

The Quest for Quality

Data Management Best Practices for Emergency Managers



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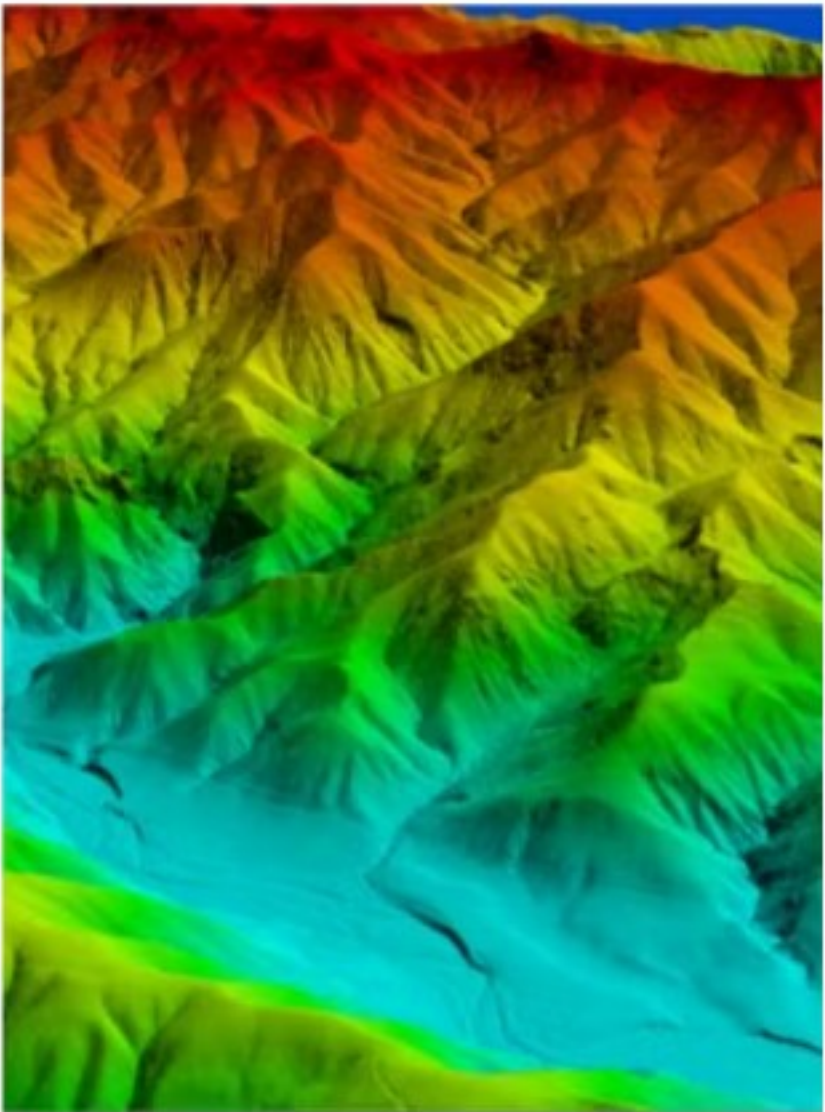


GEOSPATIAL TECHNOLOGY SERVICES

AS LEADERS IN THE GEOSPATIAL INDUSTRY

Backed by the resources of a national firm, we create data, analyze information, and build tools to help clients in federal, state and local, and commercial markets achieve their goals and overcome challenges.

MEET THE TEAM



Dewberry has

450 Geospatial
and Technical
EXPERTS

in photogrammetry, remote sensing,
lidar, GIS, and program management

5

Top 5 Geospatial &
Consulting Firm in
the nation

**Esri Cornerstone
Partner** for 20+
years of partnership



Won multiple **Esri Partner
Conference awards** for
our use of Esri software
and applications



2,500+
EMPLOYEES



60
LOCATIONS
nationwide



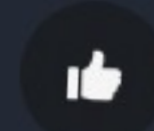
\$711.45
MILLION
in 2023 revenue



65+
YEARS

helping clients build
and shape communities







HONESTY

- **Personal integrity.** Our first value.
- **Intellectual honesty.** Be honest about what you know and don't know.
- **Direct communication.** Clear, direct with respect works best.
- **Have fun.** If you are not having fun something is wrong. Make it right.

PASSION

- **Be the best.** It is not about being the biggest company; it is about being the best every time.
- **Compete.** Be driven to compete and yes, winning absolutely matters.
- **Deliver quality.** You have succeeded when it is done right and delivered when promised.

CONTRIBUTION

- **Put the client first.** Promote their broader interests.
- **Financial responsibility.** Profits are the lifeblood needed to support growth, re-investment, and our independence.
- **Build strong relationships.** Make building relationships with clients, the community, and others at Dewberry a priority.
- **Teamwork.** Support one another. Share credit at every opportunity. We are one company.

INDIVIDUALISM

- **Think for yourself.** Creativity, innovation, and risk-taking starts with the individual.
- **Self reliance.** We are in this together, but you are responsible for your own growth, success, and happiness.
- **Own It.** Take individual responsibility for what gets done.
- **Follow your instincts.** Listen first and last to your own inner voice.

PERSEVERANCE

- **Think big.** Keep your feet on the ground but reach for the stars.
- **Conserve resources.** No one can predict what tomorrow will bring.
- **Focus on the long haul.** Real and meaningful success comes through sustained efforts.
- **Stay flexible.** Keep our options open.

