



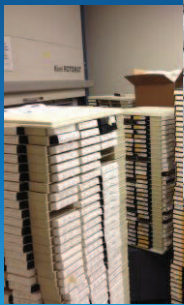
Cadastral Technology: *From Fit-for-Purpose to Multipurpose*

Brent Jones, PE, PLS

bjones@esri.com

System of Record

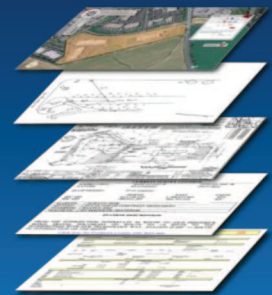
Organizes and Manages the Legal Record of Ownership, Value and Location



Cadastral History



Quebec, Canada



Parcel Query



Auckland,
New Zealand

Tax Parcels



Wisconsin

System of Insight

Understand the factors impacting property value and use

Parcel Values
ISLAND OF MAUI, HAWAII
Mau

Historic District Property Values
Georgia

Value Analysis Dashboard

Tax Assessment
Nebraska

Residential Platting
Texas

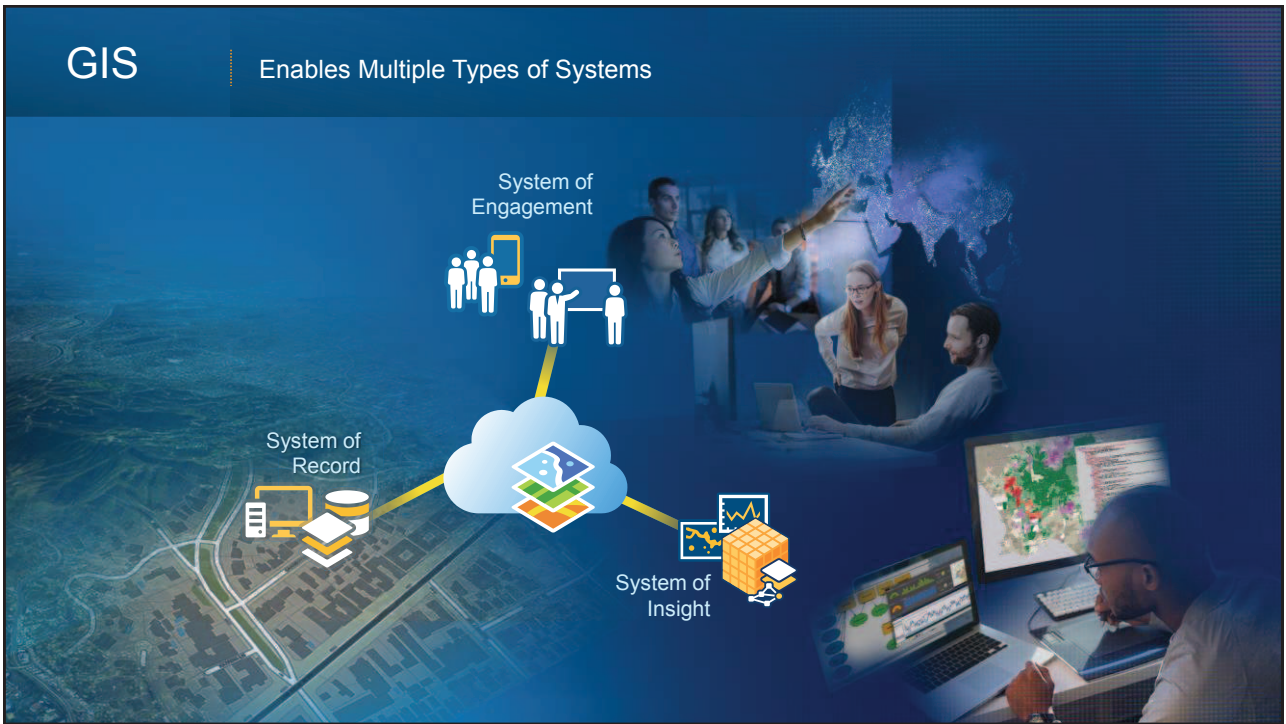
Operations Dashboard
0.94

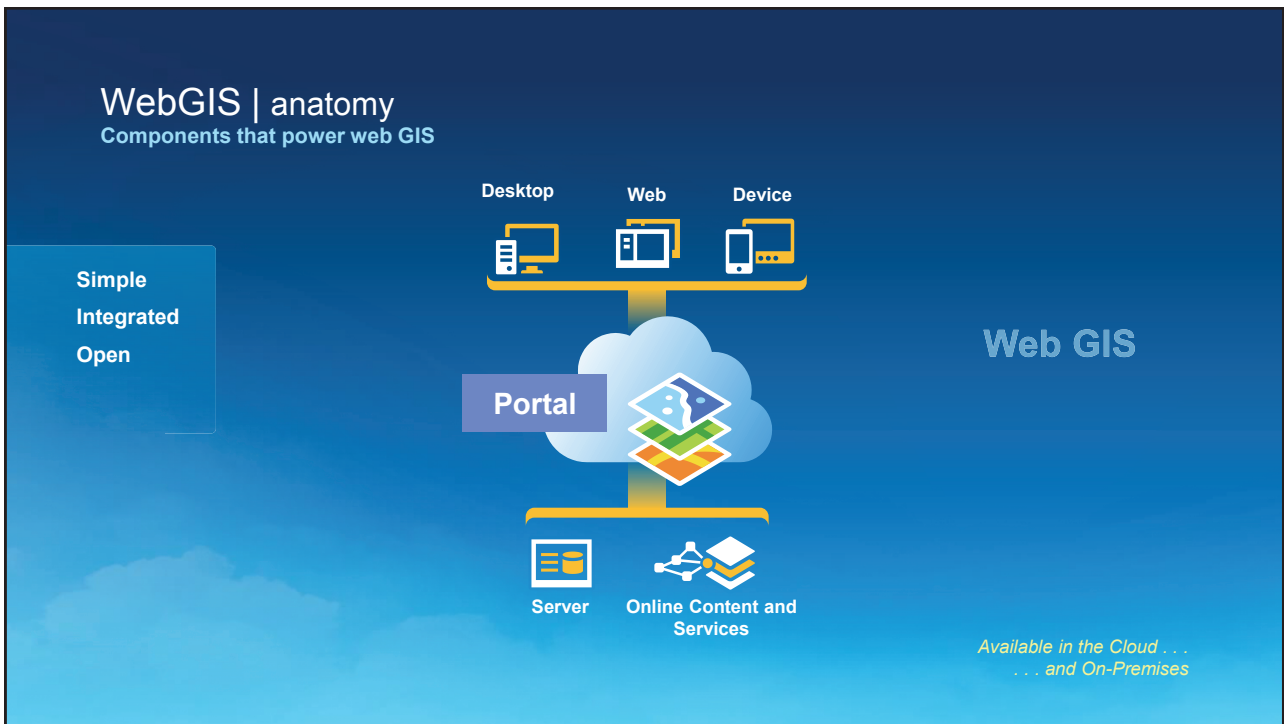
System of Engagement

Engaging taxpayer, land holders and citizens with government

Modern Transparency







Web Services

Organizes and Securely Shares Data.....

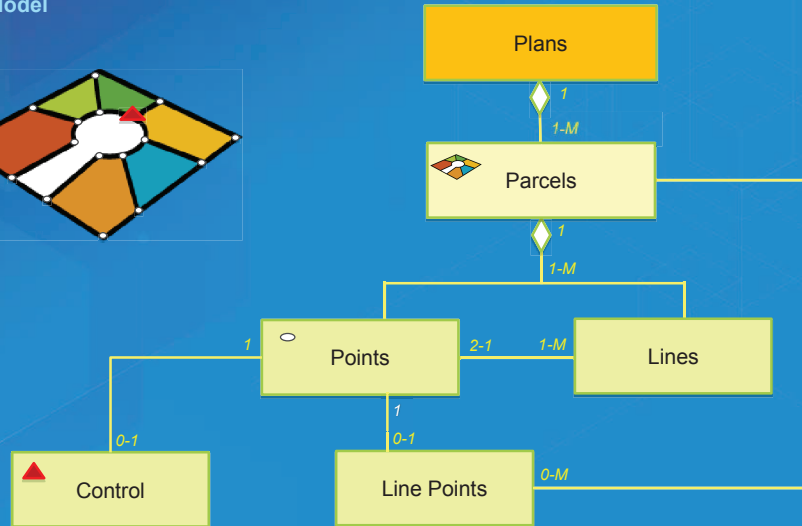
- Secure
- Standards-based
- Controlled Access via Identity
- Control Who Does What
 - View
 - Query
 - Edit
- Monitor/Track

