to the public, without our information resources - the information, the technology, and the people - that help us make it all work."

Tom Tidwell  
Information Resources Strategic Framework, October 2010



#### Notes:

Stressing the importance of data resources, technology, and our people that work with data, Chief Tom Tidwell had this to say, when commenting on the Information Resources Strategic Framework....

"I believe that we could not continue our leadership in natural resources, nor be responsive to our partners or to the public, without our information resources; the information, the technology, and the people that help us make it all work"

## Untitled Layer 1 (Slide Layer)

**A message from the Chief**



"I believe that we could not continue our leadership in natural resources, nor be responsive to our partners or to the public, without our information resources - the information, the technology, and the people - that help us make it all work."

Tom Tidwell  
Information Resources Strategic Framework, October 2010

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### 1.4 Something To Think About!

**Something To Think About!**

Are we optimizing our investments with our data assets?

- Are we leveraging this investment?
- Are we producing and delivering good data?
- Are we confident in our decisions?
- Are we taking too much time identifying and preparing data?
- Is it clear who should do the work?



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#### Notes:

Are we are doing all that we can to optimize our investments? For instance:

- Are we leveraging our data investment to produce and deliver reliable and credible data?
- Is it challenging to make confident land management decisions with our current information?
- Is too much time spent identifying and preparing our data?

- Is it clear who should do the work?

If these are familiar questions, then learning more about data stewardship may offer some answers.

## 1.5 Course Overview

### Course Overview

In this course you will learn:

- Key concepts about data stewardship, data management, and data governance
- What you can do to support and implement good data management practices
- What you should expect from your leaders concerning data management
- How good data stewardship increases the value of your data for decision-making
- How good data stewardship improves the value of our corporate database systems



### Notes:

In this Course, you will learn:

- Key concepts about data stewardship, data management, and data governance
- What you can do to support and implement good data management practices
- What you should expect from your leaders concerning data management
- How good data stewardship increases the value of your data for decision-making
- How good data stewardship improves the value of our corporate database systems

## 1.6 Data Management

### Data Management

**What is Data Management?**

- The business aspect of planning, controlling and delivering our data and information assets
- Data management is a collection of activities and people that use the data.
- When done effectively, data management helps us meet our business requirements
- Data management is a shared responsibility between data stewards, data managers and your leaders



### Notes:

Let's examine data management. Framing up this concept will help guide you through this course.

In essence, **data management** is collecting the appropriate data, caring for that data, using data appropriately, and making data accessible.

- The business aspect of planning, controlling and delivering our data and information assets
- Data management is a collection of activities and people that interact with the data
- When done effectively, data management helps us meet our business requirements
- Consider data management as a shared responsibility between you (the data stewards), data managers, and your leaders

This shared responsibility is stressed in the Data Stewardship Training Series.

## 1.7 What is Data Stewardship?

**What is Data Stewardship?**

Data Stewardship focuses on the business aspect. It includes:

- Understanding program responsibilities for appropriate data usage and access.
- Establishing accountability for the content, quality, and dissemination of data.

Data Stewardship is primarily the responsibility of the data steward, but data managers also play a role in stewarding data that they manage, such as:

- Ensuring that derived maps and reports accurately portray what is being conveyed
- Metadata that accompanies derived products properly documents how and why the maps or reports were generated.



### Notes:

What is Data Stewardship?

Data Stewardship is the oversight and management of data at all levels of the organization. It includes:

- Understanding program responsibilities for appropriate data usage, such as protocols and procedures for data collection, understanding data accuracies, and determining who should access the data.
- Establishing the accountability for the content, documentation, quality, and dissemination of data.

Data Stewardship is primarily the responsibility of the data steward, but data managers also play a role in stewarding data that they manage, such as:

- Ensuring that derived maps and reports accurately portray what is being conveyed
- Metadata that accompanies derived products properly document how and why the maps or reports were generated.

**Both data management and data stewardship activities occur throughout the data life cycle.**

## ***1.8 Data Governance is the Foundation for Good Data Stewardship and Data Management***

**Data Governance is the Foundation for Good Data Stewardship and Data Management**

Data governance is a formalized, controlled and structured organizational process to guide the shared responsibilities of data management.

Data governance is:

- The overall management of the availability, usability, integrity, and security of our data in our information systems
- Defining regulatory compliance steps, data management projects, and data quality activities
- Making shared decisions between data stewards, data managers, and leaders
- Enacted at all units and levels to improve coordination of data management activities



### **Notes:**

A critical component that allows data stewards and data managers to effectively organize and plan data management activities is data governance.

**Data governance is a formalized and structured organizational process to guide the shared responsibilities of data management.**

Data governance is:

- The overall management of the availability, usability, integrity, and security of our data in our corporate information systems
- Defining regulatory compliance steps, data management projects, and data quality activities
- Making shared decisions between data stewards, data managers, and leaders
- Enacted at all units and levels to improve coordination of data management activities

## 1.9 Who is a Data Steward?

**Who is a Data Steward?**

A subject matter expert, often a program manager

A steward is a trustee of data assets who acts on behalf of the Agency, unit and stakeholders

A data steward is accountable for data content, and performs activities such as:

- applying and developing standards and protocols
- assuring metadata and documentation are managed correctly
- assuring the integrity and quality of data
- determining the appropriate use and purpose of the data
- and establishing user access policies

Data stewards must interact with data, if not directly, then through oversight.

A data steward has the program knowledge and responsibility for assuring data quality.



### Notes:

Let's explore the role of the data steward.

Data Stewards are subject matter experts, often a program manager, in a business or natural resource area or scientific discipline.

A steward is a trustee of data assets, who acts on behalf of the Agency, unit, and stakeholders.

A data steward is accountable for **data content**, and performs activities such as:

- applying and developing standards and protocols
- assuring metadata and documentation are managed correctly
- assuring the integrity and quality of data
- determining the appropriate use and purpose of the data, and
- establishing user access policies

Data stewards must interact with data, if not directly, then through oversight.

A data steward has the program knowledge and responsibility for assuring data quality.

## 1.10 Who is a Data Manager?

### Who is a Data Manager?

**A key partner of the data steward**  
Data managers are skilled technical specialists and experts.  
Data managers are custodians of data, who support the work of data stewards.  
Data managers are focused on the technology side of information and data:

- By implementing data standards, requirements, or policies in coordination with data stewards.
- By ensuring data delivery meets external and internal business requirements.
- By protecting data through enforcement of security and access policies.

A data manager interacts directly with data by developing and mastering tools and techniques to effectively and accurately deliver business data.

**A data manager has the knowledge to effectively use technology.**



### Notes:

A Data manager is a key partner of the data steward.

Data managers are skilled technical specialists and experts. Typically these are GIS specialists, editors, or database analysts, which include IT professionals.

A data manager is a custodian of data, who supports the work of data stewards.

A data manager is focused on the technology side of information and data, and is accountable and responsible for data administration, manipulation and security.

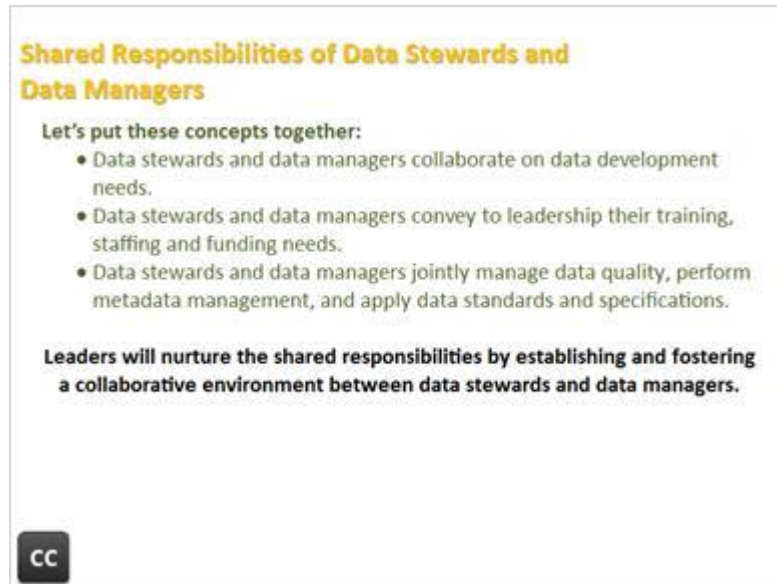
- A data manager implements data standards, requirements, or policies in coordination with data stewards.
- A data manager ensures data delivery meets external and internal business requirements.
- A data manager protects data through enforcement of security and access policies.

A data manager interacts directly with data by developing and mastering tools and techniques to effectively and accurately deliver business data.

A data manager has the knowledge to effectively use technology.

## ***1.11 Shared Responsibilities of Data Stewards and***

### ***Data Managers***



**Shared Responsibilities of Data Stewards and Data Managers**

Let's put these concepts together:

- Data stewards and data managers collaborate on data development needs.
- Data stewards and data managers convey to leadership their training, staffing and funding needs.
- Data stewards and data managers jointly manage data quality, perform metadata management, and apply data standards and specifications.

**Leaders will nurture the shared responsibilities by establishing and fostering a collaborative environment between data stewards and data managers.**

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#### **Notes:**

It is apparent that Data stewards and Data managers each play important roles in the shared responsibilities of managing data:

- Data stewards and data managers collaborate on data development needs, including requests for application development, technology acquisitions, and data-collection activities.
- Data stewards and data managers convey to leadership their training, staffing and funding needs, for more effective data management.
- Data stewards and data managers jointly manage data quality, perform metadata management, and apply data standards and specifications.

**Leaders will nurture the shared responsibilities by establishing and fostering a collaborative environment between data stewards and data managers.**

## ***1.12 Data Stewards and Data Managers Role in***

### ***Data Governance***



**Data Stewards and Data Managers Role in Data Governance**

Data stewards and data managers participate in data governance teams to:

- Clearly articulate the roles and responsibilities of each team member
- Engage in development of procedures and policies for the governance
- Establish communication procedures
- Perform data management activities as a routine part of every project.

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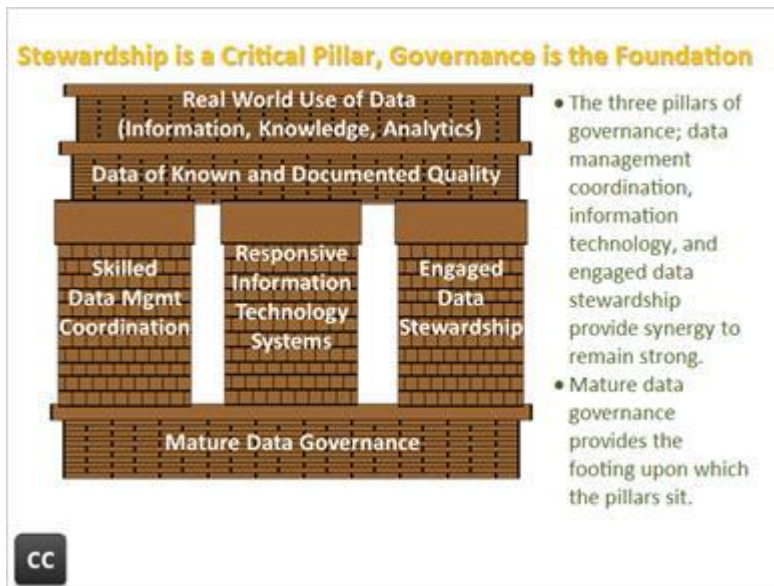
#### **Notes:**

#### **Data Stewards and Data Managers Role in Data Governance**

Data stewards and data managers participate in data governance teams to:

- Clearly articulate the roles and responsibilities of each team member by using tools such as the RACI matrix located in the reference section of this training
- Engage in development of procedures and policies for the governance team by developing data management workflows and schedules
- Establish communication procedures to ensure good communication between team members
- Perform data management activities as a routine part of every project.

### 1.13 Stewardship is a Critical Pillar, Governance is the Foundation



#### Notes:

Envision the proper real-world use of data as the roof of a structure that relies on known and high-quality reliable data.

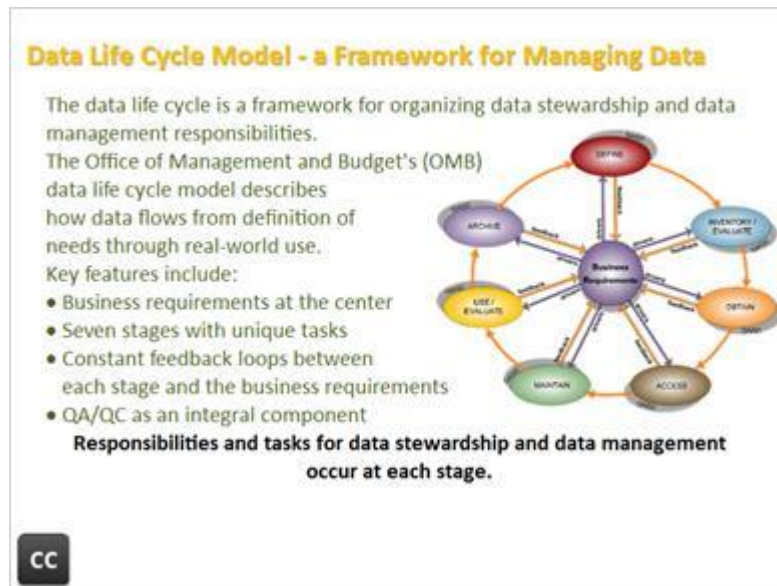
The roof is supported by three fundamentals (or pillars); data management coordination, information technology, and data stewardship.