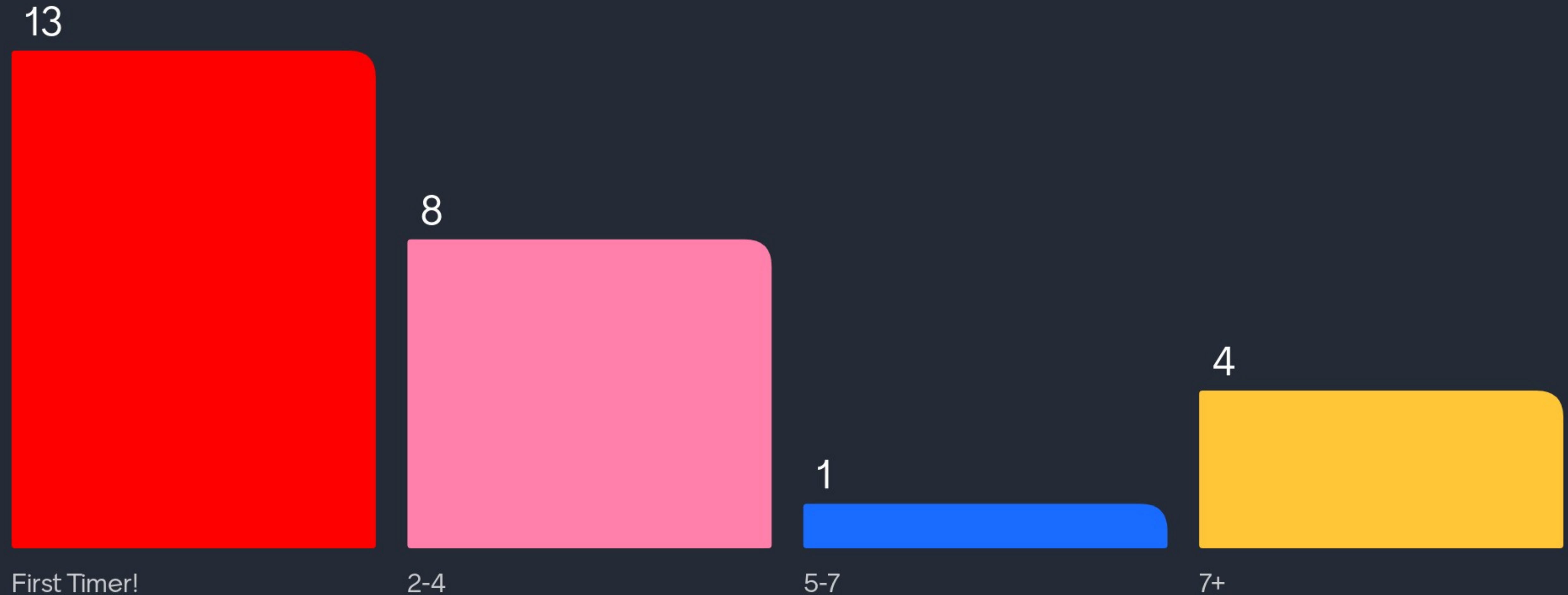
Share your ideas!

- Use your phone and go to www.menti.com and enter the code
- Participate!
- Please keep your comments professional

Agenda

- Using Menti
- Challenges
- Best Practices
- Technology

How many InSPIRE conferences have you been to?



What's your favorite animal?

28 responses



Where are you from?



NAPSG InSPIRE 2024 - Dewberry Presentation

We are excited to get your input on challenges, best practices, and more about around data management best practices. Your participation will inform Dewberry's 2024 NAPSG InSPIRE conference presentation "Data Management Best Practices for Emergency Managers".

If you have any questions or comments about the survey, please email at cbohn@Dewberry.com

Name*

Email*

When using data to make faster, more informed decisions, what challenges does your organization encounter with data quality issues?

Pre-conference questions

- Data quality challenges
- Data management tools / best practices implemented?
- What do you want to learn more about?

How do you know if you have good data?

I don't have to correct it

You don't.

Trusted source

It is consistent, quality and reliable

You created it

It is fit for the purpose at hand

Have to Ground Truth it

Accuracy precision
timeliness

How do you know if you have good data?

It's trusted and verified

Correct Lat/long and
source is trusted

Folks can use it to make
informed decisions.

Validate sample
accuracy

Unbiased

It's authoritative

Having another source to
verify

It's from an authoritative
source

How do you know if you have good data?

Past experience with this source

Validated from multiple independent sources (directly or indirectly)

Consistency, fully documented

Authoritative sources

Updated regularly from trusted sources

Have data validation rule in place during data input

Challenges





Data Quality Challenges

Process

- Perfect vs. good enough
- Slow decision-making
- Poor planning/resource deployment

Tools

- Input incorrect data

Data

- Uncertainty
- Incomplete/outdated metadata
- Local vs. County/regional/national
- Mismatched schemas
- Data silos

Communication

- Who to contact?
- Will they call you back?
- What do you have?
- What is needed?

What is your data quality challenge?

How good is good enough?

Human error

lazy data entry

Multi user inputs

Outdated data, no replacement

Can't share useful data with others outside of organization

People aren't willing to take the time to input good data, even though they want to see the results!!

Ensuring that people take ownership over their data quality and correct when needed

What is your data quality challenge?

Mixed coordinate
systems across data sets

Outdated data

User entry participation

Making everything from
scratch/ no existing GIS

Knowing what is available

Was the data created
with my use in mind?

Mismatched schemas
across years or regions

Lack of context

What is your data quality challenge?