https://

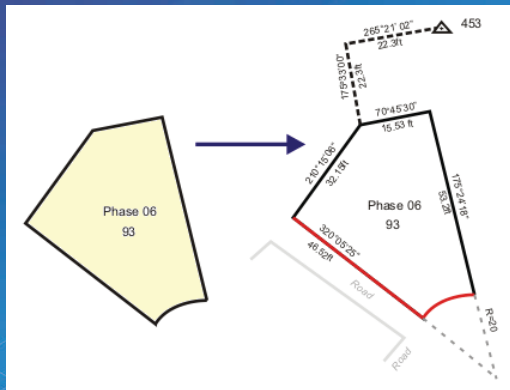
<http://esri.com/arcgis.com/home/item.html?id=5969689b642840e39cf0491669484e0b>

What is a Parcel Fabric?

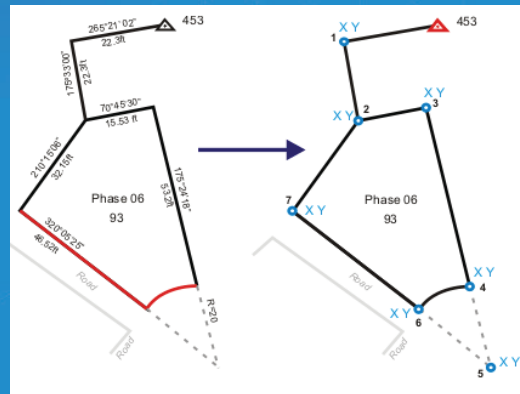
Parcel Fabric Data Model



Parcels



Parcel Polygon has related lines



Lines have related points

Lines and Points

of lines = 16
of points = 9
of parcels = 4

Lines store record dimensions

From Point				To Point
1	N89°17'14"E	107.150		2
2	S0°42'46"E	111.860		3
3	S89°17'14"W	107.150		4
4	N0°42'47"W	111.860		1

Points are stored on the ends of lines or curves

GIS Solutions

► Apps and Workflows

Users

Partners Custom

Solution Templates
GIS Users & Developers
Desktop, Web, Device

Platform

Complimentary

Foundational GIS

Providing Opportunities to . . .
Embed, Extend, and Implement

GIS Apps (powered by services)

Support your workforce and workflows

- Maps for Office
- Collector for ArcGIS
- Operations Dashboard
- Explorer for ArcGIS
- Navigator for ArcGIS
- Workforce Manager
- Drone2Map
- Insights for ArcGIS
- ArcGIS Earth
- Templates....

