

Understanding and Using Metadata in ArcGIS

Adam Martin

Marten Hogeweg

Aleta Vienneau

A decorative background featuring a blue-toned topographic map with contour lines. Overlaid on the map are several abstract data elements: a cluster of colored squares (red, green, blue, yellow) in the bottom-left; a series of blue L-shaped blocks forming a staircase pattern in the center; a small cluster of colored squares (red, green, blue, yellow) in the bottom-right; and a series of blue plus signs of varying sizes scattered across the map.

SEE
WHAT
OTHERS
CAN'T

Understanding and Using Metadata in ArcGIS

- Introduction - Adam
- Metadata across ArcGIS - Marten
- What's Next? - Aleta



Introduction

Adam Martin

Why Metadata Matters?

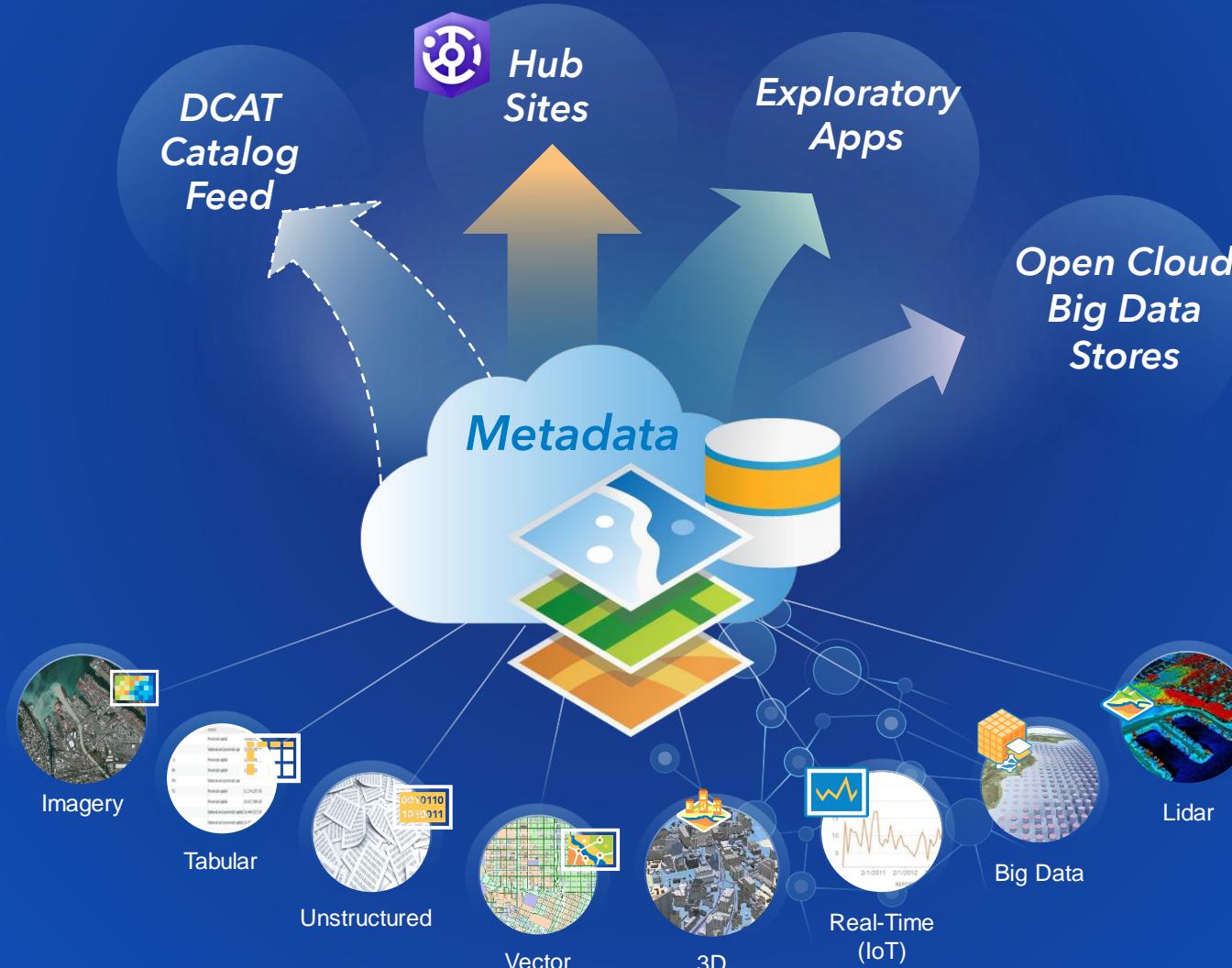
Discoverability

Accountability



Metadata Enables Documentation and Discovery

Effectively and freely sharing your derivative work with any machine or person



Esri Supports Building Open Data Catalogs



ArcGIS Hub

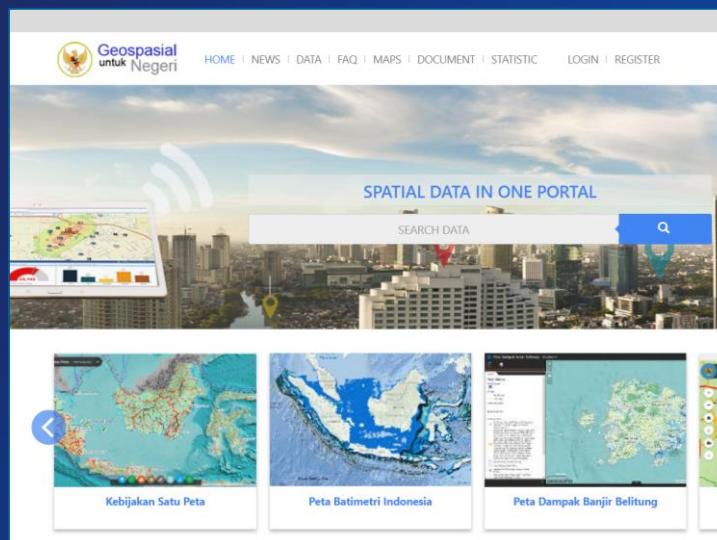
ArcGIS for INSPIRE
A Collaborative Platform for INSPIRE

ArcGIS for INSPIRE extends ArcGIS to help you meet current requirements for delivering INSPIRE Discovery, View, and Download Services without complex data migrations.