The pillars remain strong with synergy derived from their interactions.

Data governance provides the footing upon which the pillars sit.

**Data stewards and data managers foster the synergy among data management, data stewardship, and information technology to maintain the governance structure that best delivers real-world use of the data.**

## 1.14 OMB Data Lifecycle



### Notes:

The data lifecycle establishes a framework for effective data stewardship and data management.

The Office of Management and Budget (OMB) defined a data lifecycle model that describes how data flows from definition of needs through real-world use. Key features include:

- Business requirements at the center
- Seven stages with unique tasks
- Constant feedback loops between the stages and business requirements
- Quality assurance and quality control as an integral component

**Responsibilities and tasks for data stewardship and data management occur at each stage**

## QA/QC (Slide Layer)

### Data Life Cycle Model - a Framework for Managing Data

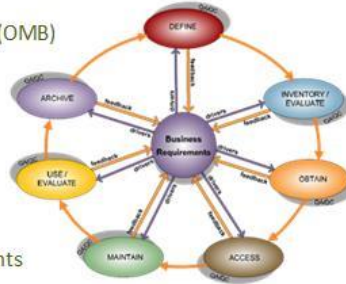
The data life cycle is a framework for organizing data stewardship and data management responsibilities.

The Office of Management and Budget's (OMB) data life cycle model describes how data flows from definition of needs through real-world use.

Key features include:

- Business requirements at the center
- Seven stages with unique tasks
- Constant feedback loops between each stage and the business requirements
- QA/QC as an integral component

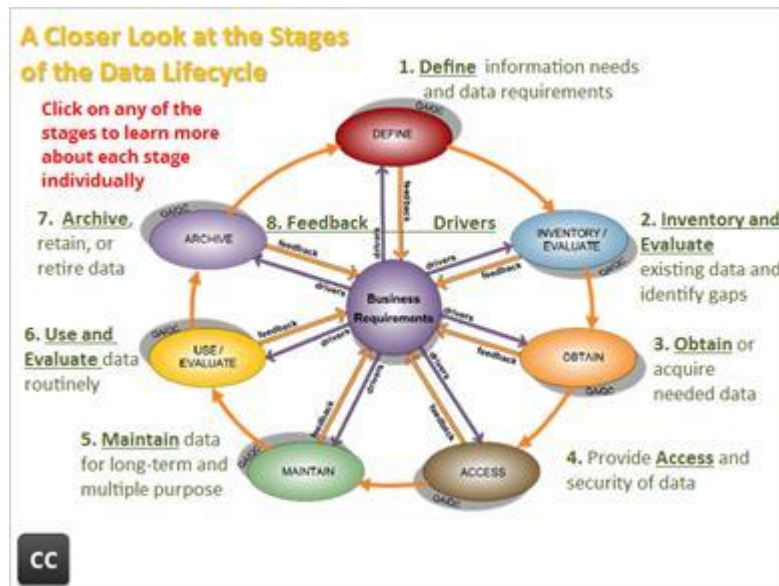
Responsibilities and tasks for data stewardship and data management occur at each stage.  
Quality Assurance (QA) - Processes to ensure quality in data development  
Quality Control (QC) - Activities of identifying and correcting data errors.



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## 1.15 A Closer Look at the Stages

### of the Data Lifecycle



### Notes:

We will now examine the stages of the Data Lifecycle, and how data stewards and data managers coordinate the implementation of the Data Lifecycle.

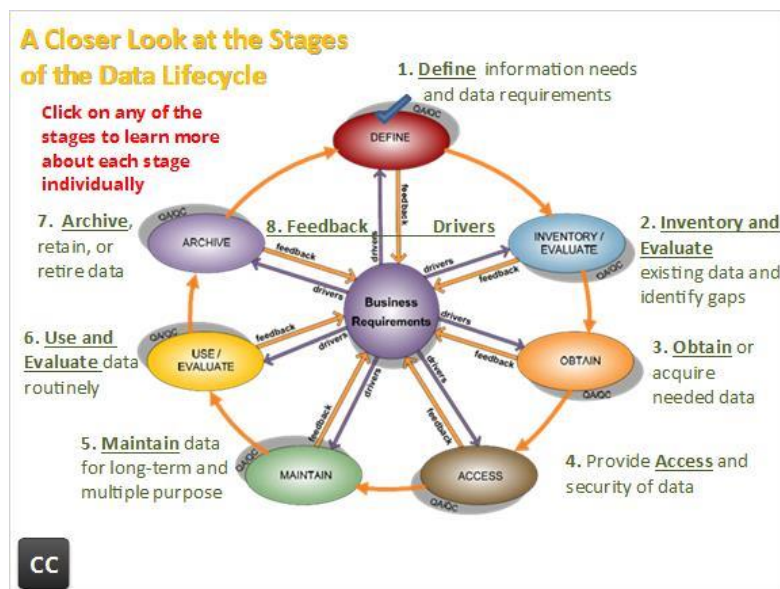
The different stages follow: **Define** information needs and specific data requirements.

- **Inventory and evaluate** the quality and suitability of existing data for each intended use, identify data gaps, and determine where data is lacking or inadequate.
- **Obtain** needed data, and determine the associated data security and **access** requirements.
- **Maintain** and publish data, so that they are of sufficient quality to meet business needs, are available for use, and are available to the public.
- **Use and evaluate** data to determine if it meets our business requirements, and identify where data improvements are needed.
- **Archive** or retire data that is no longer needed by following retention policies, maintaining important historic data, and retiring data that is no longer useful.
- **Feedback and drivers** illustrates the process between business requirements and each lifecycle stage.

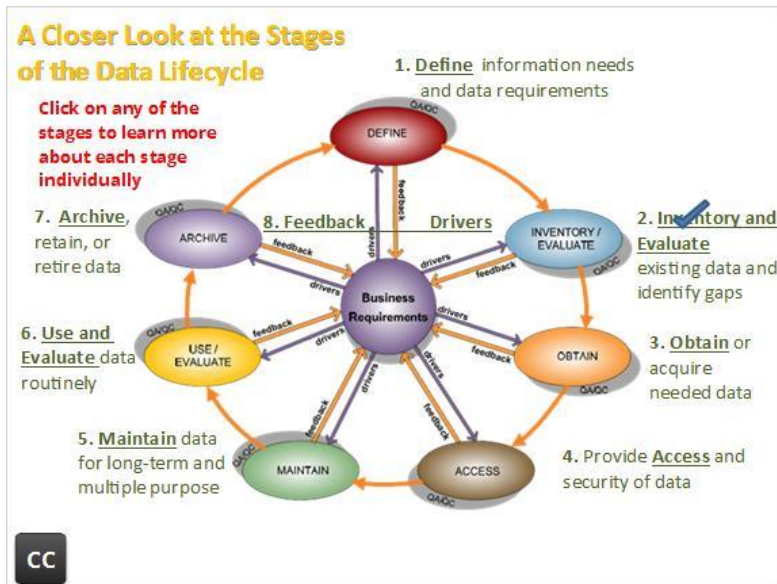
The Data Lifecycle begins again, as new needs are defined.

Please click on each corresponding button and the "Feedback and Drivers" text to learn more about the lifecycle components. Begin with the Define Stage to view the full cycle from beginning to end.

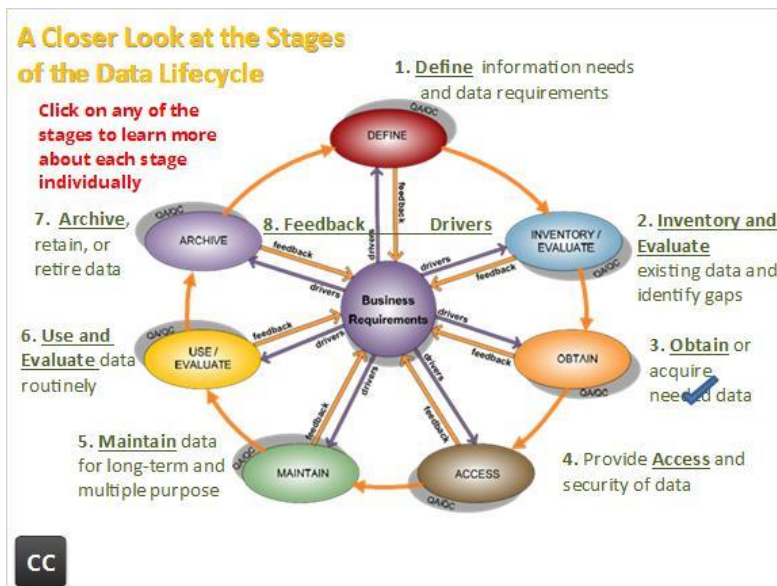
## Define Check (Slide Layer)



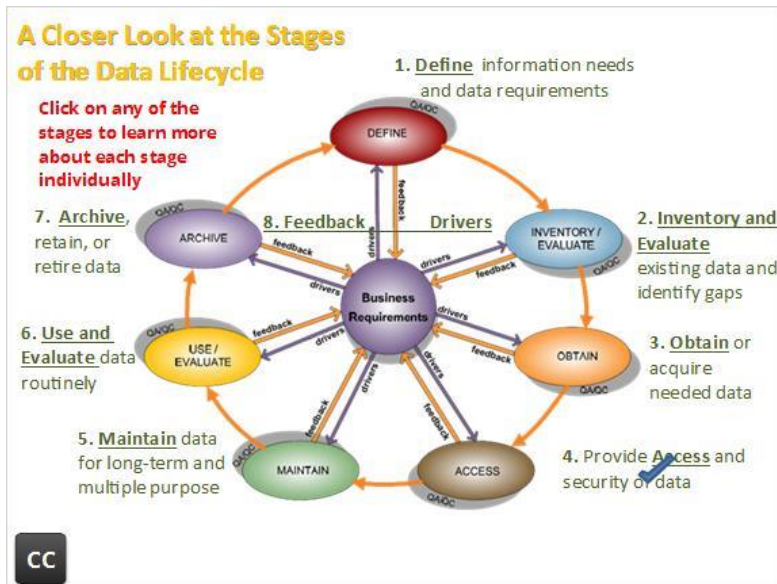
## Inventory&Evaluate Check (Slide Layer)



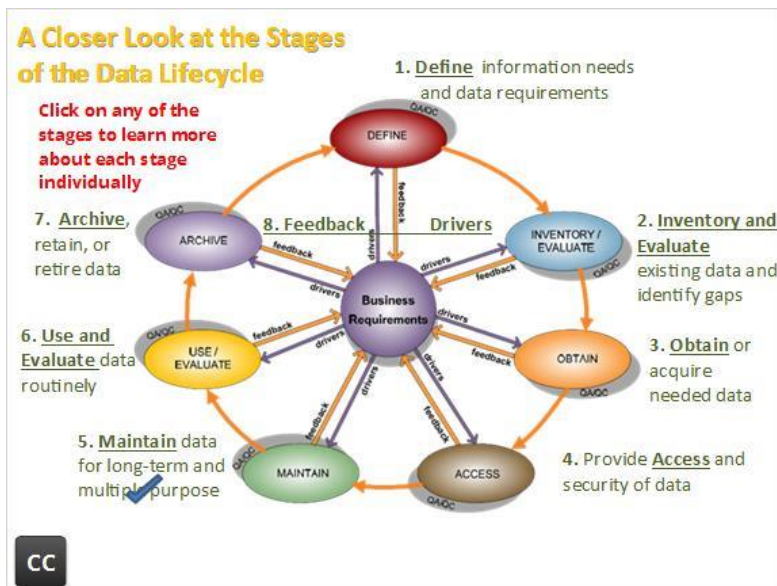
## Obtain Check (Slide Layer)



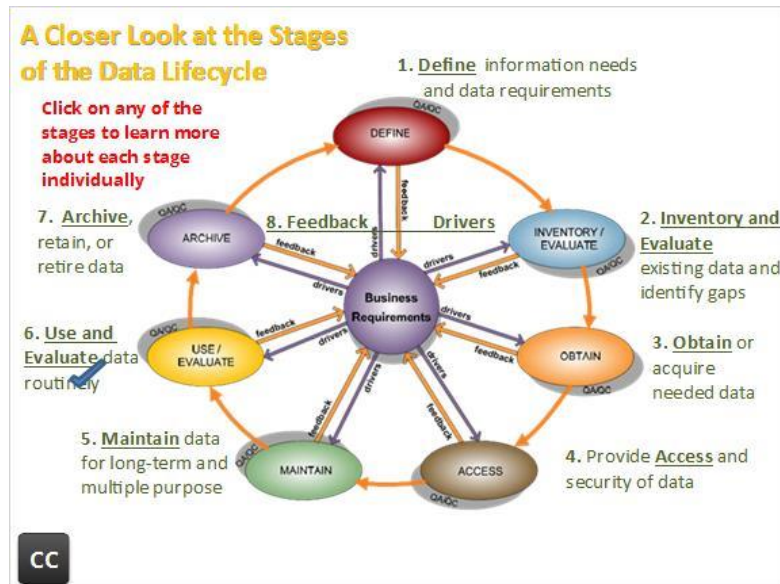
## Access Check (Slide Layer)