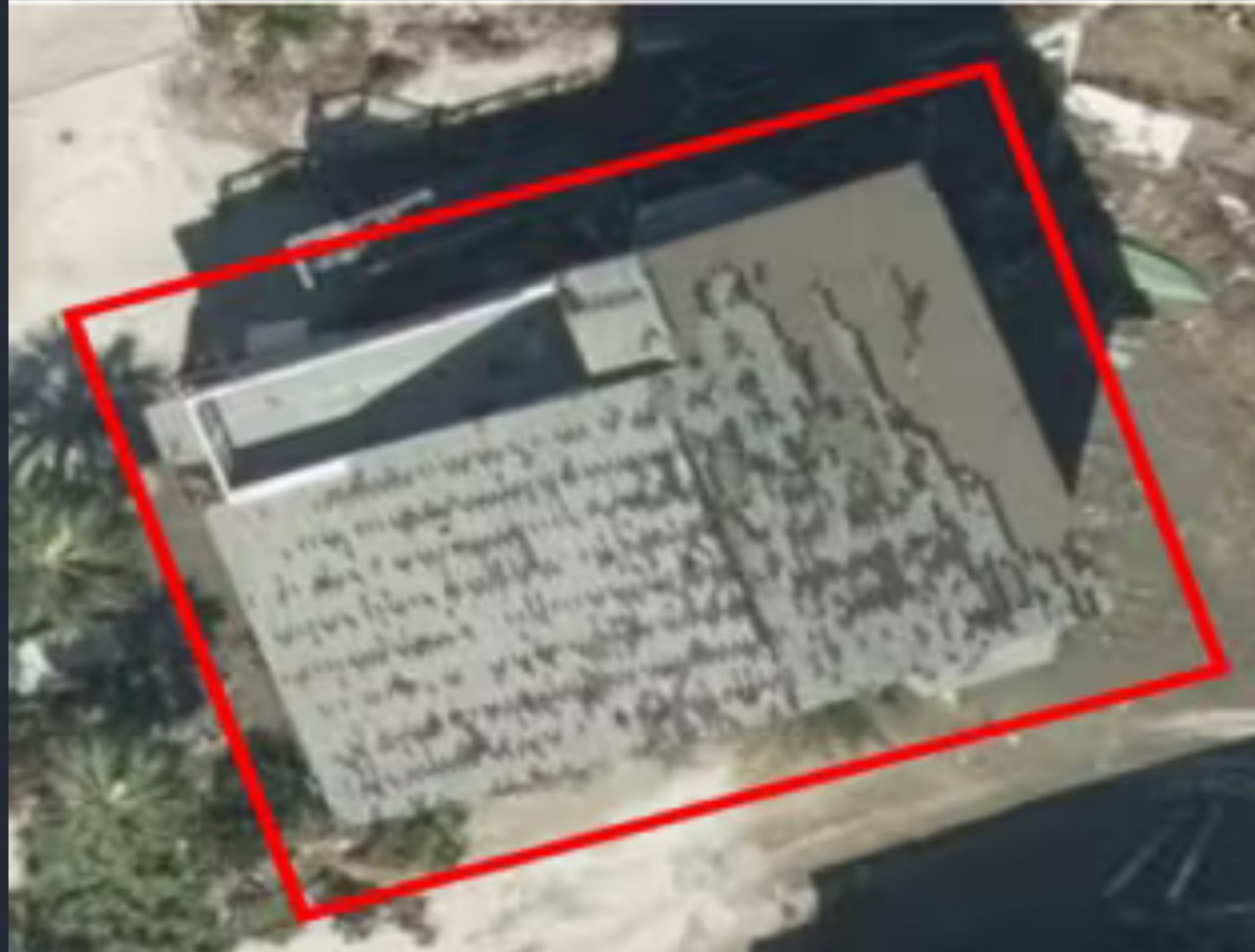
No robust ground truth
data for validation

