USGIN

Open & Interoperable Data Solutions

OPEN DATA INITIATIVE HANDBOOK

Tools and Resources for Exposing, Discovering and Enriching Open Data

Our Mission

To build interoperable earth science data networks to advance research, innovation, and commercial application. The objectives of US Geoscience Information Network (USGIN) are to:

- Facilitate public access to interoperable, digital earth science data
- Reduce the cost of online data publication
- Preserve ownership, credit, and control of existing data
- Distribute the logistical overhead associated with sharing digital information
- Minimize reliance on proprietary software applications

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Funding for the USGIN was provided by the National Science Foundation under NSF award number EAR-0753154, as part of the INTEROP initiative. Some USGIN documents and products were developed for use by the National Geothermal Data System (NGDS), which is powered by USGIN; these materials are supported by the Department of Energy under grants EE-0002850 and EE-0001120 awarded to the AASG and Boise State University, respectively.

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Background

In 2013 the Office of Science and Technology (OSTP) released a policy memorandum, *Expanding Public Access to the Results of Federally Funded Research*, and President Obama issued Executive Order 13642, Making Open and Machine Readable the New Default for Government Information, in an ongoing effort to promote openness and interoperability of government data for federal agencies with the end goal of making this data accessible, discoverable, and usable by the public to spur entrepreneurship and innovation.

Memorandum M-13-13, *Open Data Policy—Managing Information as an Asset*, released by the Office of Management and Budget (OMB) and OSTP implements the Order. It requires that newly generated government data shall be made freely available in open, machine-readable formats while appropriately safeguarding privacy, confidentiality, and security.

Every agency faces challenges in meeting this requirement. From insufficient budgets and imperfectly matched skill sets, to managing this undertaking along with other priorities, it can be difficult to know where to start and how your agency will be evaluated by both the OMB and by users of your data. To help agencies implement the policy, OMB and OSTP launched Project Open Data, a community project offering practical resources, including the Project Open Data Implementation Guide.

Using the expertise gained through the successful development and launch of a federated data network of earth science information using data from all state geological surveys, several agencies and and universities, we have developed this compliance guide for agencies at varying stages of implementing their Open Data Policy.

This guide identifies the steps needed to fulfill the requirements in the Implementation Guide in practical and actionable terms. More importantly, it describes open-source tools and resources that you can use to go beyond the OMB requirements and create an interoperable, federated data network where information owned by numerous data publishers can be integrated and made available in the compatible formats through a common search tool. Open, searchable and integrated earth science data is valued by users and provides the structure for accelerating digital earth data sharing and mapping initiatives. The tools to achieve this also enable future data sets to be easily added by your agency.

Important Points Before Getting Started

Start Out with a Flexible and Scalable Framework

Your agency's development and adoption of a flexible and scalable infrastructure is important during the early stages. This framework must have standards, practices, and protocols that not only comply with minimum Open Data Policy requirements, but also facilitate expanding, enriching, and opening your data assets for the future. For agencies publishing earth science data, the standards and protocols selected should be widely adopted throughout the geospatial community. The framework should help your agency efficiently manage this complex process with workflows, support, and open source software applications.

Evolution of Your Data Through Expand, Enrich, and Open

A major objective of the mandate and its implementation is centered on "making information resources easy to find, accessible, and usable." OMB will assess progress towards this in three key concepts: "expand, enrich, and open."

1. **Expanding Your Data Inventory**
   Open data is both a new standard and a continuous process, which means it will be continuously honed and improved. Adoption of a scalable system with easy methodology for tracking new and existing data is essential. Your ability to easily integrate this process into your workflow across operating units, bureaus, and programs will be essential to your agency's long-term success.
2. **Enriching Your Data for Users**
   The desired outcome of opening government data is that it can be used by private industry and entrepreneurs to accelerate innovation. Enrich your data by adding metadata fields and improving the quality of metadata descriptions to increase discoverability and re-usability for researchers, developers, entrepreneurs and other government agencies.
3. **Opening Your Data**
   Increasing the number of data sets on the public data listing and increasing the ratio of data assets that are public and machine readable compared to those that could be made public is another way success will be measured. Policy, process and technical safeguards will help manage this ongoing initiative and accelerate the release of public and machine-readable data.

Your agency should plan to increase and improve your data inventory over time and communicate these plans to the OMB. While this is how the OMB will evaluate progress, it can also be seen as the evolution of your data network—taking your data from open to interoperable with other earth science data—to contribute to the digital earth data movement.

