

***The Value
of Metadata As A
Data Management & Project
Management Tool***

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Federal Geographic Data Committee Funded Project

- **Metadata Outreach and Training**
 - **Basic Metadata Training**
 - **Metadata Assistance with LakeRim Update**
 - **Outreach to GIS Professionals familiar with standards**

A Component of Data

Metadata describes

***Characteristics
of the data***

**CONTENT
CONDITION
QUALITY**

**Metadata has tremendous value to
Individuals within your organization, as well
as to individuals outside of your organization**

What is Metadata?

**Simply put,
metadata is
information
about your data.**

Note: Metadata is not your actual spatial data...however, it serves as a reference for your spatial data

A Component of Data

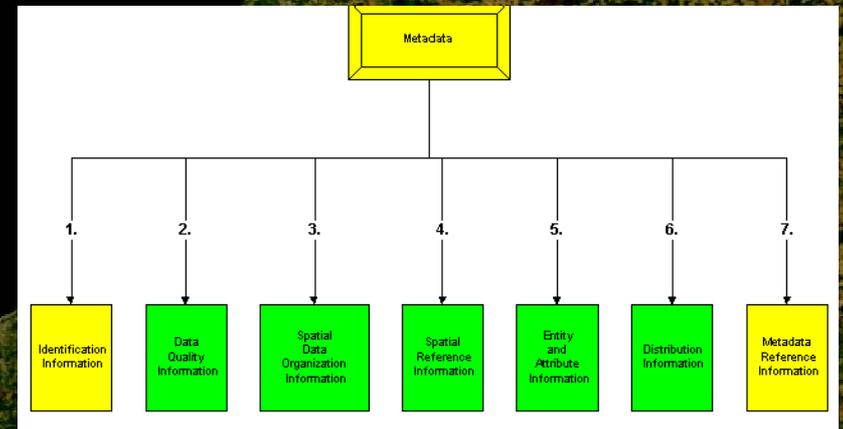
Properly documented data provides vital information to interested parties.



“Professor LaVonne had many enemies in the entomological world, detective, but if you examine that data label, you’ll find exactly when and where he was—shall we say—‘collected.’”

Don't Forget About the Standards

- **FGDC - CSDGM**
- **ISO**
- **NAP**
- **Indiana Profile**

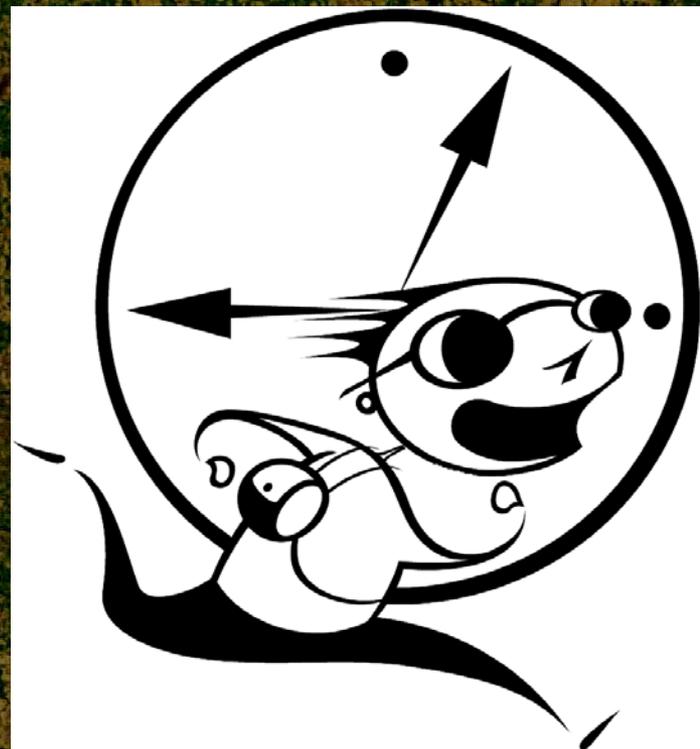


The Current Concept

Primary internal value

- Critical data asset protection
(Data insurance policy)
- “Inheritance”
- Cataloging
- Sharing
- Limiting liability

“Properly documenting a data set is the key to preserving its usefulness through time.”



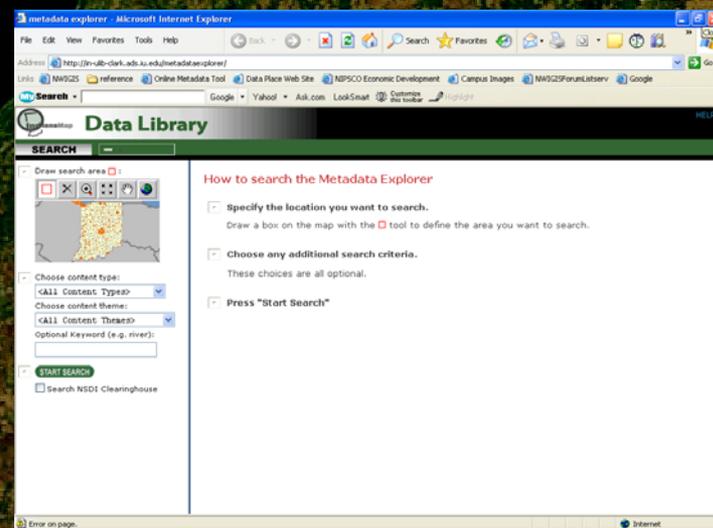
The Value of Metadata

The Current Concept

Using metadata within your organization adds value to your data to users outside of your organization...