Affected

Damage Assessments

Key context clues for assessing and classifying damage





Affected Structure



Minor Structure



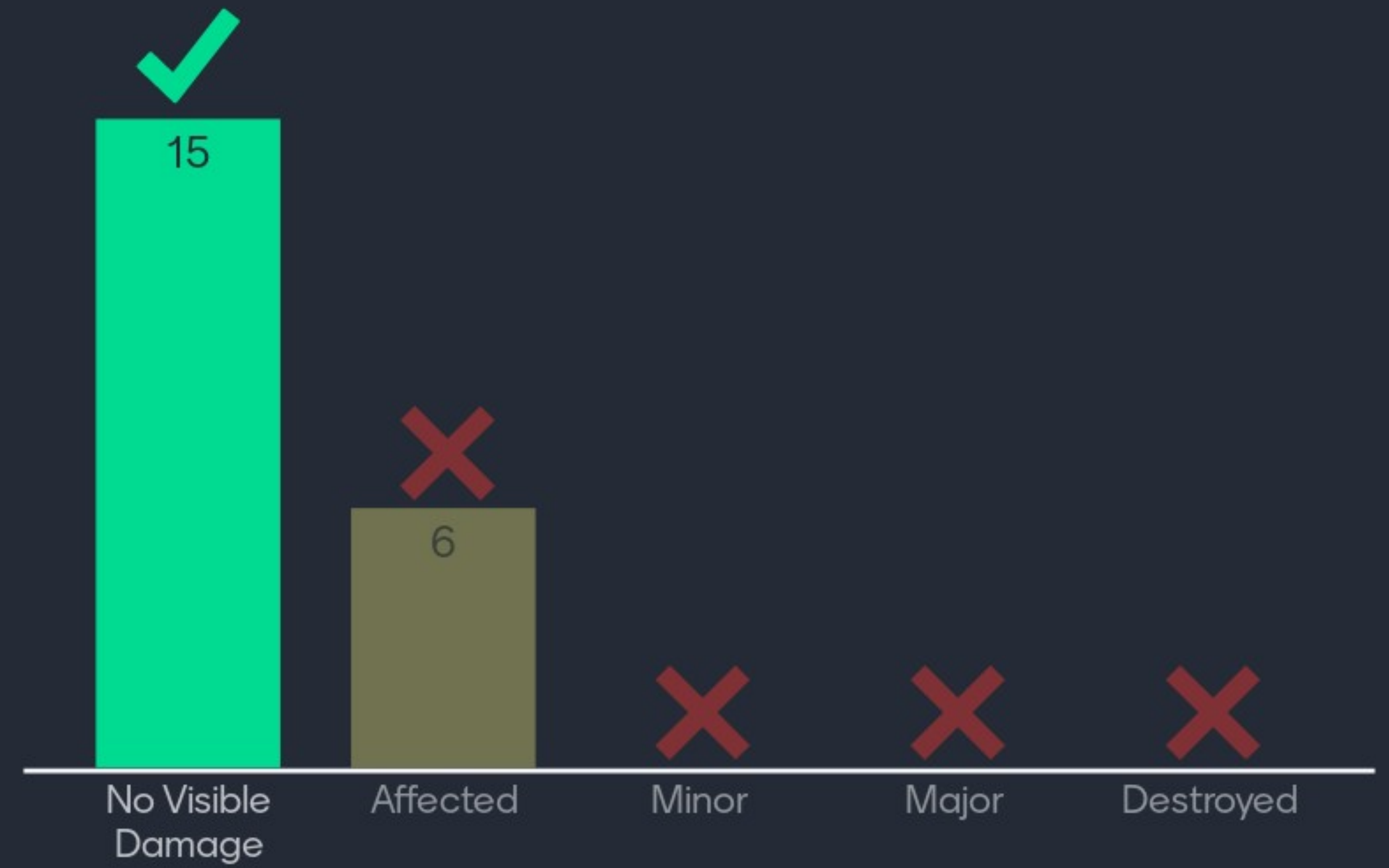


Major Structure



Destroyed Structure

Multiple Choice



Multiple Choice



Best Practices



Best Practices

Process

- One email for data quality issues
- Dedicated resources
- Formal issue tracking system

Tools

- Attribute rules/ domains to prevent data entry issues

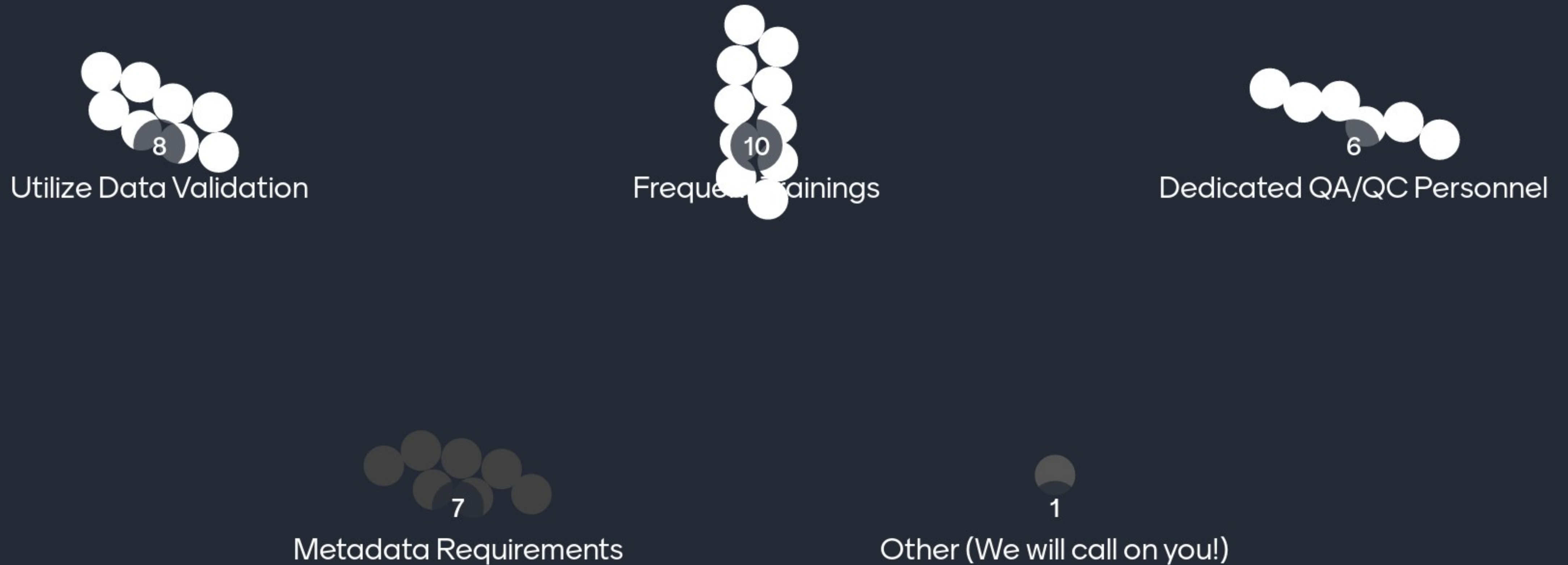
Data

- Assign data custodians
- Centralize data storage

Communication

- Share!
- Know your data
- Engage stakeholders
- Create daily ops plans
- Reminders
- Train. Train. Train
- Document caveats/intended use

What steps have you taken towards enforcing data quality?



