ArcGIS Data Reviewer: An Introduction

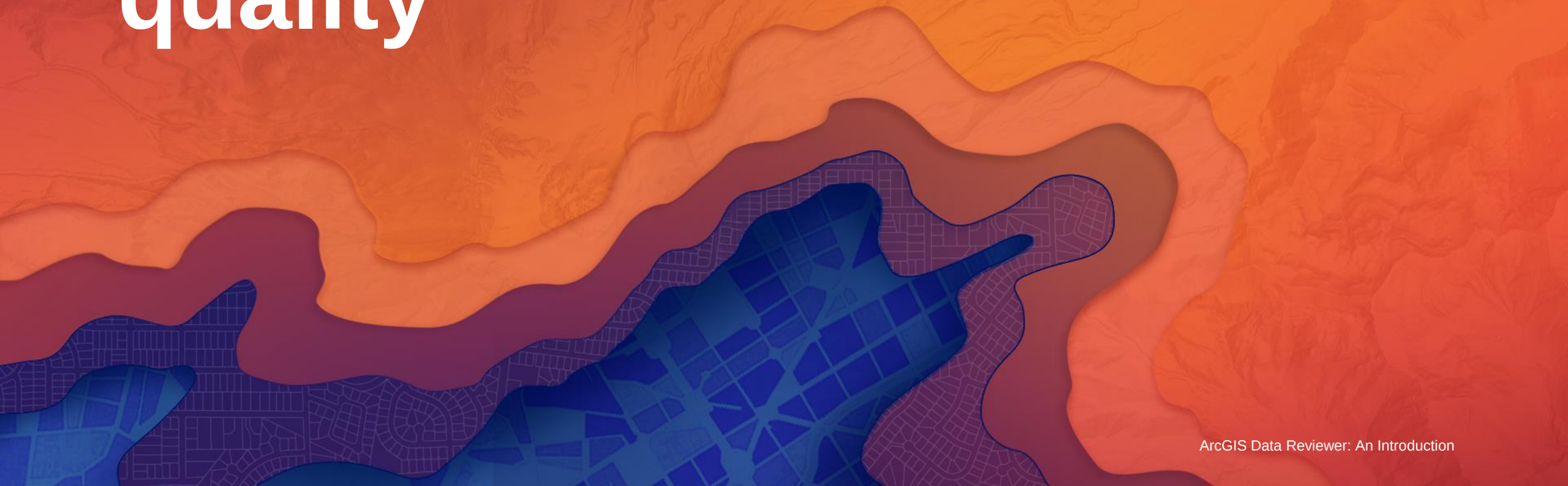
Chandan Banerjee

Jay Cary

Workshop agenda

- Importance of data quality
- What is ArcGIS Data Reviewer?
- Automated review
- Semi-automated review
- Managing errors and data quality reporting
- Summary/resources

Importance of data quality



Defining quality

A business perspective

- Executive
  - Confidently make decisions
  - Reduce financial risk
  - Optimize organizational performance

Defining quality

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  - Optimize organizational performance
- Manager
  - Effective data stewardship
  - Drive increased usage
  - Maximize productivity

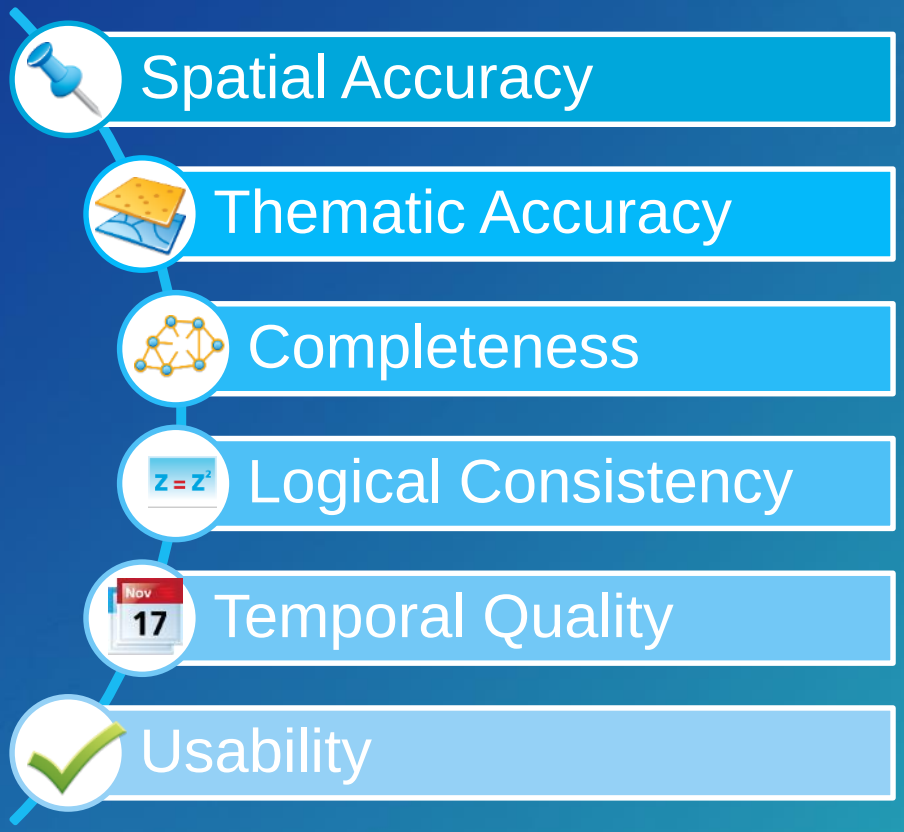
Defining quality

A business perspective

- Executive
  - Confidently make decisions
  - Reduce financial risk
  - Optimize organizational performance
- Manager
  - Effective data stewardship
  - Drive increased usage
  - Maximize productivity
- Knowledge worker
  - Increased efficiencies
  - Confidence in GIS

Defining quality

A technical perspective



ISO-19157:2013 Geographic information – Data quality

Defining quality

Sources of data quality requirements

Defining quality

Sources of data quality requirements

Industry standards / specifications

Subject matter experts

Defining quality

Sources of data quality requirements

Industry standards / specifications

Subject matter experts

Training and experience

Defining quality

Sources of data quality requirements

Industry standards / specifications

Subject matter experts

Training and experience

Quality assurance plans

Data quality management

Capabilities of the ArcGIS platform

Geodatabase integrity

- Schema constraints
- Geoprocessing tools
- Data load checks
- Versioning

Advanced data types

- Topologies
- Parcel fabric
- Geometric/Utility network

ArcGIS Data Reviewer

- Automated review
- Semi-automated review
- Error management
- Quality reporting

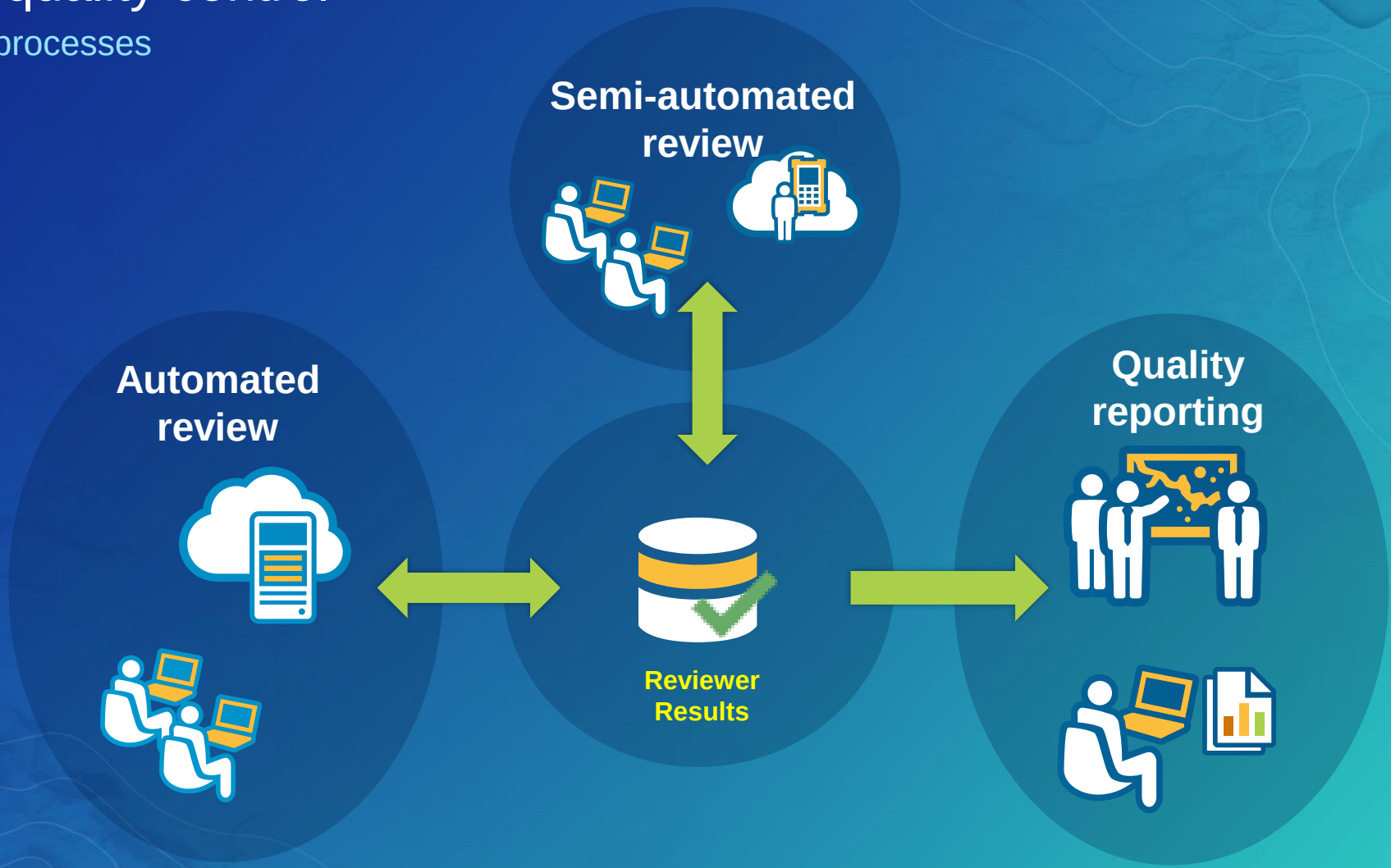
What is ArcGIS Data Reviewer?