Maps for Office

Insights

Open-Source Maps & Apps

Hundreds of Ready-to-Use Solutions

- Easily Configurable
- Fully Supported
- No Cost

Local & State Government

Utilities & Telecom

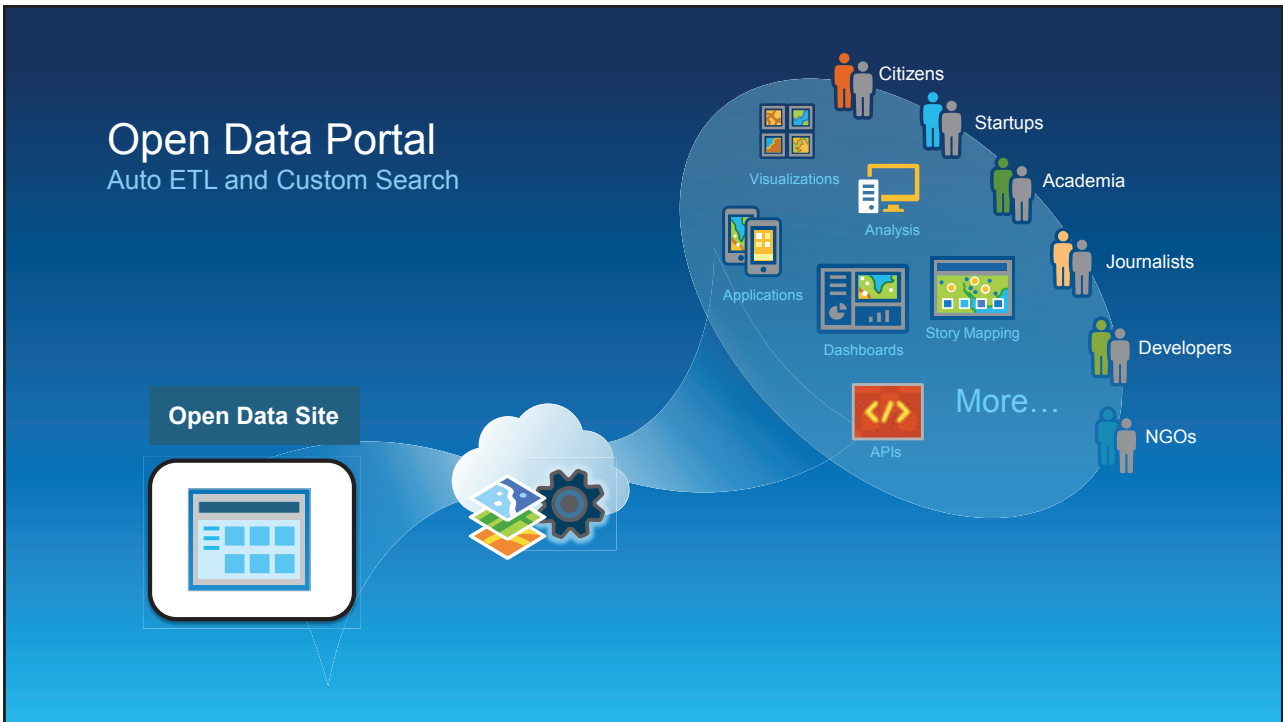
Public Safety & Emergency Management

Military & Security

Open-Source Solutions

500,000+ Downloads

Delivering Innovation & Best Practices



Online
Hosted Web GIS

Apps

New and Improved

- Smart Mapping and 3D
- Analysis Tools
- Vector Tiles
- Credit Allocation
- Enhanced OGC Support
- Better Administration
- Social Logins

Coming

- Improved Search & Data Management
- Org-to-Org Collaboration
- Raster Analysis
- More Content

Marketplace

3.2 MILLION Users	+30%
94 BILLION Map Views	+35%
6.2 MILLION Items	+40%
15.3 MILLION Open Data Downloads	+41%

Online Mapping, Apps and Content

... Making Continuous Improvements

Field GIS

Taking GIS Beyond the Office

- Collecting Data
- Reporting Observations
- Managing Work

Connecting the Field with the Enterprise

Community Parcels

Web GIS Solution for Parcel Aggregation

Authoritative Parcel Data

Community Parcel layer

Information Products

Contributor Tools + Aggregation Model = Maps and Apps

- Revenue
- Audit
- Health
- Transportation
- Econ/Dev
- Environment
-

App Builders

Easy-to-Configure and Create Apps

The image compares two types of app builders. On the left, 'Browser Based' includes 'Configurable Web Apps' (a web interface for creating apps) and 'Web AppBuilder' (a 3D city model interface). On the right, 'Native Devices' includes 'AppStudio' (a desktop software interface) and a smartphone displaying a map application.