Food Assistance Data Collection

- Engage with stakeholders for data schema
- Concise Users Guide
- Training sessions

Metropolitan Washington
Region Food Assistance
Geospatial Data Layer
Technical Guidance

July 2023



Table 2. Survey Q3 Questions

Question Number	Question Type	Label	Hint	Choices	Other Options
1	Single Select	Organization Type	n/a	- Nonprofit - Faith-based/religious institution - Town or city - School/library/community center - Grocery store - Other	Validation: This is a required question
2	Singleline Text	Location Name	Ex: Capitol Hill Church	n/a	Validation: This is a required question
3	Single Select	Location Type	n/a	- Capital Area Food Bank pantry - Food pantry - School - Faith-based/religious institution	Validation: This is a required question
4	Address	Address	Mailing Address	n/a	Data to submit: Address text only Locator: ArcGIS World Geocoding Service Maximum number of results: 4 Validation: This is a required question
5	Map	Location	Drop a point on the map to indicate where people should go to receive	n/a	Drawing tools: Point Map and extent: Imagery, Hybrid Locator: ArcGIS World Geocoding Service



Metropolitan Washington
Council of Governments

FOOD ASSISTANCE GEOSPATIAL DATA LAYER PROJECT

A food assistance geospatial data layer will assist the National Capital Region (NCR) in providing consistent quality information across the region for emergency management activities. The Metropolitan Washington Council of Governments (MWCOC) and the District of Columbia Homeland Security and Emergency Management Agency (DCHSEMA) received a Regional Catastrophe Preparedness grant to enhance situational awareness through the development of a regularly updated food resource data layer. This geospatial data will provide a view of emergency food assistance locations in the NCR and build upon the existing food assistance layer hosted by the National Capital Region Geospatial Data Exchange (NCR GDX).

What is the NCR GDX?

The NCR GDX is a geospatial data portal that allows jurisdictions and organizations in the NCR to share data among public safety and emergency management professionals and agencies. An initial regional food assistance data layer developed in coordination with MWCOC, local government, private, and nonprofit partners through the NCR GDX Regional Food Resources Initiative to support emergency food resource data sharing and analysis.



THE DATA COLLECTED THROUGH THIS PROJECT WILL:

- Establish baseline food assistance need for future risk assessments within the NCR
- Support further development and revision of the Geographic Food and Water Supply Delivery and Resilience Strategic Framework
- Guide future investment in food assistance distribution and capabilities



PARTICIPATION FROM JURISDICTIONS AND OTHER KEY PARTNERS WILL:

- Help define requirements for data schema and maintenance of the layer
- Share existing food assistance data and website locations of available data
- Feedback throughout development about opportunities and challenges for implementation of the regional layer

