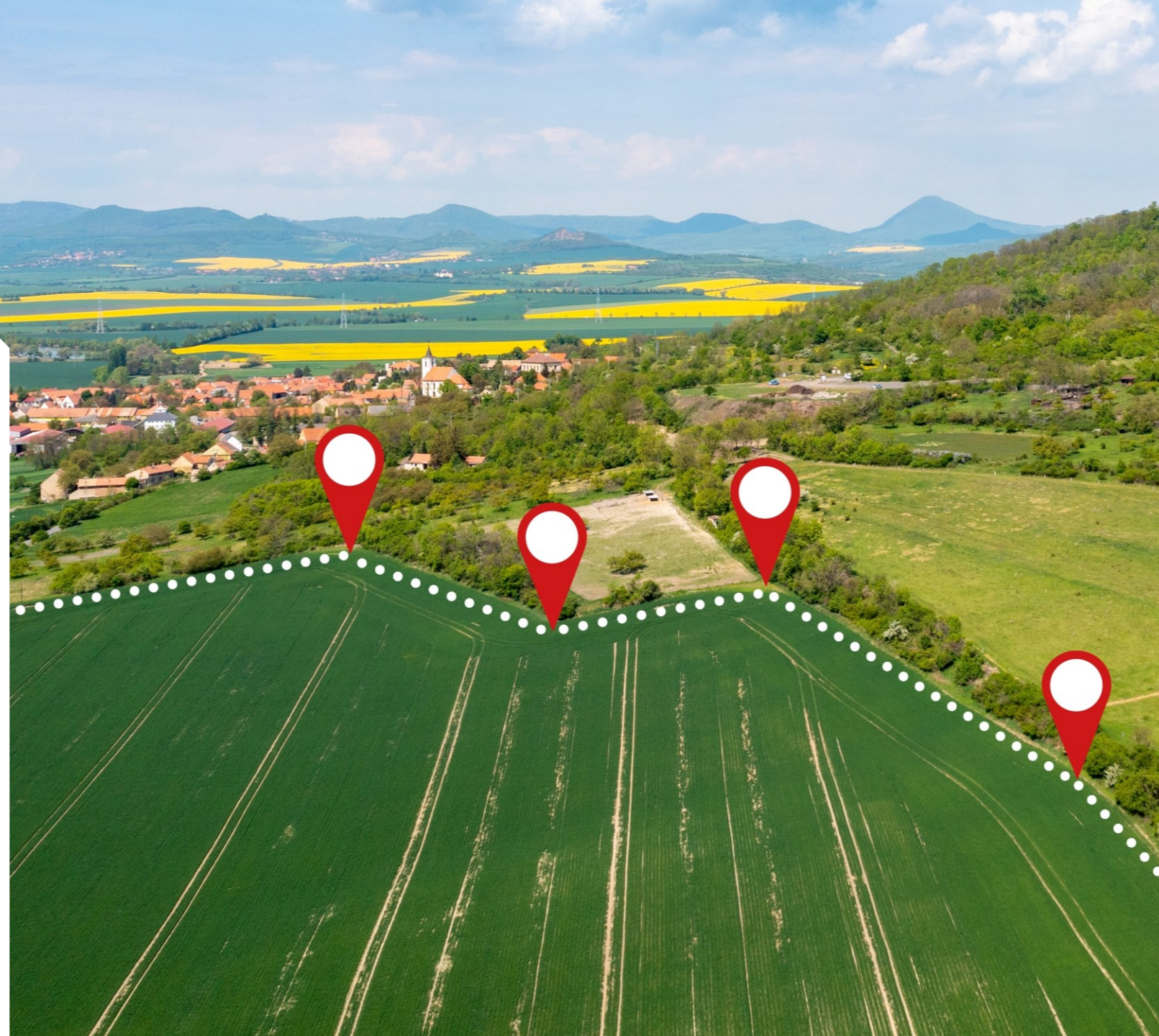
Automation… the “Easier Button” to Parcel Data Governance



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Spatial Data Governance and Data Management

Data Lifecycle:

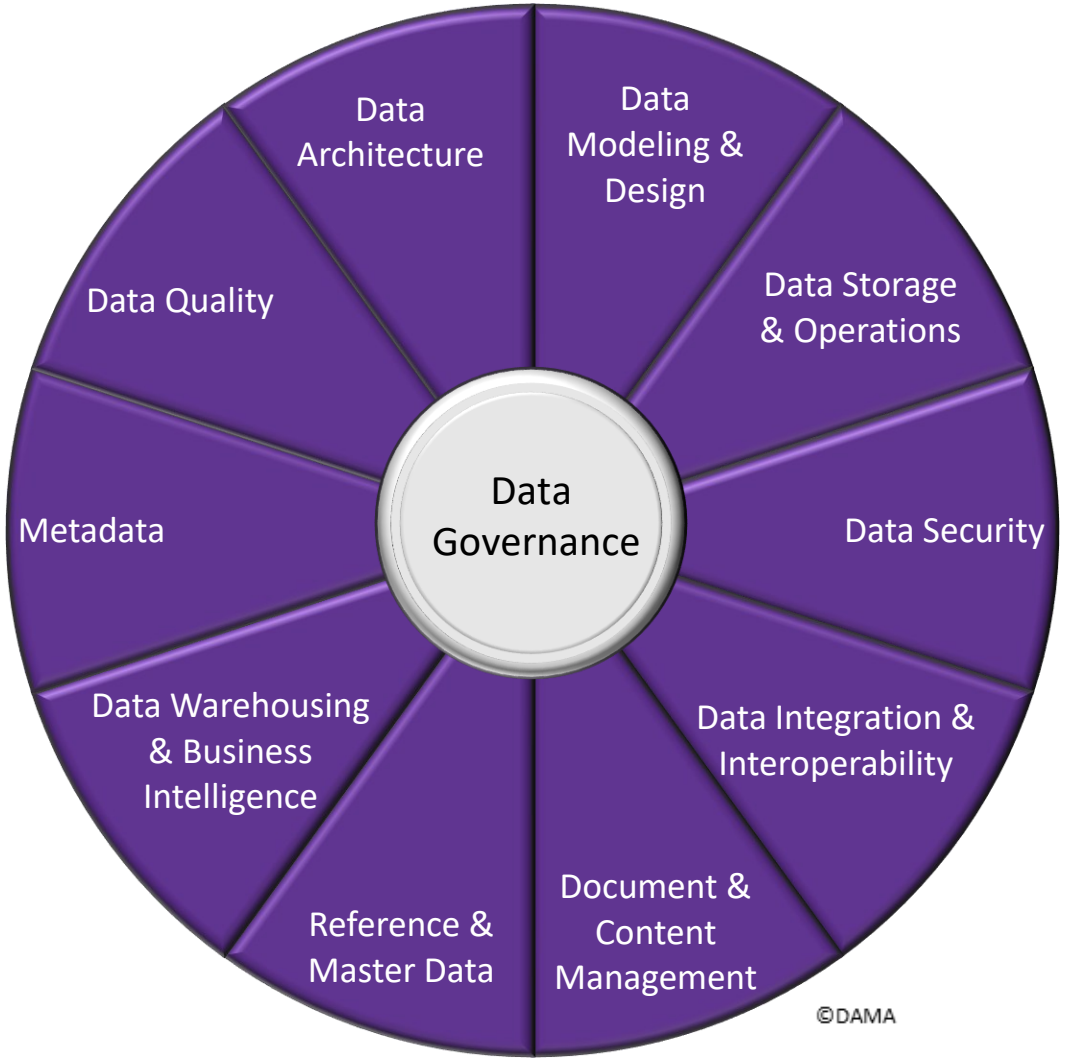
- data gathering or creation, storage, maintenance and processing through to the disposal of data