Our Perspective

Expanding, Enriching and Opening Data—USGIN in Action

Discovery and innovation are fueled by access to data that is available in multiple formats, regardless of the original data source, in one place. As researchers and scientists we rely on the analysis of data to help us solve complex problems, create innovative solutions, advance scientific research, and help our industry partners find smarter and more efficient ways of doing business. With this perspective, we created the US Geoscience Information Network (USGIN).

USGIN is a web-based, open-source framework for integrating data from virtually limitless sources in a distributed network without proprietary software. It was developed by geoscientists for earth science data. USGIN is the framework that powers the National Geothermal Data System (NGDS). NGDS exposes geothermal data from State Geological Surveys, universities, and organizations so that researchers in industry, government and academia have easy access to the data in multiple formats in one place. NGDS provides access to more than 9 million data points and over 34,000 reports and documents, and continues to grow.

Using the USGIN framework and services, you can design and build a custom system with input from your community of experts and standardize your data to ensure this information is scalable, interoperable, searchable, and discoverable.

USGIN Offers:

1. **Tools to Get Started:** Our compliance guide and earth science data experts who are here to help you create a statement of work and project plan.
2. **Specifications and Formats for Information Exchange:** Development of data content models, interchange formats for encoding and transmitting information electronically, and protocols for requesting data via searching USGIN, Data.gov, OpenEI, OneGeology, ArcGIS, and other catalogs.
3. **Data Catalogs:** The USGIN catalog is a collection of freely accessible metadata records that describe data available through USGIN and the information exchanges, given as an example of data management through geoportal and catalog services.
4. **Workflow and Project Management Tools:** Track the status of tasks and data from multiple contributors from the project beginning throughout the implementation of your data network.
5. **Support:** Developers, consultants and project managers who have proven track records in implementing interoperable data networks for digital earth data systems.

Policy Requirement A: *Create and Maintain an Enterprise Data Inventory*

The requirement is significant in both scope and effort and has three subrequirements:

1. Your agency needs a plan—the inventory schedule—to identify, describe, add, improve, and open your data assets with milestones.
2. Implementation starts with describing the inventory with a metadata record for every data asset.
3. Continuously implement of the plan to add, improve, and open more of the inventory of data assets.

Subrequirement A1: *Develop and Submit an Inventory Schedule*

The inventory schedule systematically accounts for, describes, improves, and opens your inventory of data assets. It needs to set quarterly goals and milestones for measuring progress. The schedule is to be submitted to OMB and published on your agency's digital strategy webpage.

How to Comply: Start with a Statement of Work

A statement of work specifies the work to be done in these areas:

Identify Your Data Assets: Describe how and when each program, bureau, and division within of your agency will identify its data assets. Earth science data inventories may be well documented and represent a relatively easy way to get started. Still, these data sets need to be compiled in one schedule and augmented with a process to methodically search for more data assets throughout your agency.

Describe Your Approach to Expand, Enrich, and Open Your Data Inventory: This is an exciting opportunity to lay out your agency's vision to increase the value of your data by improving discoverability, usability, and access to existing data and adding new data. The statement of work can specifically address how and when:

Unpublished data will be evaluated and prepared for publishing.

- Data sets will be reviewed and prioritized for transitioning from being searchable to machine readable to interoperable through use of metadata records and data structure.
- Interchange formats will be evaluated, selected and applied to data sets to optimize their access and use.
- Catalogs where your metadata is searched and discovered will be reviewed and selected.

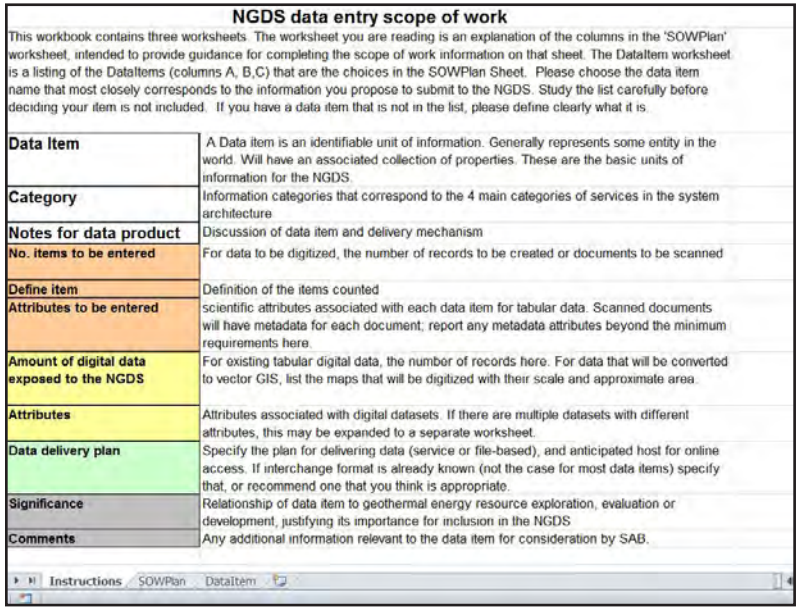
TIPS:

- Most open data frameworks, including USGIN, use free and open source software applications compatible with Open Data Policy standards published on Project Open Data. Agencies should look for a complete toolbox to help efficiently manage the workflow for creating, tracking, and publishing the inventory schedule.
- To achieve interoperability and greater access through many catalogs including Data.gov, USGIN, OneGeology, and others, earth science data publishers will benefit from a more disciplined approach to metadata, content models, and schemas than the minimum requirements provided in the Implementation Guide. Your data becomes valuable information when accurate details give it a context and make it usable.

"The goal of USGIN is to flip the current work structure. Instead of 75% of our effort going to discovering, accessing and transforming data and only 25% doing science, we want to reverse that."

— Lee Allison Ph.D., State Geologist, Arizona Geological Survey and USGIN Developer

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Statement of Work Templates: Help your agency be efficient and thorough by using USGIN custom templates built to deliver open and interoperable earth science data. **Data Provider Workflow**: Assists your staff to understand the internal workflow.	**USGIN Schemas**: This first step is focused on planning, but USGIN offers proven schemas to enrich your data by converting minimum threshold of machine-readable data to interoperable data valued by developers and users.	**Compliance Strategy**: Our geoscientists and data network experts help state, national, and global organizations develop and execute open data strategies. We can help your agency reach its goals. **Custom Tutorials**: We develop live and recorded webinars and video tutorials that train your staff how to develop and apply content models and metadata fields.



NGDS data entry scope of work

This workbook contains three worksheets. The worksheet you are reading is an explanation of the columns in the 'SOWPlan' worksheet, intended to provide guidance for completing the scope of work information on that sheet. The DataItem worksheet is a listing of the DataItems (columns A, B,C) that are the choices in the SOWPlan Sheet. Please choose the data item name that most closely corresponds to the information you propose to submit to the NGDS. Study the list carefully before deciding your item is not included. If you have a data item that is not in the list, please define clearly what it is.

Data Item	A Data item is an identifiable unit of information. Generally represents some entity in the world. Will have an associated collection of properties. These are the basic units of information for the NGDS.
Category	Information categories that correspond to the 4 main categories of services in the system architecture
Notes for data product	Discussion of data item and delivery mechanism
No. items to be entered	For data to be digitized, the number of records to be created or documents to be scanned
Define item	Definition of the items counted
Attributes to be entered	scientific attributes associated with each data item for tabular data. Scanned documents will have metadata for each document; report any metadata attributes beyond the minimum requirements here.
Amount of digital data exposed to the NGDS	For existing tabular digital data, the number of records here. For data that will be converted to vector GIS, list the maps that will be digitized with their scale and approximate area.
Attributes	Attributes associated with digital datasets. If there are multiple datasets with different attributes, this may be expanded to a separate worksheet.
Data delivery plan	Specify the plan for delivering data (service or file-based), and anticipated host for online access. If interchange format is already known (not the case for most data items) specify that, or recommend one that you think is appropriate.
Significance	Relationship of data item to geothermal energy resource exploration, evaluation or development, justifying its importance for inclusion in the NGDS
Comments	Any additional information relevant to the data item for consideration by SAB.

Instructions SOWPlan DataItem

Example of Arizona's statement of work for NGDS.

INTEROPERABILITY

Making data accessible and machine readable helps your agency meet minimum Open Data Policy requirements, but a key to enriching and opening your data lies in interoperable data—data from many sources that can be communicated, exchanged, and analyzed easily. Interoperable data can be plugged in to databases, mapping applications and other programs, or used by developers to create new programs. Data can be divided into three tiers of interoperability. The higher the tier, the greater the interoperability:

Tier 1

Unstructured data

- PDF
- PowerPoint
- Image
- etc.