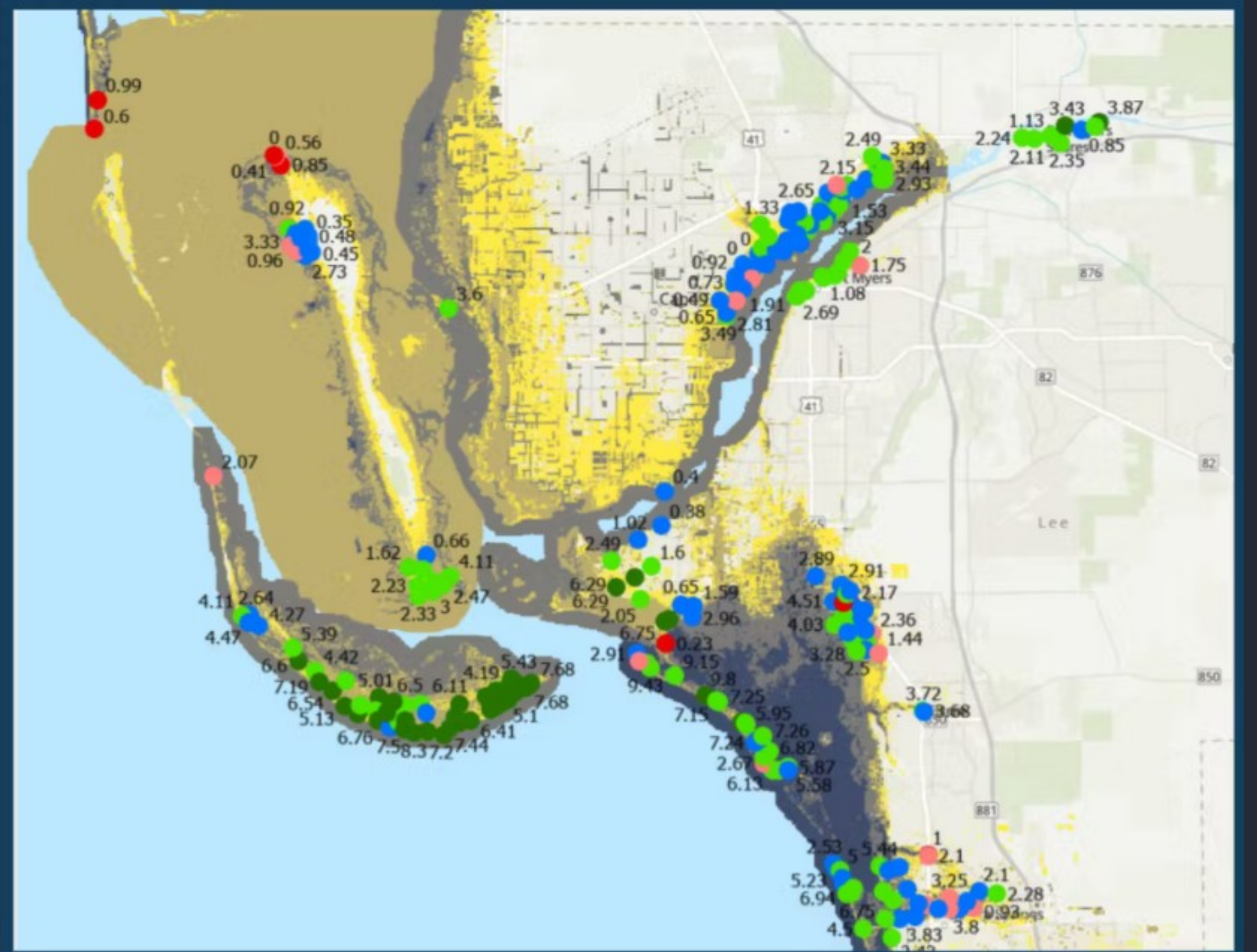


DATA CONSIDERATIONS:

- Data layer will be hosted by the NCR GDX
- It is assumed that the availability of data will vary by food assistance organization due to capacity restrictions
- Participating jurisdictions will decide for themselves if they download the data into internal resources

Flood Inundation Data Evaluation

- Abundance of flood inundation data
- Compare data with each other and HWMs
- Identify patterns
- Make appropriate resource decisions



Technology

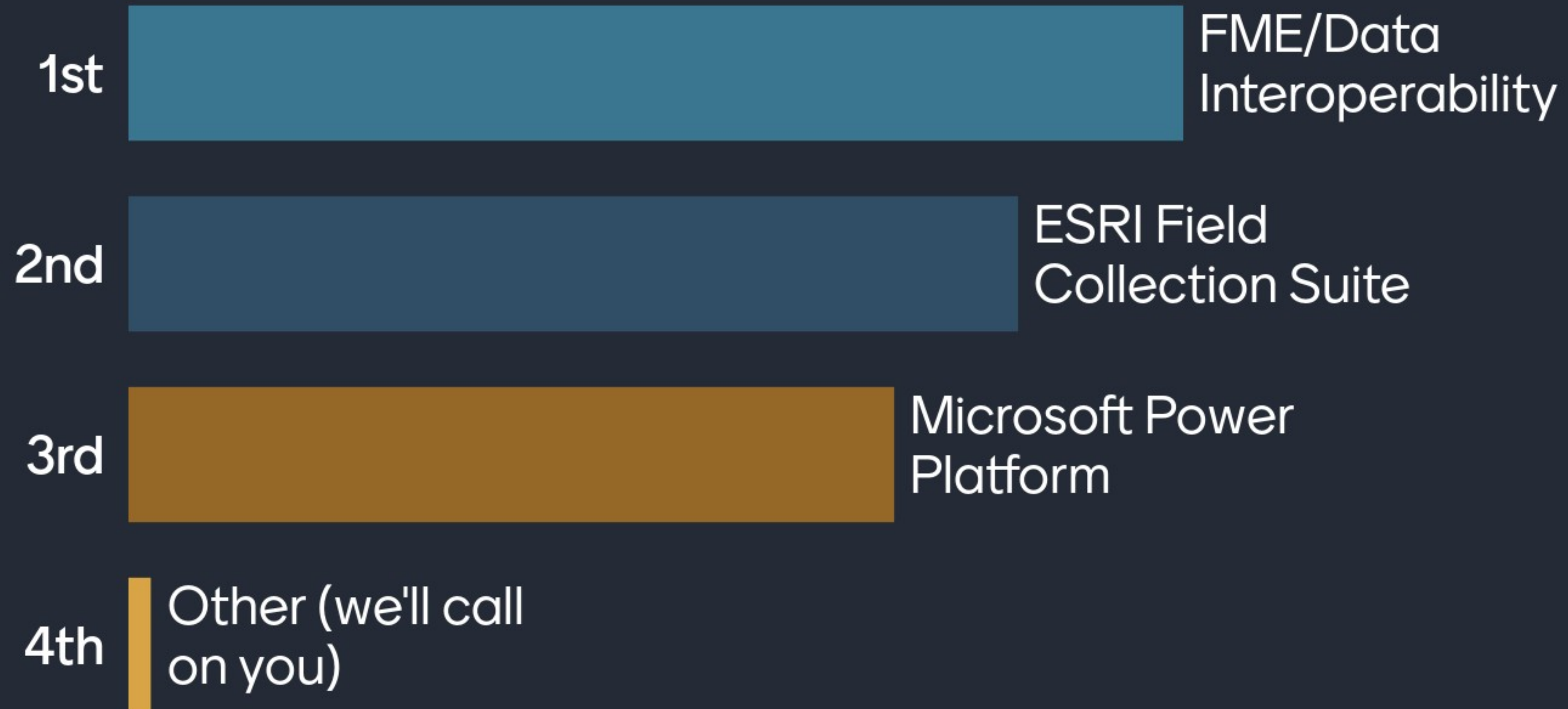
Using Technology to Support Data Quality