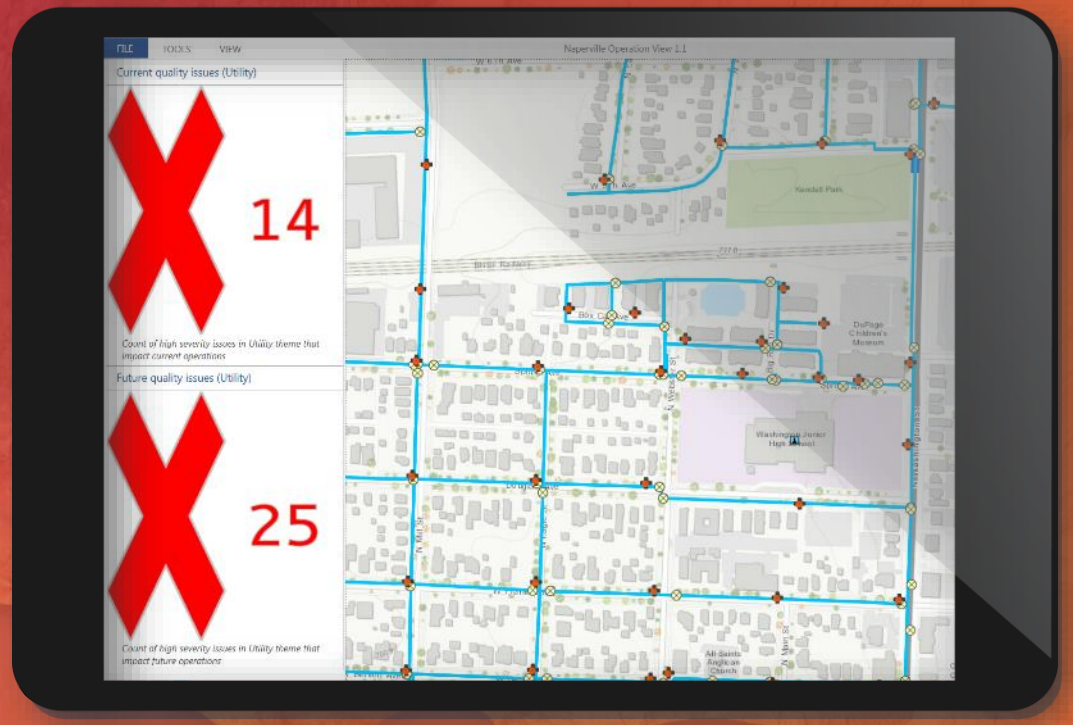
Data quality management in the ArcGIS platform

- Data Reviewer for Desktop
  - ArcGIS Pro
  - ArcMap
- Data Reviewer for Server
  - ArcGIS Server (standard or higher)
- Data Reviewer API
  - JavaScript
  - ArcGIS Pro SDK for Microsoft .NET
- Web AppBuilder for ArcGIS

Managing quality control

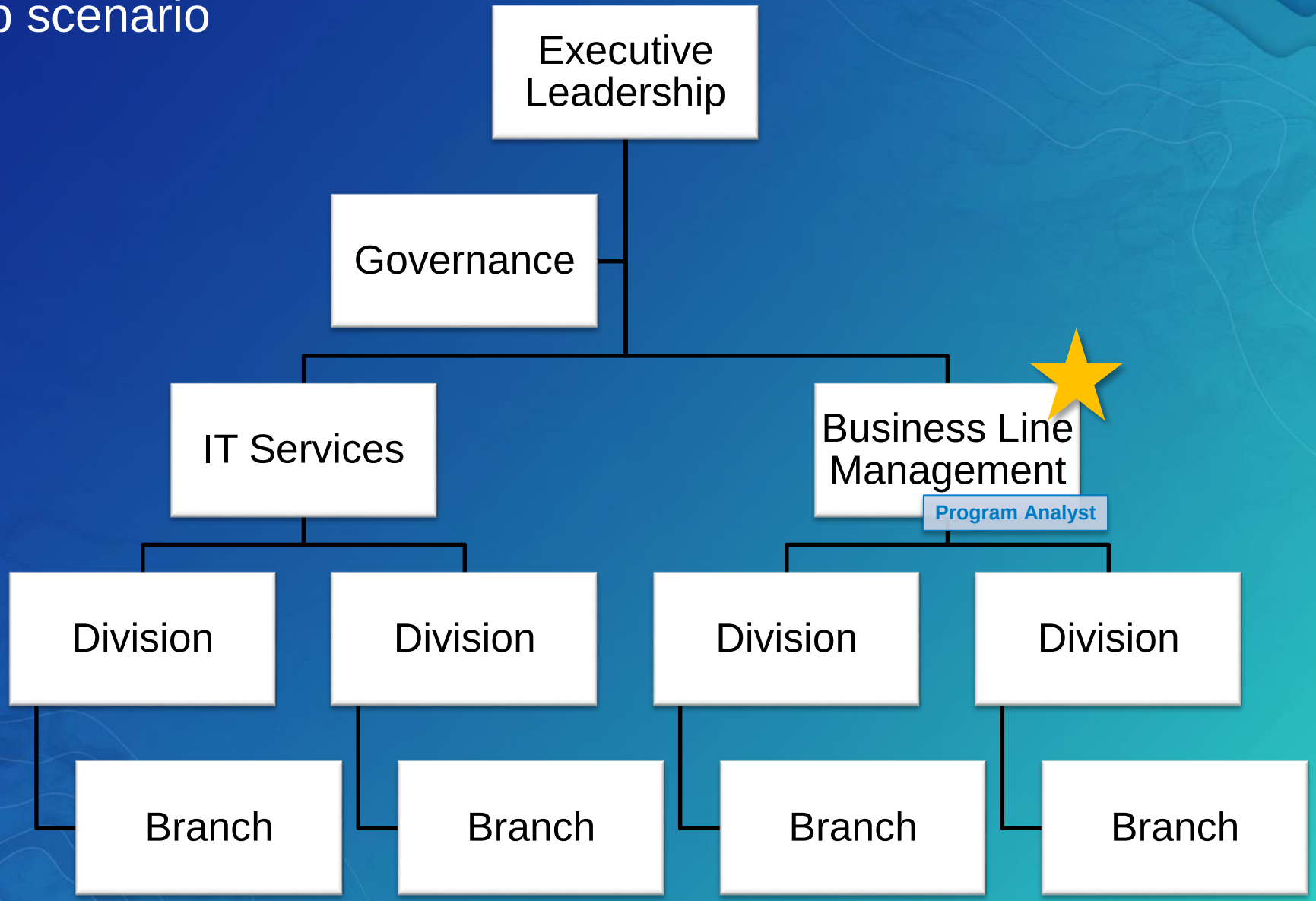
Quality control processes





Demo: Data quality reporting

Workshop scenario



Workshop scenario

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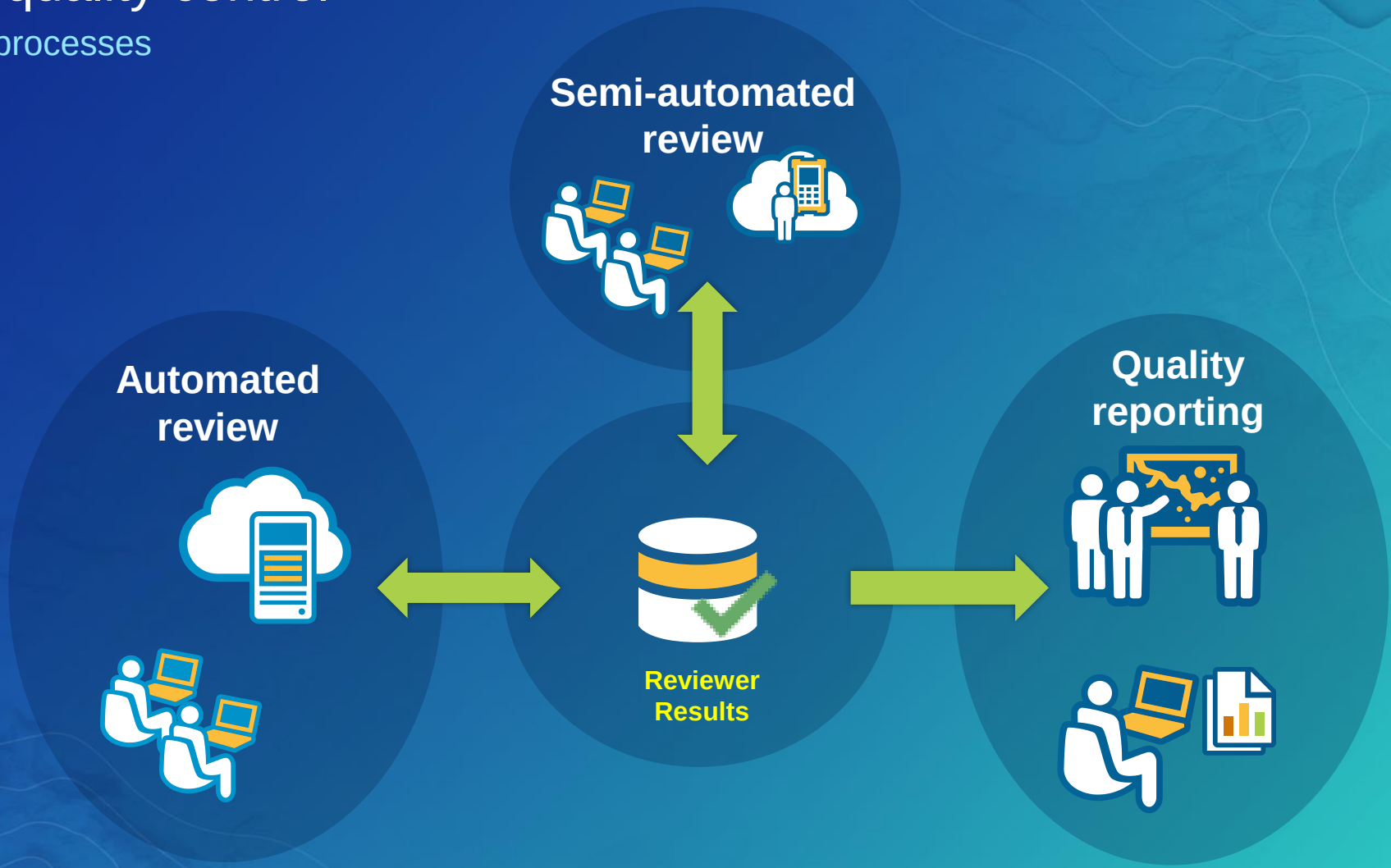
Automated review

Managing quality control

Quality control processes



Types of quality control

Automated review

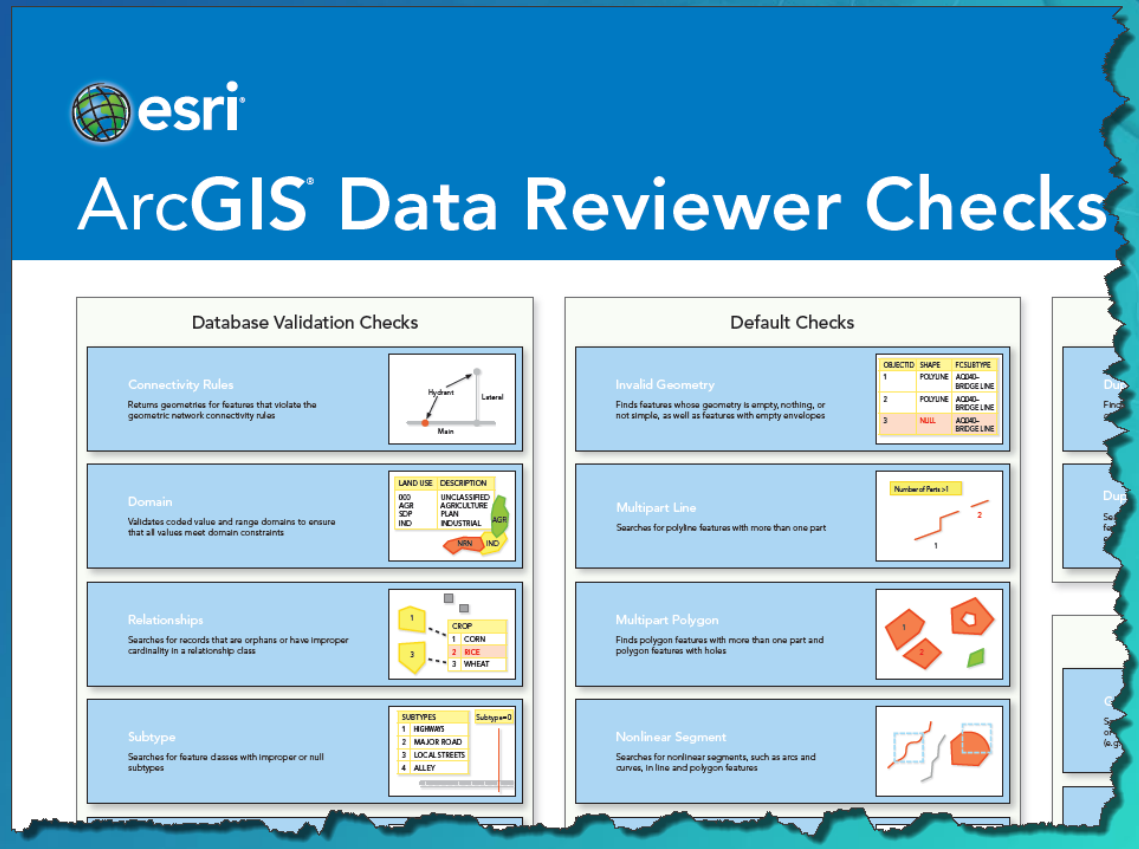
- **Fast**
- **Consistent and repeatable**
- **Objective**
- **100% coverage**