Tier 2

Structured data

- Excel
- CSV
- XML
- etc.

Tier 3

Structured & Standardized data

- NGDS Content Model
- Standardized Excel, CSV, XML, RDF, JSON, etc.

Subrequirement A2: *Create an Enterprise Data Inventory*

The purpose of A2 is to start implementing the plan by creating and describing the inventory so it complies on two key points:

1. Each data asset has a metadata record.
2. All metadata records include the required common core fields. (One of the fields to be described is access level: public, restricted public, and non-public, which is a building block for next policy requirement).

The inventory should be submitted as a JSON file to OMB and to www.[agency].gov/data.json* and updated quarterly.

How to Comply: *Develop and Implement Your Metadata and Data Structure Strategy*

Start with Metadata: The requirements for near-term compliance provided in the Implementation Guide call for creating one metadata record per data asset as defined by the common core metadata files and extensible metadata fields. This is the first step to making a data asset discoverable.

Aim for Interoperable Earth Science Data: Digital earth data that is both discoverable and interoperable provides more opportunity for scientific discovery and more value to users. Interoperability can be achieved by developing and applying consistent metadata content, data structure, and information exchange standards to data from various sources and publishers. The strategy for interoperability starts with developing standardized data content models that define the common structure, properties, and features of the data. These content models are developed based on community needs and are implemented using structured, well documented interchange formats such as XML or JSON that computer programs use to process and extract the desired information.

* See Minimum Requirements

TIPS:

- To enrich your data, your statement of work should include milestones for community-based information exchange specifications. These specifications would include building data-sharing content models and defining interchange formats for your data assets.
- To meet minimum requirements, start with the easiest data first: Data sets that exist and are already available to the public need the least modification to metadata.

"Early work by this project on data sharing standards and protocols—in particular the approaches expressed in the USGIN framework—has stood the test of time and is working well for this project and as the 'glue' holding NGDS together."

— Excerpt from 2013 Geothermal Technologies Office Peer Review Technical Report on NGDS, a data system using USGIN.

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Task Management Tools: Web-based project management to assign, track, communicate, and report progress on the statement of work. **Submission Tracking Tool**: Web-based reporting on the progress by each functional area of creating the data inventory according to the statement of work. The submission tracking tool is an easy-to-use dashboard that enhances transparency and accountability.	**Information Exchange Specifications**: Scope, content model for data, interchange formats for encoding and transmitting information electronically. **Content Model Development Tools**: Existing content models, processes for developing new content models and automatic creation of metadata. **CKAN Extensions**: Customized extensions of this widely adopted online metadata creation and management tool. **USGIN Validators**: Exclusive, customizable tools that ensure data conforms to a particular schema automatically.	**Standards Development Services**: Strategic and operational management services for developing information exchange standards. **Community Building**: Strategic and project management services for community-based approach to information exchange specifications and content models. **Custom Tutorials**: We develop live and recorded webinars and video tutorials that train your staff to develop and apply content models and metadata fields.

Subrequirement A3: *Maintain the Enterprise Data Inventory*

A major objective of Executive Order 13642 is "making information resources easy to find, accessible, and usable." Subrequirement A is the ongoing implementation to achieve these objectives: OMB will evaluate progress in three key areas:

Tools to Expand, Enrich : Add additional data assets to your inventory by classes and categories of data (e.g. scientific, regulatory, financial, performance, etc.) across operating divisions, bureaus, and programs.

Tools to Enrich, Open: Increase discoverability, management, and re-usability of your data by improving the quality of metadata descriptions and adding metadata fields that increase value for developers and communities.

Tools to Open: Accelerate the release of public and machine-readable data assets by increasing your public data listings and increasing ratio of data assets that are public and machine readable compared to those that could be.

Each agency should plan to increase and improve its inventory over time and to communicate these plans in its inventory schedule**.**

How to Comply: *Develop Your Strategy to Expand, Enrich and Open*

The flexibility and scalability of your framework is critical to implementing your data expansion and improvement strategies. Your network components need to support expansion, interoperability and availability of your data. The network components should to be aligned with project management tools and with strategic and technical support to keep your agency moving towards deploying interoperable digital earth science data.