Primary external value

- Discovery
- Assessment
- Access
- Use





An Emerging Concept

An aid to data management

Internal value

- **Discovery**
- **Assessment**
- **Access**
- **Use**



An Emerging Concept

Additional data management benefits

Data Currency

- Date of last edit/update
- Age of source files

Data Utility

- Track source file usage
- Track distribution frequency



An Emerging Concept

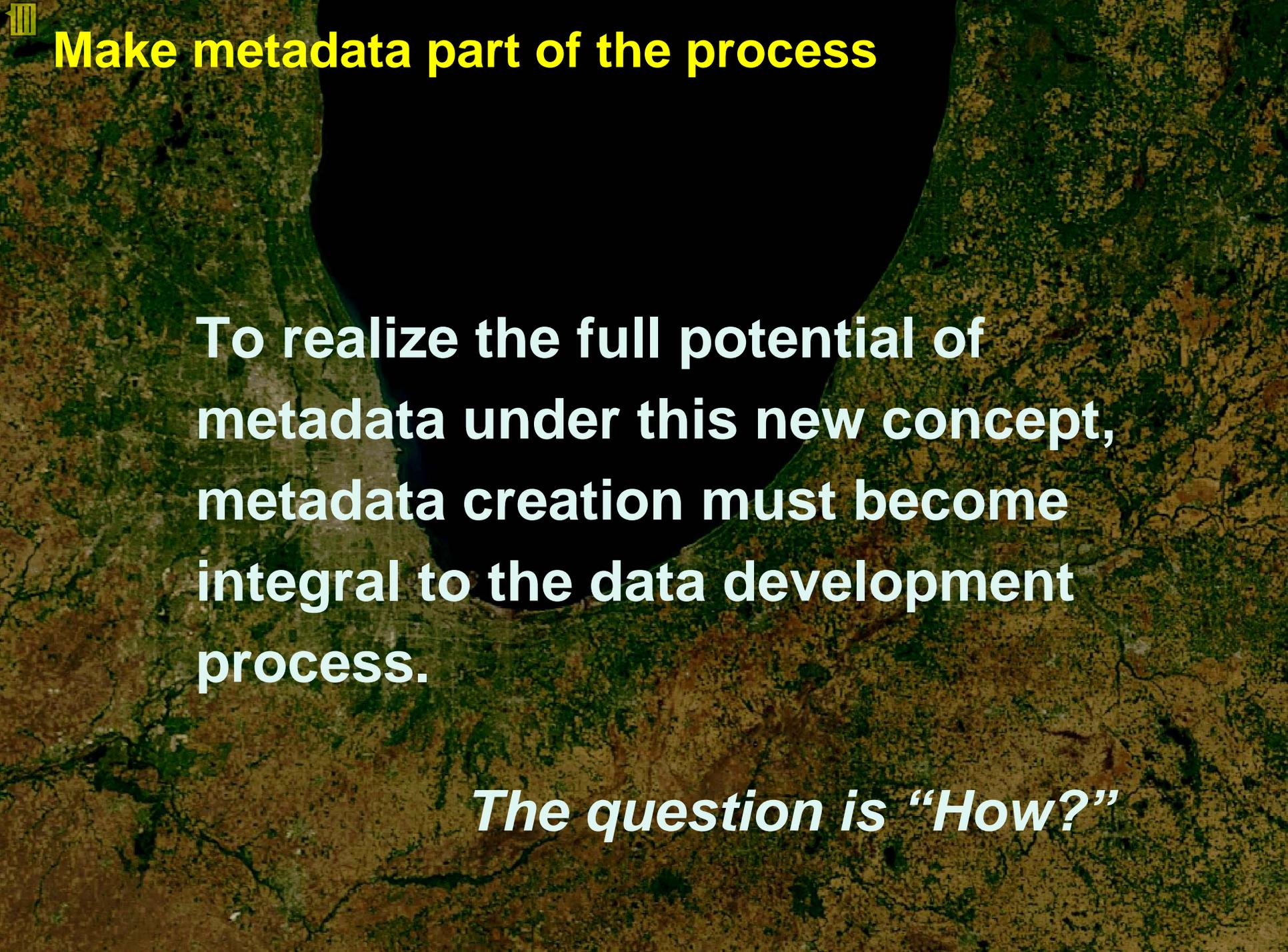
Additional data management benefits

Monitoring Data Development

- **Data processing steps (lineage)**
- **Status of development**

Estimating Development Costs

- **Data processing – time and extent**
- **Source file availability**



Make metadata part of the process

To realize the full potential of metadata under this new concept, metadata creation must become integral to the data development process.