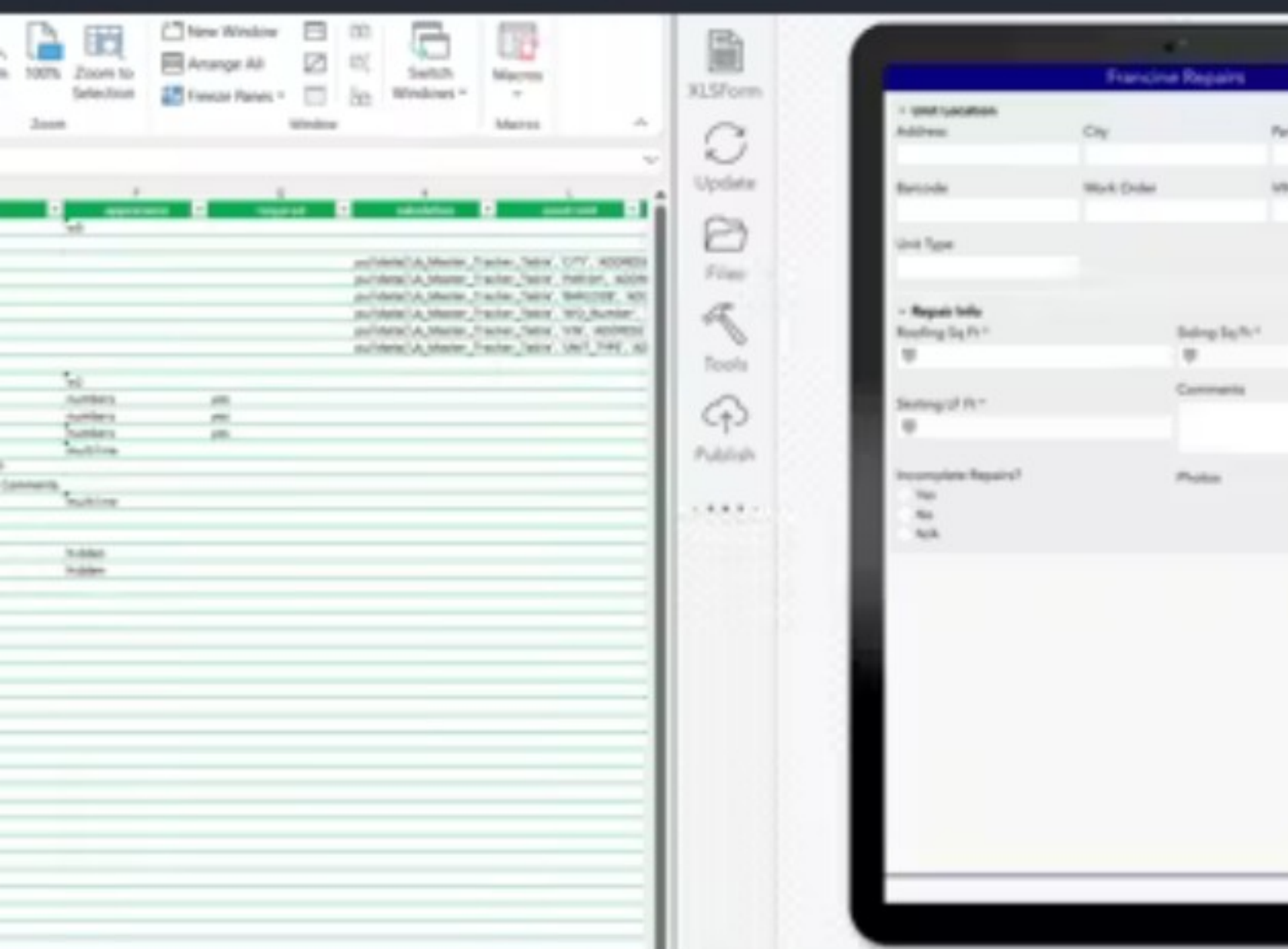
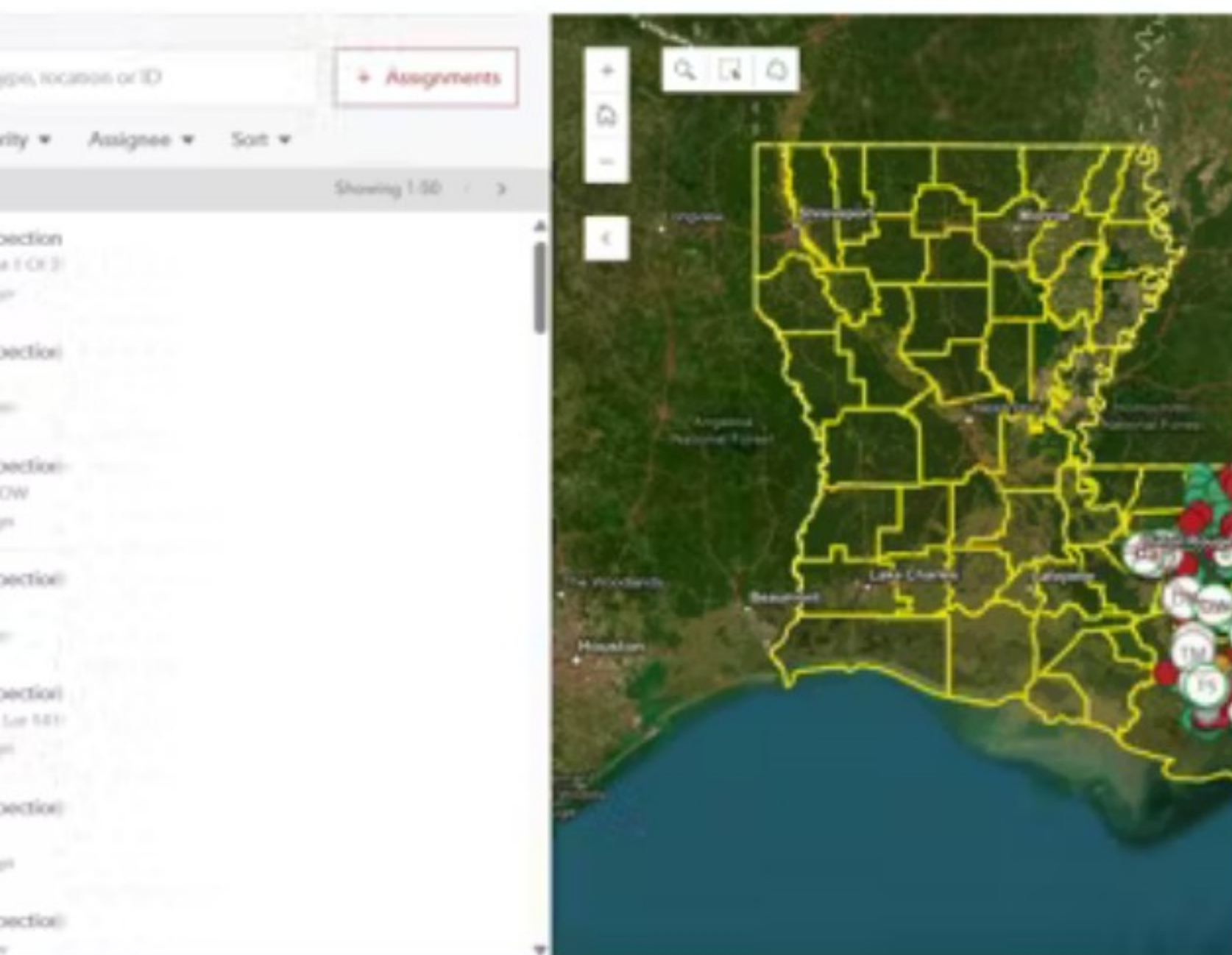