Data management:

- the "umbrella term" for the 11 data functions, which include Data Governance

Data governance:

- Setting of policies, processes, and people (roles and responsibilities) delivering data management

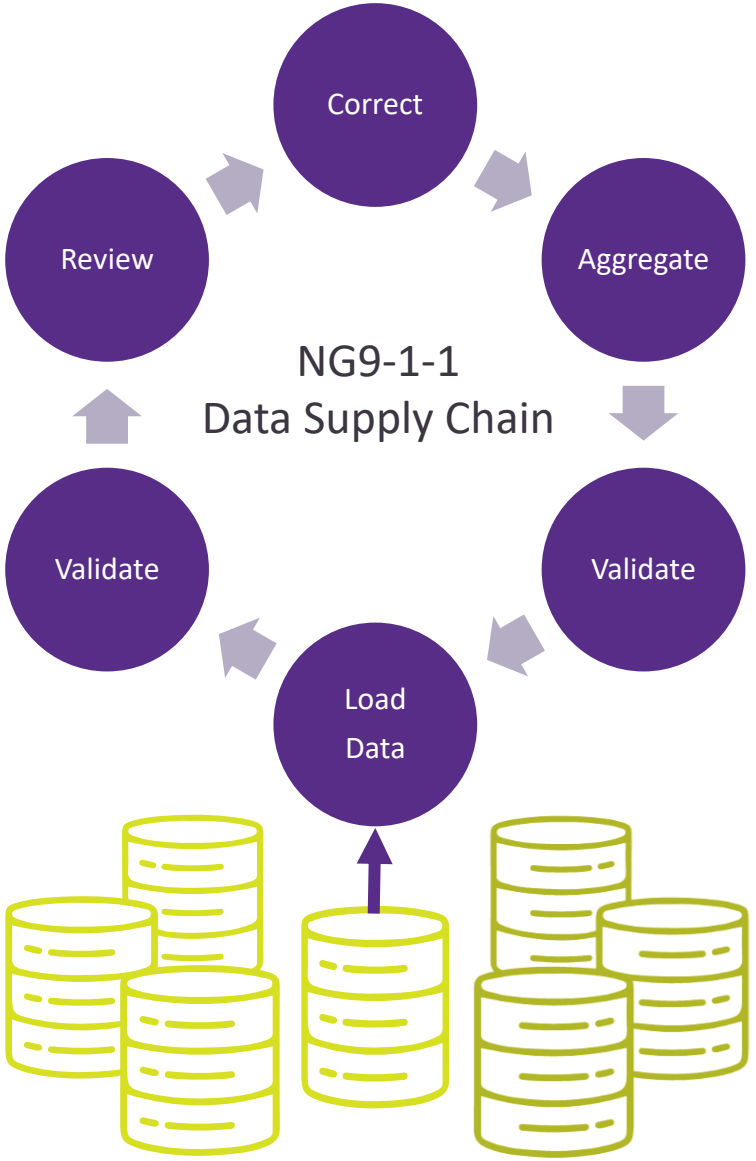


Source: DAMA DMBOK

Typical Geospatial Data Supply Chain

AN NG9-1-1 Data Supply Chain

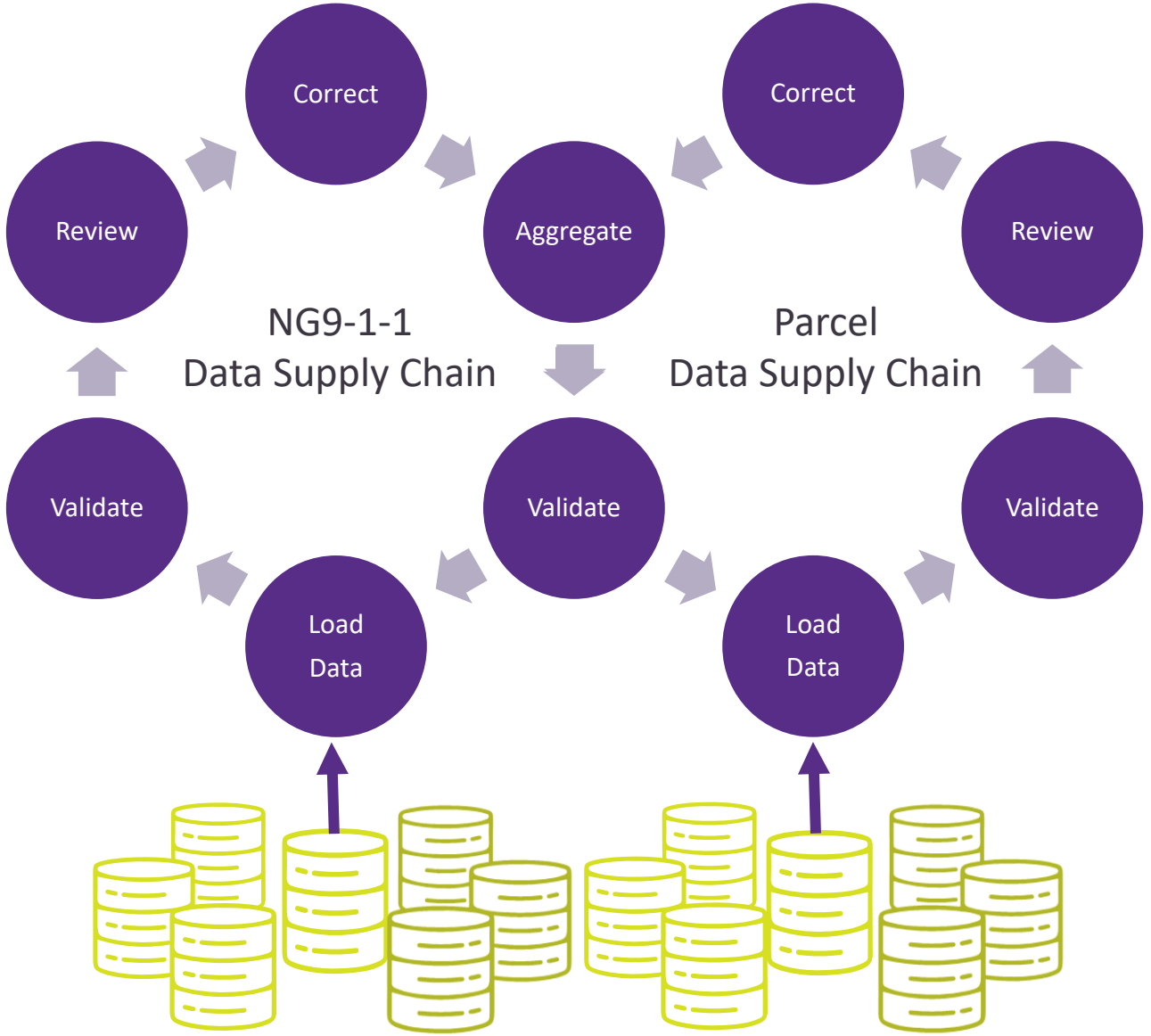
- NG9-1-1 Data Collected from Local Counties, PSAPS, etc.
- Data Must be validated to ensure integrity of spatial data and ensure integrated systems work as expected
- Not Single Threaded (Many Suppliers)