ArcGIS for INSPIRE includes:

- ArcMap extension to create and maintain INSPIRE geospatial data and metadata.
- ArcGIS Enterprise extension to serve INSPIRE View and Download services.
- INSPIRE-compliant geodatabase templates for extracting, transforming, and loading (ETL) geospatial information from existing databases into INSPIRE geodatabases.
- Open-source Esri Geoportal Server and add-ons to catalog and index INSPIRE metadata and to serve INSPIRE Discovery services.

Explore INSPIRE Data Themes



Geoportal Server (Open Source)

Geospasial untuk Negeri

HOME | NEWS | DATA | FAQ | MAPS | DOCUMENT | STATISTIC | LOGIN | REGISTER

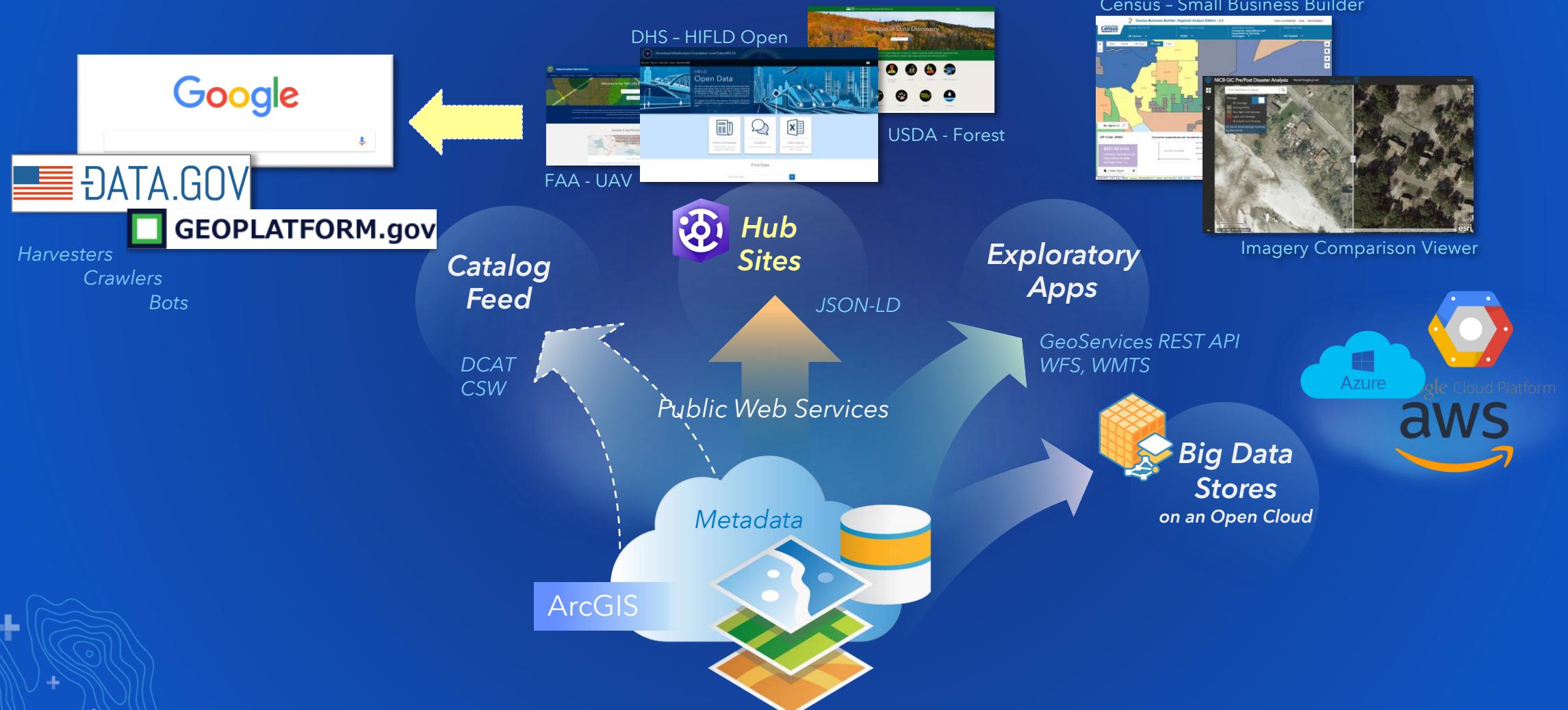
SPATIAL DATA IN ONE PORTAL

SEARCH DATA

Kebijakan Satu Peta | Peta Batimetri Indonesia | Peta Dampak Banjir Belitung

Enabling Search, Discovery and Use

Powering Search





ArcGIS Hub

> 2,500 governments and organizations

> 234,000 curated datasets



DHS.GOV DHS GII FGDC.GOV HIFLD GEOPLATFORM



HIFLD Open Data

This site provides National foundation-level geospatial data within the open public domain that can be useful to support community preparedness, resiliency, research, and more. The data is available for download as CSV, KML, Shapefile, and accessible via web services to support application development and data visualization.