The question is “How?”

An aerial photograph of a coastline with a large black silhouette of a person's head and shoulders overlaid on the water. The text is centered over the silhouette.

Institutionalizing Metadata in Your Organization

Building support within...

Build Administrative Support

- **Technical staff members are typically the first to learn of metadata as a means of documenting data resources**
- **Administrators, however, are tasked with allocating resources and instituting policies critical to successful implementation.**
- **Goal: Educate administrators!!!**

Educate by pitching the key functions of Metadata:

- **Data Archive**
- **Data Assessment**
- **Data Management**
- **Data Discovery**
- **Data Transfer**
- **Data Distribution**



Pitch the key functions of Metadata:

1. Data Archive

- Data are the most expensive components of a GIS. Metadata is a means of preserving the value of the data investments.
- This is of particular significance to agencies / organizations experiencing staff changes.

Pitch the key functions of Metadata:

2.Data Assessment

- **GIS data development has shifted from data producers to data consumers.**
- **From a consumer perspective, metadata is the truth in labeling required to assess available data products**
- **From a producer's perspective, metadata declares limitations, and serves as a form of liability insurance.**

Pitch the key functions of Metadata:

3. Data management

- **Metadata enables organizations to retrieve in-house data resources by specific criteria for global edits and annual updates.**

Pitch the key functions of Metadata:

4. Data Discovery

- Metadata is the primary means of locating available geospatial data resources via the Internet.
- Metadata is a primary public information resource as it is a non-technical means of presenting technical information.

Pitch the key functions of Metadata:

5. Data Transfer

- Metadata is increasingly used by software systems as a means of properly ingesting data and by analysts as a means of properly displaying data.

Pitch the key functions of Metadata:

6. Data Distribution

- By building metadata in compliance with national (and international) standards, you can participate in the Global Spatial Data Clearinghouse.
- Participation promotes your agency and frees staff from answering data inquiries.

Building Administrative Support is Not Enough!

- **The primary responsibility for metadata creation will most likely fall to your technical staff.**
- **It is therefore vital that you are able to stress the individual benefits of metadata creation along with the institutional benefits...**

To build technical support...stress the benefits of metadata

- Reduces the workload over the long term
- Field fewer data inquiries
- Document individual contributions
- Integrate technical staff in the metadata decision making process from the outset. This will bring important insight into the process, and may foster a spirit of ownership.

Building Technical Support

- **Training – provide technical staff with training opportunities**
- **Tools – provide staff with the proper metadata tools to encourage efficient and effective metadata creation**
- **Time – metadata creation takes time... especially during the “start-up” period.**