Automating data validation

Implementing quality requirements

- **40+ configurable checks**
- **Feature integrity**
  - Collection rules
- **Attribution**
  - Feature and table values
- **Spatial**
  - Spatial relationships

http://esriurl.com/12379



Implementing data quality rules

Rule implementation workflow

Authoring workflow

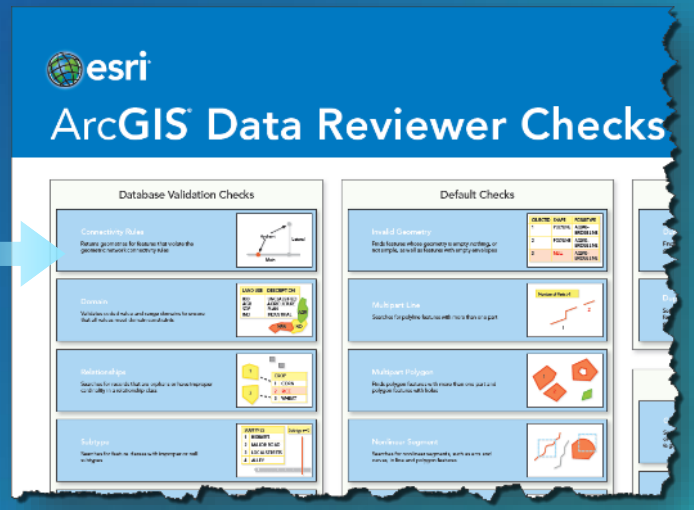
- Identify and document requirements
- Identify relevant validation methods in ArcGIS
- Implement data quality rules

Industry standards / specifications

Subject matter experts

Training and experience

Quality assurance plans



Implementing data quality rules

ArcMap workflow

ArcMap

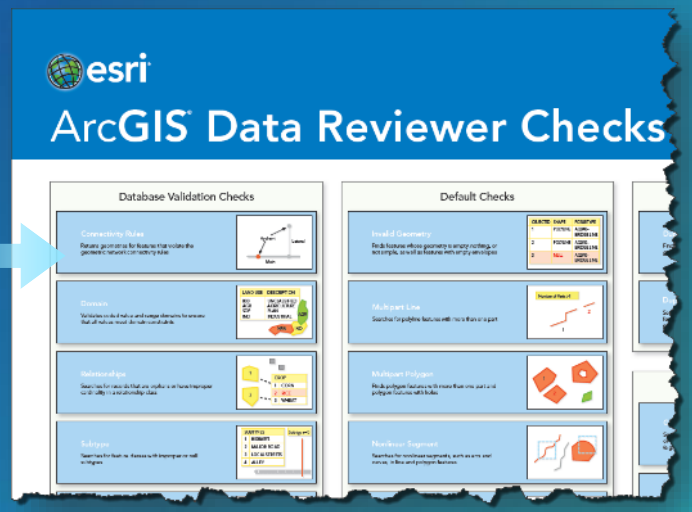
- Authored using Batch Job Manager
- Rules stored in a Reviewer Batch Job
- Shareable as a file from a network share or via email
- 43 configurable validation methods (v 10.5.1)

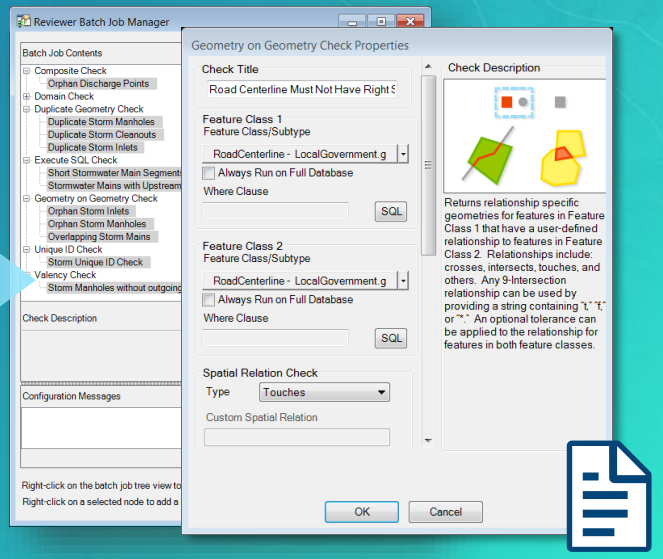
Industry standards / specifications

Subject matter experts

Training and experience

Quality assurance plans





Implementing data quality rules

ArcGIS Pro workflow

ArcGIS Pro

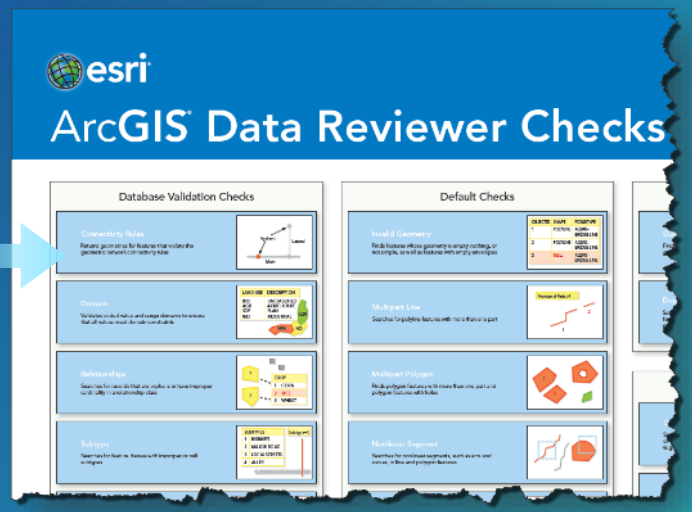
- Authored using the Reviewer Rules view
- Rules stored in map
- Shareable as a map or layer file/package and project package/template
- 7 configurable validation methods (v 2.0)