Living Atlas

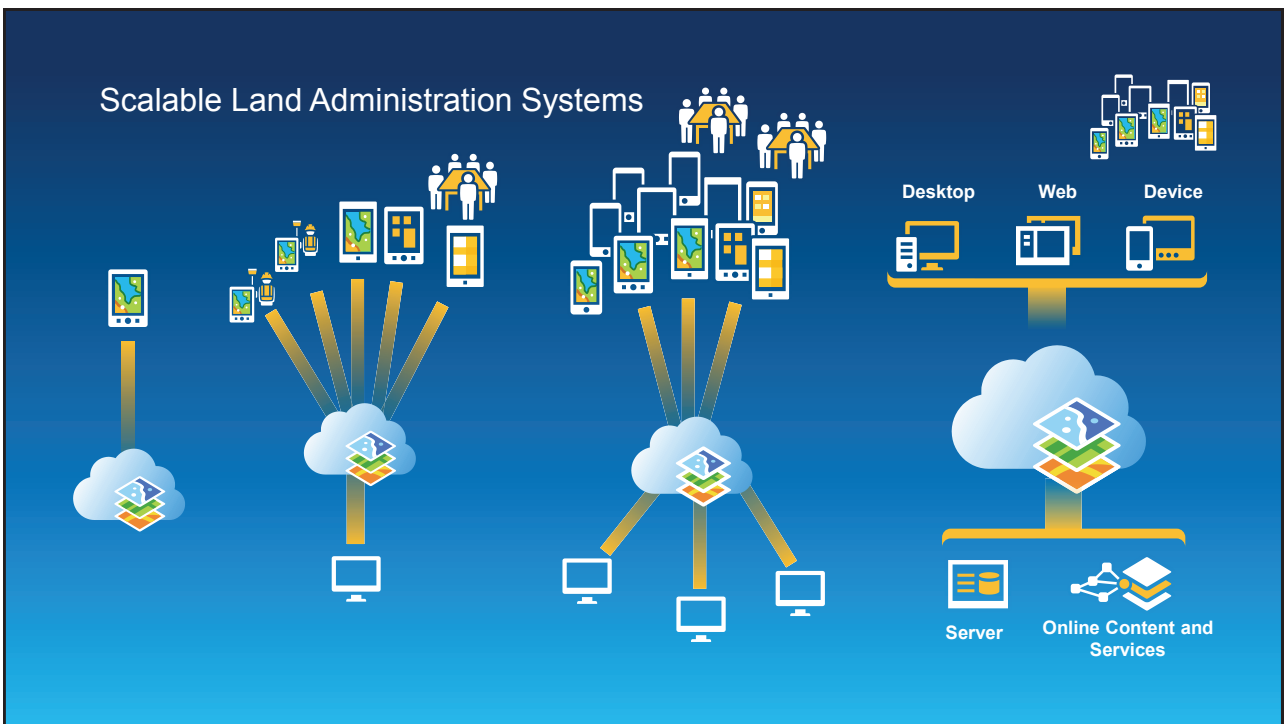
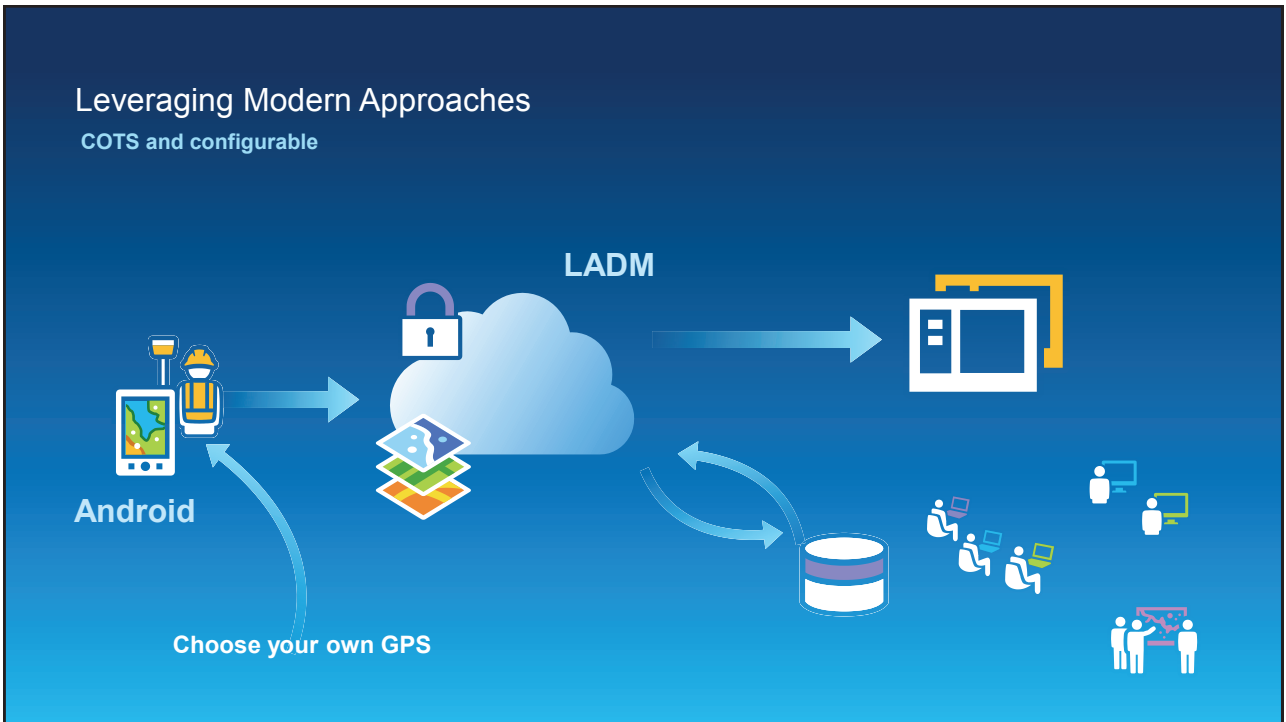
Ready-to-Use Maps and Data