- Geospatial adds complexity because neighbouring jurisdictions
  - Must Re-Validate after aggregation



Typical Geospatial Data Supply Chain

Adding Parcels adds to the complexity

- Parcels managed by different departments (Accessor Offices)
- Different Update Schedules
- Parcels & Addressing must be cross validated to ensure synchronization

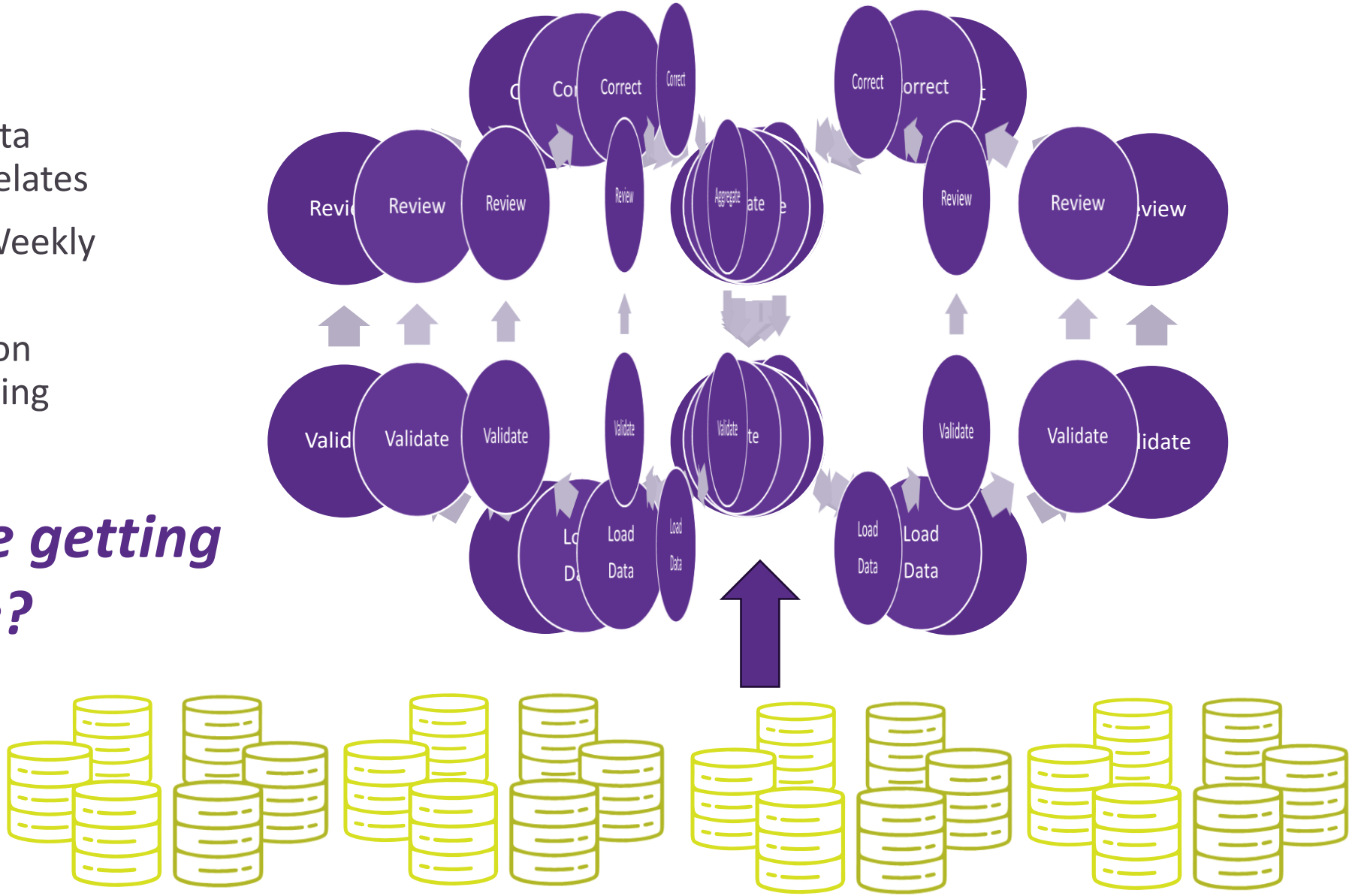


Typical Data Supply Chain

Adding All Location Department Data to supply chain

- Each Geospatial Data Program spatially relates
- Annual, Monthly, Weekly Update Schedules
- Data Synchronization Extremely Challenging

Anyone else getting a headache?