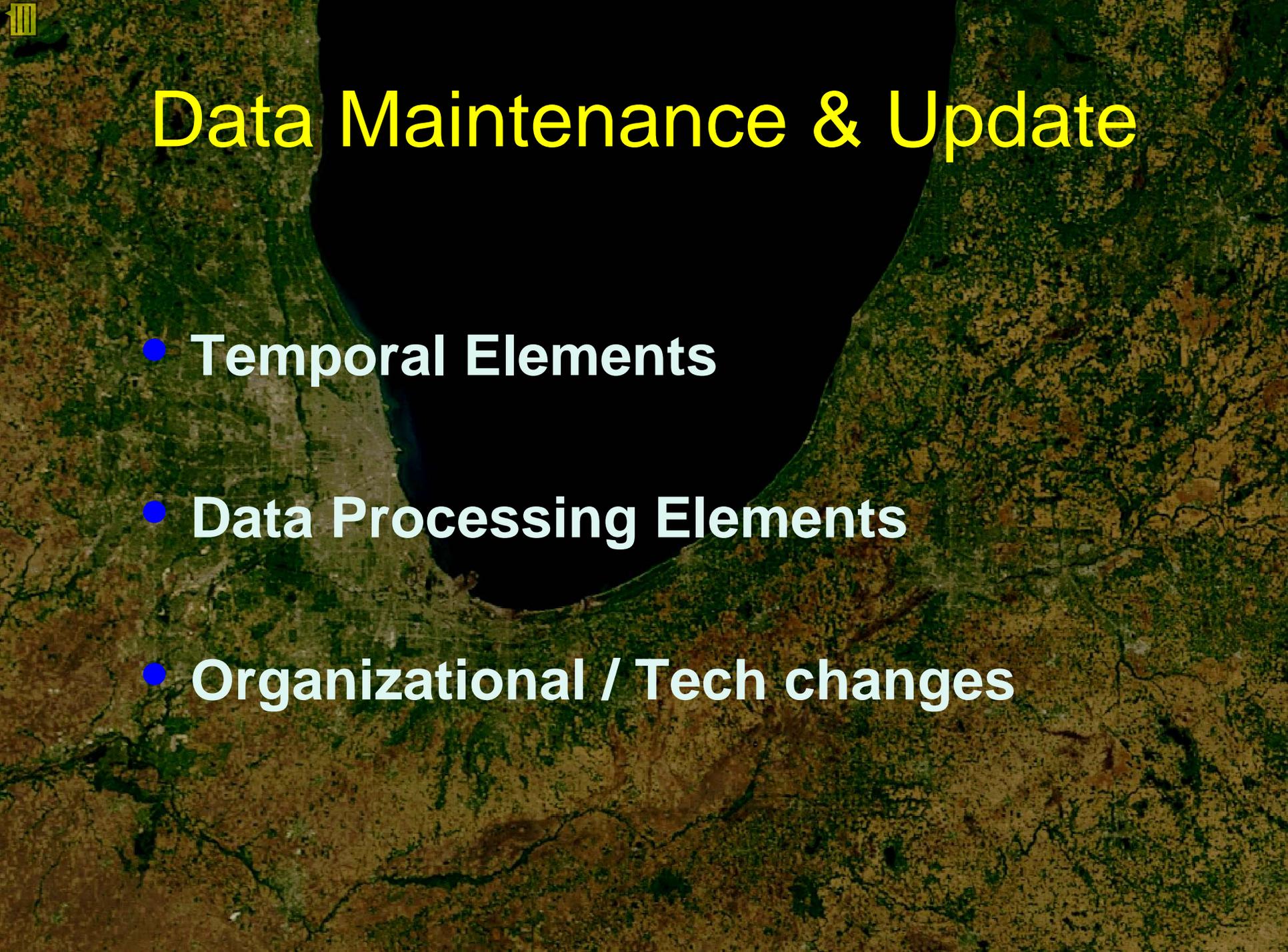


Other ideas for “getting the job done”

- **Assign responsibilities among managers, technicians, scientists and field staff, analysts, and system managers**
- **Assign priorities**
- **Implement: Provide incentives (evaluations, prizes); present and reinforce metadata as a management priority.**