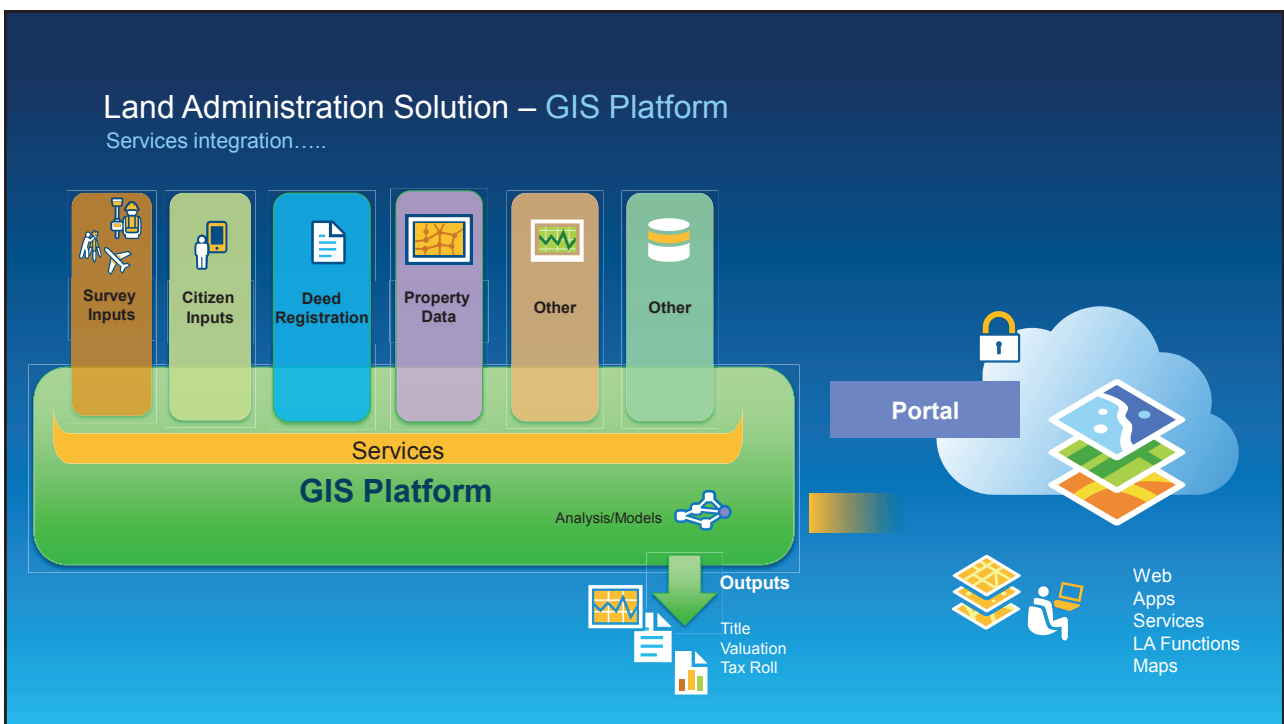
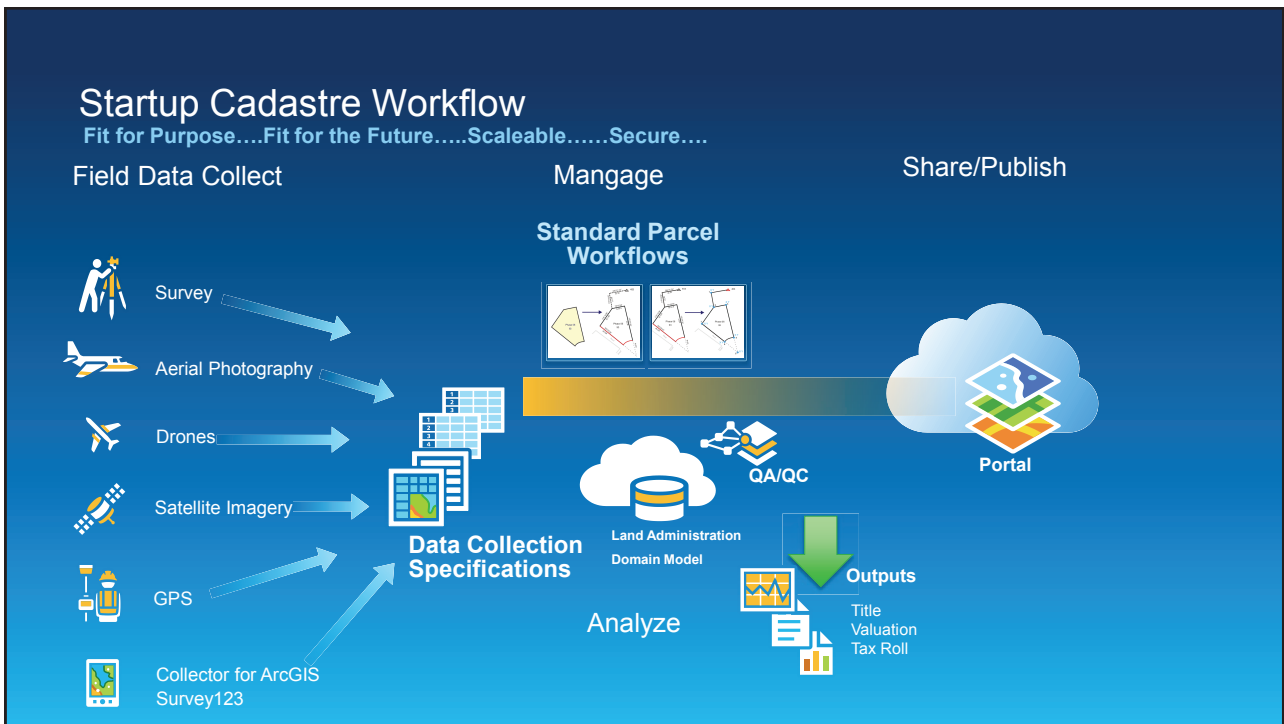
Compiled from the Best Available Sources