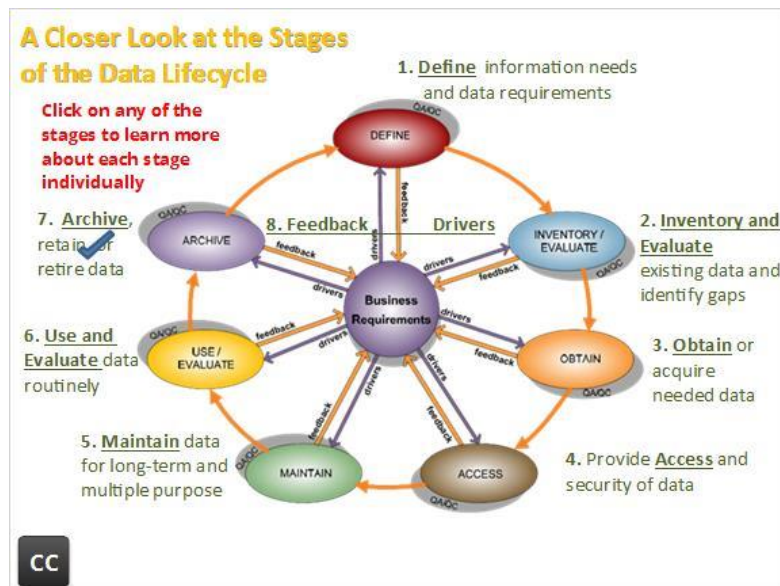
## Maintain Check (Slide Layer)



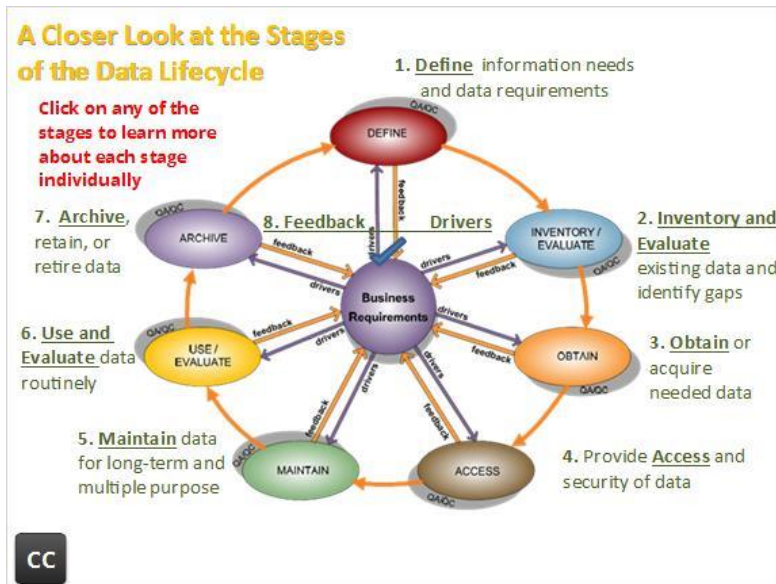
## Use/Evaluate Check (Slide Layer)



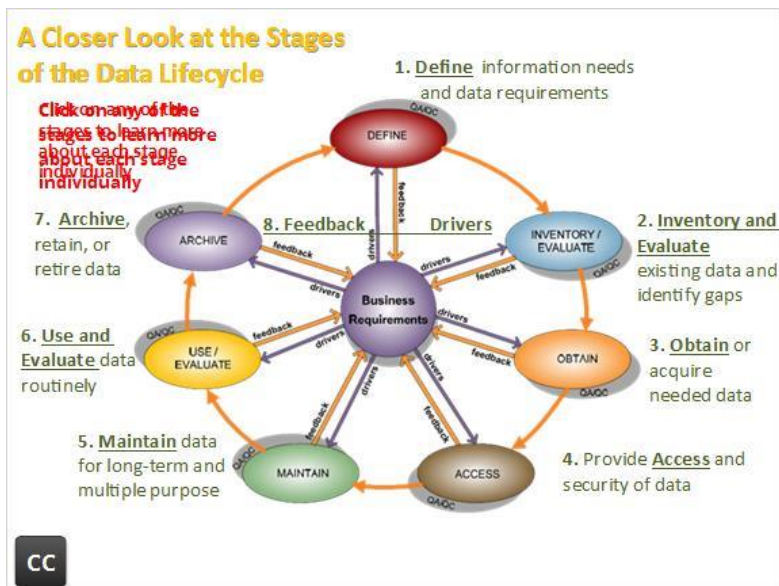
## Archive Check (Slide Layer)



## Feedback Check (Slide Layer)



## Que to Click (Slide Layer)



## 1.16 Inventory and Evaluate Stage: Inventory

**Inventory and Evaluate Stage: Inventory**

Address the questions:

- Do we have the data we need?
- Are the data of sufficient quality?

Take note that:

- We need to be aware of the richness and quality of data
- This step can save considerable time and money



### Notes:

Within the "Inventory and Evaluate" stage, you address the questions;

- "Do we have the data we need?" and "Are the data of sufficient quality?" The data may already exist in GIS libraries, corporate applications or file systems.
- We need to be aware of the richness and quality of the data within your organization.
- This step can save considerable time and money, and help you to avoid wasteful duplication of effort.
- If the data do not exist, you can then begin to decide what new data to collect, if any.

## 1.17 Inventory and Evaluate Stage

**Inventory and Evaluate Stage: Quality**

**Are data of sufficient quality?**

- Evaluate existing data against data quality criteria identified in the "Define" stage
- Identify data gaps, signifying data that will need to be obtained



### Notes:

Next evaluate existing data against the data criteria identified in the "Define" stage and identify critical data gaps and vulnerabilities.

Because of the technical nature of some aspects of data evaluations (such as complex database analyses), data stewards may need the help of technical specialists

## 1.18 Data/information quality requirements

**Define Stage: Data Information Quality Criteria**

Here is a generalized list that provides a good overview of data quality criteria:

- Useful
- Relevant
- Accurate
- Reliable
- Complete
- Consistent with data standards and data collection protocols
- Up-to-date
- Documented with metadata
- Available for use

To learn about the specifics you can view the [OMB Data Quality Guidelines](#)



### Notes:

When defining data needs, information quality is vital.

Here is a generalized list that provides a good overview of data quality criteria.

To learn more about the specifics of data quality and how they relate to your duties click on any of the links provided.

## 1.19 Obtain Stage: How to Obtain Data with Available Resources?

**Obtain Stage: How to Obtain Data with Available Resources?**

Data stewards should:

- Understand the substantial workload and commitment
- Weigh the procurement options
- Focus on obtaining data that best meets your data requirements
- Provide expertise for collecting data and advise leadership on technical issues
- Set realistic targets aligned with real data needs
- Define the scope and requirements for data collection projects

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### Notes:

Now that you have inventoried and evaluated the data, subsequent efforts should concentrate on acquiring specific data to meet your business requirements.

- Understand that obtaining data represents a substantial workload and commitment.
- Weigh the procurement options such as; contract mechanisms, enterprise teams, grants, agreements, and partnerships.
- With available funding and resources, focus on obtaining data that best meets your data requirements. Consider the cost versus the risk of not having that specific quality of data.
- You, the data steward provide the expertise for collecting or acquiring data according to current protocols and sample designs. You advise program areas and leadership on these technical details.
- You should collaborate and plan projects and targets that are realistic, achievable, and aligned with your requirements.
- When defining the scope and requirements of data-collection projects, evaluate options for obtaining data, such as; contracting, grants, agreements, and partnerships.

## 1.20 Obtain Stage

**Obtain Stage: Scope and Requirements**  
**Data Steward Considerations in the Obtain Stage**  
Determine the mechanism of obtaining needed data. Considerations should include:

- Who will collect new data?
- How will existing data be procured
- When will new or existing data be needed?

Once the data is collected or received from external sources, the data must be reviewed to assure that the data meets standards and fits the intended use.



### Notes:

#### Data Steward Considerations in the Obtain Stage

Determine the mechanism of obtaining needed data. Considerations should include:

- Who will collect new data? Examples include: contractors, agency personnel, cooperators, or volunteers
- How will existing data be procured? Examples include purchases, exchanges, or public data sources
- When will new or existing data be needed?

Once the data is collected or received from external sources, the data must be reviewed to assure that it meets standards and fits the intended use.

Data must be reviewed and updated on a regular schedule to maintain high quality.

## 1.21 Access Stage: Releasing and Publishing Data



**Access Stage: Releasing and Publishing Data**

You will need to consider the following:

- Who should have access to the data?
- What type of access should be granted for each user
- What do requirements for releasing data ensure?
- How do we eliminate restrictive practices to accessing data?
- How do we keep our specialists from hoarding data and not sharing it?

**Employees Do not Own Data - They Steward the Data!**

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### Notes:

In the "Access" stage, we will look at requirements for releasing and publishing data.

Some decisions about releasing data include deciding: "Who should have access to the data?", and "What type of access should be granted?" Depending on the scope of publication and potential uses and risks of misuse of a given data set, a data steward may be wise to consult with the unit line officer to ensure they're fully aware of the implications of data publication.

In essence, you are planning to make your data available to internal and external communities for a variety of purposes.

What type of access should be granted to the data, and for whom? Strict control on write access helps control data quality.

What do requirements for releasing data ensure? Requirements for releasing data ensure that people have access while maintaining data integrity and confidentiality.

How do we eliminate restrictive practices to accessing data? By properly managing user access roles and making our data transparent and available to all.

Make sure data is available for use within your organization. How do we keep our specialists from hoarding data and not sharing it?

A common challenge within our agency involves the concept of data ownership. Employees steward data for the benefit of the Forest Service and the public; they do not own the data.

## 1.22 Access Stage: Restricted Data

**Access Stage: Restricted Data**

Remember some types of data are restricted such as:

- Classified
- Proprietary
- Personally identifiable information
- Information legally protected by laws (Antiquities Act)

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### Notes:

Some data is restricted only to authorized personnel such as:

- Classified data for protection of national security.
- Proprietary data, for instance if you are a minerals data steward, you would not show a non-federal companies' economics data to their competitors.
- Personally identifiable information (PII) and information legally protected by laws, such as the Antiquities Act must also be protected.

## 1.23 Access Stage: Publication Requirements

### Access Stage: Publication Requirements

Decisions regarding the publishing of data to external customers must adhere to legal authorities such as the following:

- [FOIA](#) (Freedom of Information Act)
- [EFOIA](#) (Electronic Freedom of Information Act)
- [FISMA](#) (Federal Information Security Management Act)
- [NARA](#) (National Archives and Record Administration)
- [OMB/USDA](#) Information Quality Guidelines
- [FGDC](#) (Federal Geographic Data Committee) metadata requirements
- [NSDI](#) (National Spatial Data Infrastructure-Executive Order 12906)



### Notes:

Decisions regarding the publishing of data to external customers must adhere to legal authorities such as the following:

- FOIA (Freedom of Information Act), and EFOIA (Electronic Freedom of Information Act)
- FISMA (Federal Information Security Management Act), and NARA (National Archives and Record Administration) as well as the
- OMB/USDA Information Quality Guidelines and the FGDC (Federal Geographic Data Committee) metadata requirements.
- It is important to note that the term "publish" is used in a general sense, and means "make available."
- For geospatial data collections, such as those identified in *Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure, which is* (Executive Order 12906) are required to support public and private sector applications of geospatial data."

Please click on any of the underlined text to view information about any of the requirements mentioned.

## FISMA (Slide Layer)

### Access Stage: Publication Requirements

Decisions regarding the publishing of data to external customers must adhere to legal authorities such as the following:

- [FOIA](#) (Freedom of Information Act)
- [EFOIA](#) (Electronic Freedom of Information Act)
- [FISMA](#) (Federal Information Security Management Act)
- [NARA](#) (National Archives and Record Administration)
- [OMB/USDA](#) Information Quality Guidelines
- [FGDC](#) (Federal Geographic Data Committee) metadata requirements
- [NSDI](#) (National Spatial Data Infrastructure-Executive Order 12906)

Goals as stated in FISMA (Federal Information Securities Management Act of 2002) are to provide:

[Integrity](#) - "Guarding against improper information modification or destruction, and includes ensuring information non-repudiation and authenticity..."

[Confidentiality](#) - "Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information ..."

[Availability](#) - "ensuring timely and reliable access to and use of information."

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## 1.24 Access Stage

### Access Stage: Guidelines

#### General Guidelines for Data Publication

[Ensure data meet quality requirements including OMB's Data Quality Guidelines](#)

[Ensure data meets data standards, including our Agency's GIS Data Dictionary](#)

[Ensure data contains clear and complete metadata, such as FGDC-compliant metadata](#)

[Provide documentation with your data. Include an index, catalog, or "read-me" file with the materials](#)

Ensure data is up-to-date, complete, and the most current version

[Make sure data can be understood and are not misleading](#)

Provide contact information so you can be reached for more information

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### Notes:

#### General Guidelines for Data Publication

Remember as part of the access stage, you ensure that data meet quality and documentation requirements, and can be understood by users.

Data stewards are critical in this effort, because they know the data better than anyone else.