Expand: Project management and workflow resources are important for efficient internal processes to add to the inventory.
Enrich: Information exchange specifications—content models for data, interchange formats for encoding and transmitting information electronically, and protocols to request information via catalog searches—are critical to delivering interoperable data that is ready for innovation and development.
Open: Catalogs, the collections of metadata records, use information exchanges that define metadata content and how it is searched. Catalogs are the doors to open data.

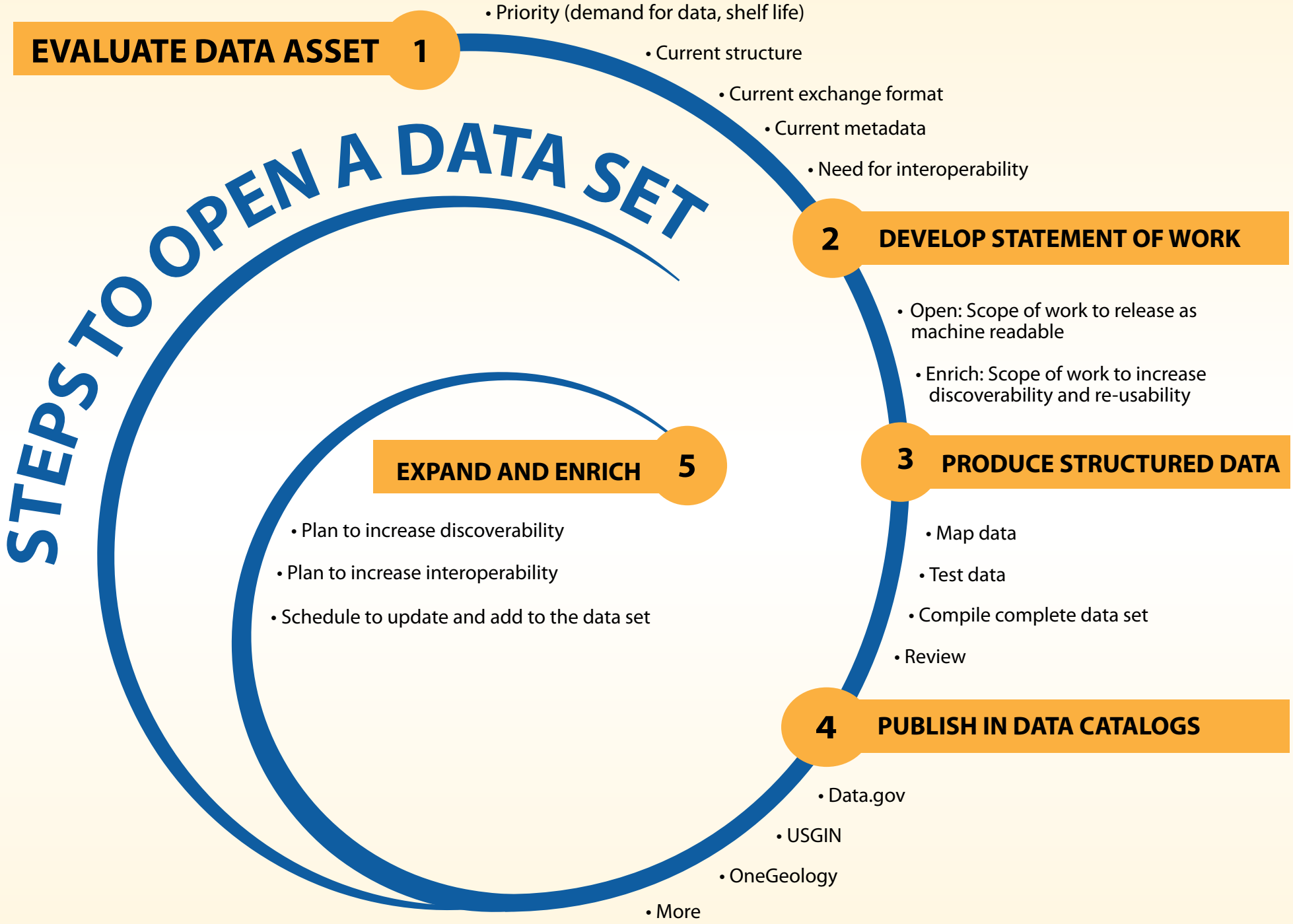
TIPS:

- Look for recognized and widely compatible data standards, such as those from the Open Geospatial Consortium (OGC) and International Organization for Standardization (ISO), to apply to your data so that earth science data users can access your data using a variety of proprietary and open-source applications.
- Select a shared data framework that allows flexibility for your metadata to be available in many catalogs including Data.gov, OneGeology, Open EI, USGIN, and others.