Technology

- Describe uncertainty (conf intervals instead of precise #)
- Templated "briefs" that give the BLUF with data, assumptions, constraints, and additional context all in one place
- FME/data interoperability
- Better GIS processes that ensure data quality
- Version documenting. Clearly indicate when updates are made

Rank your interest in learning about these tools



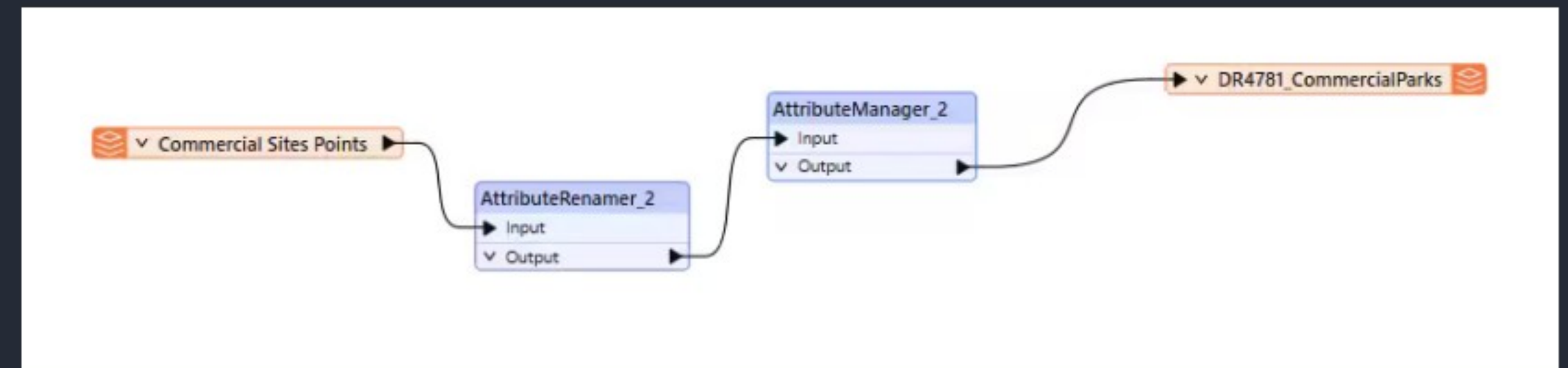


Field Data Collection

- End users are not tech savvy
- Data validation and enforce data schema
- Use Workforce for organizing, editor tracking turned on, delete off
- Managing data collection workflows (assignments/completion)
- Use metadata to make sure editing the right layer (naming convention/descriptions)

FME/Data Interoperability

- Download multiple layers at once and create a quick Excel
- Bulk data clean up (change field names, resort field order, delete fields, export what is needed for end user)
- Integration with many data platforms



Microsoft Power Platform

- Power Automate, Power BI, Power Apps
- Supports movement of data to other platforms
- Automated notifications when people submit data or submit data with specific attributes
- Visually highlight data quality issues



Our list of best practices:

Communicate well

Data validation

Train non-GIS folks on
proper data entry

Proper QAQC

Centralization

Determine use cases for the
data and identify
authoritative sources

Dedicated QC team
members

Know your audience

Our list of best practices:

Centralized storage, data quality role, tracking sources and edits

Choose the right tool for what you want to get out of the data

Using text responses in Survey123 to generate drop-down responses in new versions

Documentation/Version history for everything we do

Make as much data public as possible

Use attribute rules

Clear data dictionaries

Minimize room for error

Our list of best practices:

Clear and defined
schema

Know your data

Automatic workflows to
alert on irregularities

QA/QC is important but
so is training your people
properly

Caveats to decision
makers

Qc

Communication



Catherine Bohn, Associate
Vice President



Victoria Celiberti,
Geospatial Analyst

Connect with Us!