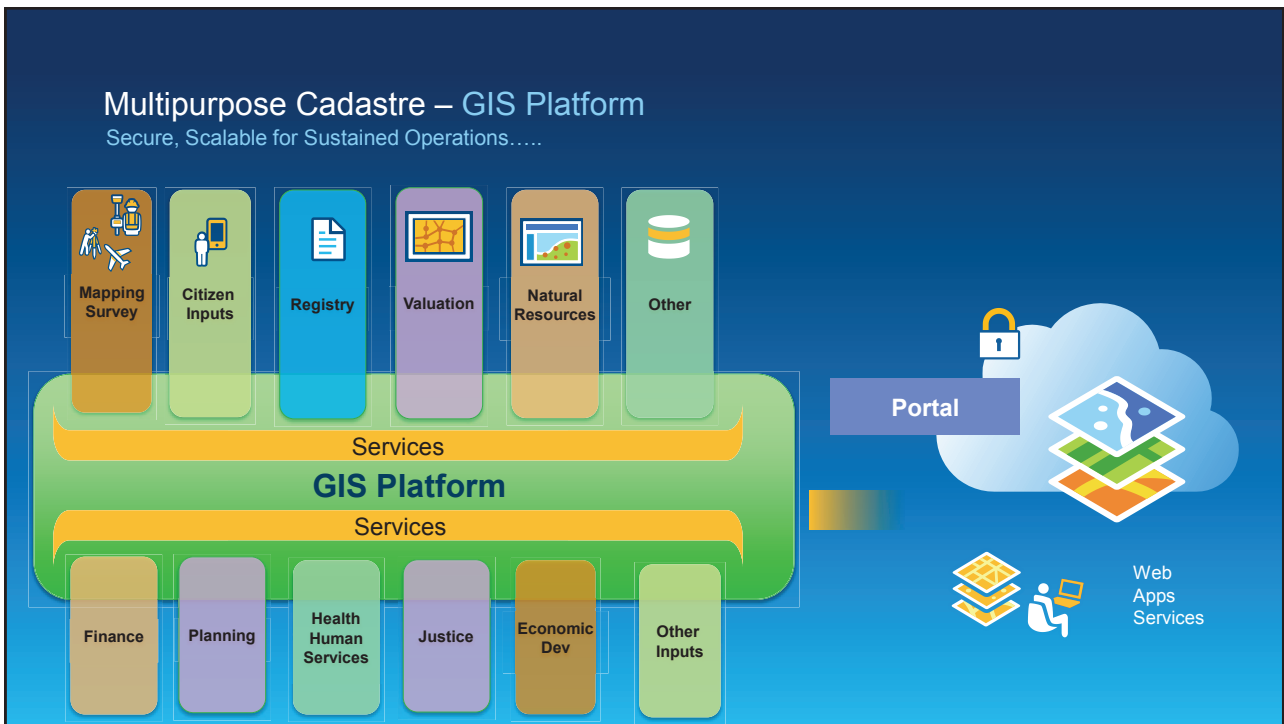
Basemaps | Imagery | Demographics | Landscape