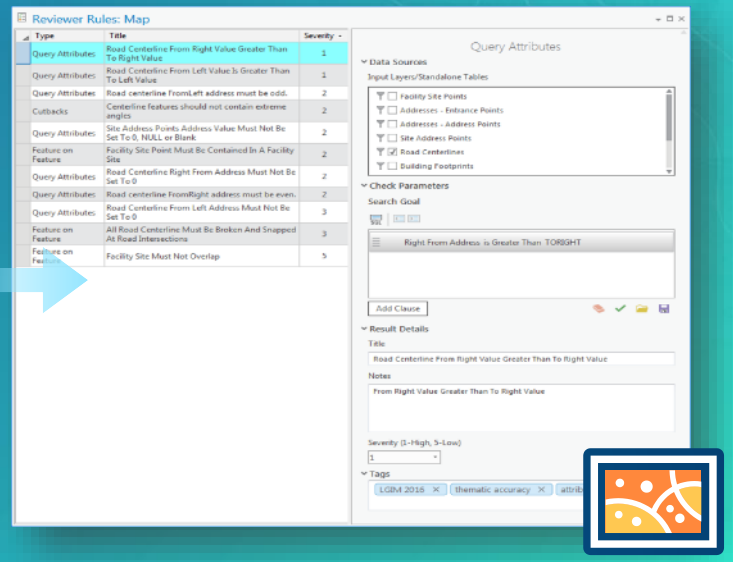
Industry standards / specifications

Subject matter experts

Training and experience

Quality assurance plans

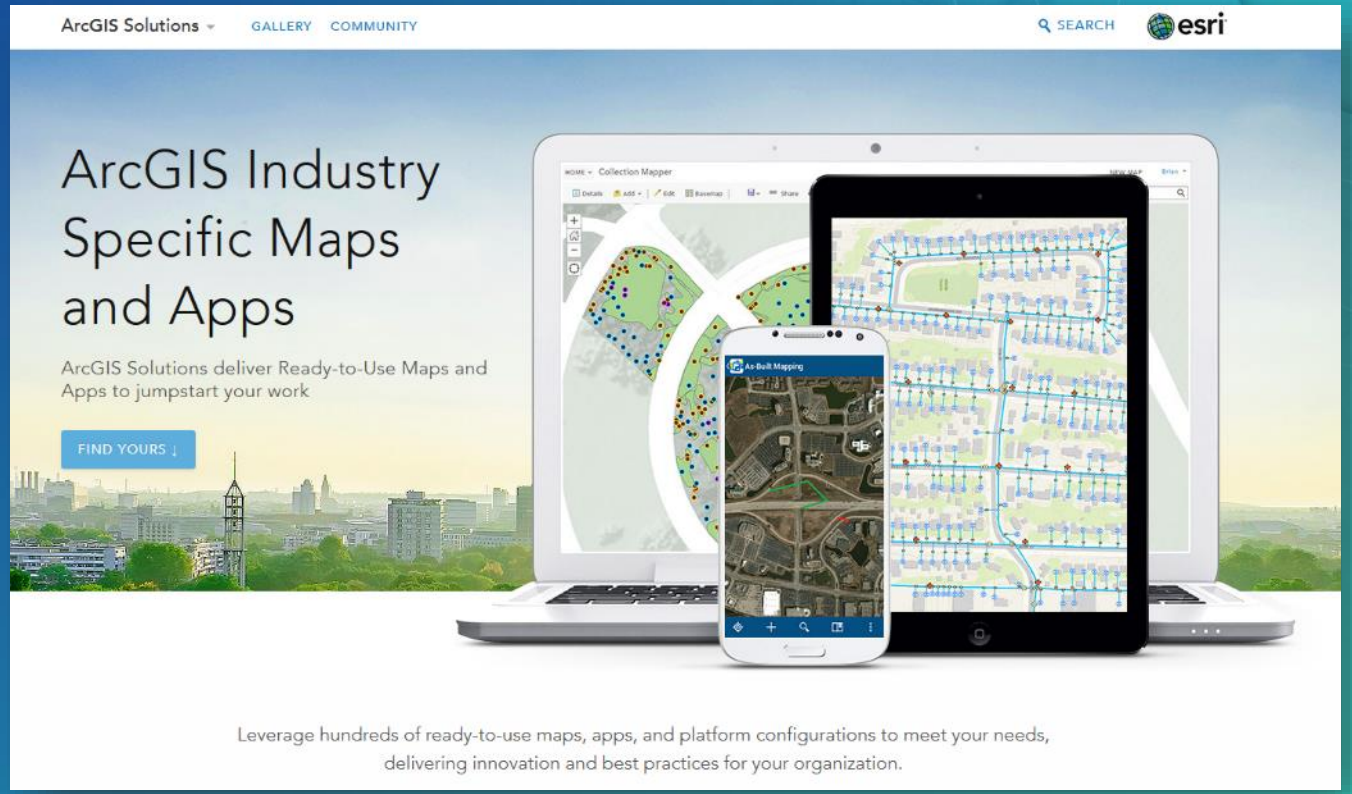




Where to start

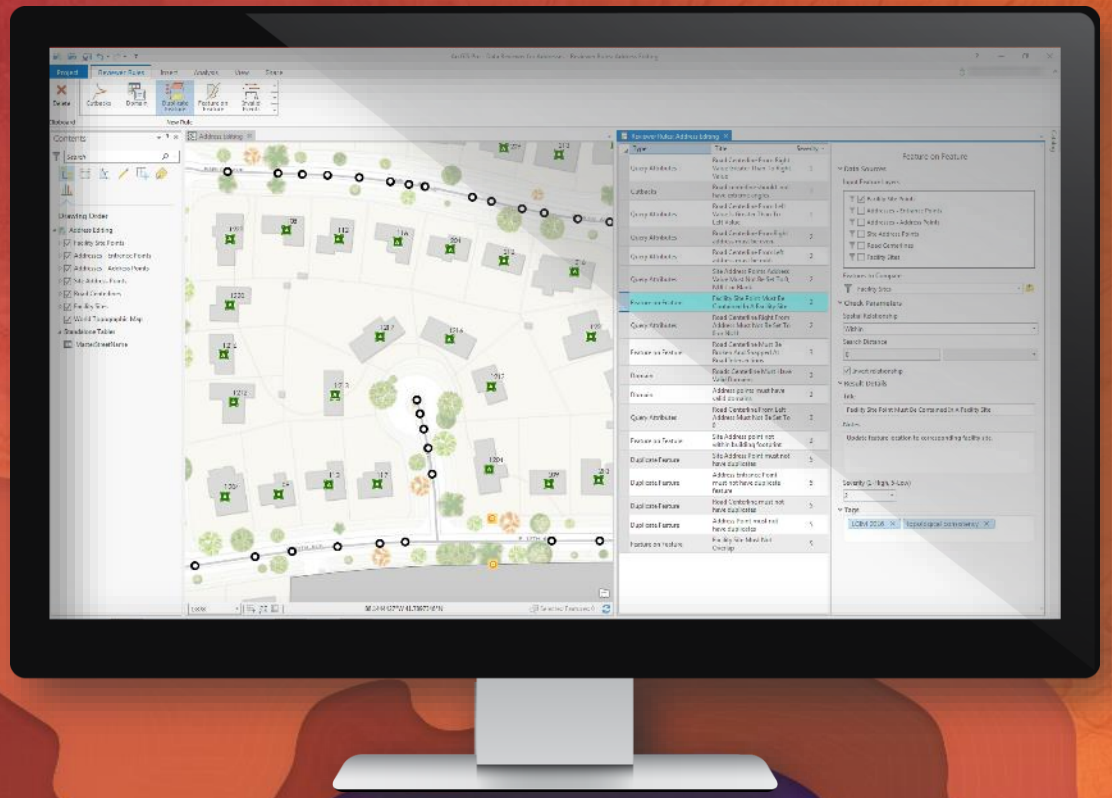
Leveraging templates

- Data Reviewer templates
  - Local government
  - Topographic mapping
  - Utilities
    - Electric
    - Gas
    - Water
  - Water resources
- Based on Esri industry models
- Use as starting point

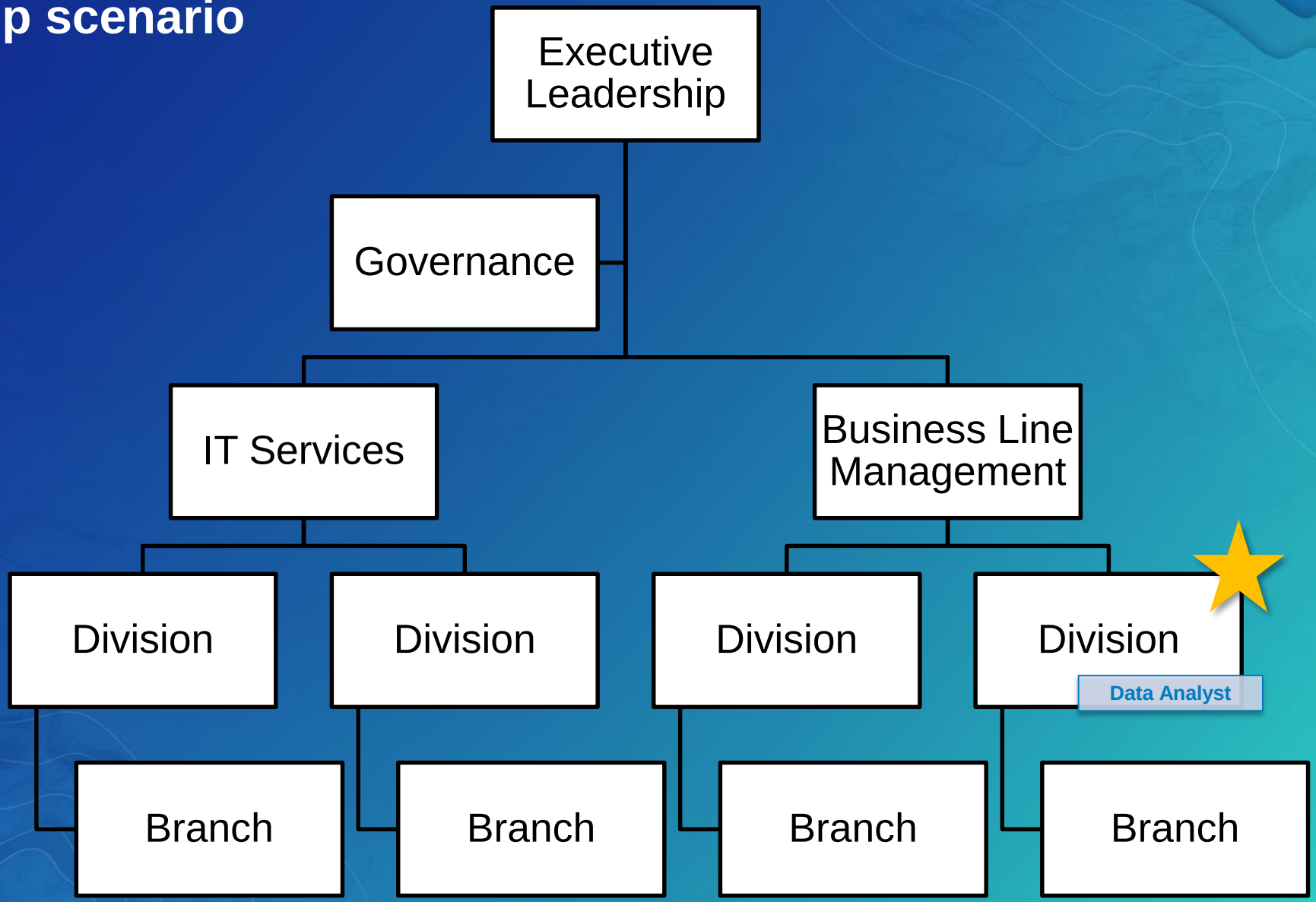


solutions.arcgis.com

Demo: Authoring data quality rules



Workshop scenario



Workshop scenario

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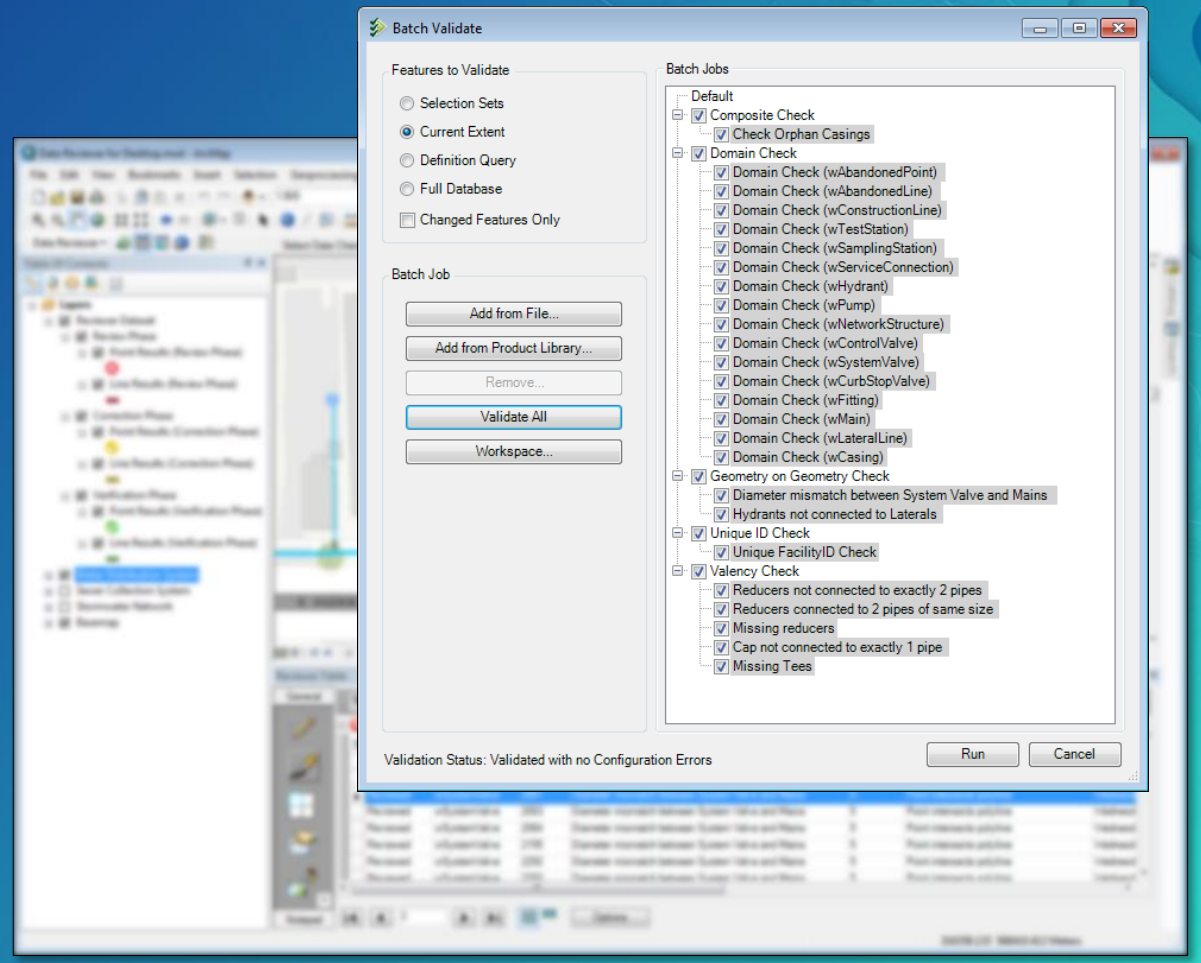
Automated review

