Implementing an Open Data Strategy

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A little context

Open data within the ArcGIS Platform
Historic Sharing Practices

• Physical Media and FTP Sites
  - Static snapshots over time
  - Quarterly release
  - Manual process to produce

• Data typically had terms of use
  - Used by academia & neighboring governments for analysis
  - Possibly aggregated into commercial datasets
  - Mindset was to sell data
Modern Expectations of Sharing

• Open Data is now an EVERYDAY THING
  - International movement to provide transparency and enable economic development
  - Formalized process to license and share data to the public
  - Often supported by governing legislation

• Solutions connected to Enterprise Architecture
  - Leveraging Servers to share out and ingest data
  - Minimal impact on the information workers
An INNOVATION

ECOSYSTEM

YOU

OPEN DATA

Agency Staff

Community Leaders

Citizens

Academia

Start-Ups
Part of the ArcGIS Platform
Providing open access to your published data

Simple
Integrated
Open

Desktop
Web
Device

ArcGIS Online

Server
Online Content and Services

Apps
Access
Services

Open Data Site
Open Data Principles

Accessible

Explorable

Discoverable

Collaborative
Current State of Open Data

• Complete open data solution for operational tables and spatial data
  - 7,600+ Organizations around the world
  - 70,000 Datasets shared into Open Data
  - 20,000,000+ Downloads in 2016

• Provide custom sites you control
  - Unlimited Bandwidth and API Usage
  - No restriction on the number of datasets
  - Auto-generated downloads
  - Suite of applications to provide context
  - ArcGIS sharing model
What does a successful open data program look like?
1. Uses minimal resources and has a minimal impact on information workers

2. Successfully communicates meaning via data and information

3. Engages end users in a sustainable manner
Integrated workflows

> Uses minimal resources and has a minimal impact on information workers
Leverages existing services and familiar workflows

- ArcGIS for Server
- Cloud Storage
- External APIs
- Content and Services
- ArcGIS Online Groups
- ArcGIS Open Data
Open Data Workflows
Auto ETL and Custom Search

- Tax Parcels
- Sales
- Foreclosures
- Street Centerlines
- Address Points
- Points of Interest
- Building Footprints
- Subdivision Boundary

- Purchase Card Transactions
- Use of Force Events
- Calls for Service
- Tax Districts
- Park Locations
- School Zones
- Public Buildings
- Parking Ticket Locations
Federating groups into open data sites

Open Data Site

Your Organization

Other Organization's
Open Data Provided by our Partners

The Region of Waterloo has teamed up with the cities of Cambridge, Kitchener and Waterloo, to provide access to data from all four organizations. By visiting any of the four Open Data sites, you can access hundreds of datasets with the click of your mouse.
Open Data - No Wrong Door

DCAT /data.json

CKAN
Search for data

Find data published by government departments and agencies, public bodies and local authorities. You can use this data to learn more about how government works, carry out research or build applications and services.

Browse data by theme

**Business and economy**
Small businesses, industry, imports, exports and trade

**Crime and justice**
Courts, police, prisons, offenders, borders and immigration

**Environment**
Weather, flooding, rivers, air quality, geology and agriculture

**Government**
Staff numbers and pay, local councillors and department business plans
**Scripts for automation**

**registerServices.py**

This script registers all of the services from an ArcGIS for Server REST endpoint in the user's portal.

Sample Usage

Register the services at [https://server.domain.com/arcgis/rest/services](https://server.domain.com/arcgis/rest/services).

```python
```

**updateItemMetadata.py**

This example updates an item's description page using an XML file with the ArcGIS metadata format. These files can be generated in ArcGIS Desktop using the Export Metadata tool with the FGDC2UTF8_ISO.xml translator. This is useful when you have detailed metadata associated with a dataset that you would like carried over when you publish it to your portal.

Sample Usage

Update the item details for portal item 0b0123 using the metadata in `new_metadata.xml`.

```python
python updateItemMetadata.py -u https://www.arcgis.com -u admin -s password -i 0b0123 -p new_metadata.xml
```

**publishFiles.py**

This example bulk publishes the files in a directory as services in your ArcGIS Online org or Portal. The status of each publishing job is written out to a spreadsheet called *results.csv* in the directory containing the files. This is useful when you have many spatial files (e.g., shapefiles) that you want to publish and share, such as in an ArcGIS Open Data site.