Here are some general guidelines for data publication.

- Ensure data meet quality requirements, ensure data meet Forest Service data standards such as those specified in the GIS Data Dictionary.
- Ensure data contain clear and complete agency and FGDC - compliant metadata.
- If possible provide an index, catalog, or readme file with the data to help direct its use.
- Ensure data is up-to-date and understandable, and provide a contact in case issues arise.

You can learn more about each guideline that is underlined by clicking on the link to see an example.

## Slide Restriction (Slide Layer)

**Access Stage: Guidelines**

**General Guidelines for Data Publication**

- [Ensure data meet quality requirements including OMB's Data Quality Guidelines](#)
- [Ensure data meets data standards, including our Agency's GIS Data Dictionary](#)
- [Ensure data contains clear and complete metadata, such as FGDC-compliant metadata](#)
- [Provide documentation with an index, catalog, or "read-me" file](#)
- [Ensure data is up-to-date and understandable, and provide a contact in case issues arise](#)
- [Make sure data can be understood and are not misleading](#)
- [Provide contact information so you can be reached for more information](#)

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You must click on all the links to continue to the next slide

## 1.25 Access Stage: GIS Data Dictionary Example

**Access Stage: GIS Data Dictionary Example**

Accessing quality data means knowing where to keep current on data standards, and where to track updates

 **National GIS Data Dictionary**  
National Headquarters - Washington DC

OSTC FSWWeb | OI FSWWeb | NRTS FSWWeb | ALP FSWWeb

**Search**

**Advanced Search**

**GIS Data Dictionary**

**Home**

**Current Standard**

**GIS DO Update**

**EGIS Standards**

**Current Forest Service National GIS Data Dictionary Standard**

**GIS Data Dictionary Standards by Theme and revision date**

| Theme (Web Page Version)   | PDF Version | Word Version (ZIP file) | Vintage |
|----------------------------|-------------|-------------------------|---------|
| <a href="#">Activities</a> |             |                         | 2008    |

[Click Here for the GIS Data Dictionary](#)

[Click Here for the GIS Data Dictionary Update Website](#)



### Notes:

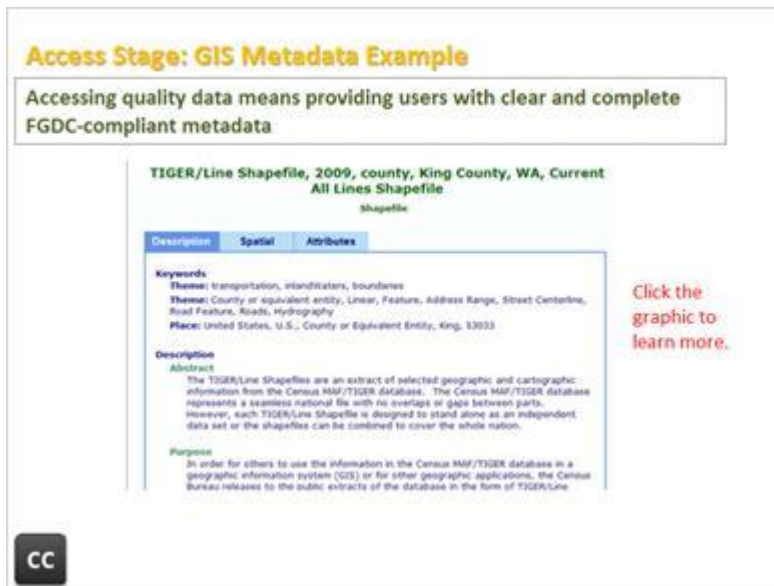
The Forest Service GIS data dictionary is a great guide in helping you comply with the Agency's GIS standards.

Evolving business area requirements and data standards may cause your data to become outdated.

Reviewing proposals and tracking changes through corporate websites helps the data steward to keep current with evolving GIS data standards.

Click on the graphics to learn more about the Data Dictionary

## 1.26 Access Stage: GIS Metadata Example



### Notes:

#### GIS Metadata

Metadata is information about data. A simple example of metadata is the credits at the end of a movie.

- The credits tell you where and when it was filmed, the company that produced the film, those involved in filmmaking, and other details.

Metadata for natural resource data is similar and must address the fundamental data characteristics; what the data represent, where the data is located, what the attributes mean, how and when the data were developed, and other important information to enable people to understand and use the data effectively.

The Forest Service uses the Federal Geographic Data Committee (FGDC) standards to create compliant metadata for GIS products.

Guidelines for metadata, such as the FGDC guidelines, help data stewards document their data, and ensure those that access the data are properly informed of its intended uses and reliabilities.

Click the graphic to learn more

## 1.27 Access Stage: Index or Readme File Example

**Access Stage: Index or Readme File Example**

Provide an index, catalog, or readme file

GIS Catalog - Mantle La Sal NF GIS Library

| Theme          | Feature Class Name | Quick Guide                                         | DESCRIPTION                                                                                                                                              |
|----------------|--------------------|-----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Big open space | Big open space     | Most recent comprehensive existing vegetation layer | Existing vegetation (2012) in the plant community, or floristic composition and vegetation structure, occurring at a given location at the current time. |
| Big open space | Big open space     | Most recent comprehensive existing vegetation layer | Existing vegetation (2012) in the plant community, or floristic composition and vegetation structure, occurring at a given location at the current time. |
| Big open space | Big open space     | Most recent comprehensive existing vegetation layer | Existing vegetation (2012) in the plant community, or floristic composition and vegetation structure, occurring at a given location at the current time. |

Click the graphic to see a larger example of this catalog

A simple README file might include simple elements such as:

- how to start an application
- where to find instructions or associated files
- who to contact

Click here to see a detailed example of a readme file

CC

### Notes:

It is helpful to provide an index, catalog, or readme file with the products as an attached document such as a catalog in the corporate GIS library, or on websites.

This is especially important for Enterprise and Emergency Incident Teams that need to find and use data quickly.

Readme files are informal notes that should be included with the data as an attachment, provide minimal guidance, and may include; how to start an application, where to find instructions or associated files, and who to contact.

Users can then read associated metadata, data dictionaries, or user's guides for more specifics.

Click on any of the provided links to view a larger example of the catalog, or more detailed examples of the README file.

## 1.28 Access Stage: Misleading Data Example

**Access Stage: Misleading Data Example**

Make sure data can be understood and are not misleading

| ID | NAME | STATUS | MODEL | MAKE | YEAR | DESCRIPTION |
|----|------|--------|-------|------|------|-------------|
| 1  | 101  | Closed | 1970  | 1970 | 1970 | 1970        |
| 2  | 102  | Closed | 1970  | 1970 | 1970 | 1970        |
| 3  | 103  | Closed | 1970  | 1970 | 1970 | 1970        |
| 4  | 104  | Closed | 1970  | 1970 | 1970 | 1970        |
| 5  | 105  | Closed | 1970  | 1970 | 1970 | 1970        |
| 6  | 106  | Closed | 1970  | 1970 | 1970 | 1970        |
| 7  | 107  | Closed | 1970  | 1970 | 1970 | 1970        |
| 8  | 108  | Closed | 1970  | 1970 | 1970 | 1970        |
| 9  | 109  | Closed | 1970  | 1970 | 1970 | 1970        |
| 10 | 110  | Closed | 1970  | 1970 | 1970 | 1970        |

Click the graphic to see a more detailed example

CC

### Notes:

It is important to review the data before publishing to make sure it can be understood.

Without good QA/QC practices, errors persist in any database.

In this example, the GIS data used to create the Motor Vehicle Use Map includes closed and decommissioned roads, even though they do not show on the map.

Some data structure is complex, and may be difficult for users to interpret.

Click the graphic to see a detailed example of misleading GIS tabular data.

## 1.29 Where to Publish? Externally

**Access Stage: Where to Publish? Externally**

External publication of data serve the public and our partners publications should include:

- When appropriate, we should publish data to external areas
- Publications should include the date, author, and other metadata
- Proactively publishing our data reduces the workload of processing data requests

You should consider where, what format, and how often to publish.



### Notes:

When appropriate, we should publish data to external areas.

- For example: State agencies working on the forest, such as state wildlife or minerals agencies.
- Other federal or state land management agencies working adjacent to our Forests.
- The public that are looking for recreation opportunities, or to participate in our decision making processes.

The data steward helps identify the publication requirements for making data available to outside users.

- Publications should include the date, author, and other metadata

Proactively publishing our data, reduces the workload of processing data requests (including FOIAs), and improves our credibility with the public.

- You should consider where, what format, and how often to publish.

## 1.30 Where to Publish? Internally

**Access Stage: Where to Access and Publish Internal Data**

A variety of different procedures are used by the Forest Service to control access to data at all levels for varying environments. For example:

- Access to various Enterprise applications such as EDW, access is controlled by E-authentication and LincPass credentials;
- Access to Forest Service corporate applications such as Spatial Data Engine (SDE); Natural Resource Manager - User Management Application (UMA) are role-based for individuals;
- Access to Forest Service corporate applications such as Spatial Data Engine (SDE); Natural Resource Manager - User Management Application (UMA) are role-based for individuals;
- File system provides group permissions for the Content Database (O-Drive) or Distributed File System (T-Drive). Access is determined by levels in file structure with different group managers;

Publishing data can also occur internally through SharePoint sites, blogs, and websites. A variety of access controls may be placed by authors to restrict access or create user groups to internal publishing sites.



### Notes:

Data stewards help decide where to internally publish data. When publishing data to internal sources it's important to note that a variety of different procedures are used by the Forest Service to control access to data at all levels for varying environments. For example:

- Access is controlled by E-authentication and LincPass credentials to access various enterprise applications such as Enterprise Data Warehouse.
  - Access is controlled by individual role permissions for Forest Service corporate applications such as Spatial Data Engine (SDE), Natural Resource Manager (NRM), and User Management Application (UMA)
  - File systems are controlled by group permissions such as with the Content Database (O-Drive) or Distributed File System (T-Drive). Access is determined by file structure levels administered by assigned group managers
  - Individual applications or spreadsheets are administered with local access control, such as personally-assigned passwords within an application such as MS Access.
- 
- Publishing data can also occur internally through SharePoint sites, blogs, and websites. A variety of access controls may be placed by authors to restrict access or create user groups to internal publishing sites.

### 1.31 Open Government Initiative

**Access Stage: Open Government Directive**

The Memorandum on Transparency and Open Government Directive (OMB, M10-06, 2009) instructs the Agency to take specific actions to implement the principles of:

- Transparency
- Participation
- Collaboration



#### Notes:

The “Memorandum on Transparency and Open Government Directive” instructs:

- Departments and Agencies to take specific actions to implement the principles of transparency, participation, and collaboration to improve government’s effectiveness and accountability, and allows the public to provide ideas and expertise into government policy-making based on;
  - Transparency which promotes public accountability by providing the public with information on what the government is doing.
  - Participation which allows members of the public to contribute ideas and expertise so that their government can make policies with the benefit of information that is widely dispersed to society, and
  - Collaboration, which improves the government’s effectiveness by encouraging partnerships and cooperation within the federal government, across levels of government, and between government and private institutions.

## 1.32 Where to Publish? Externally

**Access Stage: How to address the principles of transparency, participation, and collaboration**

OMB has required agencies to:

- Publish Government Information Online
- Make Data Available Online
- Create and Institutionalize a Culture of Open Government



### Notes:

To address the principles of transparency, participation, and collaboration, OMB has required agencies to;

- “Publish government information online” expands access to information, by making it available in a timely and open format that can be retrieved, downloaded, and indexed.
- This allows us to use modern technology to disseminate useful information.
- “Making data available online” also improves the quality of government information by ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies through processes such as crowd-sourcing.

This helps create and institutionalize a culture of open government.

## 1.33 Maintain Stage

### Maintain Stage

Care for our Agency's data and be confident in the data that we manage!

**Maintenance involves**

- Keeping data up-to-date and consistent with quality requirements
- Ensuring data is useful and relevant
- Updating data using an accurate, consistent, and timely process
- Identifying and fixing problems that invariably crop up
- Making sure data is well-documented to preserve value
- Making data available for intended uses and public disclosure



### Notes:

In the “maintain” stage, you address how to care for the agency’s data. This allows you to be confident in the data that we manage. Good data maintenance protects data quality. Maintenance involves:

- Keeping data up-to-date and consistent with quality requirements reduces the risk of litigation from decisions that are based on the use of old or stale data.
- Ensuring data is useful and relevant will minimize costs by eliminating extraneous data collection and maintenance.
- Updating data using an accurate, consistent, and timely process meets our best available science mandate.
- Identifying and fixing problems that invariably crop up are very important to maintain the usefulness of data in the future.
- Making sure data is well-documented with metadata allows us to better understand the data sources and methods used to create the data. This step provides the basis for using the data for its intended purposes.
- Making data available for internal use and public disclosure is the ultimate goal of data collections. Without the availability to use and distribute the data, the other steps would be meaningless!

## 1.34 Maintenance workflow



### Notes:

A number of events can trigger maintenance activities. These trigger events include obtaining new or updated data, responding to changes in data standards or protocols, error detection through use, scheduled data quality reviews, and management activities such as project work.

Now let's look at the Maintain Stage workflow.