Data Supply Chain Challenges

Standards

90%

of GIS specialists time is spent cleaning data before analysis

Infosys BPM

Project Failure

40%

of projects fail due to difficulty integrating different datasets

BryteFlow.com

Integrating Diverse Data Formats

72%

of businesses struggle with integrating diverse data formats

Tech Monitor

Improving Data ROI

10-20%

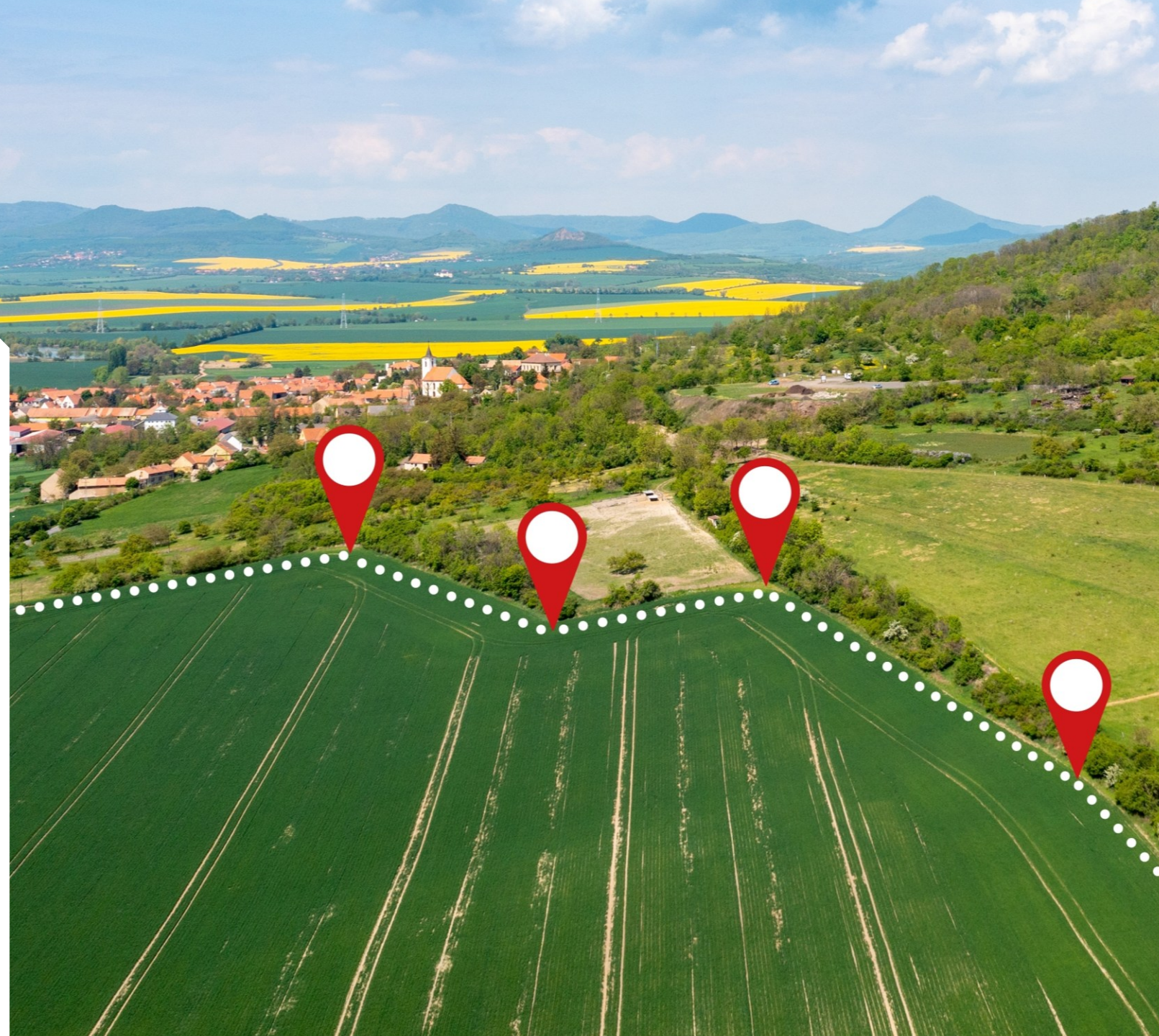
reduced cost in data ownership and execution time