For updates about HIFLD data, guidance on metadata, and known shapefile conversion issues, please access the HIFLD notifications page located [here](#).



Find Data

Search HIFLD Open

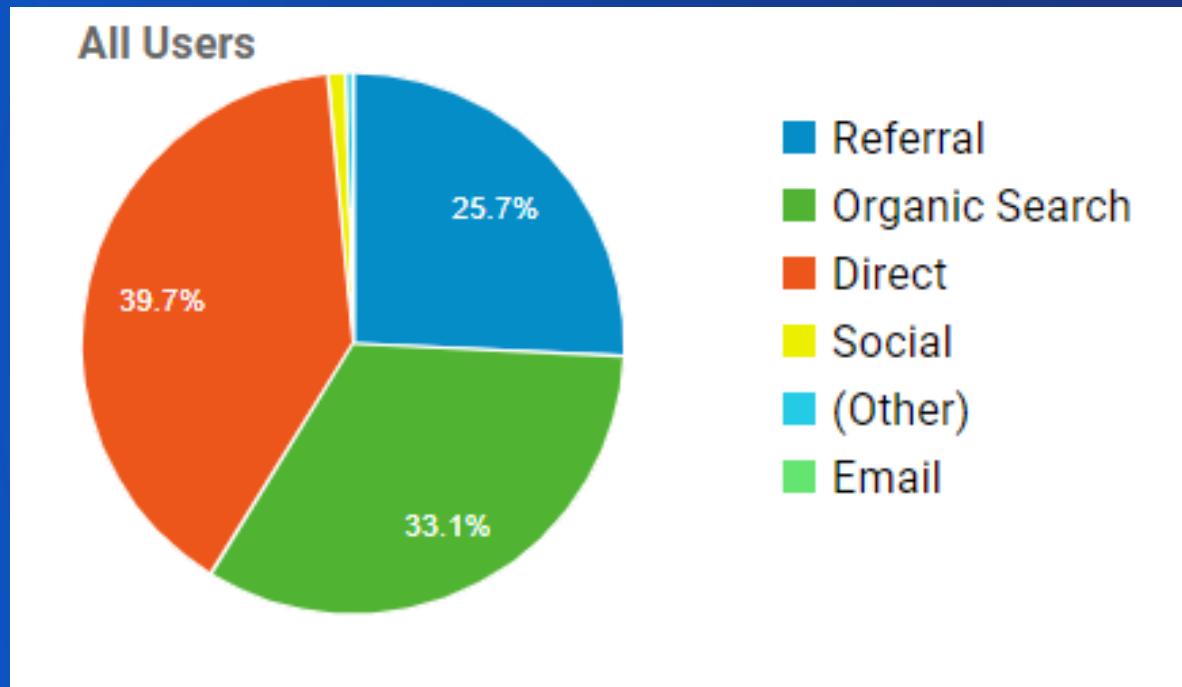


Explore All Data





How users find your data in your Hub Sites?



Source: Hub Google Analytics, Jan-Jun 2019

- **33% Search Google**
 - Click on a trustworthy looking source
 - 33% of search-based users land on the home page; the rest on an actual dataset!
- **25% Referrals from a trusted source**
 - From an already trusted .gov website

"Authoritative" data vs. source discovery



How Hub Sites Help SEO your Data

Links

More links

to your dataset pages

Architecture

Mobile Design

all new features go through mobile-specific designs, e.g. increasing text size within a search box.