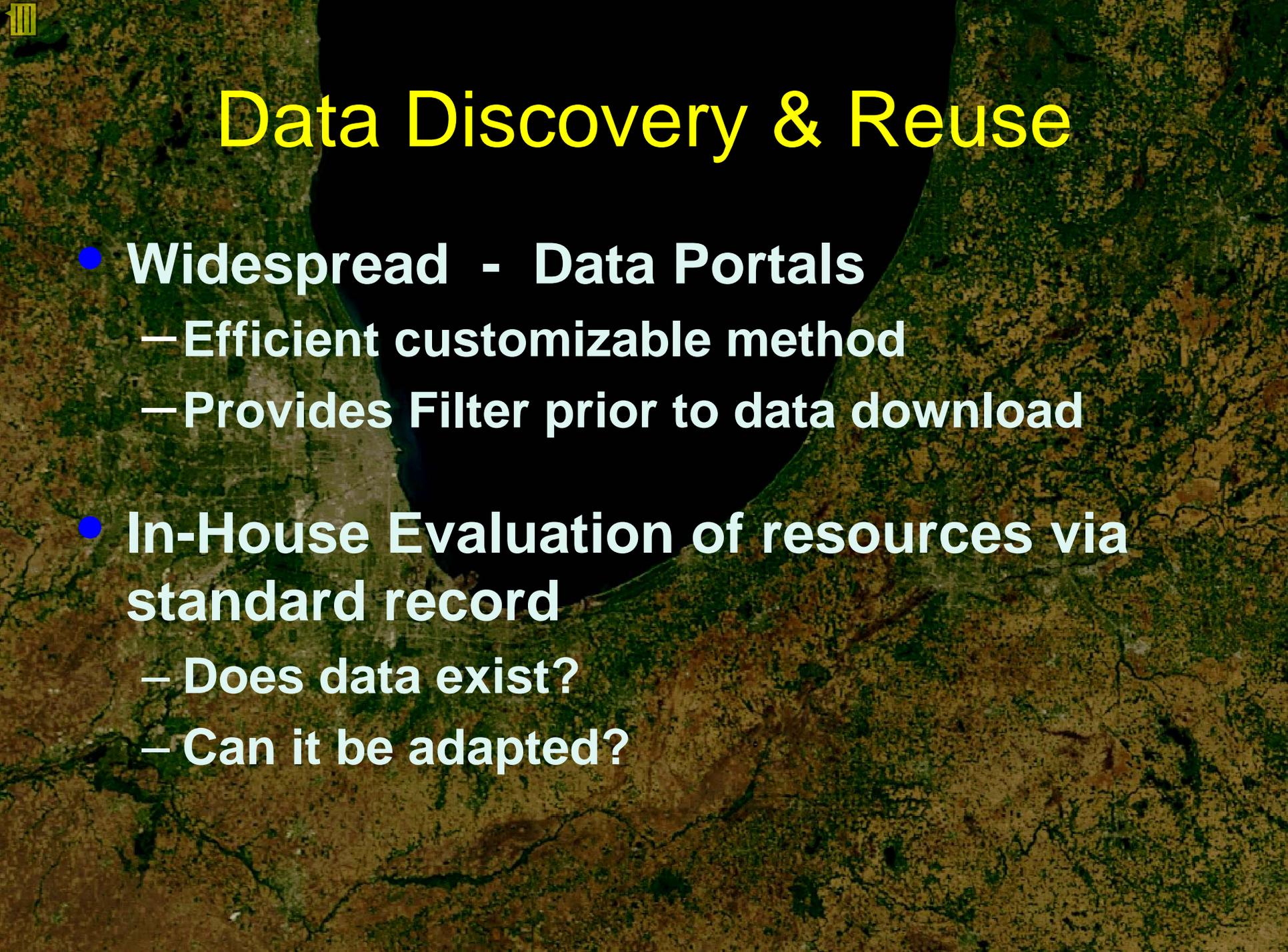
Metadata in Action

- **Data Management Applications**
 1. **Data Maintenance & Update**
 2. **Data Discovery and Reuse**
 3. **Data Accountability**
 4. **Data Liability**



Data Maintenance & Update

- **Temporal Elements**
- **Data Processing Elements**
- **Organizational / Tech changes**