Mckinsey.com

On average, businesses lose $9.7 million yearly because of low-quality data

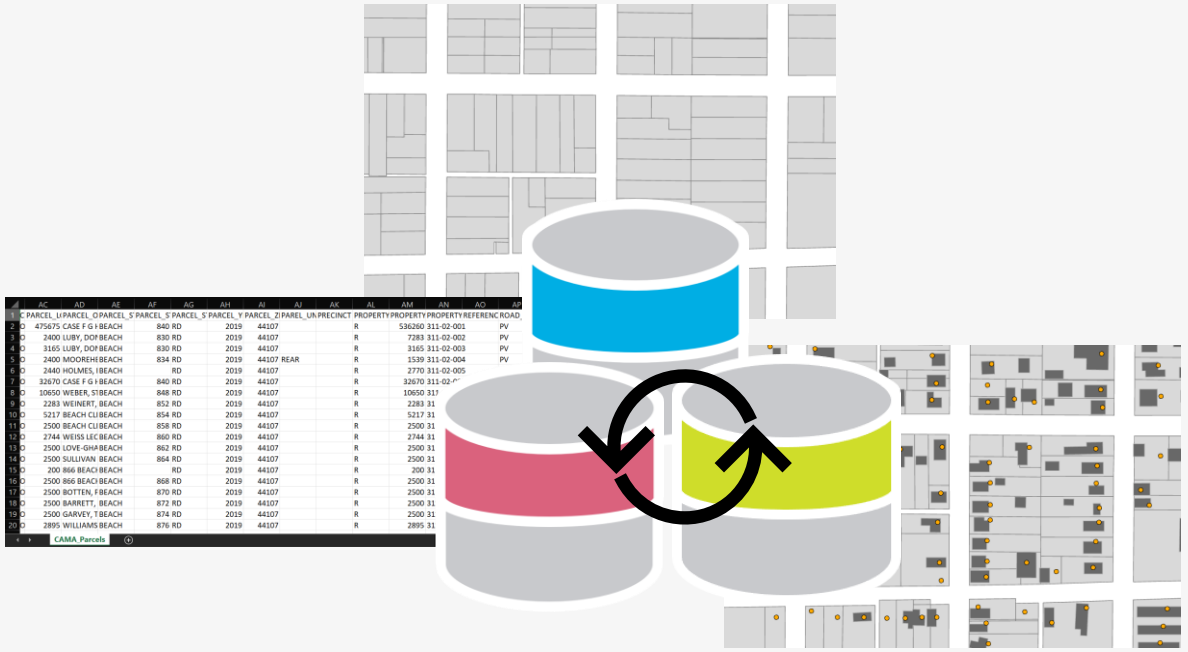
Gartner

Land Parcel Data Management Solution



Land Parcel Data Management Solution

- Essential Geometry Validations
- Boundary Gap and Overlap Validations
- Parcel Attribute Validation Checks
- CAMA Table Attribute Validation Checks
- Address Point Validation Checks (SSAP to SSAP, NENA)
- Cross Feature (SSAP, Parcel, CAMA)
- Change Detection (Data Integration/Aggregation)
- Statewide Validations (Cross-Jurisdiction Validation Checks)



Deployed in Arizona and Oregon!

County Data Upload Process

Counties maintain parcel data locally.

Validation rules automatically applied

Upload Data → Configure Mapping → Process Submission → Submission Results

Counties upload parcel polygons and real property tables.

Counties match their fields to the Statewide Cadastral Standard scheme.

Attribute Matching	
County Fields	Standardized Fields
A	1
B	2
C	3

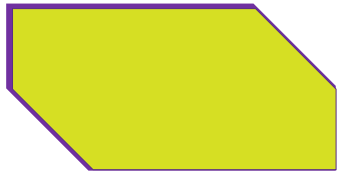
Automated data validation and QA/QC processes

Counties review non-conformance results and update data as needed.

Validation Rules & QA/QC Processes

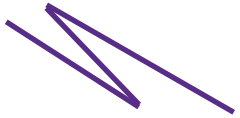
Automated Geometry Checks

Duplicate Features

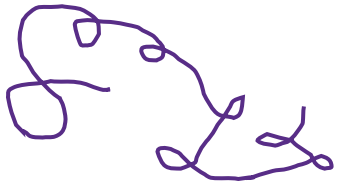


Duplicate Vertices

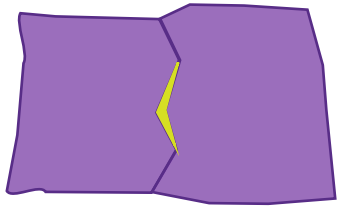
Kickbacks



Self Intersecting Loops



Gaps



Overlaps

Multipart Features

Automated Attribute Checks

Valid & Unique Parcel ID

State Parcel ID	Physical Property Ad...	Property City	Property State	Property Zipcode
68-06-05-327	9224 N 1250 W	Albany	IN	47320
68-06-05-300-049.000-003	9233 N 1250 W	Albany	IN	47320
68-06-05-327-032.000-003	9247 N 1205 W	Albany	IN	47320
68-06-05-327-032.000-003	9274 N 1250 W	Farmington	IN	47320

Required Fields are populated

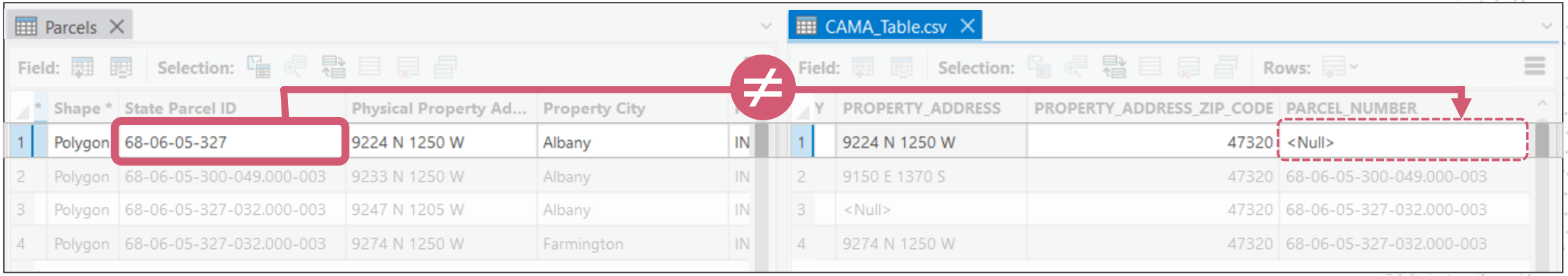
CAMA_Table.csv

Selection: Rows:

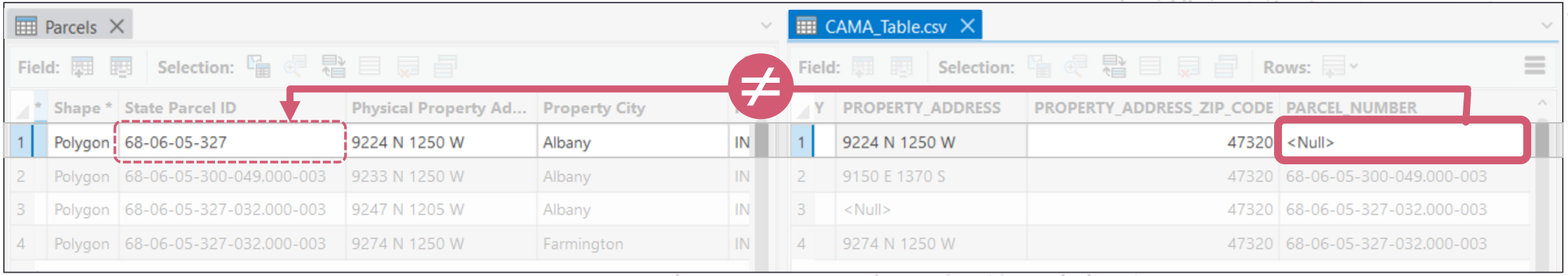
PROPERTY_ADDRESS_CITY	PROPERTY_ADDRESS	PROPERTY_ADDRESS_ZIP_CODE	PARCEL_NUMBER
Albany	9224 N 1250 W	47320	<Null>
Albany	9150 E 1370 S	47320	68-06-05-300-049.000-003
Albany	<Null>	47320	68-06-05-327-032.000-003
Farmland	9274 N 1250 W	47320	68-06-05-327-032.000-003