Methods for executing data validation

Validating features using Reviewer Batch Jobs

Execute data validation using

- ArcMap

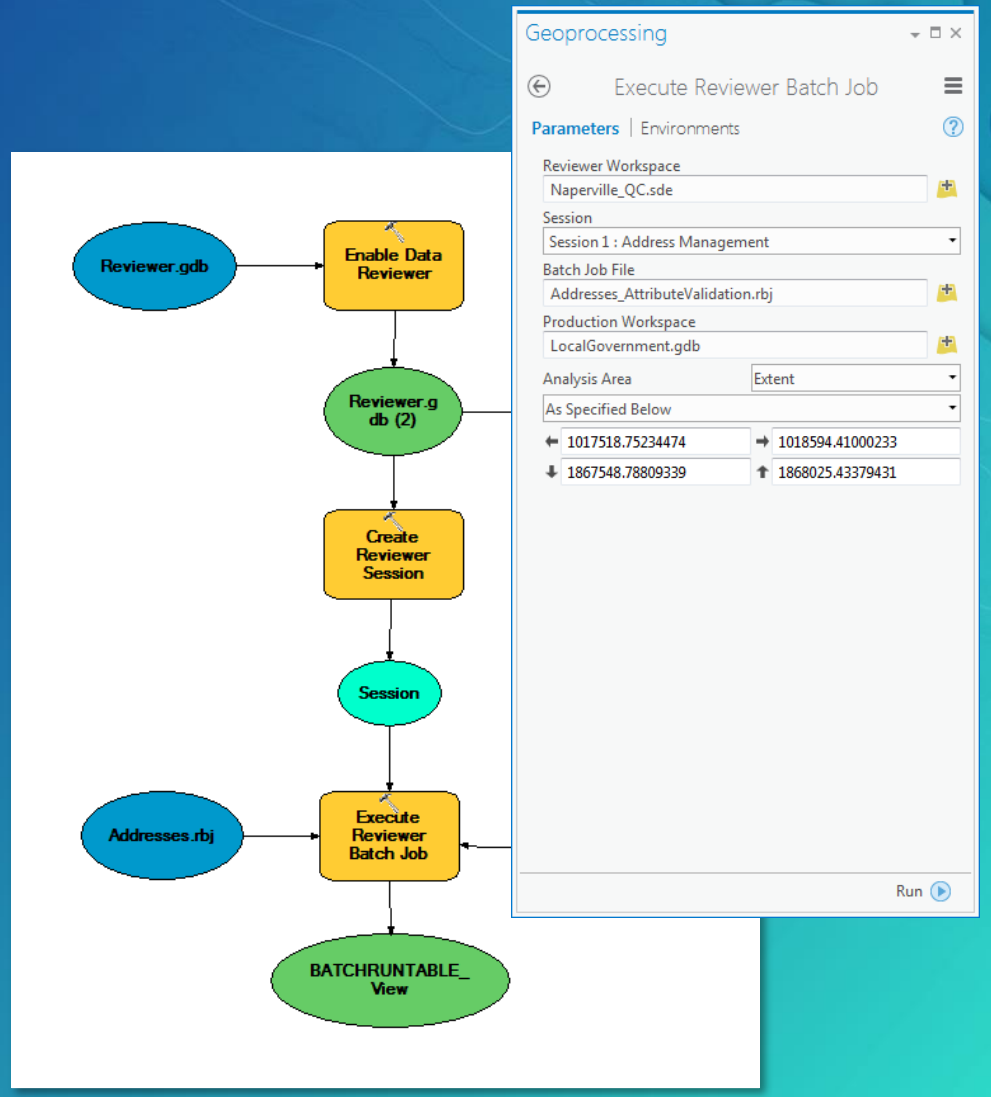


Methods for executing data validation

Validating features using Reviewer Batch Jobs

Execute data validation using

- ArcMap
- Geoprocessing

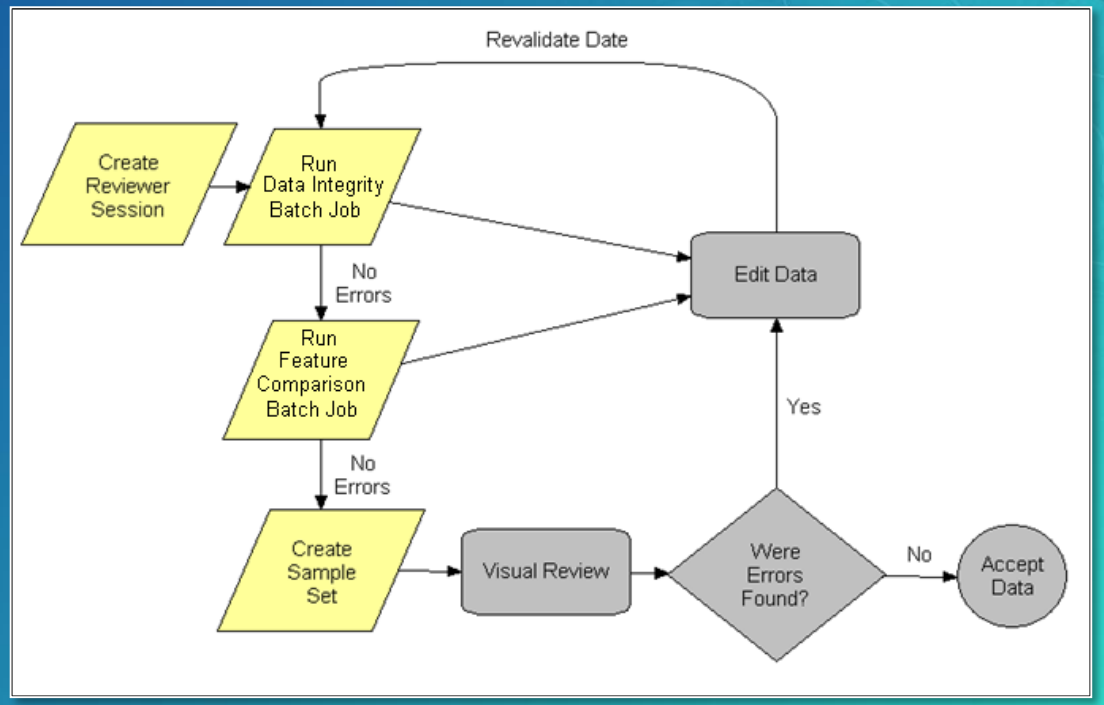


Methods for executing data validation

Validating features using Reviewer Batch Jobs

Execute data validation using

- ArcMap
- Geoprocessing
- ArcGIS Workflow Manager



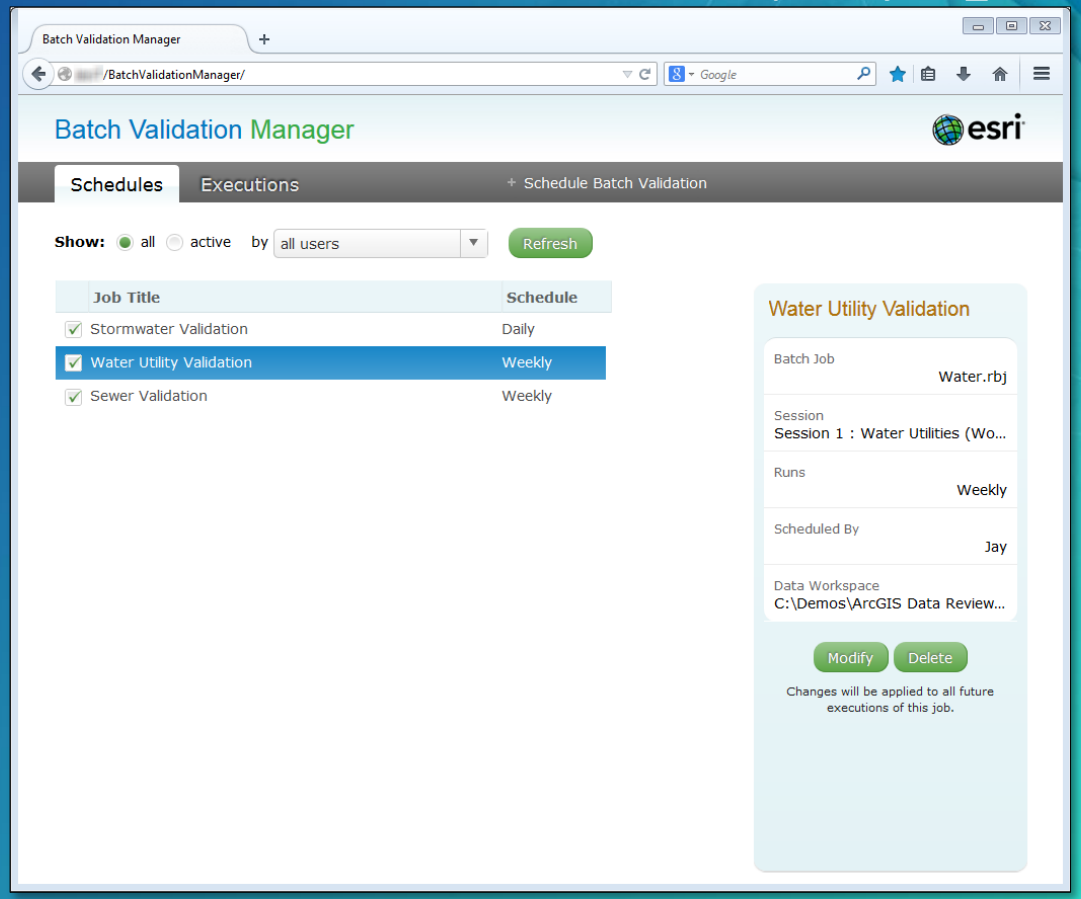
Methods for executing data validation