Thousands of Maps & Layers
Tens of Thousands of Open Datasets

Millions of User Contributions . . . Billions of Views per Week







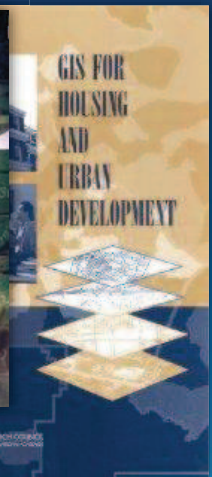
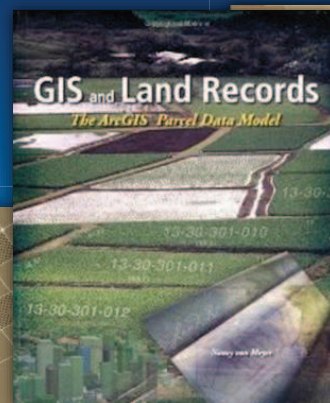
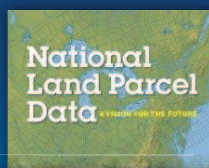
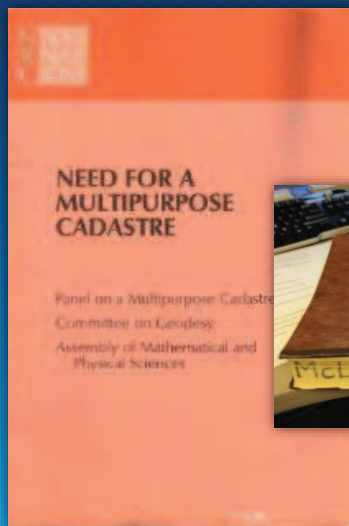
LADM FFP – Colombia Example

Fit-for-purpose and fit-for-the-future in a couple of weeks.....

- Fast-to-Implement
- Standards-based
- Low Cost
- Accurate
- No Software Development
- Secure
- Leverages External Data
- Uses Many Devices
- Future Proof
- Scalable
- Repeatable
- Works Disconnected

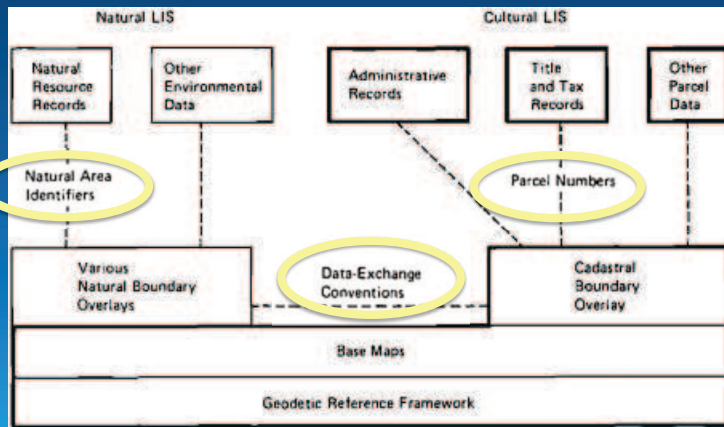
Multipurpose Cadastre

GIS enabling a longstanding vision.....



Multipurpose Cadastre

Organizes and Manages the Data and Information for Sharing and Collaboration



Multipurpose Cadastre System.... An integrated land information system containing legal (e.g., property ownership or **cadastre**), physical (e.g., topography, man-made features), and cultural (e.g., land use, demographics) information in a common and accurate reference framework.

1. Parcel Numbers
2. Data-Exchange Conventions
3. Natural Area Identifiers

Necessary Components of a Multipurpose Cadastre

Many countries have the components, but are not organized properly

1. Survey Reference Frame
2. Current, Accurate Large Scale Maps
3. Cadastral Data/Map
4. Unique Parcel Identifier (PIN) on All Properties
5. Land Data which includes PIN