Automated Cross-Validation Checks

Parcel polygon has exactly **ONE** matching table record

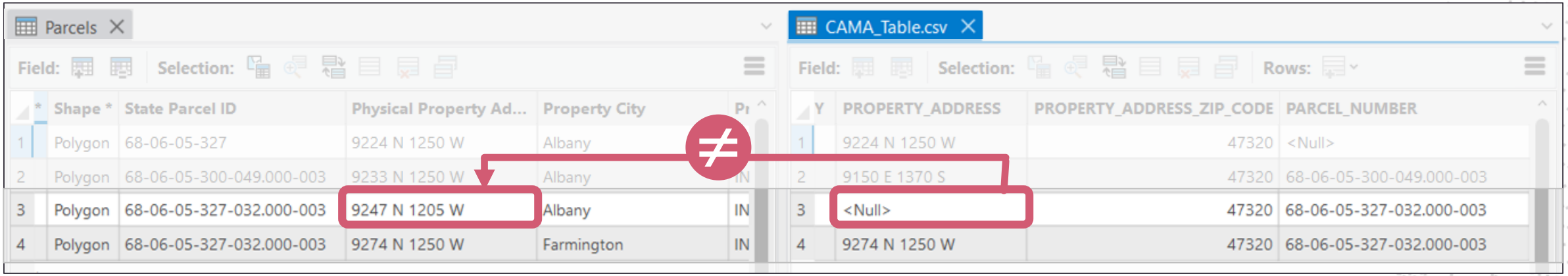


Parcel table record has exactly **ONE** matching polygon



Automated Cross-Validation Checks

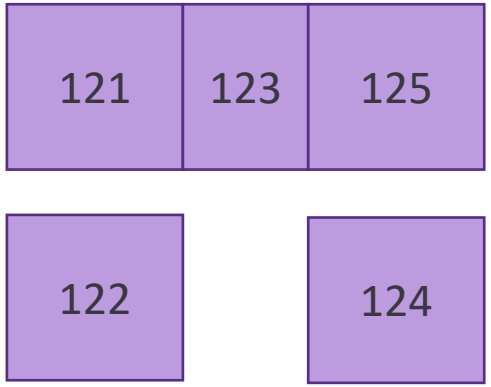
Where Parcel numbers match, property address must also match.