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Task Management Tools: Web-based project management to assign, track, communicate, and report progress on the statement of work. **Submission Tracking Tool**: Web-based to report progress by functional area.	**Information Exchange Specifications**: Content models for data, interchange formats for encoding and transmitting information that complies with OGC and ISO data standards. **USGIN Catalog**: Access options to enrich and open data. **USGIN CSW Client**: Improve interoperability related to viewing through ArcView. **Catalog Connector**: For interoperability with data systems such as Data.gov, OneGeology, and more. **Automated Conversion Tools**: Add data and make it interoperable.	**Standards Development Services**: Strategic and operational management services for developing information exchange standards. **Custom Tutorials**: We develop live and recorded webinars and video tutorials that train your staff to develop and apply content models and metadata fields.

"When we developed USGIN the idea was to come up a way to move information around that was independent of any particular data storage format. You continue to use your own in-house data management system, and if you want to publish your data for others to use via USGIN, you simply expose it in a standard format with standard requests."

— Steve Richard, Chief of Geoinformatics, Arizona Geological Survey and USGIN Developer


STEPS TO OPEN A DATA SET
EVALUATE DATA ASSET 1
• Priority (demand for data, shelf life)
• Current structure
• Current exchange format
• Current metadata
• Need for interoperability
2 DEVELOP STATEMENT OF WORK
• Open: Scope of work to release as machine readable
• Enrich: Scope of work to increase discoverability and re-usability
3 PRODUCE STRUCTURED DATA
• Map data
• Test data
• Compile complete data set
• Review
4 PUBLISH IN DATA CATALOGS
• Data.gov
• USGIN
• OneGeology
• More
EXPAND AND ENRICH 5
• Plan to increase discoverability
• Plan to increase interoperability
• Schedule to update and add to the data set

Policy Requirement B: *Create and Maintain a Public Data Listing*

Your agency's public data listing is the portion of your data inventory that is or could be made available to the public—publicly available without restrictions. Publishing this lets the public know what is available and what is yet to come, thus making your data discoverable and, when available, usable.

TIPS:

- The internal processes of preparing data for publication should be facilitated by easy-to-use workflow management tools so that any delays or problems can be identified and addressed earlier for publishing to be kept on schedule.

How to Comply: *Use a Web-based Data Publishing Reporter*

Most agencies publishing earth science data already have some number of open, digital data sets.

Use a web-friendly data publishing tracker that displays what is available and the status of data assets being evaluated and developed for publication.

NGDS, a data system using USGIN, earned 4-star accreditation from OneGeology.

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Task Management Tool: Web-based project management to assign, track, communicate, and report progress on the statement of work. **Submission Tracking Tool**: Web-based to report progress by functional area.	**USGIN Catalog**: Using the USGIN protocols and procedures, you can customize your catalog. **CKAN Extensions**: Customized extensions of this widely adopted online metadata creation and management tool.	**Support Services**: We offer expert project management and technical support services for successful execution of your Open Data initiatives.

Policy Requirement C: *Create a Process to Engage With Customers*

Customer feedback will help you prioritize the release of public data. It is a basis for continually improving service and value over time by releasing more data that is in demand and enhancing the discoverability and usability of your data. Your agency is required to set up, deploy, and report on customer engagement channels and processes.

TIPS:

- Prioritize publishing similar data sets to those that are already published and receiving higher click, inquiry and request rates.

How to Comply: *Use Project Management Tools*

Deploying, tracking, and reporting on numerous customer feedback opportunities require continual management and continuous improvement. Project management tools can help your agency be productive throughout the customer feedback loop.

"Once the protocols and standards are in place, each data provider will have created a value-added service that is transportable and scalable to cover all data in its possession, as data is continually added the network increases its value to the user."

— Kim Patten, NGDS Project Manager

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Statement of Work: Define when and how you will address your customer feedback methods. **Task Management Tool**: Build customer feedback strategy review into task.usgin.org.	**Metadata Fields**: USGIN requires a contact field in the metadata record. **Feedback**: USGIN users have mechanisms to comment on data. **Share on social media**: USGIN users can click to share their data discoveries on social media, providing an analysis tool to data usage.	**Support Services**: Our expert project managers will help you initiate, implement and provide ongoing support for a successful Open Data project. We have experience working with a large number of data providers and datasets, and will keep the project moving while building consensus and overcoming any technical or development challenges.