HTML

Enforce HTTPS

to automatically redirect any requests over HTTP to HTTPS

Content

A Sitemap

that shows web crawlers the way through your site

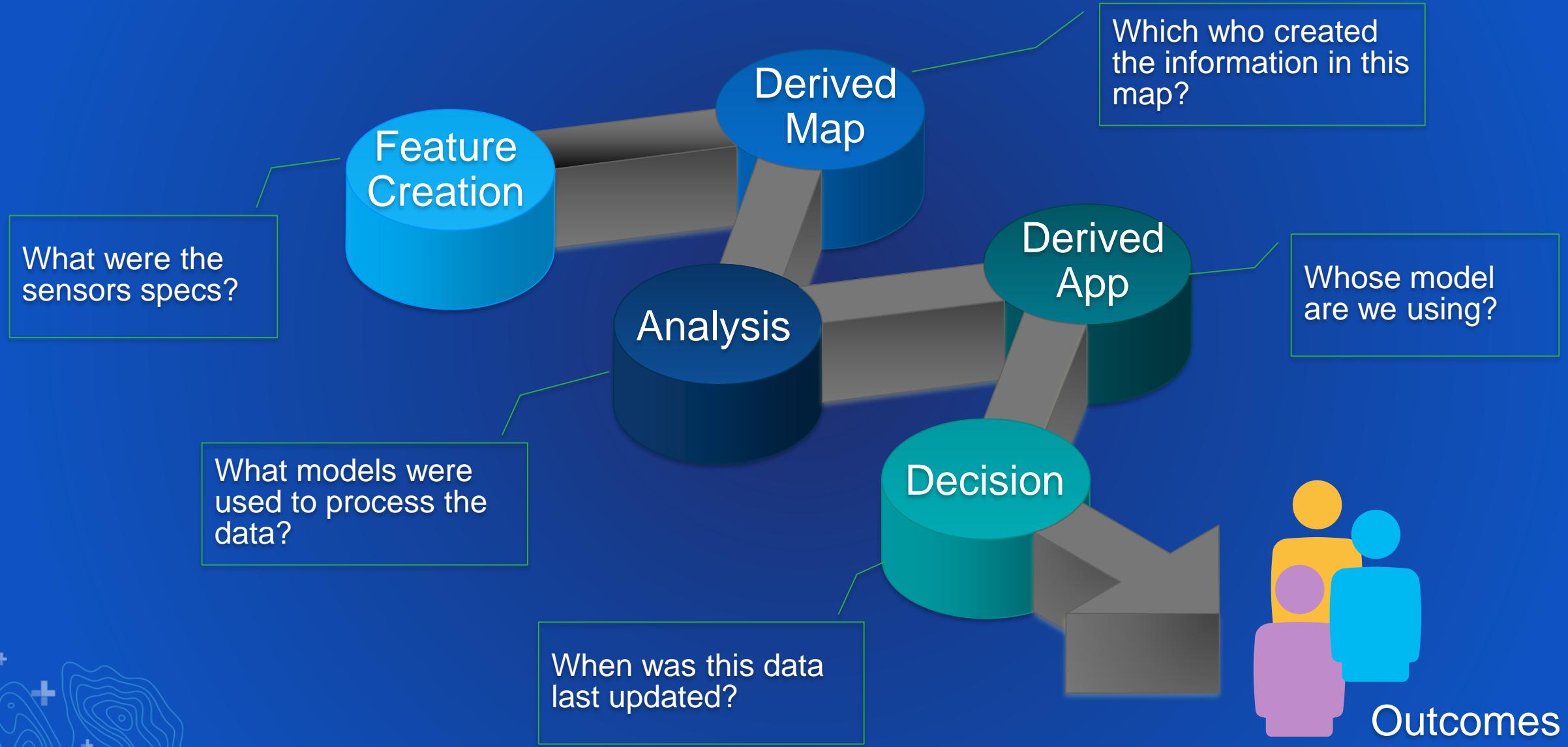
Dataset page html inserts

that web crawlers love to read <tags>

Optimized Media Content

improved image and multimedia embed capabilities and improved accessibility

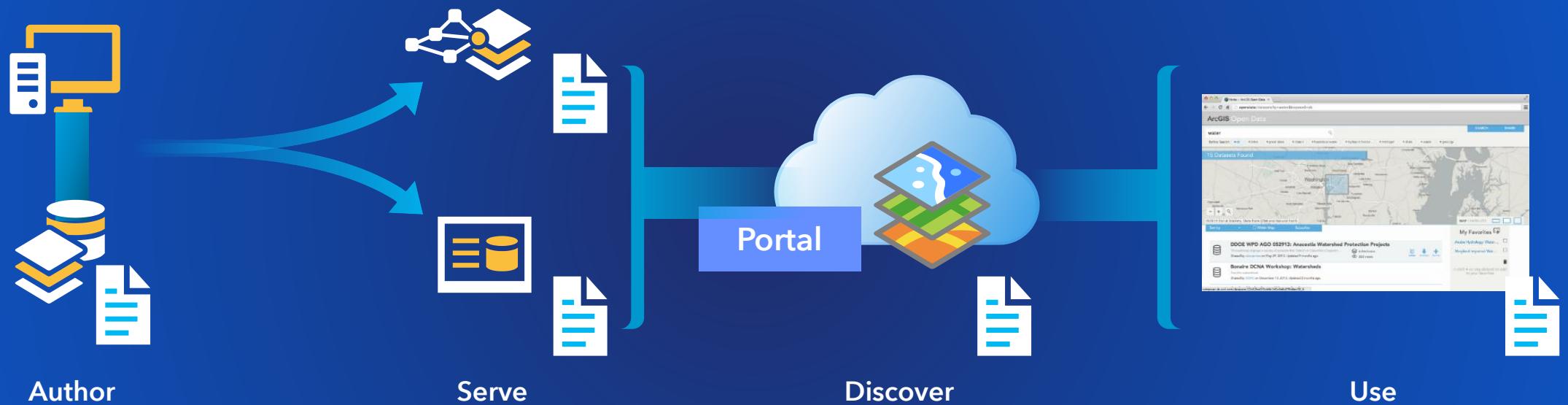
Metadata Matters at Each Step



Metadata Across ArcGIS

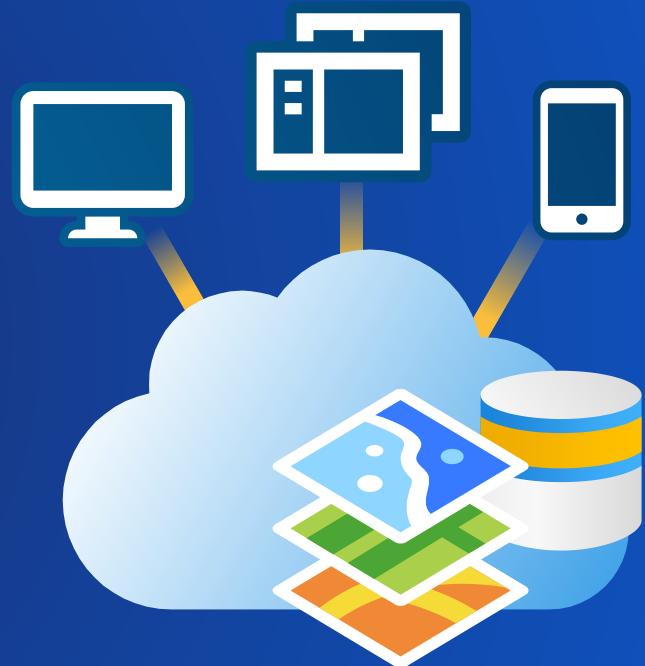
Marten Hogeweg