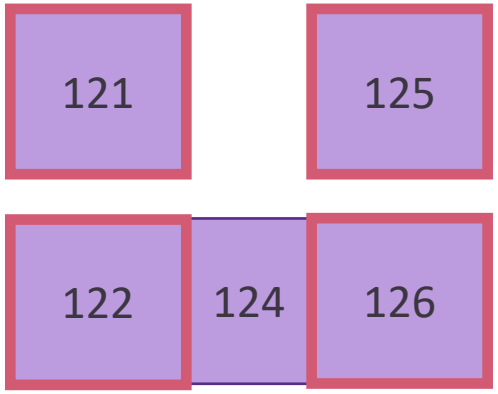
Change Detection

Polygon Change Detection

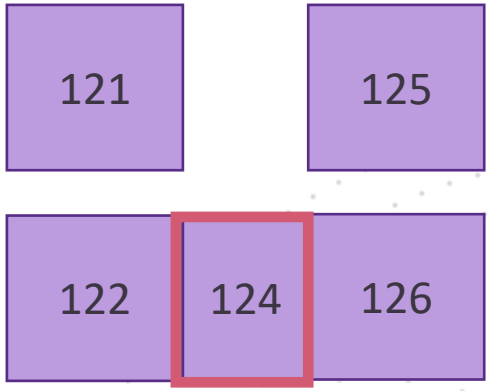
Existing BASE Features



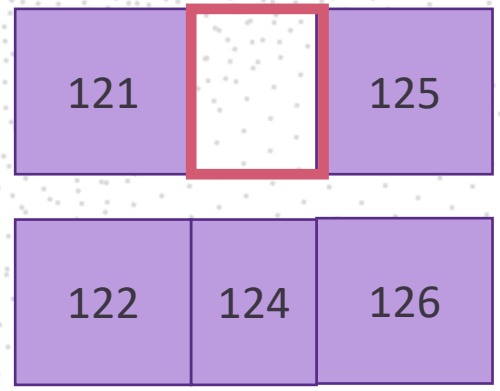
UPDATED Features **MATCH**



UPDATED Features **ADDED**



UPDATED Features **REMOVED**



Tables Change Detection

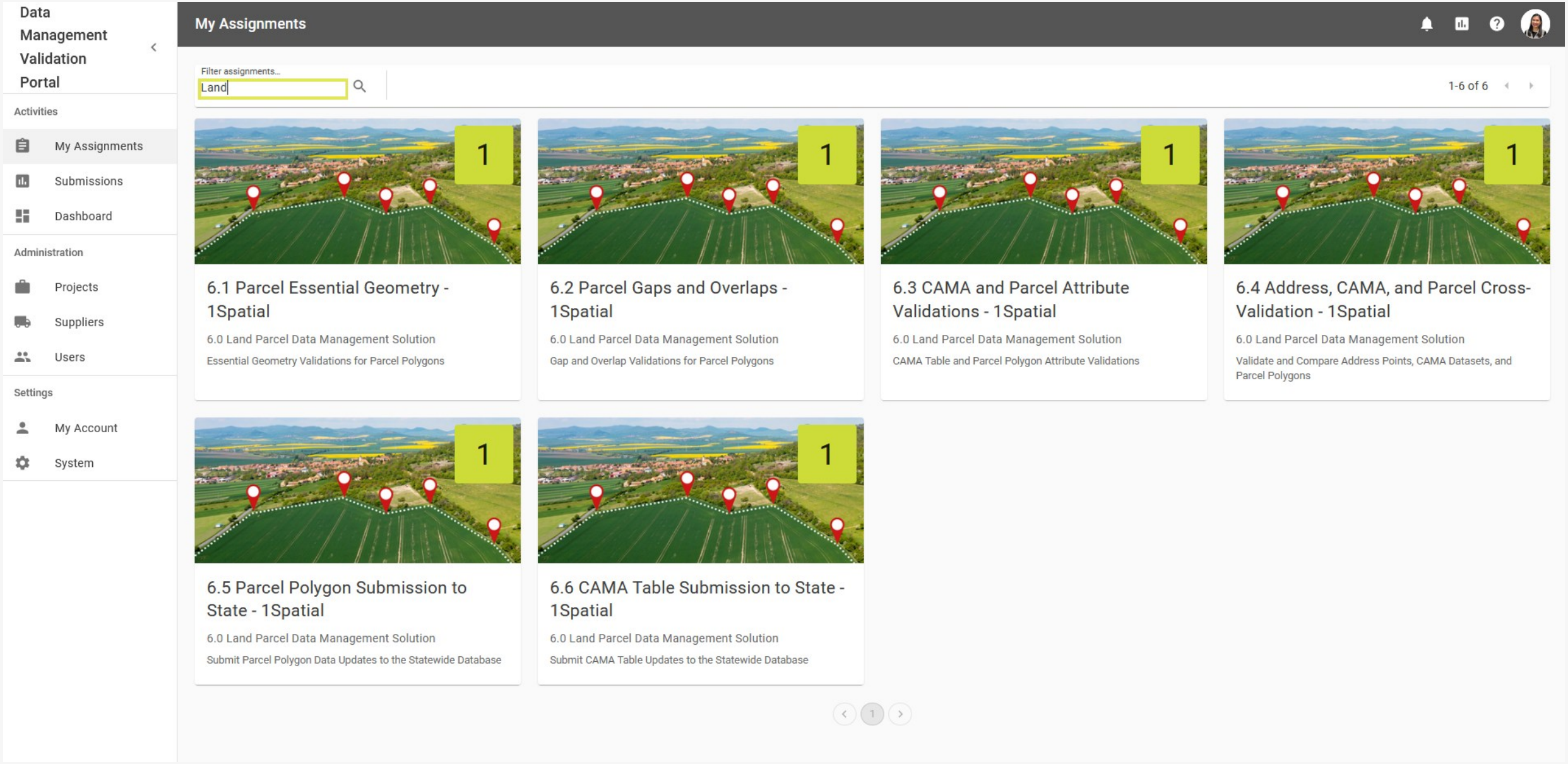
Existing BASE Table

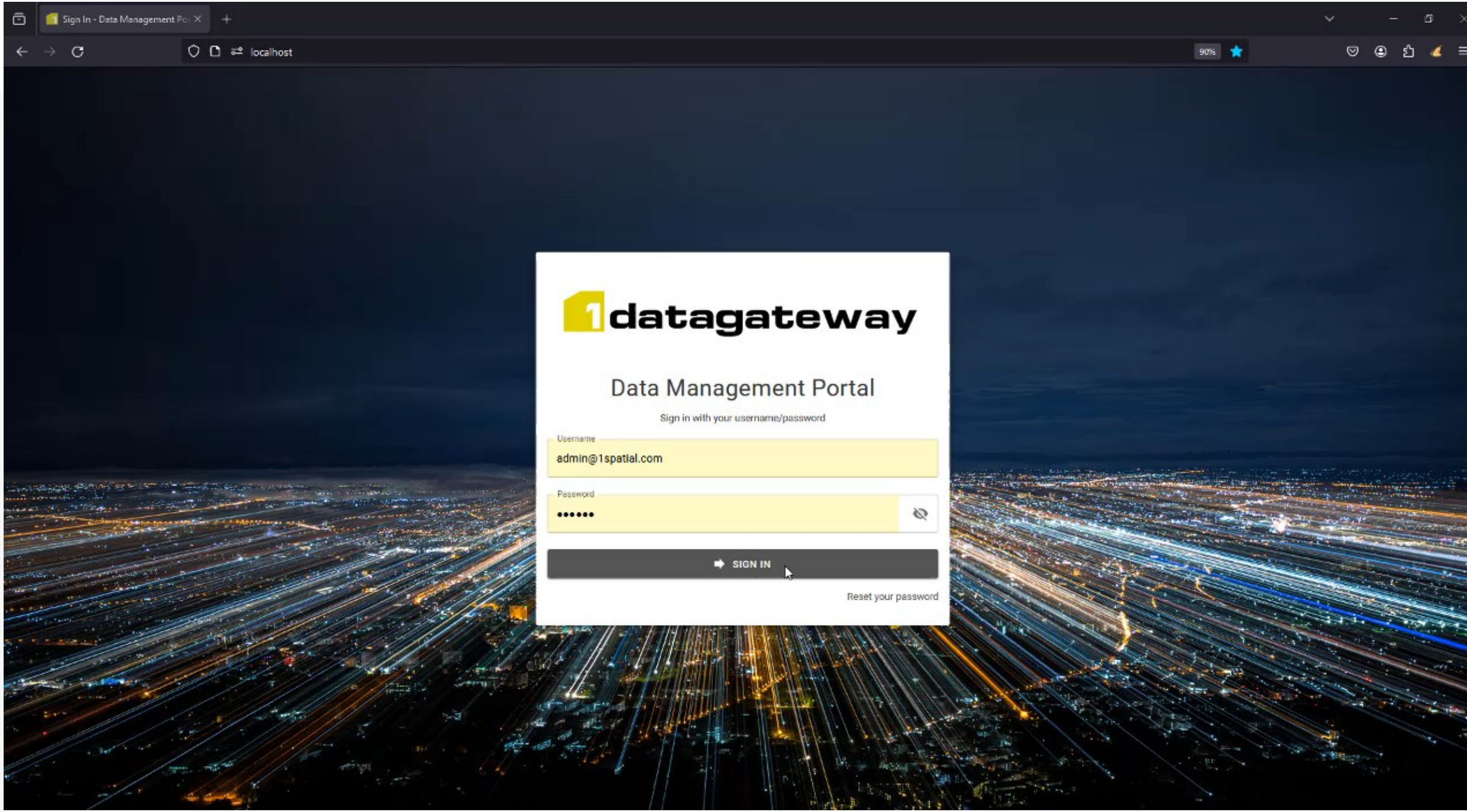
Parcel_ID	Property_Address_City	Property_Address	Property_Address_Zip	
121	Farmland	555 Main St	12345	
123	Farmland	888 N 1924 W	12345	
124	Farmland	9274 E Ocean Ave	12345	Feature **REMOVED**