- We access the data to be maintained from a variety of sources.
- We review data quality. Updates to existing datasets are needed to correct errors or reflect more recent data methods and sources.
- We then review the data to determine if it meets our requirements.
- Fewer fixes are needed in maintenance if good quality controls are implemented in the obtain stage. Big or small, there is a workload to edit data and ensure data quality.
- Make sure your edits are documented in the metadata that was created in the obtain stage. Data stewards provide subject matter content to the metadata while data managers may place content in the associated metadata files.
- Data quality reviews should occur when data is loaded and when preparing for management activities such as NEPA planning and analysis
- At the conclusion of the maintenance workflow, we publish the data for end users. This step may be as simple as replacing old data with updated data (including the associated metadata).

### ***1.35 Maintain Stage: Time, Funding and Training***

#### **Maintain Stage: Time, Funding and Training**

**Time, Funding and Training for Data Maintenance**

- Data stewards and resource information managers working in partnership
- The job can be complex, involving numerous natural resource applications, planning specialists, and GIS staff.
- Leadership must provide;
  - sufficient time for completion of tasks associated with implementing the Data Lifecycle stages including feedback at all stages.
  - funding, to ensure QA/QC are properly conducted and
  - training, such as these that inform data stewards of their roles and expectations from leadership



#### **Notes:**

##### **Maintaining Stage: Time, Funding, and Training**

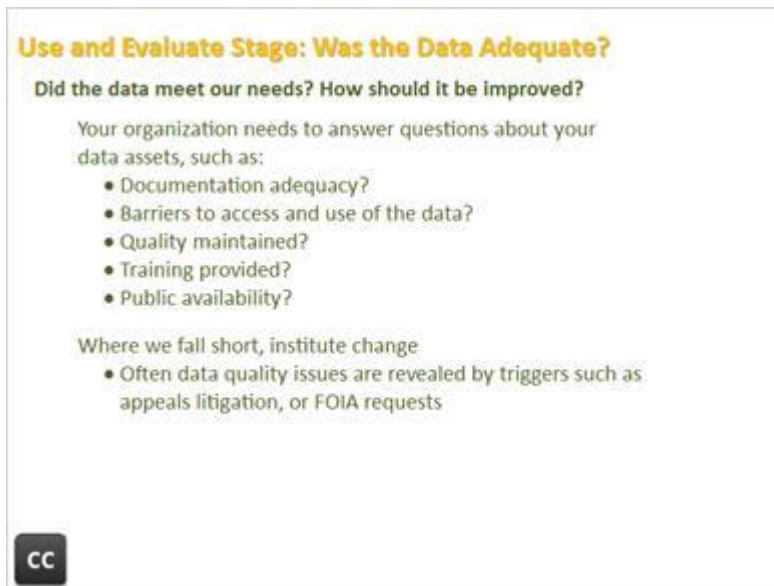
Data stewards work with data managers and other technical specialists to administer the data maintenance process for their business areas.

The job can be complex, involving numerous natural resource applications, planning specialists, and GIS staff.

For maintenance to be effective, sufficient time, funding and training need to be provided.

You need to work alongside your leaders to make sure you are properly prepared to conduct data maintenance!

## 1.36 Use and Evaluate Stage: Was the Data Adequate?



**Use and Evaluate Stage: Was the Data Adequate?**

Did the data meet our needs? How should it be improved?

Your organization needs to answer questions about your data assets, such as:

- Documentation adequacy?
- Barriers to access and use of the data?
- Quality maintained?
- Training provided?
- Public availability?

Where we fall short, institute change

- Often data quality issues are revealed by triggers such as appeals litigation, or FOIA requests

CC

### Notes:

#### Use and Evaluate Stage: Was the Data Adequate?

In the define stage workflow, we emphasized the need to begin with the end in mind to make sure that data development meets our needs. In the “Use and Evaluate” stage, we examine if the data or information is adequate for our purposes, and identify ways to improve existing data.

- Based on feedback from users, you need to answer questions about your data assets such as; “Was documentation adequate to explain the data?”, and “Were there barriers to the access and use of the data?”
- “Was data quality maintained?”, “Were users adequately trained in the use of the data, and data stewardship?”, and “Was appropriate data made available to the public?”

Where we fall short, we can institute change. Often data quality issues are revealed by triggers such as appeals, litigation, or Freedom of Information Act requests.

- A more systematic approach, using good maintenance processes is better than reacting to a crisis. A good opportunity to systematically evaluate our data is during resource planning and individual project activities.

## 1.37 Archive Stage: Archives

**Archive Stage: Archives**

Records that have been selected for permanent or long-term preservation.  
For example:

- Outdated technical guides, manuals, or protocols
- An archive should maintain the ability to re-create the data

Click here to see definitions →



CC

### Notes:

Archives consist of records that have been selected for permanent or long-term preservation. For example;

Outdated technical guides, manuals, or protocols that have been subjected to updated methodologies are archived for their historical value.

The creation of an archive should maintain the ability to re-create the data, despite changes in computer system and software upgrades.

Retention practices should allow data users to restore data, if requested or needed for future use.

Click your mouse over the graphic to see definitions associated with the archive stage including snapshot, archive, and backup.

## Archive Definitions (Slide Layer)

### Archive Stage: Archives

Records that have been selected for permanent or long-term preservation.  
For example:

- Outdated technical guides, manuals, or protocols
- An archive should maintain the ability to re-create the data

[Click here to see definitions](#)



#### Terms

- Snapshot - a copy of existing data at a particular time. A snapshot can be used as input to project work, as a backup, or an archive.
- Archive - A snapshot of the existing data to be put into long term storage for future use or reference or to satisfy a policy or regulatory requirement, such as the retention of a project file.
- Backup - A snapshot of existing data to be used to restore existing data in the case of at corruption and destruction.

CC

## 1.38 Archive Stage: Backups

### Archive Stage: Backups

Maintaining redundant copies of files, created as an alternate in case the original data is lost or becomes unusable

- Monitoring Data
- Historical Aerial Photography

CC

### Notes:

A backup is maintaining redundant copies of files, created as an alternate in case the original data is lost or becomes unusable. For example;

- Monitoring data and historic aerial photography help us detect changes in natural resources, and identify trends to inform future management decisions. This data, and most other data needs proper backups.

- This data should be available for future use, if and when it is needed.

## Archive Que (Slide Layer)

### Archive Stage: Backups

Maintaining redundant copies of files, created as an alternate in case the original data is lost or becomes unusable

- Monitoring Data
- Historical Aerial Photography

CC

## 1.39 Archive Stage: Snapshots

### Archive Stage: Snapshots

A snapshot is a copy of existing data that represents the current data at that time.

- It can be used to document decisions
- Environmental Impact Analyses and Environmental Assessments require data snapshots
- Many corporate applications snapshot data when revising the applications. You should know the snapshot policy of these applications

CC

Notes:

Snapshots are a copy of existing data at a particular time. They can be used to document decisions. In particular;

- Snapshots of data may be required to be preserved, to document our land management decisions.
- If these decisions are challenged, this data will provide supporting documentation for our decisions.
- Project records from environmental impact analyses or environmental assessments are decision documents that meet the criteria for "snapshot".
- Many corporate applications automatically snapshot the data every time a new version is released. You should know the snapshot policies of your corporate systems.

## Archive Que (Slide Layer)

### Archive Stage: Snapshots

A snapshot is a copy of existing data that represents the current data at that time.

- It can be used to document decisions
- Environmental Impact Analyses and Environmental Assessments require data snapshots
- Many corporate applications snapshot data when revising the applications. You should know the snapshot policy of these applications

CC

## 1.40 Archive Stage: Retention of Data

**Archive Stage: Retention of Data**

- Records with file designations have prescribed retention schedules for example:
  - 2720-2 "Special Use Permits" are kept for five years
  - 2720-2-1 "Significant Case files" are retained permanently
- Some data may need to be retained because of legal requirements, For example:
  - Data under a litigation hold
  - Data retained under time frame requirements of the NEPA process
  - Not all of our databases have established record-retention policies. If unknown, contact your records manager or records officer.



### Notes:

#### Archive Stage: Retention of Data

How you handle data within the "Archive Stage" depends on the type of data.

Records with file designations have retention schedules prescribed by manual direction. For example: 2720-2 "Special Use Permits" are kept for 5 years, and 2720-2-1 "Significant Case Files" are retained permanently.

Some data may need to be retained because of legal requirements, for example: Data under a litigation-hold has specific requirements.

Data retained under the NEPA process has specific requirements as well.

Not all of our databases have established record-retention policies. If unknown, contact your records manager or records officer.

## ***1.41 Use and Evaluate Stage: How to use data-driven information to address management issues***

**Use and Evaluate Stage: How to use data-driven information to address management issues**

Example "uses" of data-driven information

- To identify resource trends and conditions
- To identify areas that require land management prescription changes, and associated activities
- To guide resource allocations
- To confirm or discredit assumptions, or test hypothesis about:
  - The best places to conduct management activities
  - Places to avoid or minimize impacts due to sensitive resources
  - The effects of conducting management activities



### **Notes:**

#### **Use and Evaluate Stage: How to use data-driven information to address management**

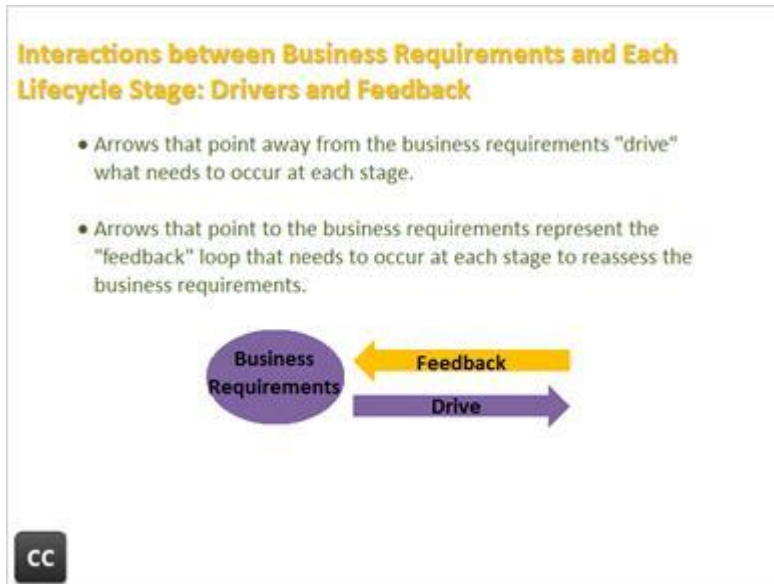
In the Use and Evaluate stage we use data-driven information to address management issues.

Here are some examples:

- To identify resource trends and conditions, such as those identified from adaptive management or monitoring activities.
- To identify areas that require land management prescription changes, and associated activities.
- To guide resource allocations, such as funding and personnel assignments.
- To confirm or discredit assumptions (or test hypotheses), or reveal information about:
  - The best places to conduct management activities.
  - Places to avoid, or minimize impacts due to sensitive resources or the effects of conducting management activities.

## 1.42 Interactions between Business Requirements and Each

### *Lifecycle Stage: Drivers and Feedback*



#### **Notes:**

##### **Interactions between Business Requirements and Each Lifecycle**

Interaction between business requirements and each Lifecycle Stage may be viewed as drivers and feedback.

Arrows that point away from the business requirements "drive" what needs to occur at each stage.

Arrows that point to the business requirements represent the "feedback" loop that needs to occur at each stage to reassess business requirements.

## 1.43 Archive Stage: When and How to Retire Data

### Archive Stage: When and How to Retire Data

Is data obsolete? Should data be available for future use, or permanently archived?

Your staff should identify the kinds of data that are needed to support current and future resource management decisions, and apply the appropriate retention practice. All retention practices must maintain the ability to re-create the data, despite changes in computer system and software upgrades. Some corporate applications have versioning provisions that allow the data to remain in the systems, yet not represent the current data sources.

Retention Practices

- Backups
- Snapshots
- Archives



### Notes:

We come to the final stage within the Data Lifecycle, called the "Archive Stage". Here, we determine if data is obsolete, whether or not they should be retired, and if so, how?

- Older data can be retained for long term storage, per established records management requirements, or kept as part of our current data assets.
- You along with other staff should identify the kinds of data that are needed to support current and future resource management decisions, and apply the appropriate retention practice.
- All retention practices must maintain the ability to re-create the data, despite changes in computer system and software upgrades.
- Some corporate applications have versioning provisions that allow the data to remain in the systems, yet not represent the current data sources.

## 1.44 Define Stage Workflow: Begin with the End in Mind

**Define Stage Workflow: Begin with the End in Mind**

Begin with the broader question or issues then refine specifics

- Define the User requirements
- Define high-level business process workflow's
- Define specific information workflow's and data requirements
- Define and assess data needs and conduct formal data modeling
- Define data standards
- Determine if data includes sensitive information
- Develop quality assurance / quality control measures



### Notes:

We will briefly look at the steps involved in the process of defining data needs. Begin with the broader question or issues, and then refine specific data requirements in partnership with other data stewards and data managers.