Metadata is the Fuel for Open Data Sharing



Metadata Fundamentals

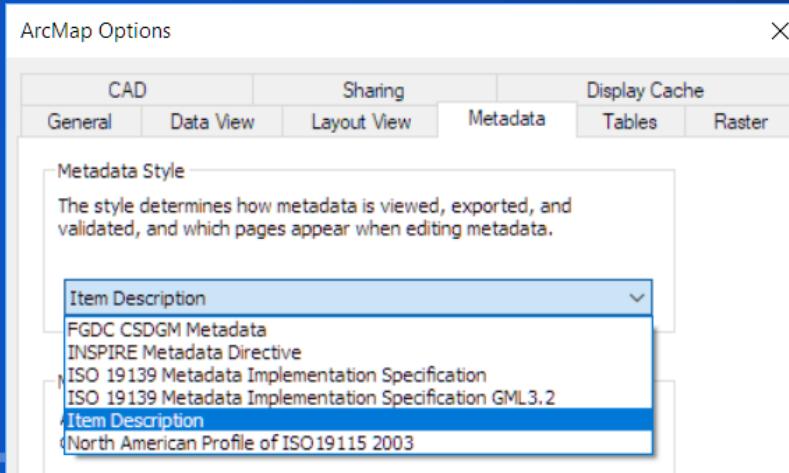
- **Metadata documents geospatial content**
 - for search, discovery, evaluation, archiving
- **ArcGIS platform should facilitate these efforts**
- **Goal: improve the experience**



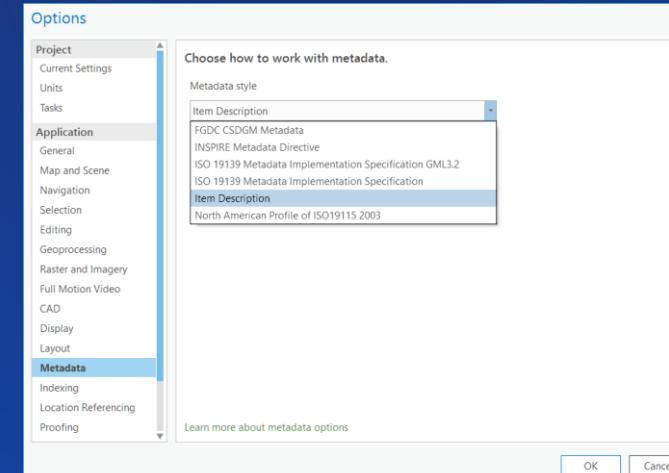
Metadata Lifecycle in ArcGIS

- All items have metadata
- Metadata in ArcGIS is stored in ArcGIS XML
- Metadata styles determine how you display, edit, validate, export metadata