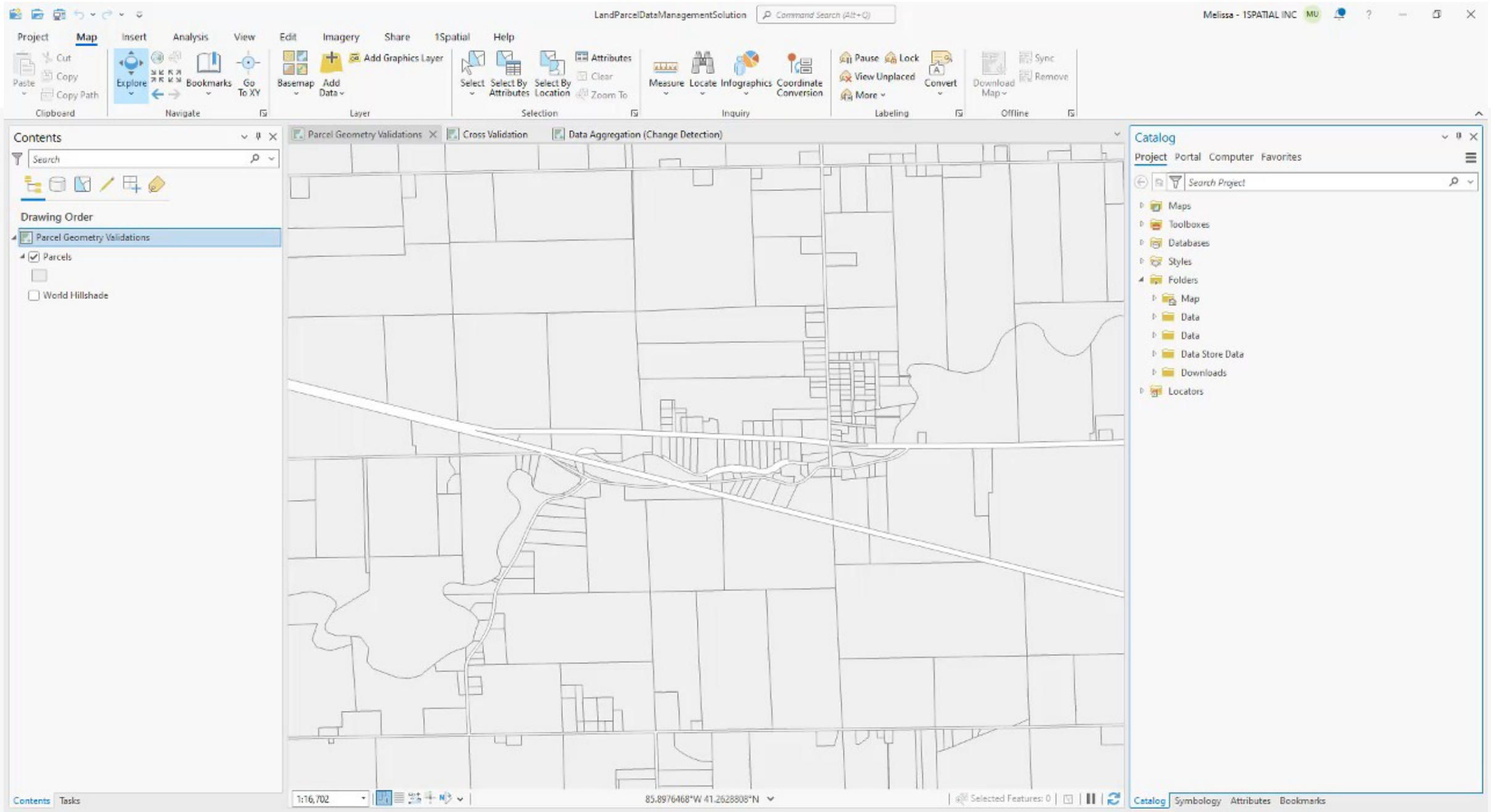
UPDATE Table

Parcel_ID	Property_Address_City	Property_Address	Property_Address_Zip	
121	Farmland	555 Main St	12345	Features **MATCHED**
122	Farmland	900 Broad Ave	12345	Feature **ADDED**
123	Farmland	800 N 1924 W	12345	**ATTRIBUTES UPDATED**

Data Management Portal




Sign In - Data Management Por
localhost
90%
datagateway
Data Management Portal
Sign in with your username/password
Username
admin@1spatial.com
Password
SIGN IN
Reset your password


LandParcelDataManagementSolution
Command Search (Alt+Q)
Melissa - 1SPATIAL INC
Project
Map
Insert
Analysis
View
Edit
Imagery
Share
1Spatial
Help
Cut
Copy
Copy Path
Paste
Clipboard
Explore
Bookmarks
Go To XY
Navigate
Basemap
Add Data
Add Graphics Layer
Layer
Select
Select By Attributes
Select By Location
Attributes
Clear
Zoom To
Selection
Measure
Locate
Infographics
Coordinate Conversion
Inquiry
Pause
Lock
View Unplaced
More
Convert
Labeling
Download Map
Sync
Remove
Offline
Contents
Search
Drawing Order
Parcel Geometry Validations
Parcels
World Hillshade
Contents
Tasks
Parcel Geometry Validations
Cross Validation
Data Aggregation (Change Detection)
1:16,702
85.8976468°W 41.2628808°N
Selected Features: 0
Catalog
Project
Portal
Computer
Favorites
Search Project
Maps
Toolboxes
Databases
Styles
Folders
Map
Data
Data
Data Store Data
Downloads
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