Validating features using Reviewer Batch Jobs

Execute data validation using

- ArcMap
- Geoprocessing
- ArcGIS Workflow Manager
- ArcGIS Server

http://bit.ly/DR_BVM

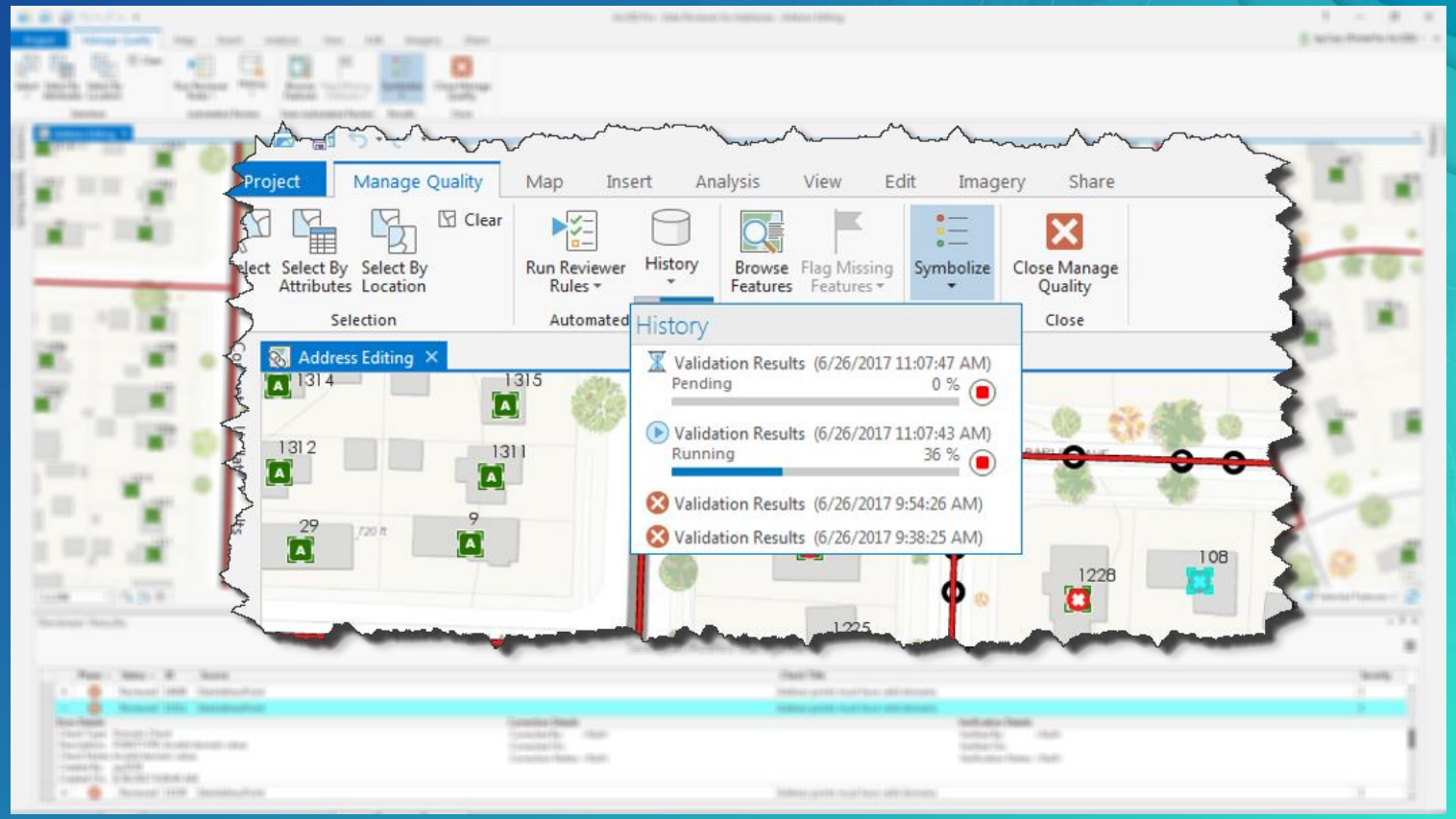


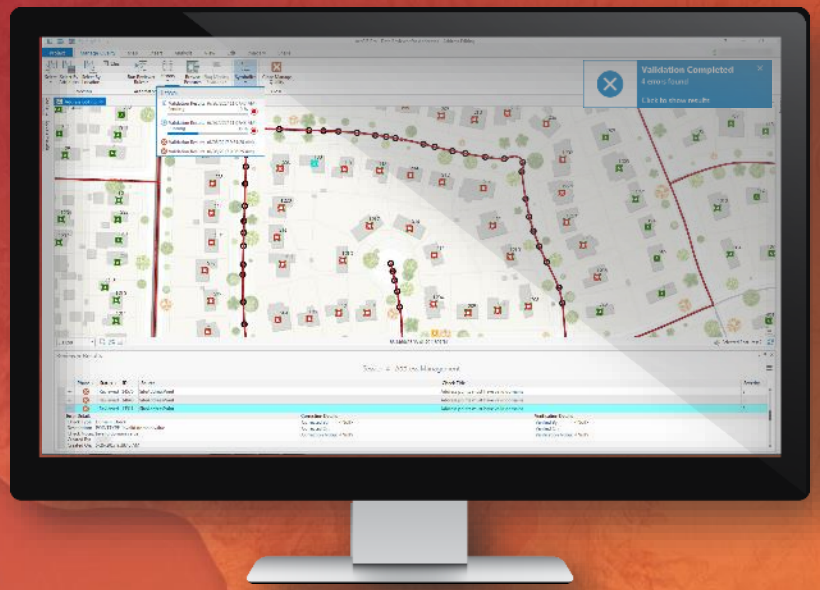
Methods for executing data validation

Validating features using Reviewer Rules

Execute data validation using

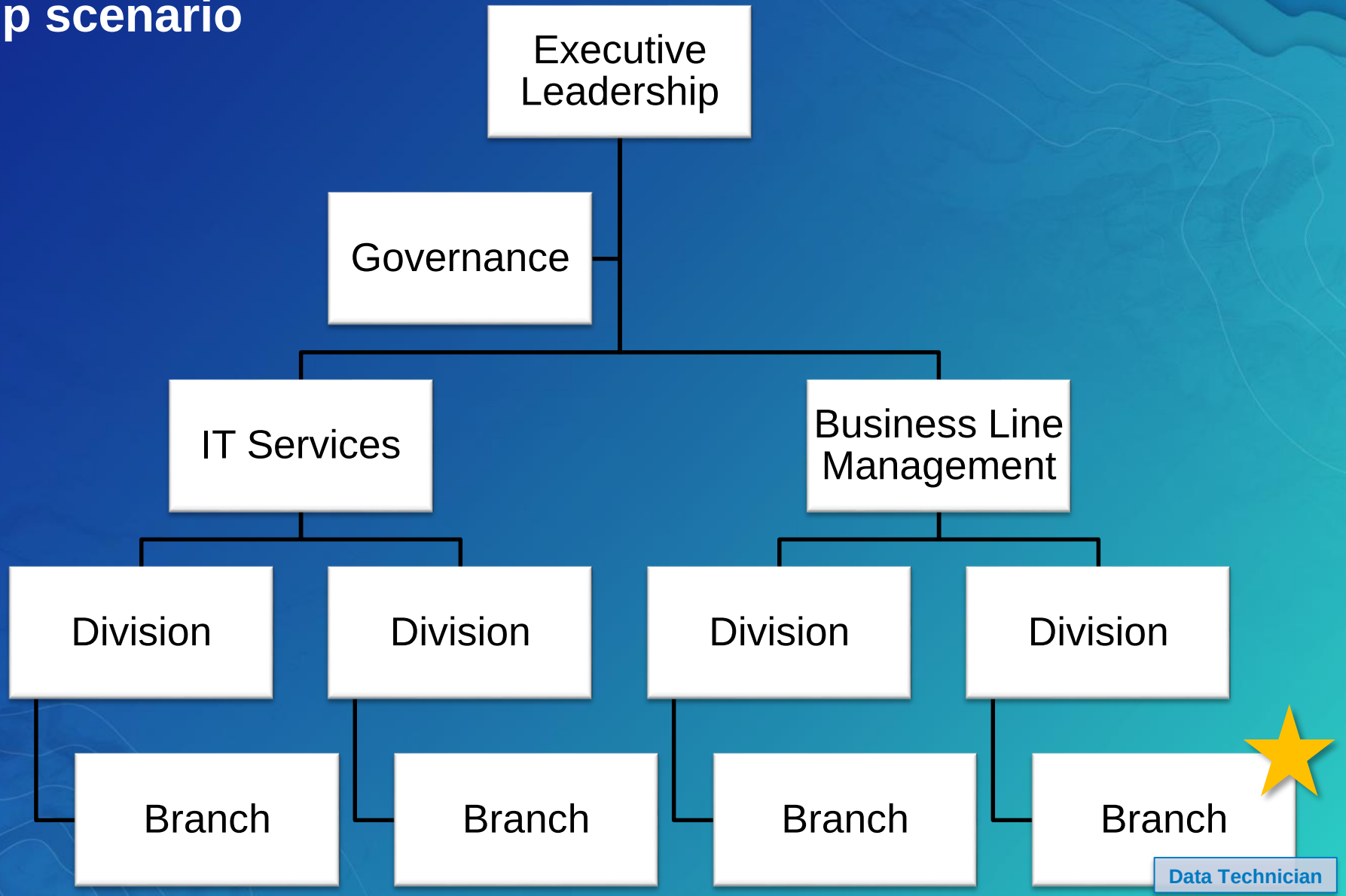
- ArcGIS Pro





Demo: Automated review

Workshop scenario



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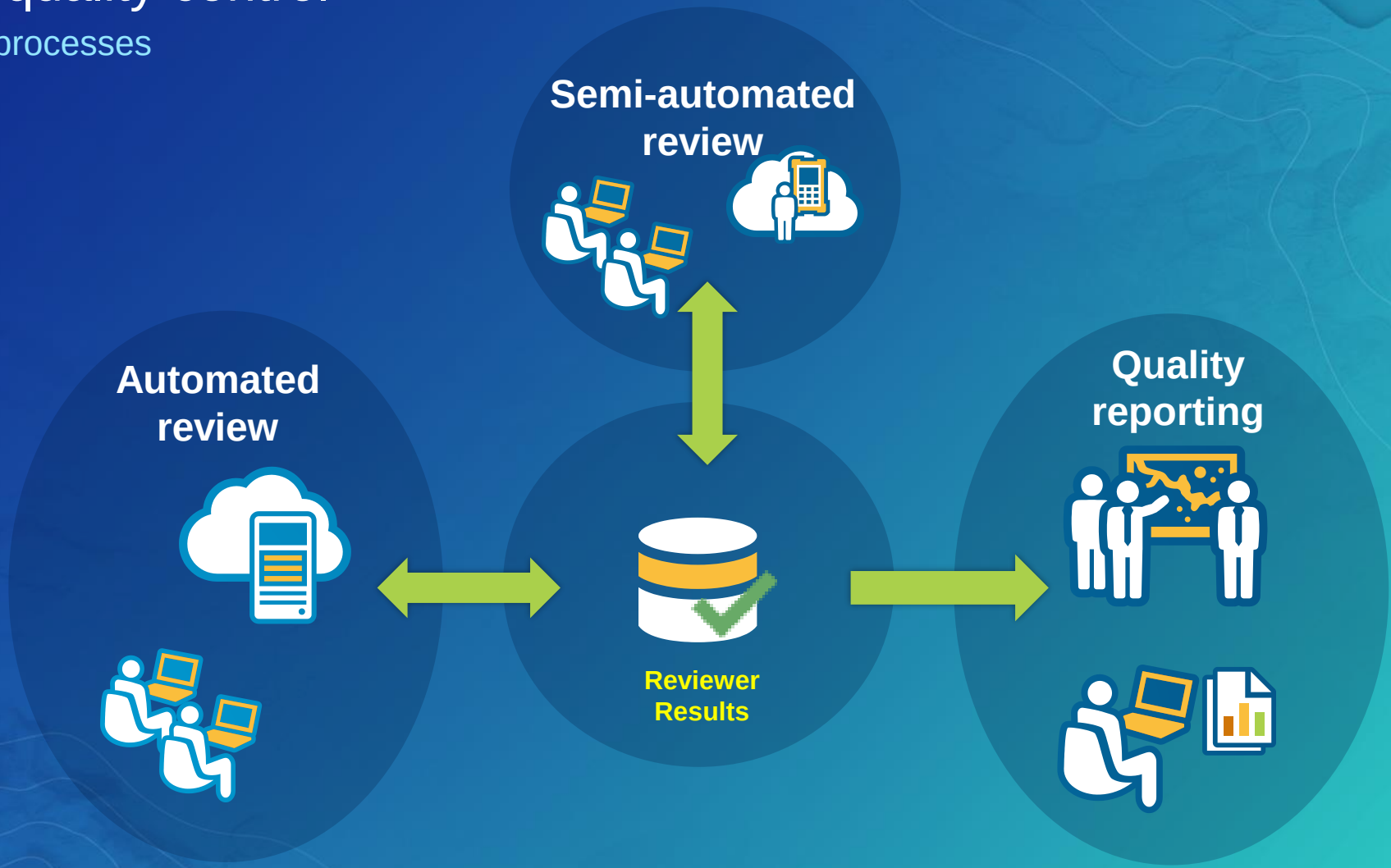
Semi-automated review