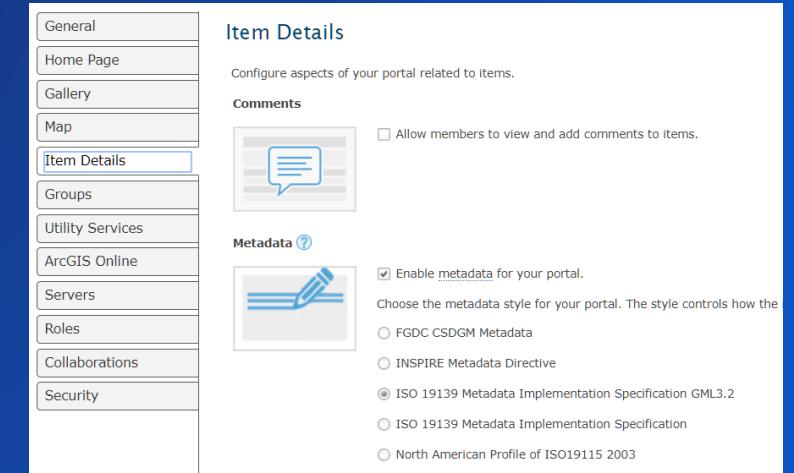
ArcMap



ArcGIS Pro



Portal for ArcGIS / ArcGIS Online



ArcGIS Platform



Metadata Styles

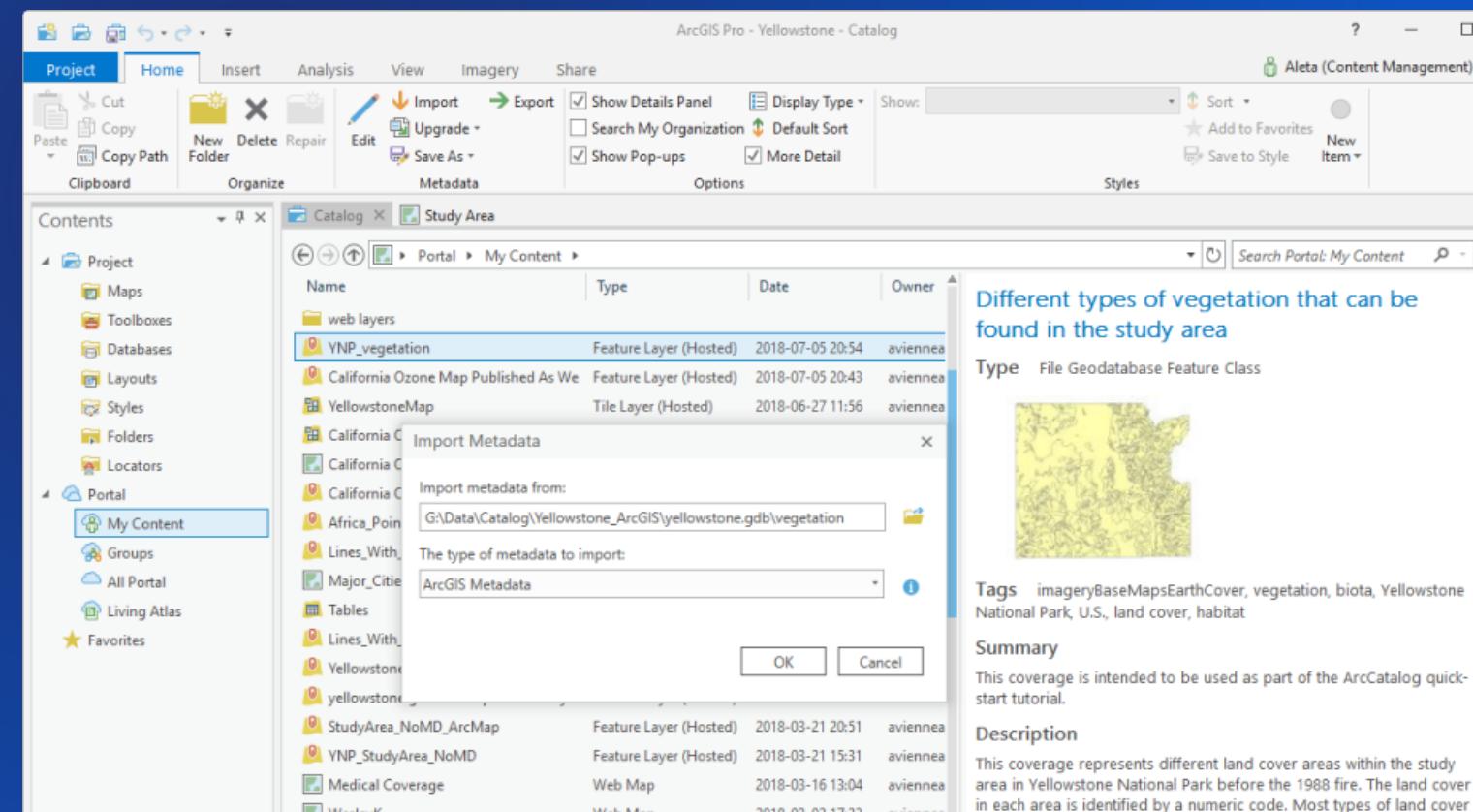
- FGDC CSDGM Metadata
 - Content Standard for Digital Geospatial Metadata (CSDGM)
- ISO 19139 Metadata Implementation Specification
 - ISO 19115:2003 / ISO 19139:2007
 - ISO 19119:2005 / OGC CSW 2008
 - ISO 19110:2005 / ISO 19110:2005 Amd.1 2011 Annex E
- North American Profile of ISO 19115:2003 (NAP)
- INSPIRE Metadata Directive

Metadata Support in ArcGIS for Desktop

	ArcMap 10.x	PRO 2.2	PRO 2.3	PRO 2.4	Portal/Online	Hub
Metadata styles for geospatial metadata standards	✓	✓	✓	✓	✓	-
Display and edit full metadata	✓	✓	✓	✓	✓	-
Map layers have metadata	-	✓	✓	✓	✓	-
Import and export metadata	✓	✓	✓	✓	No ¹	No/Yes ²
Manage metadata programmatically	✓	✓	✓	✓	✓	✓
Manage metadata with geoprocessing tools	✓	-	-	-	-	-
Publish map with full metadata	✓	✓	✓	✓	✓	N/A
Customize the metadata editor	✓	✓ ⁵	✓	✓	??? ³	N/A
ISO 19115-1/-2/-3	-	-	-	-	??? ⁴	??? ⁴

Metadata Support in ArcGIS Pro

- Metadata styles for geospatial metadata standards
- Display and edit full metadata
- Metadata for map layers
- Import and export metadata
- Save and filter content to files
- Copy ArcGIS metadata
- Upgrade CSDGM metadata
- Integration via Pro SDK