Sample Usage

Upload and publish all of the zipped up shapefiles in `C:\Shapefiles` as Hosted Services in ArcGIS Online.

```python
python publishFiles.py -u https://www.arcgis.com -o admin -s password -p 'C:\shapefiles
```
Scripts for automation

Open Data Object

This sample script currently contains an example workflow to refresh the datasets and cache for all datasets in an Open Data site.

esriurl.com/cachescript
The people

• Programs of all sizes succeed when you have an open data champion
• Executive buy-in helps sustainability and resource allocation
• Depends on your team and the size of your city/organization
Creating new workflows to integrate across your org

- Policies!
High quality, highly informative

> Successfully communicates meaning via data and information
If you’re just starting out...

- Look at documentation and examples to help decide which datasets to focus on first
- http://us-city.census.okfn.org/
Creating high quality data

- Starting from desktop:
  - Add attribute aliases
Creating high quality data

- Starting from desktop:
  - Add attribute aliases
  - Enable editor tracking
Creating high quality data

• Registering datasets and editing metadata
• Title, description, access and use constraints (license), tags
• Licenses
  - Creative Commons (CC0, CC BY, CC BY-SA), Open Data Commons license
  - https://creativecommons.org/choose/
  - If you have a terms of use, add it in your footer
• Add structured metadata on ArcGIS Online
  - Accessible from dataset page and included in shapefile downloads
More than just pre-packaged ETL – Getting those sweet sweet fgdb

- For hosted services: check “Export Data” in the Online settings
- File geodatabases are automatically created by ArcGIS Online
Adding additional download types

- **Add additional resources to your datasets using distributions** in metadata
  - Add file geodatabases to your on-premises services
  - Add more metadata files
  - Add raw imagery data
  - Anything else!
In the metadata of the ArcGIS Online item:

- Dataset in open data
Adding other kinds of items

• Go beyond the feature service
  - Web maps
  - Web mapping applications
  - PDFs, word docs
  - External links
Parcels West Side (from Lethbridge Open Data)
Shared by OpenLethbridge
Land parcels located in West Lethbridge. This data is intended for use in computer-aided design software applications such as AutoCAD and MicroStation. Last Updated: Jan 23, 2016 Refresh Frequency: As Available

Parcels South Side (from Lethbridge Open Data)
Shared by OpenLethbridge
Land parcels located in South Lethbridge. This data is intended for use in computer-aided design software applications such as AutoCAD and MicroStation. Last updated: Jan 23, 2017 Refresh Frequency: As Available

Nature Sightings (from Lethbridge Open Data)
Shared by OpenLethbridge
The Helen Schuler Nature Centre (HSNC) has been collecting local plant and wildlife sighting data, from a 100 km radius of the City of Lethbridge since the early 1990’s. Sightings are reported by HSNC staff and volunteers, as well as members of the public (citizen science) and have been verified by NC staff. New sightings can be reported to the NC by phoning 403-320-3064 or e-mailing hs...

Career Opportunities (from Lethbridge Open Data)
Shared by OpenLethbridge
Employment Opportunities with the City of Lethbridge Refresh Frequency : Live Feed
Adding other kinds of items

• Go beyond the feature service
  - Web maps
  - Web mapping applications
  - PDFs, word docs
  - External links

• Connected content
  - Add web maps that use your open data – they’ll show up on the dataset page!
Public school data provided by the District Department of Education.

**Attributes**

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<th>Column</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
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<td>Text</td>
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<td>YEAR_BUILT</td>
<td>Number</td>
</tr>
<tr>
<td>ZIP_CODE</td>
<td>Number</td>
</tr>
</tbody>
</table>

**Connected Content**

- School Distributions 📚
  - The organization that shared this item did not provide a description.
  - JULY 3, 2017
  - Official Web Map: ccleezensTNG
More than just data altogether

Consider the questions...
• What stories do the data tell?
• How can we generate insights?
• How is the data being used?
• What questions can we answer more simply?

Consider the solutions...
• Story Maps
• Operations dashboards
• Locator applications
• Pages

Turning data into information
The Brampton GeoHub is a platform that features initiative driven tools that help grow transparency and foster innovation everywhere. Combine datasets and perform analysis through the use of maps and charts, or simply download the data to tell your own story.

Browse the data by Category, or explore the entire collection of datasets. This is Open Data with a purpose.

**APPS**
Purposeful web apps built with Open Data to answer questions and solve problems.

**MAPS**
Browse Brampton's gallery of cartographic products that are built with open data.

**STORIES**
A platform to share stories with residents relating to the City's current initiatives.

**DATA**
Analyze it. Visualize it. Download it. This is Open Data with a purpose.
The "DataHub" is the City of Johns Creek's central location for open data, dashboards, and interactive mapping applications. Through this Hub, you can visualize city data in maps, charts, and dashboards. Developers can even tie their own data services and applications into City data.