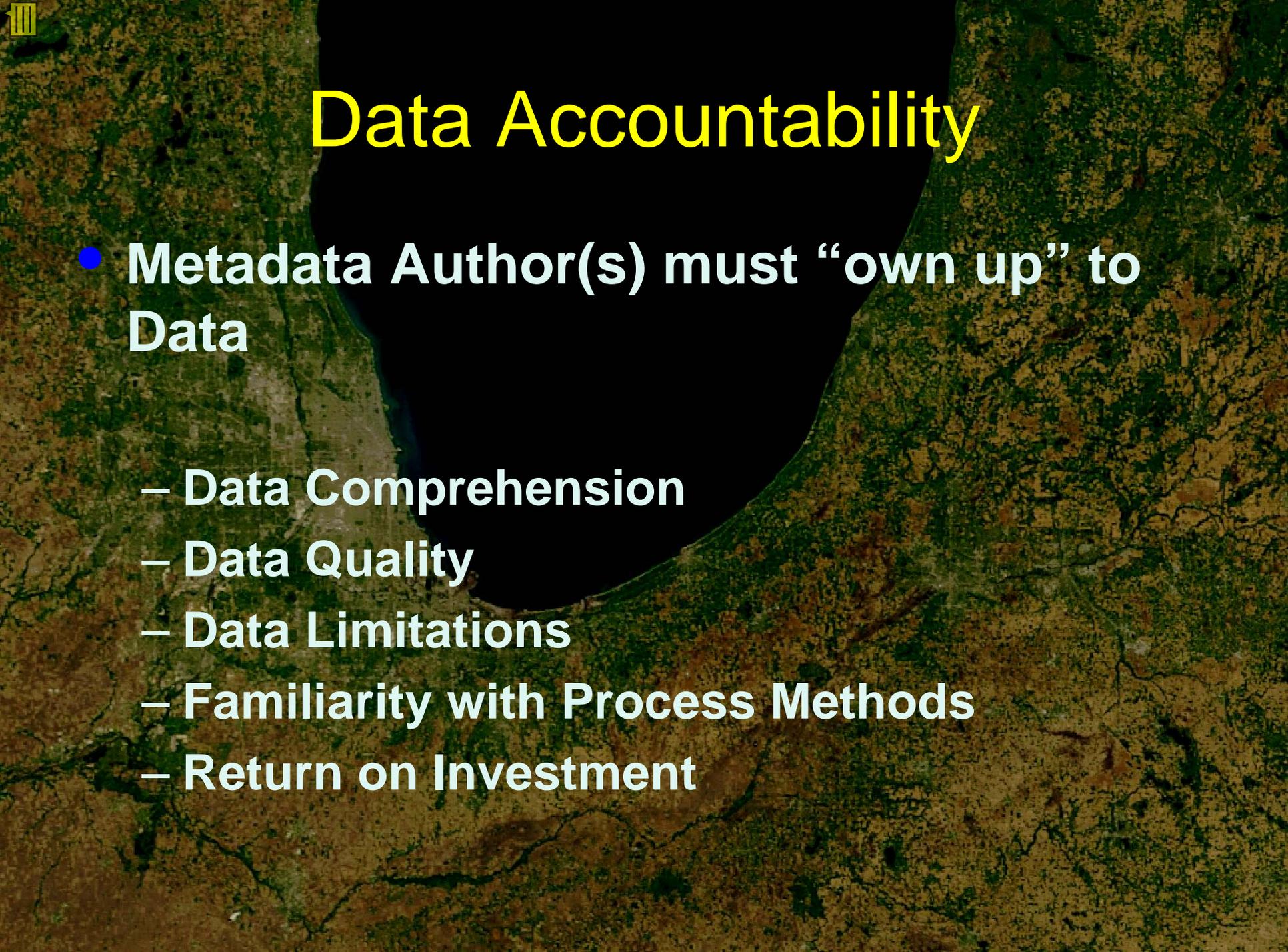


Data Discovery & Reuse

- **Widespread - Data Portals**
 - Efficient customizable method
 - Provides Filter prior to data download
- **In-House Evaluation of resources via standard record**
 - Does data exist?
 - Can it be adapted?

Data Retrieval

- **Datasets may be Assessed with Regards to:**
 1. **Themes & Attributes**
 2. **Geographic Extent**
 3. **Temporal Character**
 4. **Data Processing Methods**
 5. **Data Contributors**
 6. **Data Quality**



Data Accountability

- **Metadata Author(s) must “own up” to Data**
 - **Data Comprehension**
 - **Data Quality**
 - **Data Limitations**
 - **Familiarity with Process Methods**
 - **Return on Investment**

Example

- **2 Similar Datasets**

#1 – Documents only spatial locations

#2 – Documents spatial locations & attributes

Improper Documentation = Misuse?

Metadata & Project Management

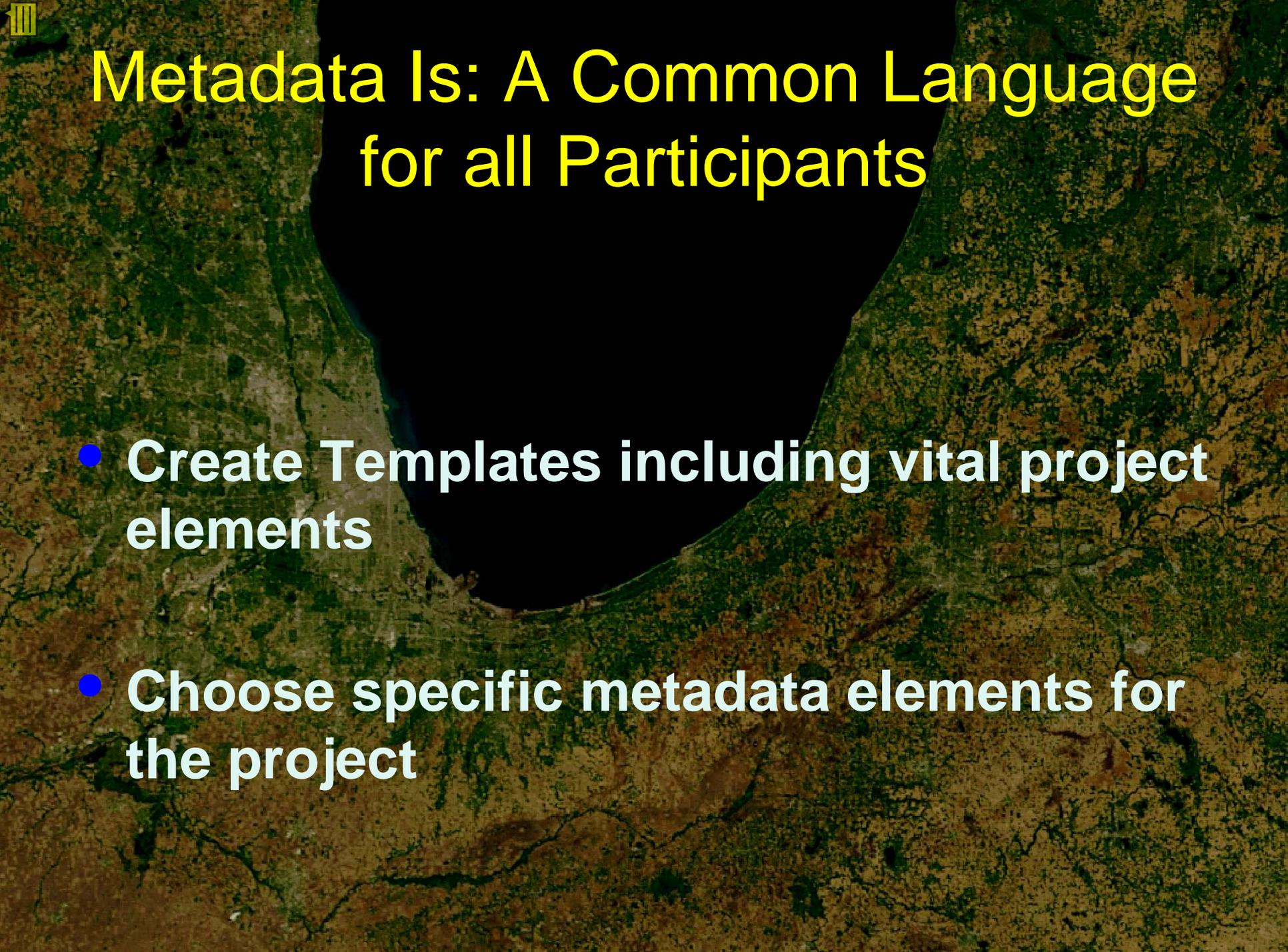
- 1. Project Planning**
- 2. Project Monitoring**
- 3. Common Language for Multiple Participants**
- 4. Contract Deliverables**