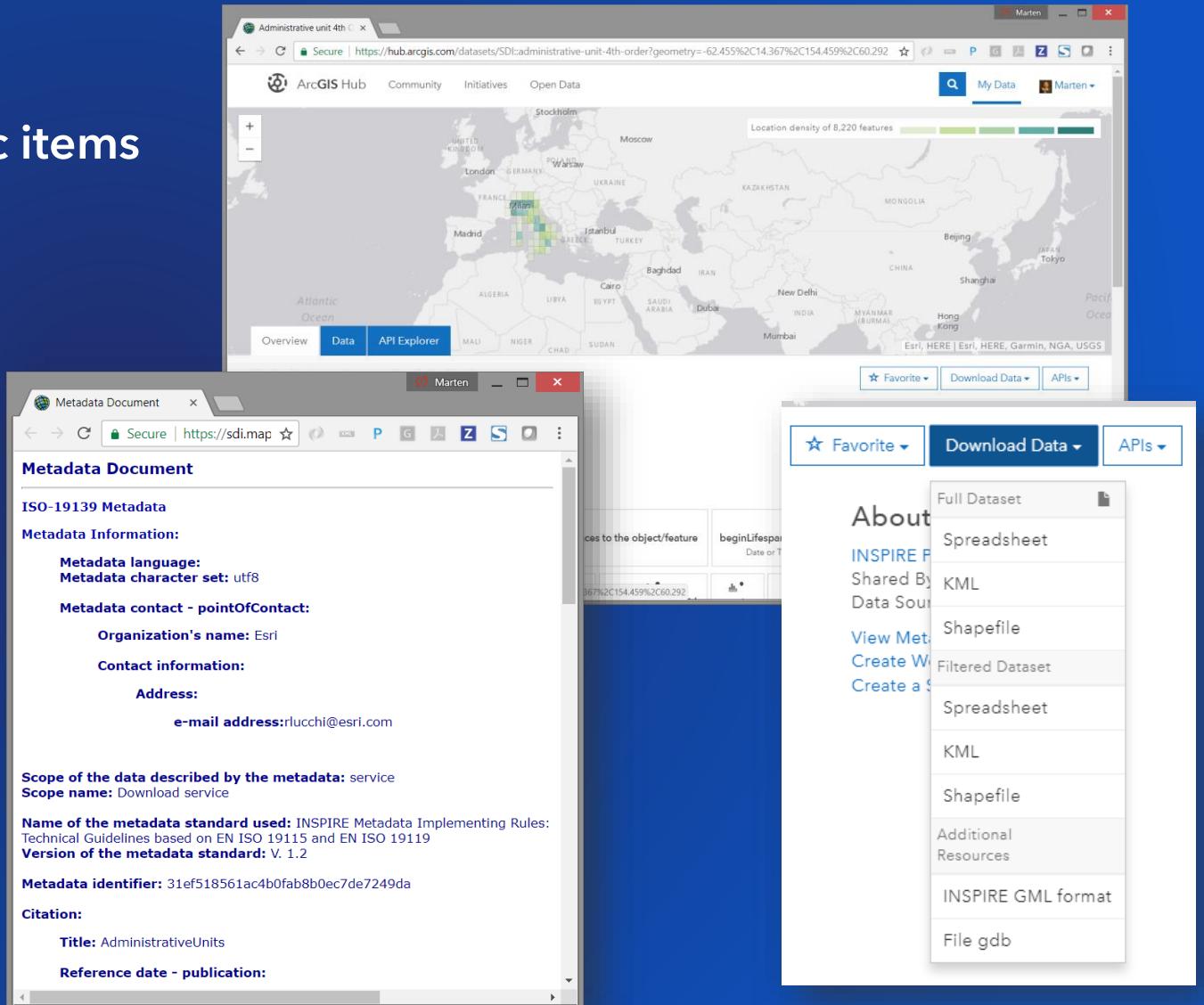
Metadata Support in ArcGIS Online and ArcGIS Enterprise

- Metadata styles for geospatial metadata standards
- Display and edit full metadata
- Scores quality of content
- Metadata for item layers
- Export metadata
- Copy ArcGIS metadata
- Save content to file

The image displays two side-by-side screenshots of ArcGIS interfaces. The left screenshot shows the 'California Ozone Map Pulse' item page on ArcGIS Online, featuring a map of California with ozone concentration, a 'Description' section, and a 'Layers' section listing 'O3_Sep06_3pm' and 'ca_cities' layers. The right screenshot shows the 'YNP_vegetation' item page on ArcGIS Enterprise, with a detailed metadata editor showing tabs for Resource, Quality, Distribution, Representation, Content, Fields, Reference, and Metadata. The 'Details' tab is selected, showing tabs for Citation, Description, Keywords, Extent, Contact, Maintenance, Constraints, and Additional. The 'Description' tab is selected, displaying an abstract about land cover in Yellowstone National Park. The interface also includes buttons for 'Update Data', 'Share', and 'Metadata', and an 'Item Information' bar at the bottom.

Metadata Support in ArcGIS for Open Data

- Leverage existing metadata for public items
- Display and edit full metadata
- Scores quality of metadata content
- Search metadata
- Export metadata
- Leverage metadata for additional access options



The image shows a screenshot of the ArcGIS Hub interface and a separate Metadata Document window, illustrating the metadata support in ArcGIS for Open Data.

ArcGIS Hub Interface: The top window shows a map of Europe and Asia with a highlighted area in France. The URL in the address bar is <https://hub.arcgis.com/datasets/SDI:administrative-unit-4th-order?geometry=-62.455%2C14.367%2C154.459%2C60.292>. The interface includes tabs for Overview, Data (which is selected), and API Explorer. A sidebar on the right shows a map of the world with location density information and links for Esri, HERE, and other providers.

Metadata Document Window: The bottom window is titled "Metadata Document" and displays ISO-19139 Metadata. It includes sections for Metadata Information, Metadata contact - pointOfContact, and Scope of the data described by the metadata. The "Data" tab is selected in the top bar of this window. A sidebar on the right lists various export options: Full Dataset, Spreadsheet, KML, Shapefile, View Metadata, Create WMS, Filtered Dataset, Create a Spatial Dataset, Spreadsheet, KML, Shapefile, Additional Resources, INSPIRE GML format, and File gdb.

What's Next?