- Define the user requirements, such as; determining business needs, modeling workflows, identifying agency or program requirements, and evaluating available sources of funding.
- Define high-level business process workflows such as update cycles, and identification of roles and responsibilities for documenting and maintaining business process workflows.
- Define specific information workflows and data requirements, including development of appropriate data dictionaries.
- Define and assess data needs and conduct formal data modeling.
- Define data standards before data is collected
- Determine if data includes sensitive information such as personally identifiable information (PII) or cultural resource data
- Develop quality assurance / quality control measures

## 1.45 Data Lifecycle Review

**Data Lifecycle Review**

- In the **Define Stage**, you should begin the planning process with the end in mind.
- Exploring and then determining if existing data meets your needs is the main emphasis in the **Inventory and Evaluate Stage**.
- Seeking and acquiring new data in order to fulfill requirements and solve data gaps is the goal within the **Obtain Stage**.
- Releasing and publishing the data for others to use is the main emphasis in the **Access Stage**.
- Learning how to properly care for the data so that the data can be used with confidence is part of the **Maintain Stage**.
- Identifying how to improve the data after its use is what you accomplish in the **Use and Evaluate Stage**.
- Determining if the data is obsolete and whether or not it should be retired is part of the **Archive Stage**.



### Notes:

Let's continue to review some of what has been taught by highlighting the main point of each stage within the Data Lifecycle.

In the Define Stage, you should begin the planning process with the end in mind.

Exploring and then determining if existing data meets your needs is the main emphasis in the Inventory and Evaluate Stage.

Seeking and acquiring new data in order to fulfill requirements and solve data gaps is the goal within the Obtain Stage.

Releasing and publishing the data for others to use is the main emphasis in the Access Stage.

Learning how to properly care for the data so that the data can be used with confidence is part of the Maintain Stage.

Identifying how to improve the data after its use is what you accomplish in the Use and Evaluate Stage.

Finally, determining if the data is obsolete and whether or not data should be retired is part of the Archive Stage.

## 1.46 Why Is Data Stewardship Important?

**Why Is Data Stewardship Important?**

The answer begins with understanding that while technology can solve some information problems, it's the people behind the data that solve most issues.

- Data does not explain itself
- Data is shared and used for many purposes
- Data for upward reporting depends on "getting it right"
- Corporate data systems are complex
- Data managers are skilled in managing data, not in content
- Data stewards know what data to collect, and how to use it properly



### Notes:

"Why is data stewardship important?"

The answer begins with understanding that while technology can solve some information problems, **it's the people** behind the data that solve most issues.

- Data does not explain itself. Someone must document what it means, how to use it properly, and whether it's good quality.
- Data is shared and used for many purposes. Who is responsible for determining the appropriate use of our data?
- Data used for upward reporting depend on many people to 'get it right'. Good data stewardship guides that effort.
- Enterprise data systems are complex. Preventing data corruption, assuring data security and delivering quality data relies on contributions from responsible data stewards and managers.
- Technical people are skilled in managing data, not in content. That is the subject matter expert's job.
- **Data stewards know what data to collect, and how to use it properly**

## 1.47 Why are Data Stewardship and Data Management

### Important to you?



**Why are Data Stewardship and Data Management Important to you?**

Investing in Data Stewardship and Management can lead to:

- Simplified data management
- Improved integration and scalability
- Using data for multiple purposes
- Saving time and money
- Improved coordination
- Meeting "Best-Available Science"
- Improved decisions

CC

#### Notes:

Good data stewardship and management are **beneficial** and can open opportunities to tell an enhanced Forest Service story, for example:

- **Simplified data management will clarify responsibilities, improve workflows, and reduce costs**
- **Improved integration and scalability of data serves multiple purposes** and will leverage existing data
- **Improved coordination will save time and money**
- **Improved standards and processes** will deliver higher quality information (such as **Best Available Scientific Information**)
- Improved data feeds improved decisions

## 1.48 Opportunities for Success



**Opportunities for Success**

**Why is Data Stewardship Important?**

- It creates opportunities for success, such as:
  - Enhanced Credibility with our partners and our public
- Meeting Executive Orders and Direction including
  - Departmental Regulations on Scientific Integrity
  - Office of Management and Budget (OMB) - Open Government Directives
  - Office of Management and Budget (OMB) - Data Quality Act
  - USDA Forest Service - Information Resources Strategic Framework

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### Notes:

By investing in data stewardship and data management, there are improved **opportunities for success** from having reliable data, such as:

- **Successful compliance** with legislative requirements, executive orders, data regulations, and directives, and...
- Enhanced **credibility** with our partners and our public

The main benefits of good data stewardship are better decisions, regulatory compliance, and increased efficiency.

**Leaders are accountable for the quality of their data. With improved data stewardship, leaders will be more confident in their data quality assessments, and in their decisions**

## 1.49 Why is Data Stewardship Important to You?

**Why is Data Stewardship Important to You?**

Why is Data Stewardship Important to You?

- Data Stewards are responsible for the collection and appropriate use of data
- Data Managers are responsible for managing data to provide the best products
- Your leaders count on having good data for their decisions
- The data that you collect today will be used many times in the future
- Good data informs good decisions. Help our leaders!



### Notes:

Why is Data Stewardship Important to You?

- Data Stewards are responsible for the collection and appropriate use of data
- Data Managers are responsible for managing data to provide the best products
- Your leaders count on having good data for their decisions
- The data that you collect today will be used many times in the future
- Good data informs good decisions. Help our leaders take care of our lands!

## 1.50 What Can Leaders Do To Enable Good Data Stewardship?

**What Can Leaders Do To Enable Good Data Stewardship?**

**What Can You Expect from your Leaders and Supervisors?**

- They should plan and allocate enough time for you to properly care for your data
- They should assign the appropriate roles and responsibilities to those responsible for data stewardship
- They should incorporate data stewardship in performance appraisals, development plans, and program of work development



### Notes:

Benefits of good data stewardship can be maximized by the commitment and involvement of your leaders and supervisors.

- Leaders can empower those who manage reliable and credible data:
- By planning and allocating sufficient time, training, and resources
- By assigning roles and responsibilities for data stewardship and data management to the most-qualified individuals
- By recognizing data stewardship in performance appraisals, development plans, and programs of work

## ***1.51 When Leaders Empower You to Care for Your Data***

**When Leaders Empower You to Care for Your Data**

When Leaders Empower You to Care for Your Data, There are Benefits such as:

- Reducing the impacts on employees who interact with data
- Using the budget more efficiently
- Ensuring accountability for quality data
- Improving accomplishment reporting
- Making more confident decisions
- Meeting our mission, requirements, and targets



### **Notes:**

When Leaders Empower You to Care for Your Data, There are Benefits such as:

- Reducing the impacts on employees who interact with data
- Using the budget more efficiently
- Ensuring accountability for quality data
- Improving accomplishment reporting
- Making more confident decisions
- Meeting our mission, requirements, and targets

## 1.52 What are the Costs of Poor Data Stewardship?

**What are the Costs of Poor Data Stewardship?**

Let's consider the **costs** of poor data stewardship and poor data management

- Miscommunication, poor documentation, and unrealistic expectations
- The **failure to leverage** multiple uses of data
- **Unnecessary** duplication or repetition of efforts
- **Poor coordination** of inventory, monitoring, and assessment activities



### Notes:

Let's consider the **costs** of poor data stewardship and poor data management

- Miscommunication, poor documentation, and unrealistic expectations
- The **failure to leverage** multiple uses of data
- **Unnecessary** duplication or repetition of efforts
- **Poor coordination** of inventory, monitoring, and assessment activities across units and programs

### ***1.53 Potential Risks from Using Unreliable Data***

**Potential Risks from Using Unreliable Data**

Some potential risks from using unreliable data include:

- Poor decision-making
- The **failure to comply** with legislative requirements, executive orders, data regulations, and directives
- The **lack of credibility** with our partners, and public
- Decision challenges such as appeals or lawsuits



#### **Notes:**

Some potential risks from using unreliable data include:

- Poor decision-making
- The **failure to comply** with legislative requirements, executive orders, data regulations, and directives
- The **lack of credibility** with our partners, and public
- Decision challenges such as appeals or lawsuits

## 1.54 What are Some Potential Benefits of Good Data Stewardship?

**What are Some Potential Benefits of Good Data Stewardship?**

**Opportunities enabled because of good Data Stewardship**

- Better use of our data through improved communications
- Better clarity of duties and better data planning reduces the cost of data management
- Improving standards and processes will deliver higher quality information
- Improving the integration and scalability of data will better serve multiple purposes
- Will result in better policy and direction

**The main benefits of good data stewardship are better decisions, regulatory compliance, and increased efficiency.**



### Notes:

On the other hand, good data stewardship is **beneficial**, and can open opportunities to tell an enhanced Forest Service story. For example, opportunities such as:

- **Better use of our data through improved communications**
- **Better clarity of duties and better data planning** reduces the cost of data management
- **Improving standards and processes** will deliver high quality information (such as **Best Available Scientific Information**)
- **Improving the integration and scalability of data** will serve **multiple purposes**
- And, help develop better policy and direction regarding data management

The main benefits of good data stewardship are better decisions, regulatory compliance, and increased efficiency.

## 1.55 Quality Data

**Quality Data**

Quality data is at the foundation of informed decision-making.

- Quality data requires effective data stewardship.
- Quality data is fit for an intended use.
- “Quality data” is defined by the OMB as an all-encompassing term representing the following:
  - Utility -usefulness of the information to the intended users
  - Objectivity - accurate, complete, unbiased and reliable
  - Integrity - information is protected from unauthorized access or revision, corrupted or falsified.



### Notes:

Quality Data is at the foundation of informed decision-making.

- Quality data requires effective data stewardship.
- Quality data is fit for an intended use.
- “**Quality data**” is defined by the OMB as an all-encompassing term representing the following:
  - Utility -usefulness of the information to the intended users
  - Objectivity - accurate, complete, unbiased and reliable
  - Integrity - information is protected from unauthorized access or revision, corrupted or falsified.

## 1.56 Leaders Empowers Data Stewards

**Leaders Empower Data Stewards**

**Leaders Can Support Data Stewards**

A leader will help data stewards to be more effective **by**:

- Promoting responsible data stewardship standards, practices, and procedures
- Providing sufficient time, funding, and resources
- Approving internal and external data-sharing agreements
- Allowing data stewards to serve on development teams
- Defining the appropriate management questions to be addressed
- Leveraging data for multiple purposes at multiple scales
- Understanding and implementing appropriate records management practices
- Ensuring adequate quality assurance and quality control practices
- Complying with Agency and federal data policies



### Notes:

#### Leaders Can Support Data Stewards

A leader will help data stewards to be more effective **by**:

- Promoting responsible data stewardship standards, practices, and procedures
- Providing sufficient time, funding, and resources
- Approving internal and external data-sharing agreements
- Allowing data stewards to serve on development teams for protocol and technical guides
- Defining the appropriate management questions to be addressed
- Leveraging data for multiple purposes at multiple scales
- Understanding and implementing appropriate records management practices
- Ensuring adequate quality assurance and quality control practices
- And, complying with Agency and federal data policies

## 1.57 Leaders Empower Data Managers

### Leaders Empower Data Managers

A leader will help data managers to be more effective by:

- Recognizing that a data manager's scope is technology, not content
- Authorizing the acquisition of appropriate information technology
- Acquiring and using standardized data analysis tools
- Conducting appropriate quality assurance and quality control measures
- Relying on corporate information systems for data storage and analysis
- Understanding and implementing appropriate records management practices
- Providing sufficient time, funding, and resources
- Assuring safe and secure user access
- Managing data for multiple purposes at multiple scales



### Notes:

#### Leaders Empower Data Managers

A leader will help data managers to be more effective **by**:

- Recognizing that a data manager's scope is technology, not content
- Authorizing the acquisition of appropriate information technology
- Acquiring and using standardized data analysis tools
- Conducting appropriate quality assurance and quality control measures
- Relying on corporate information systems for data storage and analysis
- Understanding and implementing appropriate records management practices
- Providing sufficient time, funding, and resources
- Assuring safe and secure user access
- Managing data for multiple purposes at multiple scales

## 1.58 Data Governance and Corporate Data Systems

**Data Governance and Corporate Data Systems**

Data stewards and data managers are responsible for many types of program area data such as:

- Annual accomplishment reporting data
- Project level and NEPA analysis data
- Unit-wide analysis data
- Data required for a Forest Plan Revision or Amendment
- Data for survey, inventory, observation, and activity purposes

When data is managed in a corporate system, it is easier to use the data for multiple purposes; eliminating wasteful efforts resulting from redundant data sources.

It is the responsibility of data stewards and data managers to understand the most appropriate data management system to best leverage that data for multiple data sources.



### Notes:

Data stewards and data managers are responsible for many types of program area data, such as:

- Annual accomplishment reporting data such as that required in the “Geo-enabled Performance Accountability System (gPAS)”
- Project and NEPA analysis data used in environmental assessments, environmental impact statements, or for program monitoring purposes
- Unit-wide analysis data (such as travel management planning and designation)
- Data required for a Forest plan revision or amendment and, data for survey, inventory, observation, and activity purposes

When data is managed in corporate systems, it is easier to use for multiple purposes; therefore eliminating wasteful efforts resulting from redundant data sources.

It is the responsibility of data stewards and data managers to understand the most appropriate data management system to meet these multiple purposes.