Metadata's Role in Project Planning

- **Serves as Outline**
 - Purpose
 - Project Extent
 - Time Period of Content
 - Process Steps
 - Data Dictionary
- **Benefits**
 - Good Communication Vehicle
 - Planning
 - Medium for Project Logging/Changes

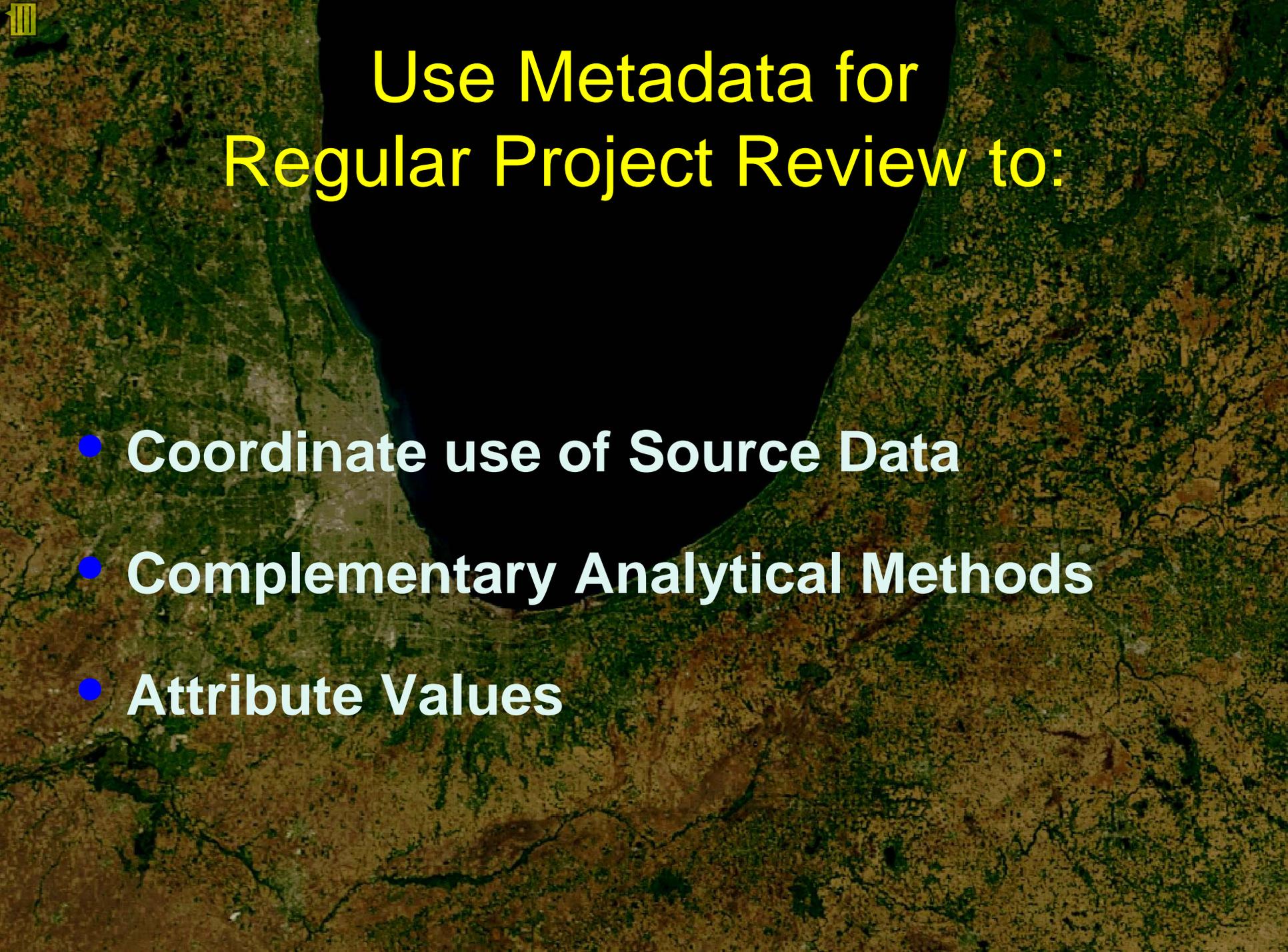
Metadata's Role in Project Monitoring

- **Keep Track of Status**
- **Project Development Monitor**
- **Monitor QA/QC**



Metadata Is: A Common Language for all Participants

- **Create Templates including vital project elements**
- **Choose specific metadata elements for the project**

An aerial photograph of a landscape, possibly a wetland or marsh, with a large black silhouette of a person's head in the center. The text is overlaid on the image.