### Visualize Data in Dashboards
Dashboards provide an interactive way of visualizing information in the Johns Creek DataHub.

- **Most Common Data** - Explore the most commonly accessed data in the DataHub.
- **CreekView** - Interact with property and information through a map.
- **Business Locations** - Find businesses and associated information.
- **Building** - Browse building permits and construction projects.
- **Code Compliance** - View code compliance data.
- **Fire** - Navigate fire and medical calls from the JC Fire Department.
- **Police** - View incident information from the JC Police Department.
- **Public Works** - Dig into public works projects and tasks.

[Explore More City Maps & Apps]
Two-way conversations

> Engages end users in a sustainable manner
Helping your users use the data

How-To Example Videos

View a short video explaining how data from the Johns Creek DataHub can be answer a variety of questions.

- **Locate**
  - Locate potential customers

- **Find**
  - Find, vacant, commercial sites

- **Discover**
  - Discover restaurants along your commute

- **Utilize**
  - Utilize data services to empower your apps
Welcome to the GIS Training Portal

The Iowa Department of Transportation maintains a wide array of geographic information system, or GIS, services and tools to collect, manage, leverage, and implement geospatial data. In addition to supporting the data and services we offer, the Office of Organizational Improvement also creates training guides, videos, and documents that cover everything from the fundamentals to advanced skills.

This GIS Training Portal was created in an effort to provide a centralized location for all types of geospatial learning.

Search for training...
Communication Channels

• Think about how you want to converse with your community
  - Meeting people where they are
  - How are they currently contacting you?
  - Twitter, Facebook
• Let people know when you publish new data or make any breaking changes

ICYMI: Starting Monday, our crash data on @opendatadc will be published DAILY. Nearly real-time data for #VisionZero ddot.dc.gov/release/mayor- ...

FOR IMMEDIATE RELEASE

Media Contacts

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(Washington, DC)–Today, Mayor Muriel Bowser announced the District of Columbia will begin publishing traffic crash data in an open and geocoded format every 24 hours. The new initiative is the result of collaboration between the District Department of Transportation (DDOT), the Metropolitan Police Department (MPD), and the Office of the Chief Technology Officer (OCTO).
@opendatatadc Are you going to add a dataset for Crime Incidents 2017?

8:48 AM - 24 Jan 2017

1 Like

Tweet your reply

Open Data DC @opendatatadc · Jan 24
Replying to @howardrunbake

For sure @howardrunbake. Planned publish @DCPoliceDept feed, Jan 27. With @dcra BBL & @DDOTDC public space permits - new year, new #opendatatadc

Open Data DC @opendatatadc · Jan 31

Yoo-hoo @howardrunbake! @DCPoliceDept crime 2017 @ opendatatadc. opendata.dc.gov/datasets/8af5c... Search jan2017, more DC #opendata layers - cheers!

Howard Smith @howardrunbake · Jan 31

Awesome! Thanks so much for letting me know this was up!
Communication channels – FOIA-lite
Surveys & Data Collection

- Data gathering by the public community or team members
- Integrated with Pages, mobile apps, and embed into external advocacy groups
- Supports data requests, internal performance metrics
Communication channels – what have your users been working on?

- Use pages and leverage surveys to give users an entry to present their work
- Add a community spotlight section on your site for others’ to leverage the knowledge of their neighbours
Demo of ArcGIS Hub’s Open Data Initiative
In summary

> A successful open data strategy...
1. **Uses minimal resources and has a minimal impact on information workers**
   - leveraging ArcGIS for Server and ArcGIS Online
   - scripts for automation
   - people are important

2. **Successfully communicates meaning via data and information**
   - data quality is critical
   - allow as many uses as you can
   - data tells stories – bring them to the forefront

3. **Engages end users in a sustainable manner**
   - create a communication space
   - leverage surveys for data requests and data collection
   - community spotlight
Please Take Our Survey on the **Esri Events App**!

1. **Download the Esri Events app and find your event**
2. **Select the session you attended**
3. **Scroll down to find the survey**
4. **Complete Answers and Select “Submit”**
L.A. GeoHub
Ecosystem

Public Engagement Hub
"Open Data 2.0"--Maps, Data & Apps
Engage

The Public

City’s Hub and Mapping Platform
Find, Use, Create, and Collaborate
Share & Collaborate

City Employees

GIS Infrastructure
Hosted Services
Departmental Servers or ArcGIS Online
Serve & Power

Bureau of Eng., Bureau of Street Services, LA County

Information & Engagement Products
“Open data in action”
Create & Innovate

App Challenge, Coming Soon

Apps & Maps

Curated Policy Map Gallery