Aleta Vienneau

Flow of Metadata Publishing to ArcGIS Online

- Create metadata for data
- Add data to an ArcGIS Pro map
 - Layer reference's data's metadata
- Publish map to ArcGIS Online as a hosted feature layer
 - Data with metadata is copied
- Individual layers in the feature layer reference the copied data's metadata
- Update metadata locally, overwrite item to make updates available online



Flow of Metadata Publishing to ArcGIS Enterprise

- Create metadata for data in *registered enterprise geodatabase*
- Add data to an ArcGIS Pro map
 - Layer reference's data's metadata
- Publish map to *ArcGIS Enterprise as a feature layer*
 - Data with metadata is *referenced*
- Individual layers in the feature layer reference *the data's metadata*
- Update metadata *in the enterprise geodatabase, immediately available online*



Road Ahead - Near Term

- Support importing and exporting ISO 19115-1/-3 formatted metadata content
- Metadata equivalency between ArcMap and ArcGIS Pro
- Import standard metadata in ArcGIS Online and ArcGIS Enterprise
- Hold another Esri Metadata Summit?



Road Ahead - Mid Term

- Update the ArcGIS metadata editor to support ISO 19115-1/-3 content
- Metadata editor usability improvements
- Leverage organizational metadata settings
- Develop a plan for supporting ISO 19115-2 content

Road Ahead - Long Term

- Common metadata editing experience for the ArcGIS platform
- Controlled vocabularies



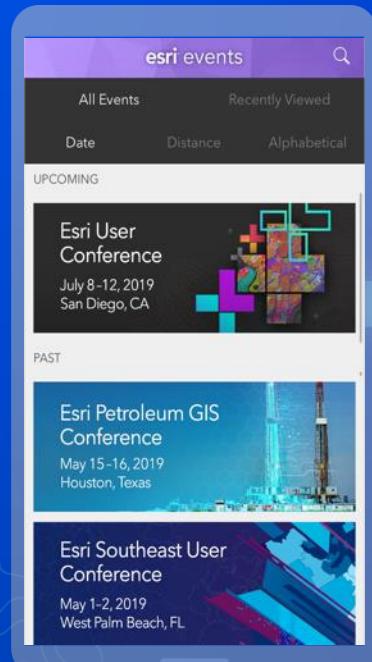
Metadata in the ArcGIS Platform

- Improve metadata support throughout the platform
- Create metadata that complies with standards
- Goals
 - Improve flow of metadata through the platform
 - Make it easier to produce high quality metadata content

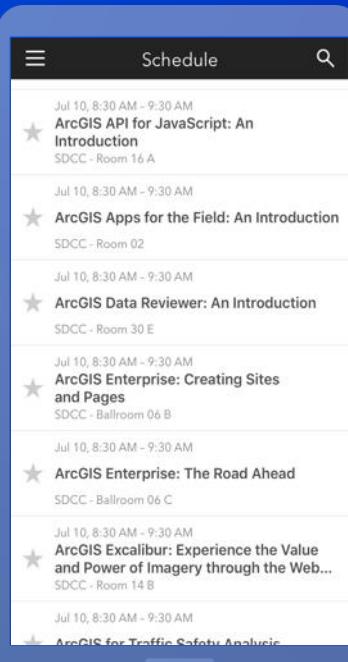


Please Share Your Feedback in the App

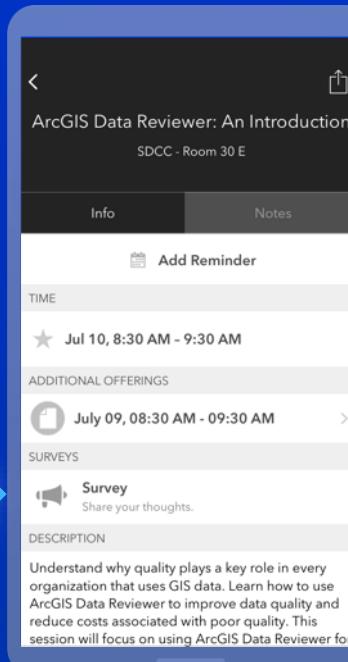
Download the Esri Events app and find your event



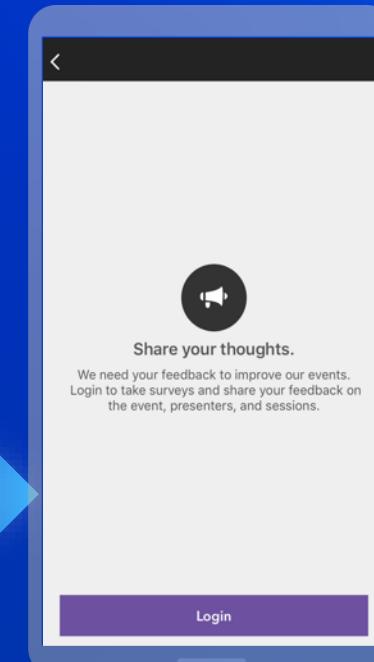
Select the session you attended



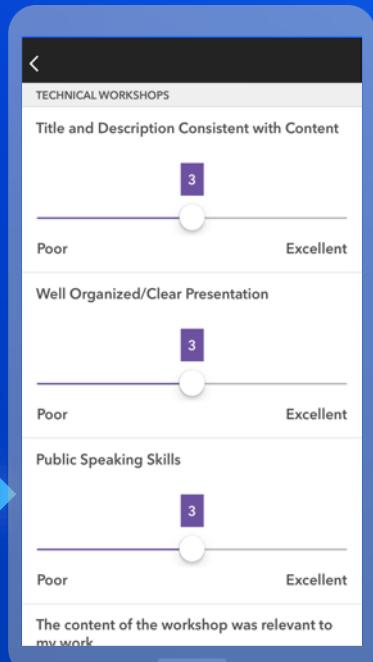
Scroll down to "Survey"



Log in to access the survey



Complete the survey and select "Submit"





esri

*THE
SCIENCE
OF
WHERE*