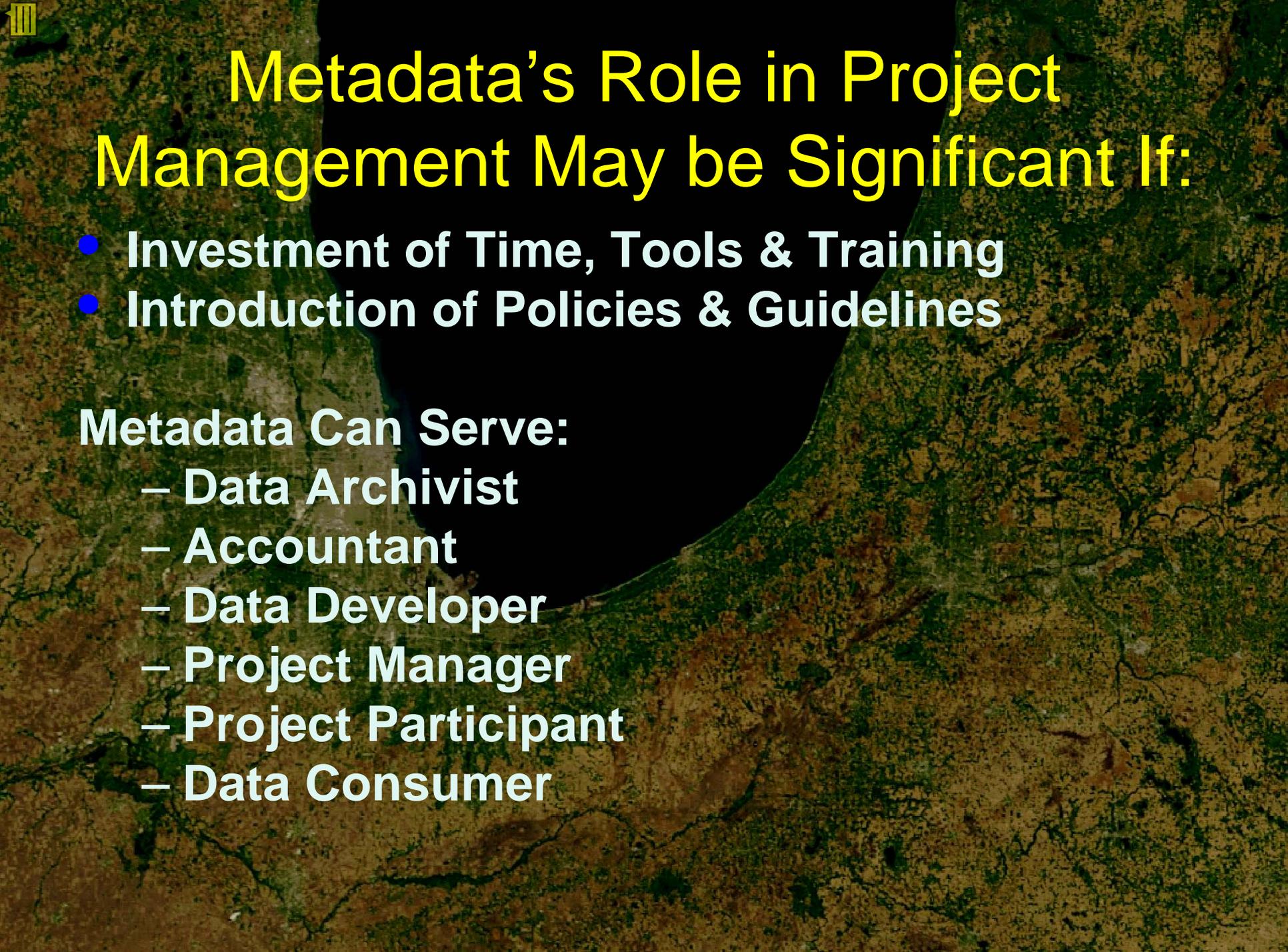
Use Metadata for Regular Project Review to:

- **Coordinate use of Source Data**
- **Complementary Analytical Methods**
- **Attribute Values**



Make Sure to Include Metadata as Part of a Contract Deliverable

- **Communicate the quality of metadata expected**
- **Require a Project Metadata Template that includes specific elements of interest**
- **Request Contractor's SOP for Creating Metadata**



Metadata's Role in Project Management May be Significant If:

- Investment of Time, Tools & Training
- Introduction of Policies & Guidelines

Metadata Can Serve:

- Data Archivist
- Accountant
- Data Developer
- Project Manager
- Project Participant
- Data Consumer

Metadata Demonstration

Data Management

- **Updating Contact information in ArcCatalog**