## ***1.59 Many Other Employees Have Responsibilities in***

### ***Support of Data Stewardship***

**Many Other Employees Have Responsibilities in Support of Data Stewardship**

Many Other Employees Have Responsibilities in Support of Data Stewardship

- Interdisciplinary teams
- Unit, regional and national program managers
- Helpdesk support staff
- Technicians or contractors
- Budget and Finance, Human Resources and Acquisitions Management

**Remember, their contributions may have impacts on data governance and data management planning**



CC

#### **Notes:**

Many Other Employees Have Responsibilities in Support of Data Stewardship

- Interdisciplinary teams help define project-level data requirements
- Unit, regional, and national program managers provide expertise and direction
- Helpdesk support staff troubleshoot application and technology problems
- Technicians or contractors perform a variety of data-related functions
- Budget and Finance, Human Resources, and Acquisitions Management staff help plan resources and logistics

**Remember, their contributions may have impacts on data governance and data management planning.**

## 1.60 Other Data Stewardship and Data Management Partners

### Other Data Stewardship and Data Management Partners

Many employees in different areas support the partnership.

- Chief Information Office (CIO) - provides information resources and technology that the Agency requires to achieve its mission
- Natural Resource Manager (NRM) - administers the applications, databases and technology for natural resource program areas
- Geospatial Management Office (GMO) - responsible for the policy, oversight, direction, and delivery of the Agency's geospatial program
- Enterprise Data Warehouse (EDW) - through the Content Governance Board, coordinates with data stewards to publish national and regional standard reference datasets
- Resource Information Managers (RIMs) - provide coordination between program areas and data management communities, assuring effective use of information resources and technology

**As a leader, be aware of these opportunities to add efficiency to your unit's data management planning efforts**



### Notes:

Across the agency are examples of other data management and data stewardship partners, including those involved with:

- Chief Information Office (CIO) - provides information resources and technology that the Agency requires to achieve its mission
- Natural Resource Manager (NRM) - administers the applications, databases and technology for natural resource program areas
- Geospatial Management Office (GMO) - is responsible for the policy, oversight, direction, and delivery of the Agency geospatial program
- Enterprise Data Warehouse (EDW) - through the Content Governance Board, coordinates with data stewards to publish national and regional standard reference datasets
- Resource Information Managers (RIMs) - provide coordination between program areas and data management communities, assuring effective use of information resources and technology

**As a leader, be aware of these opportunities to add efficiency to your unit's data management planning efforts.**

## 1.61 Assigning Roles and Responsibilities for Managing Data

### Assigning Roles and Responsibilities for Managing Data

You now have the knowledge of the network of people who perform and support data management. Assigning responsibilities to individuals for specific tasks throughout the data life cycle is the next step:

- Who is **responsible** for performing the tasks
- Who is **accountable** for assuring the tasks get performed successfully
- Who needs to be **consulted** on the most effective solutions to implement
- Who needs to be kept **informed** of developments and activities

Each unit or staff determines the most effective delegation of duties to people to manage their data assets.

**The RACI Matrix that is found in the Resources Menu is a useful tool for planning employee assignments and identifying staffing needs**



### Notes:

Assigning Roles and Responsibilities for Managing Data

You now have the knowledge of the network of people who perform and support data management.

Assigning responsibilities to individuals for specific tasks throughout the data life cycle is the next step:

- Who is responsible for performing the tasks
- Who is accountable for assuring the tasks and work get performed successfully
- Who needs to be consulted on the most effective solutions to implement
- Who needs to be kept informed of developments and activities

Each unit, office or staff determines the most effective delegation of people needed to manage data assets.

**The RACI Matrix that is found in the Resources Menu is a useful tool for planning employee assignments and identifying staffing needs.**

## 1.62 Data Stewards' Requirements for Success

**Data Stewards' Requirements for Success**

To be Successful, Data Stewards and Data Managers should also:

- Understand and accept their roles and responsibilities for data management
- Have the technical ability to use data appropriately
- Be trained in data management, data stewardship, and data governance concepts and practices
- Be granted the authority to make data management decisions, such as:
  - What data to use in management decisions
  - What quality of data to use in management decisions
  - What changes to make to improve data quality



### Notes:

To be Successful, Data Stewards and Data Managers should also:

- Understand and accept their roles and responsibilities for data management
- Have the technical ability to use data appropriately
- Be trained in data management, data stewardship, and data governance concepts and practices
- Be granted the authority to make data management decisions, such as:
  - What data to use in management decisions
  - What quality of data to use in management decisions
  - What changes to make to improve data quality

## 1.63 Review

**Review**

- Data stewards are responsible for the oversight, management, and collection of data for a business or program area.
- Data stewardship is vital to the Forest Service mission.
- Data stewards are at the heart of data stewardship.
- Everyone plays a part in data stewardship!
- Data Stewards work and Data Managers work alongside leadership to define information needs and goals dealing with land management.
- Good data stewardship enables the agency to continue its leadership in natural resources.



### Notes:

Now we will review what has been presented up to this point.

Data stewards are responsible for the oversight, management, and collection of data for a business or program area.

Data stewardship is vital to the Forest Service mission and data stewards are at the heart of it. Along with technical specialists and other key participants, they help ensure data quality and business requirements are met. Thus, everyone plays a part in data stewardship!

Data stewards work closely with leadership to define information needs and goals to address land management issues,

thereby helping the agency continue its leadership in natural resources and being responsive to our partners and the public.

## 1.64 Question #1

*(True/False, 10 points, 1 attempt permitted)*

### Question #1

Quality data is fit for an intended use. This data must be sufficient relevant, complete, accurate, reliable, consistent, up-to-date, and accessible to meet our needs.

- ☒ True  
☐ False

CC

| Correct | Choice |
|---------|--------|
| X       | True   |
|         | False  |

#### Feedback when correct:

That's right! You selected the correct response.

#### Feedback when incorrect:

You did not select the correct response.

#### Notes:

We have completed the training, now we will take time to discuss a few questions, and consider what has just been presented.

Please complete the next set of questions. Which consist of true and false, matching, as well as a few multiple answer formatted questions.

Once you have selected your answer(s) please click on the submit button in order to advance to the next question. Good luck.

## Correct (Slide Layer)

**Question #1**

Quality data is fit for an intended use. This data must be sufficient relevant, complete, accurate, reliable, consistent, up-to-date, and accessible to

☒ True  
☐ False

Correct

That's right! You selected the correct response.

Continue

CC

## Incorrect (Slide Layer)

**Question #1**

Quality data is fit for an intended use. This data must be sufficient relevant, complete, accurate, reliable, consistent, up-to-date, and accessible to

☒ True  
☐ False

Incorrect

You did not select the correct response.

Continue

CC

## 1.65 Question #2

*(Multiple Response, 10 points, 1 attempt permitted)*

### Question #2

Why is data stewardship important to the Forest Service?  
(select all that apply)

- ☒ It improves decision making
- ☒ It protects our investment in information assets
- ☐ It replaces the need to have others manage data
- ☒ It allows for better sharing and reuse of data

CC

| Correct | Choice                                           |
|---------|--------------------------------------------------|
| X       | It improves decision making                      |
| X       | It protects our investment in information assets |
|         | It replaces the need to have others manage data  |
| X       | It allows for better sharing and reuse of data   |

#### Feedback when correct:

That's right! You selected the correct response.

#### Feedback when incorrect:

You did not select the correct response.

#### Notes:

No audio.....

## Correct (Slide Layer)

**Question #2**

Why is data stewardship important to the Forest Service?  
(select all that apply)

- ☒ It improves data quality.
- ☒ It protects sensitive information.
- ☐ It replaces outdated data.
- ☒ It allows for better decision-making.

**Correct**

That's right! You selected the correct response.

Continue

CC

## Incorrect (Slide Layer)

**Question #2**

Why is data stewardship important to the Forest Service?  
(select all that apply)

- ☒ It improves data quality.
- ☒ It protects sensitive information.
- ☐ It replaces outdated data.
- ☒ It allows for better decision-making.

**Incorrect**

You did not select the correct response.

Continue

CC

## 1.66 Question #3

(True/False, 10 points, 1 attempt permitted)

### Question #3

Effective data stewardship has nothing to do with the, "real-world-use" of Forest Service data.

☐ True

☒ False

CC

| Correct | Choice |
|---------|--------|
|         | True   |
| X       | False  |

#### Feedback when correct:

That's right! You selected the correct response.

#### Feedback when incorrect:

You did not select the correct response.

#### Notes:

No audio.....

### Correct (Slide Layer)

**Question #3**

Effective data stewardship has nothing to do with the, "real-world-use" of Forest Service data.

☐ True

☒ False

Correct

That's right! You selected the correct response.

Continue

CC

### Incorrect (Slide Layer)

**Question #3**

Effective data stewardship has nothing to do with the, "real-world-use" of Forest Service data.

☐ True

☒ False

Incorrect

You did not select the correct response.

Continue

CC

### 1.67 Question #4

*(Multiple Response, 10 points, 1 attempt permitted)*

#### Question #4

What commitment(s) are likely to make a data steward successful?  
(select all that apply)

- ☒ Ensure that data is of high quality and suitable to meet needs
- ☒ Accept and fulfill their roles as they pertain to data stewardship
- ☒ Take advantage of technical training to better interact with the data
- ☐ Rely solely on leadership to make data quality decisions

CC

| Correct | Choice                                                                |
|---------|-----------------------------------------------------------------------|
| X       | Ensure that data is of high quality and suitable to meet needs        |
| X       | Accept and fulfill their roles as they pertain to data stewardship    |
| X       | Take advantage of technical training to better interact with the data |
|         | Rely solely on leadership to make data quality decisions              |

#### Feedback when correct:

That's right! You selected the correct response.

#### Feedback when incorrect:

You did not select the correct response.

#### Notes:

No audio.....

### Correct (Slide Layer)

**Question #4**

What commitment(s) are likely to make a data steward successful?  
(select all that apply)

- ☒ Ensure
- ☒ Accept
- ☒ Take ad
- ☐ Rely sol

Correct

That's right! You selected the correct response.

Continue

CC

### Incorrect (Slide Layer)

**Question #4**

What commitment(s) are likely to make a data steward successful?  
(select all that apply)

- ☒ Ensure
- ☒ Accept
- ☒ Take ad
- ☐ Rely sol

Incorrect

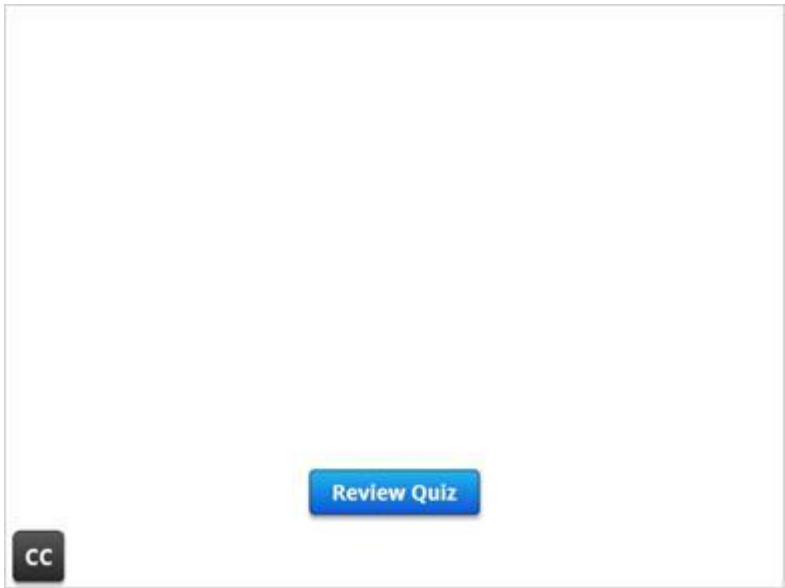
You did not select the correct response.

Continue

CC

## 1.68 Results Slide

*(Results Slide, 0 points, 1 attempt permitted)*



| Results for      |
|------------------|
| 1.64 Question #1 |
| 1.65 Question #2 |
| 1.66 Question #3 |
| 1.67 Question #4 |

Result slide properties

Passing Score

80%

**Notes:**

---

No audio.....

## Success (Slide Layer)

### DataSteward\_Quiz1

**Your Score:** %Results\_2.ScorePercent%%  
(%Results\_2.ScorePoints% points)

**Passing Score:** %Results\_2.PassPercent%%  
(%Results\_2.PassPoints% points)

---

**Result:**

 Congratulations, you passed.

You can click the 'Review Quiz' button for a play-by-play recap of your results.

[Review Quiz](#)

CC

## Failure (Slide Layer)

### DataSteward\_Quiz1

**Your Score:** %Results\_2.ScorePercent%%  
(%Results\_2.ScorePoints% points)

**Passing Score:** %Results\_2.PassPercent%%  
(%Results\_2.PassPoints% points)

---

**Result:**

 You did not pass.

You can click the 'Review Quiz' button for a play-by-play recap of your results.

[Review Quiz](#)

CC

**1.69 What phrase(s) accurately describe what the Data Lifecycle is or does? (select all that apply)**

(Multiple Response, 10 points, 1 attempt permitted)

**Question #1**

What phrase(s) accurately describe what the Data Lifecycle is or does?  
(select all that apply)

- ☒ Describes the data flow from definition of needs through real-world use
- ☒ Allows us to best meet our business requirements
- ☒ Requires multiple instances of QA/QC
- ☐ Was developed strictly for use with Forest Service data by the USDA

CC

| Correct | Choice                                                                  |
|---------|-------------------------------------------------------------------------|
| X       | Describes the data flow from definition of needs through real-world use |
| X       | Allows us to best meet our business requirements                        |
| X       | Requires multiple instances of QA/QC                                    |
|         | Was developed strictly for use with Forest Service data by the USDA     |

**Feedback when correct:**

That's right! You selected the correct response.