Managing quality control

Quality control processes



Types of quality control

Automated review

- Fast
- Consistent and repeatable
- Objective
- 100% coverage

Semi-automated review

- Guided Workflows
- Streamlined processes
- Subjective
- Sampling

Semi-automated review methods

Visual review

- Redlining
- Systematic review
- Sampling

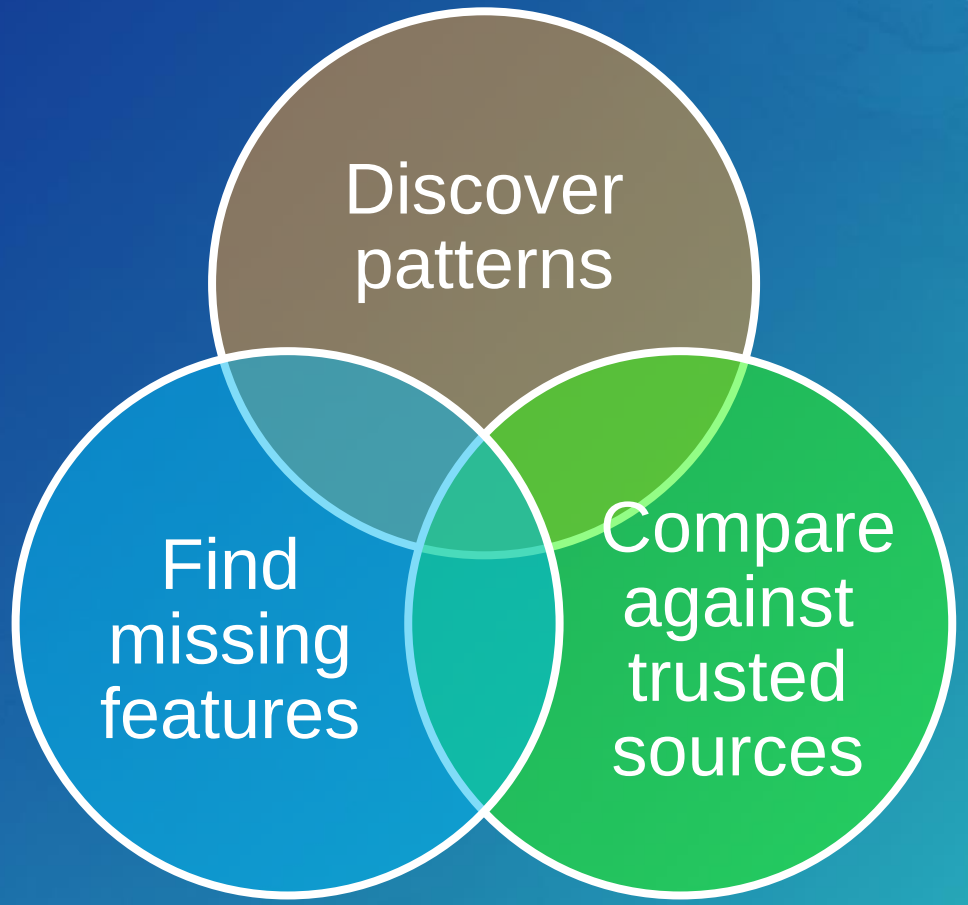
Data inspection

- Feature counts
- Attribute review
- Version differences

Positional accuracy

- Assessment tool

Value of performing visual review

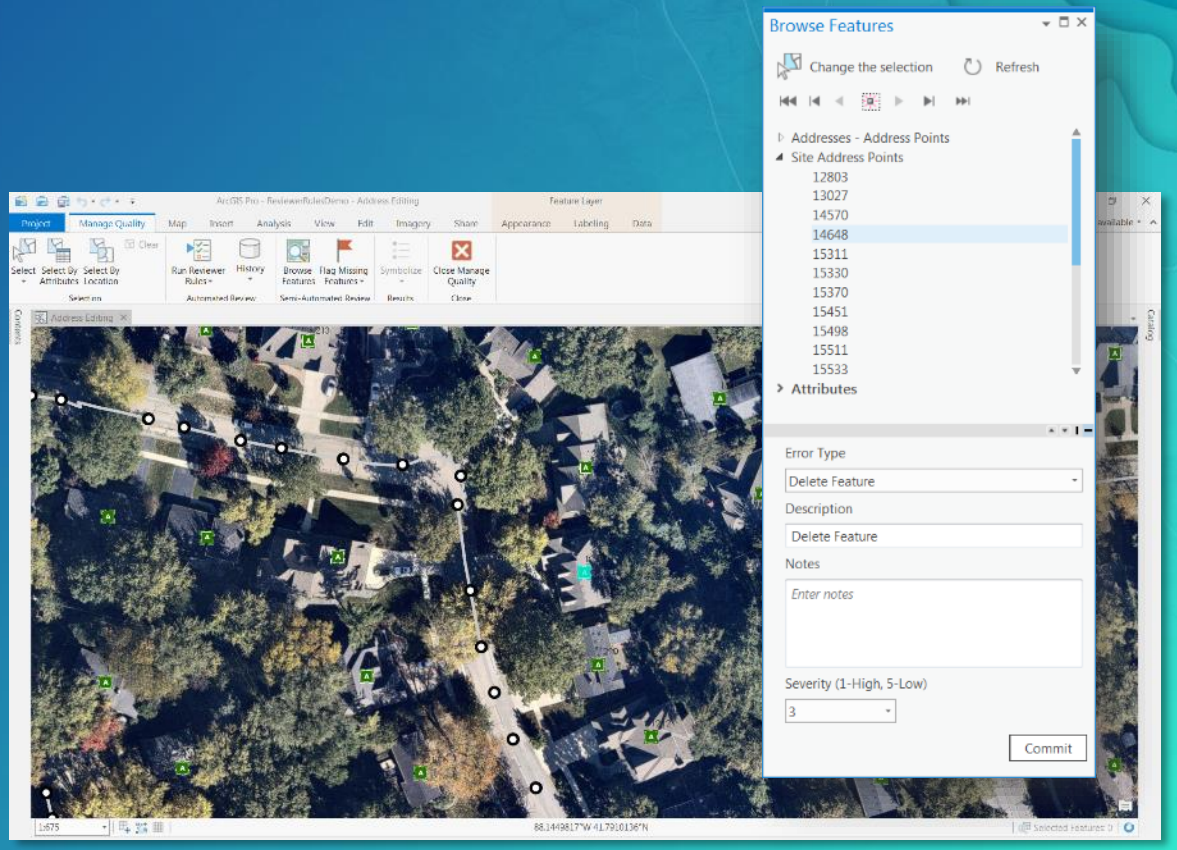


Semi-automated review

Leveraging ArcGIS Desktop

Tools supporting semi-automated review

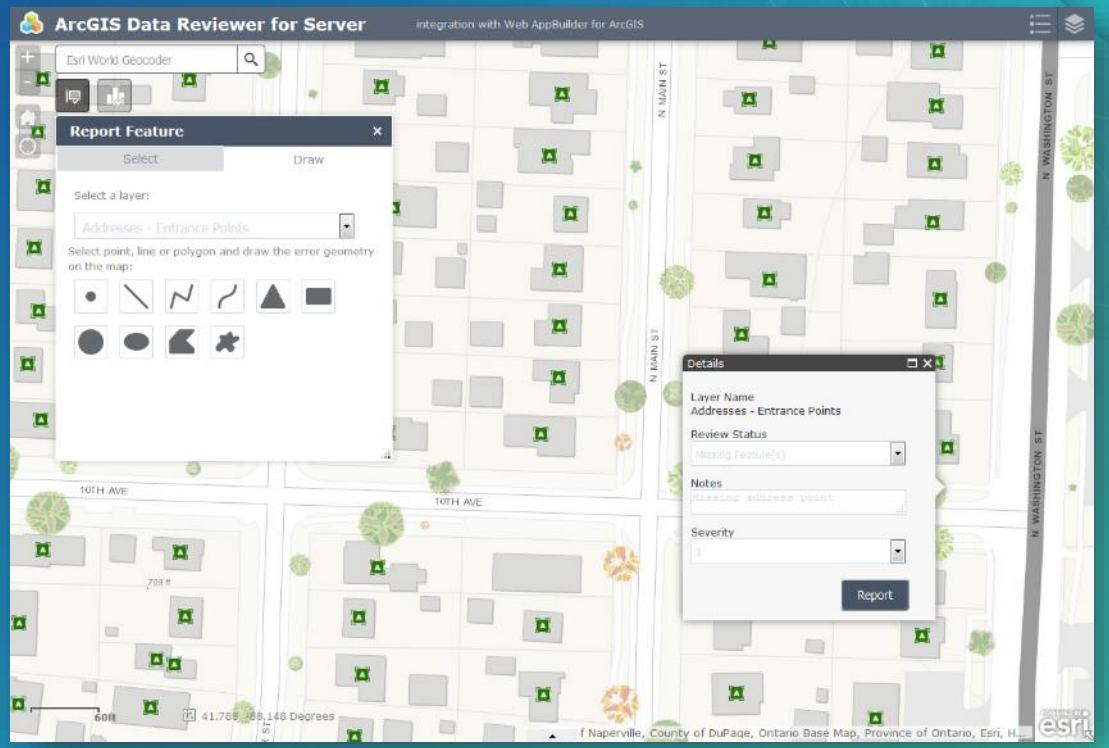
- Selecting/browsing features
- Redlining missing features
- Flagging existing features in error
- Random sampling
- Assessing positional accuracy (ArcMap)
- Comparing geodatabase versions (ArcMap)