Policy Requirement D: *Document If Data Cannot Be Released*

Not all of federal government data assets can be made available to the public. There are three access levels for data assets in the inventory: public, restricted public, and non-public. Each agency needs to work with its Senior Agency Official for Privacy, General Counsel, or equivalent to develop and document policies and procedures that evaluate every data asset for issues related to privacy, confidentiality, and security to ensure the correct access level is assigned to each data asset.

TIPS:

- Spreadsheets may be useful, but a web-based project management tool designed for open data review and approval like the USGIN's Task Management Tool is even better for ongoing process management and activity tracking across all offices.

How to Comply: *Use Project Management Tools*

General Counsel can provide review and approval process. A project management tool can help implement the process across widely dispersed personnel.

"Having a 'one-stop' shop for geothermal data is a powerful thing. It should not only help the industry and geothermal community, but also be useful for people outside the community, and help educate the public."

— Key reviewer comment under the DOE peer review section for NGDS, a data system using USGIN.

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Task Management Tools: Web-based project management to assign, track, communicate, and report progress on the statement of work. **Submission Tracking Tool**: Web-based to report progress by functional area.	**USGIN Metadata Fields**: USGIN content models specify access and can be customized.	**Support Services**: We offer expert project management and technical support services for successful execution of your Open Data initiatives.

Policy Requirement E: *Clarify Roles and Responsibilities*

With new initiatives come new roles, responsibilities and ownership. This requirement helps your agency to identify the personnel resources needed for successful implementation.

TIPS:

- Spreadsheets or contact databases may be useful, but a project management tool like the USGIN's Task Management can help you be more effective starting with defining user, administrative, and contributor roles.

How to Comply: *Use Project Management Tools*

Managing personnel resources throughout large agencies with remote offices, bureaus, programs, and divisions takes coordination to identify, qualify, approve, and train key personnel and their back-ups.

"The core project leadership team is small and high-functioning. Management of the numerous subcontractors is done very effectively, ensuring through various mechanisms, including the Science Advisory Board, that data assets being included are delivered timely and of highest quality. Well defined repeatable processes are in place to support the management of this diverse set of providers."

— Excerpt from 2013 Geothermal Technologies Office Peer Review Technical Report on NDGS, a data system using USGIN.

USGIN Workflow & Project Management Tools	USGIN Network Components	USGIN Services
Task Management Tools: Web-based project management to assign, track, communicate, and report progress on the statement of work.	*This requirement does not require open data network components to comply*	**Support Services**: We can help you document and track personnel with our custom workflow and project management tools.

Recommendations

For agencies publishing digital earth science data sets today, meeting the minimum requirements of Requirement A, *Creating and Maintaining an Enterprise Data Inventory*, may be an incremental step forward from your current open data efforts. For those agencies with the vision to make their open data interoperable with other earth science data from local to international publishers, this requirement creates the opportunity for your agency to take giant step toward making your data easy to find, accessible, usable, and providing the most value to developers and your data users.

Requirement C, *Customer Feedback Mechanisms*, and Requirement D, Public/Private Access Levels are processes that can be managed effectively with workflow and management tools and supported by open data network components.

5 Recommendations for Earth Science Information Publishers:

1. **Consult with an open data expert from the start.** Unplanned costs, delays, or opportunities lost from preventable errors can be a drain on your agency's resources. An expert in earth sciences and open data networks can help you identify and prevent downstream problems.
2. **Plan now to make your data interoperable.** Interoperability is a driving force in today's digital earth data projects as well as being addressed in Executive Order 13642. Interoperability requires standard approaches to information exchange specifications with common content models, metadata, interchange formats, and protocols defined by your community. Applying recognized OGC and ISO data standards allows earth science data users to access your data using the widest variety of front-end applications.
3. **Choose open-source software applications.** Open-source applications are free, widely adopted, and by their nature, optimize discoverability and usability of your open data.
4. **Proliferate your metadata on many catalogs.** Your open data framework can expose your metadata to Data.gov, OneGeology, USGIN, and other global catalogs.
5. **Project management is as important as network infrastructure.** Free, open data software applications are abundant through USGIN, Project Open Data, and other open data communities and can solve many technical challenges, but your agency needs to consider how your staff manages and publishes data.