**Feedback when incorrect:**

You did not select the correct response.

## Notes:

Please complete the next set of questions. Which consist of true and false, matching, as well as a few multiple answer formatted questions.

Once you have selected your answer(s) please click on the submit button in order to advance to the next question. Good luck.

## Correct (Slide Layer)

**Question #1**

What phrase(s) accurately describe what the Data Lifecycle is or does?  
(select all that apply)

- ☒ Describes
- ☒ Allows
- ☒ Requires
- ☐ Was de

**Correct**

That's right! You selected the correct response.

Continue

CC

## Incorrect (Slide Layer)

**Question #1**

What phrase(s) accurately describe what the Data Lifecycle is or does?  
(select all that apply)

- ☒ Describes
- ☒ Allows
- ☒ Requires
- ☐ Was de

Incorrect

You did not select the correct response.

Continue

CC

***1.70 In the Define Stage you should concentrate first on the specific data processes and products and then on the broader issues or questions that need to be addressed.***

*(True/False, 10 points, 1 attempt permitted)*

**Question #2**

In the Define Stage you should concentrate first on the specific data processes and products and then on the broader issues or questions that need to be addressed.

☐ True

☒ False

CC

| Correct | Choice |
|---------|--------|
|         | True   |
| X       | False  |

**Feedback when correct:**

That's right! You selected the correct response.

**Feedback when incorrect:**

You did not select the correct response.

**Notes:**

No audio....

**Correct (Slide Layer)**

**Question #2**

In the Define Stage you should concentrate first on the specific data processes and products and then on the broader issues or questions that need to be addressed.

☐ True
 ☒ False

**Correct**

That's right! You selected the correct response.

Continue

CC

## Incorrect (Slide Layer)

**Question #2**

In the Define Stage you should concentrate first on the specific data processes and products and then on the broader issues or questions that need to be addressed.

☐ True

☒ False

Incorrect

You did not select the correct response.

Continue

CC

### **1.71 What events or actions should occur within the Inventory and Evaluate stage? (select all that apply)**

(Multiple Response, 10 points, 1 attempt permitted)

**Question #3**

What events or actions should occur within the Inventory and Evaluate stage? (select all that apply)

☒ You should become aware and explore data

☒ You should look for data gaps

☒ You should decide if new data needs to be obtained

☐ You should begin obtaining new data to satisfy a data gap

CC

| Correct | Choice                                                    |
|---------|-----------------------------------------------------------|
| X       | You should become aware and explore data                  |
| X       | You should look for data gaps                             |
| X       | You should decide if new data needs to be obtained        |
|         | You should begin obtaining new data to satisfy a data gap |

**Feedback when correct:**

That's right! You selected the correct response.

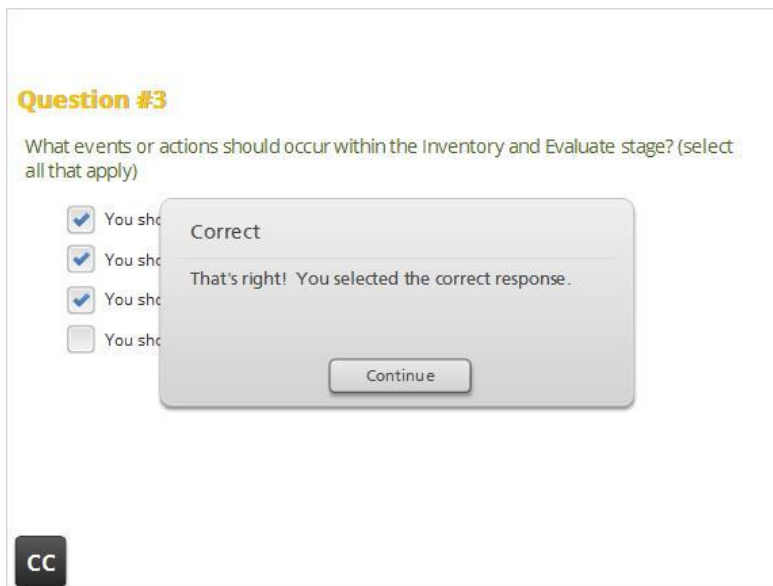
**Feedback when incorrect:**

You did not select the correct response.

**Notes:**

No audio....

**Correct (Slide Layer)**



## Incorrect (Slide Layer)

**Question #3**

What events or actions should occur within the Inventory and Evaluate stage? (select all that apply)

- ☒ You should...
- ☒ You should...
- ☒ You should...
- ☐ You should...

Incorrect

You did not select the correct response.

Continue

CC

### **1.72 What does a data steward hope to accomplish within the Maintain Stage? (select all that apply)**

(Multiple Response, 10 points, 1 attempt permitted)

**Question #4**

What does a data steward hope to accomplish within the Maintain Stage? (select all that apply)

- ☒ Update data using an accurate, consistent, and timely process
- ☒ Ensuring data is useful and relevant
- ☒ Make sure data is well-documented to preserve value
- ☐ Rely solely on technical specialists to make data quality decisions

CC

| Correct | Choice                                                              |
|---------|---------------------------------------------------------------------|
| X       | Update data using an accurate, consistent, and timely process       |
| X       | Ensuring data is useful and relevant                                |
| X       | Make sure data is well-documented to preserve value                 |
|         | Rely solely on technical specialists to make data quality decisions |

**Feedback when correct:**

That's right! You selected the correct response.

**Feedback when incorrect:**

You did not select the correct response.

**Notes:**

No audio....

**Correct (Slide Layer)**

**Question #4**

What does a data steward hope to accomplish within the Maintain Stage? (select all that apply)

- ☒ Update data using an accurate, consistent, and timely process
- ☒ Ensuring data is useful and relevant
- ☒ Make sure data is well-documented to preserve value
- ☐ Rely solely on technical specialists to make data quality decisions

**Correct**

That's right! You selected the correct response.

[Continue](#)

**CC**

## Incorrect (Slide Layer)

**Question #4**

What does a data steward hope to accomplish within the Maintain Stage? (select all that apply)

- ☒ Update
- ☒ Ensuring
- ☒ Make s
- ☐ Rely sol

Incorrect

You did not select the correct response.

Continue

CC

## 1.73 Results Slide

*(Results Slide, 0 points, 1 attempt permitted)*

Review Quiz

CC

| Results for                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.69 What phrase(s) accurately describe what the Data Lifecycle is or does? (select all that apply)                                                                      |
| 1.70 In the Define Stage you should concentrate first on the specific data processes and products and then on the broader issues or questions that need to be addressed. |
| 1.71 What events or actions should occur within the Inventory and Evaluate stage? (select all that apply)                                                                |
| 1.72 What does a data steward hope to accomplish within the Maintain Stage? (select all that apply)                                                                      |

Result slide properties

Passing Score

80%

**Notes:**

No audio....

## Success (Slide Layer)

### DataSteward\_Quiz2

**Your Score:** %Results1.ScorePercent%%  
(%Results1.ScorePoints% points)

**Passing Score:** %Results1.PassPercent%%  
(%Results1.PassPoints% points)

---

**Result:**

✓ Congratulations, you passed.

You can click the 'Review Quiz' button for a play-by-play recap of your results.

[Review Quiz](#)

CC

## Failure (Slide Layer)

### DataSteward\_Quiz2

**Your Score:** %Results1.ScorePercent%%  
(%Results1.ScorePoints% points)

**Passing Score:** %Results1.PassPercent%%  
(%Results1.PassPoints% points)

---

**Result:**

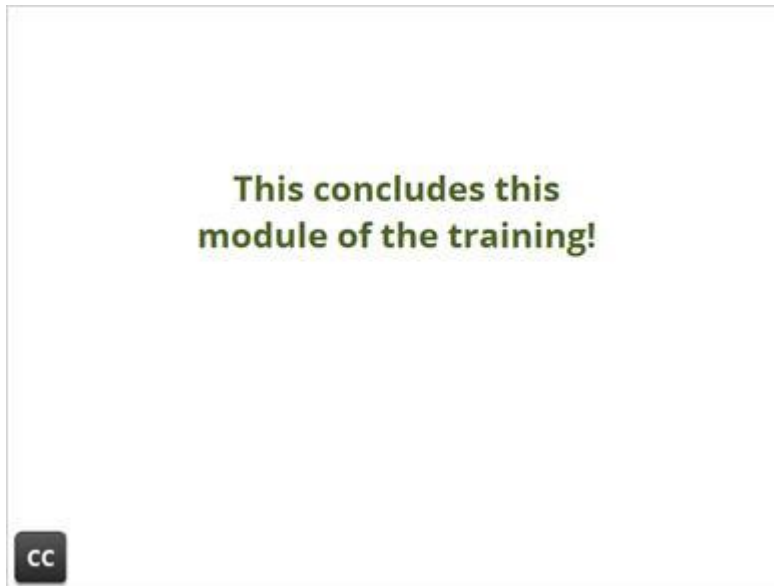
✗ You did not pass.

You can click the 'Review Quiz' button for a play-by-play recap of your results.

[Review Quiz](#)

CC

## 1.74 Conclusion



### Notes:

Thank you for taking this training. We hope that you will have a better understanding of your roles and responsibilities as a data steward, and make data stewardship part of your everyday work.

Please feel free to visit other modules by clicking on the “Main Menu” button to learn more about Data Stewardship.

You can also take a short course survey, and create a course certificate by clicking on the corresponding buttons.

## 1.75 Bottom Line

**Bottom Line**

Here is the bottom line:

- If we are all committed to making sure data is of sufficient quality to meet our needs, well documented, and available for use. We will be successful.
- Everyone must play their part!



### Notes:

Here is the bottom line:

If we are all committed to making sure data is of sufficient quality to meet our needs, well documented, and available for use. We will be successful.

Everyone must play their part!

## 1.76 Resources

**Resources**

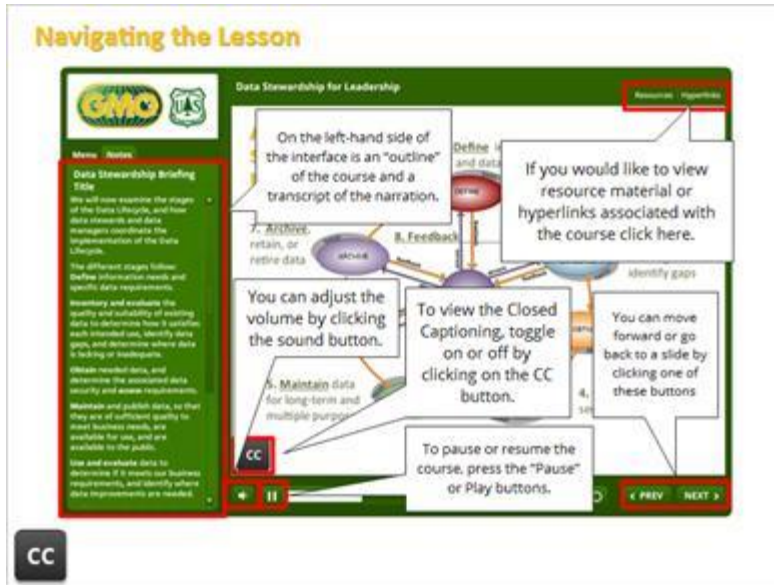
- Course Disclaimer and Assumptions
- Data Stewardship Up and Down the Agency
- Discussion Questions
- Qualities of a Mature Data Stewardship Program
- RACI Matrix Background
- RACI Matrix Spreadsheet
- RACI Matrix Spreadsheet for ID Teams
- Glossary
- Data Stewardship Throughout the Data Life Cycle
- Course References
- Hardcopy of Training



## Notes:

Please click on any of the links provided to access a course resource.

### 1.77 How to Navigate the Modules



## Notes:

To pause or resume the course, press the "Pause" or "Play" buttons; this button will change depending on what was chosen.

You can move forward or go back to a slide by clicking the "Prev" or "Next" buttons.

You can adjust the volume by clicking the sound button and then choosing the level you desire.

On the left-hand side of the interface is an "Outline" of the course and a transcript of the narration for each slide is provided under "Notes".

This course also gives you the ability to view "Closed Captioning" of the content material. To view the Closed Captioning, simply toggle on or off the option by clicking on the CC button located in the bottom left of the screen.

If you would like to view resource material or hyper links that are associated with the course click the "Resource" or "Hyperlinks" buttons located in the upper right corner.

## ***1.78 Hyperlinks to Important Federal and Agency Documents***

### Hyperlinks to Important Federal and Agency Documents

- [Stages of the Geospatial Data Lifecycle \(OMB Circular A-16\)](#)
- [Coordinating Geographic Data Acquisition and Access \(EO 12906\)](#)
- [Open Government Directive](#)
- [USDA Scientific Integrity Handbook](#)
- [USDA Regulation on Information Collection](#)
- [USDA Forest Service Information Resources Strategic Framework](#)