Minimum Requirements*

Policy Requirement A: Create and Maintain an Enterprise Data Inventory

Subrequirement A1

The minimum requirement is to develop and submit to OMB an inventory schedule by November 30, 2013, specifically:

- Describe how your agency will ensure that all data assets from each bureau and program in your agency have been identified and accounted for in the Inventory, to the extent practicable, no later than November 1, 2014.
- Describe how your agency plans to expand, enrich, and open their Inventory each quarter through November 1, 2014 at a minimum; include a summary and milestones in the schedule by following the instructions at MAX.gov.
- Publish Inventory Schedule on the www.[agency].gov/digitalstrategy page by November 30, 2013, by following the instructions at MAX.gov.

Subrequirement A2

The minimum requirement to create an Enterprise Data Inventory by November 30, 2013, specifically:

- Include, at a minimum, all data assets which were posted on Data.gov before August 1, 2013 and additional representative data assets from programs and bureaus.
- Ensure the inventory contains one metadata record for each data asset. A data asset can describe a collection of datasets (such as a CSV file for each state).
- Use common core "required" fields and "required-if-applicable" fields on Project Open Data (includes indicating whether data can be made publicly available).
- Submit to OMB via MAX Community the inventory as a single JSON file using the defined schema from Project Open Data. Note: OMB invites agency input on the option of replacing future submission with an API via a discussion on Project Open Data.

Subrequirement A3

The minimum requirement is to maintain the Enterprise Data Inventory (ongoing after November 30, 2013):

- Continue to expand, enrich, and open the inventory on an on-going basis.
- Update the inventory schedule on a quarterly basis on the www.[agency].gov/digitalstrategy page by following the instructions at OMB's MAX Community.

Policy Requirement B

The requirement is to publish a Public Data Listing (by November 30, 2013):

- Include, at a minimum, all data assets where 'accessLevel' = 'public' in the inventory. By design, an agency should be able to filter the Inventory to all entries where 'accessLevel' = 'public' to easily generate the Public Data Listing.
- Publish the Public Data Listing at www.[agency].gov/data.json).
- Follow the schema available on Project Open Data.
- Include accessURL link in the data asset's metadata for all data assets in the Public Data Listing that are already publicly available (as opposed to those that could be publicly available).

Policy Requirement C

The requirement is to publish a Public Data Listing (by November 30, 2013):

- Through the common core metadata requirements, agencies are already required to include a point of contact within each data asset's metadata listed.
- Agencies should create a process to engage with customers on the www.[agency].gov/data page or other appropriate mechanism. If the feedback tool is in an external location, it must be linked to the www.[agency].gov/data page.
- Agencies should consider utilizing tools available on Project Open Data, such as the "Kickstart" plug-in, to organize feedback around individual data assets. Describe Customer Feedback Processes (by November 30, 2013).
- Update www.[agency].gov/digitalstrategy page to describe your agency's process to engage with customers. (Agency Digital Government Strategy page by following the instructions at OMB's MAX.gov.
- Moving forward, agencies should consider updating their customer feedback strategy and reflecting changes on www.[agency].gov/digitalstrategy beyond November 30, 2013.

Policy Requirement D

The requirement is to describe Data Publication Process by November 30, 2013, specifically:

- Agencies must develop a new process, in consultation with their General Counsel or equivalent, to determine whether data assets have a valid restriction to release.
- Agencies must publish a general overview of this process on the www.[agency].gov/digitalstrategy page. Overviews should include information on the actual process by which data is determined to have a valid restriction to release and examples of what kinds of characteristics a data asset has that leads to a determination to not release.

Policy Requirement E

The requirement is to report the point of contact for each of these roles and responsibilities via the E-Gov IDC by November 30, 2013:

- Communicating the strategic value of open data to internal stakeholders and the public.
- Ensuring that data released to the public are open, as appropriate, and a point of contact is designated to assist open data use and to respond to complaints about adherence to open data requirements.
- Engaging entrepreneurs and innovators in the private and nonprofit sectors to encourage and facilitate the use of agency data to build applications and services.
- Working with agency components to scale best practices from bureaus and offices that excel in open data practices across the enterprise.
- Working with your agency's Senior Agency Official for Privacy (SAOP) or other relevant officials to ensure that privacy and confidentiality are fully protected.
- Working with the Chief Information Security Officer (CISO) and mission owners to assess overall organizational risk, based on the impact of releasing potentially sensitive data, and make a risk-based determination.

* From ***Project Open Data Implementation Guide***