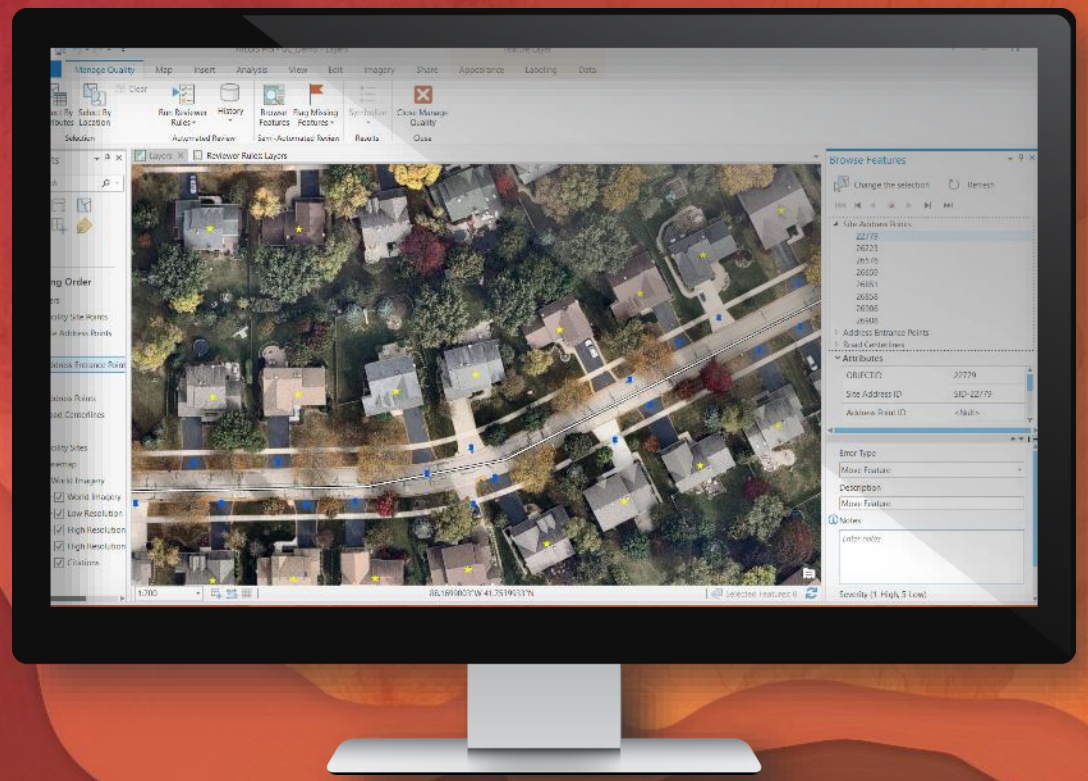


Semi-automated review

Leveraging ArcGIS Server

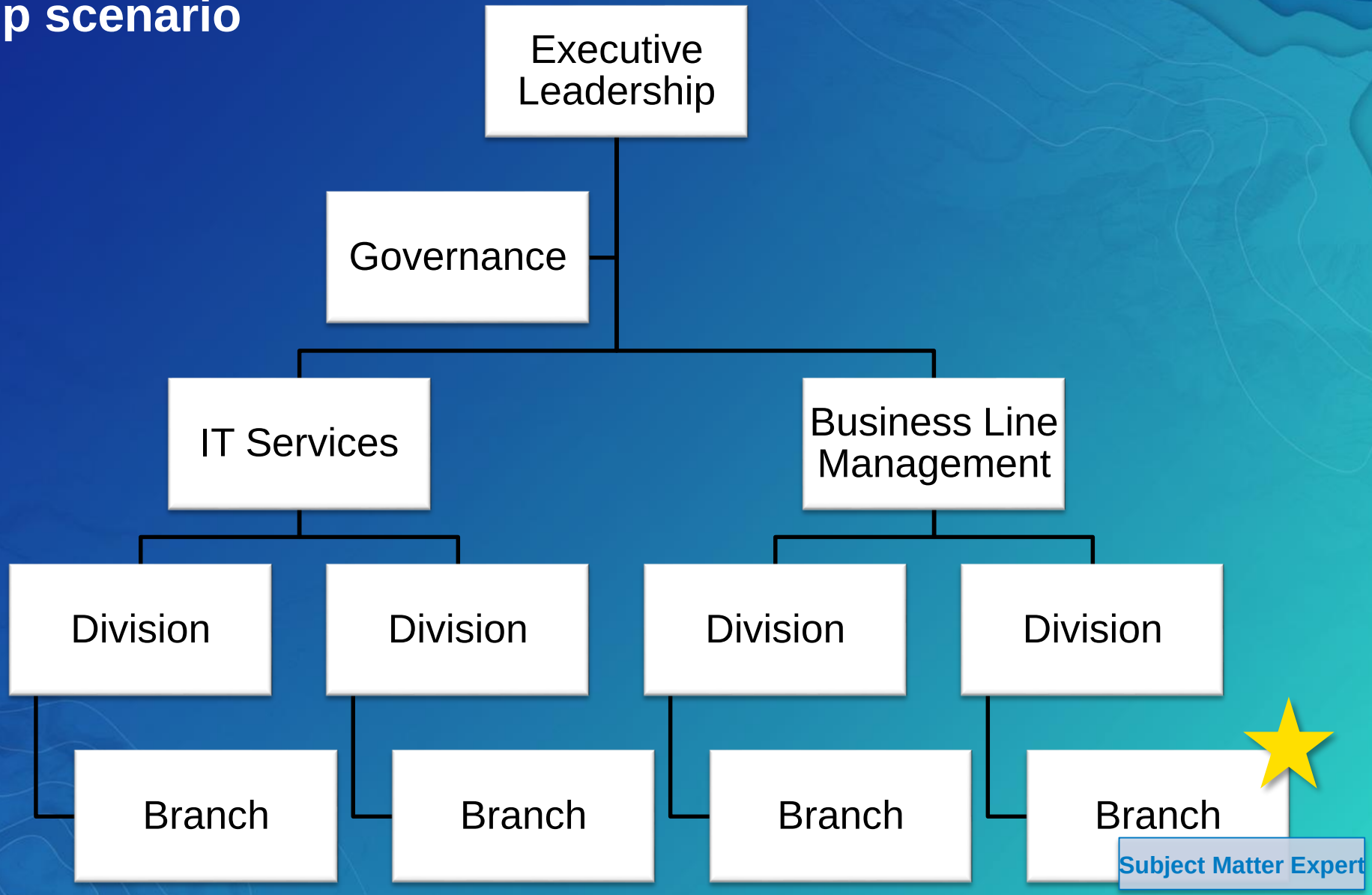
- Extending quality control workflows to other communities
  - QC review across the ArcGIS platform
  - Simple-to-use tools for error identification
  - Manual QC workflow “automation”





Demo: Visual data review

Workshop scenario



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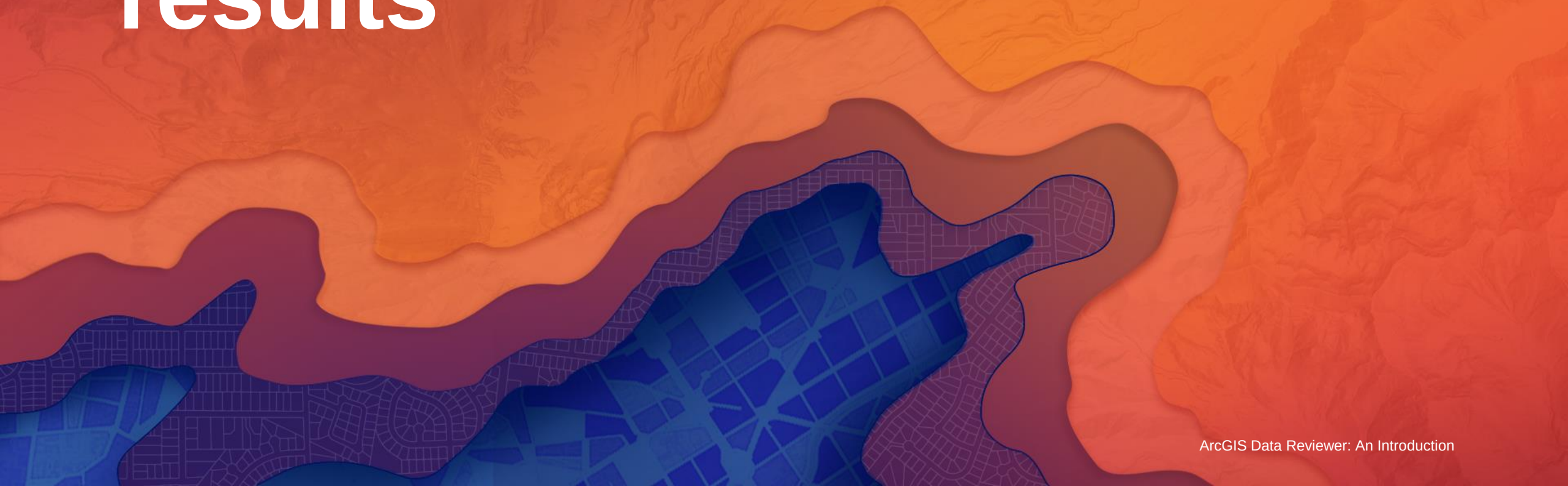
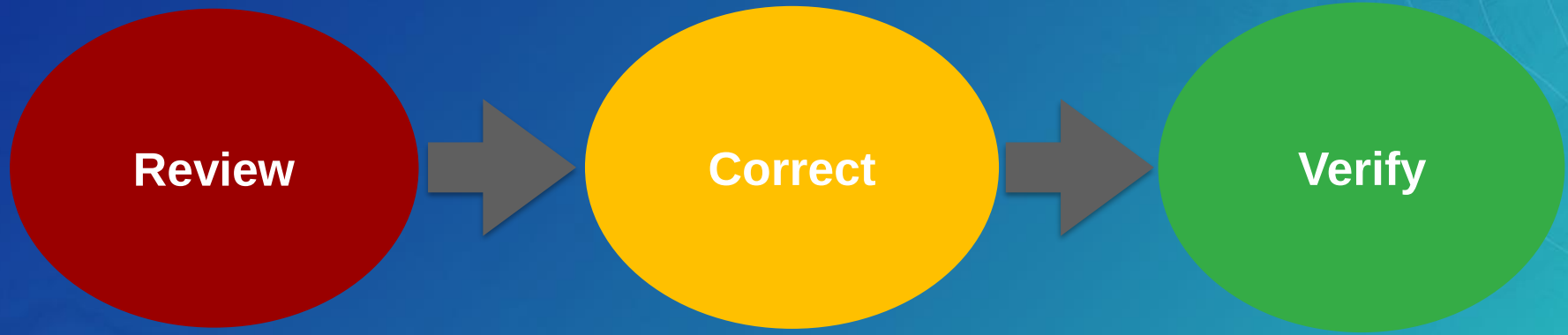
Managing quality results



Managing quality control

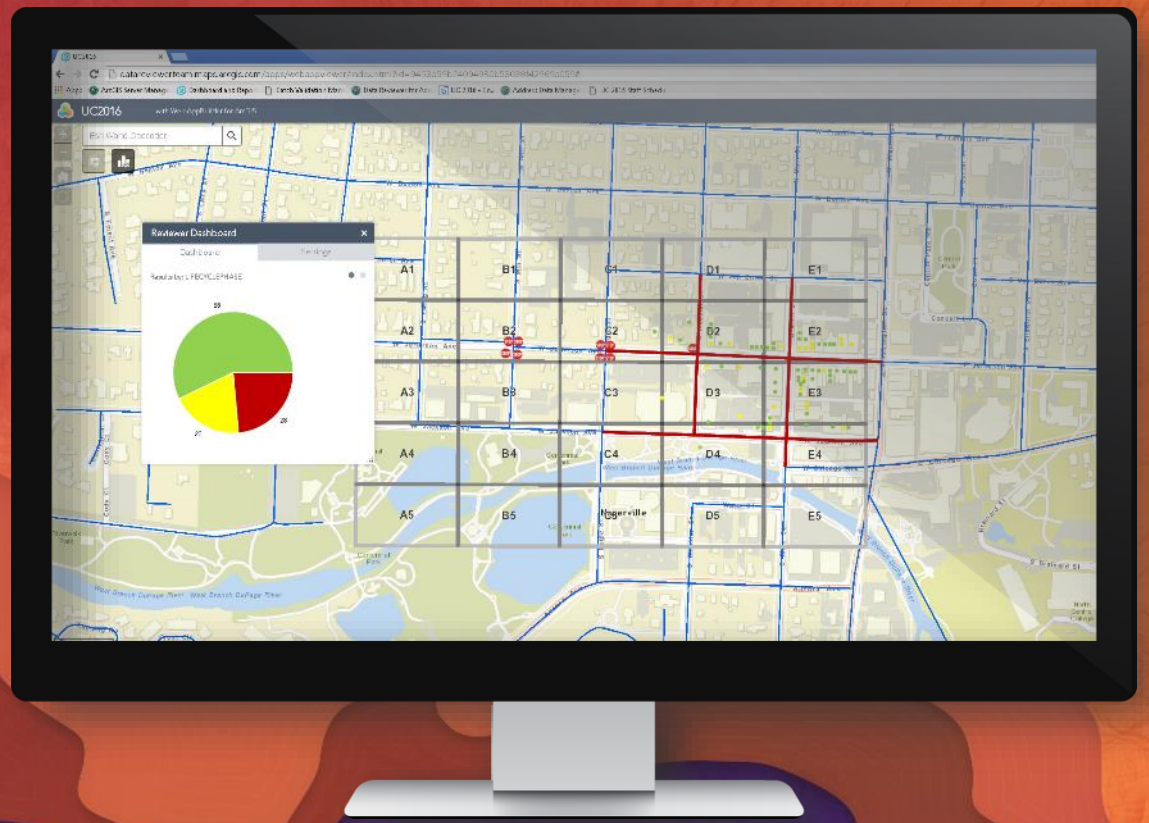
QC lifecycle management



Find and
record errors

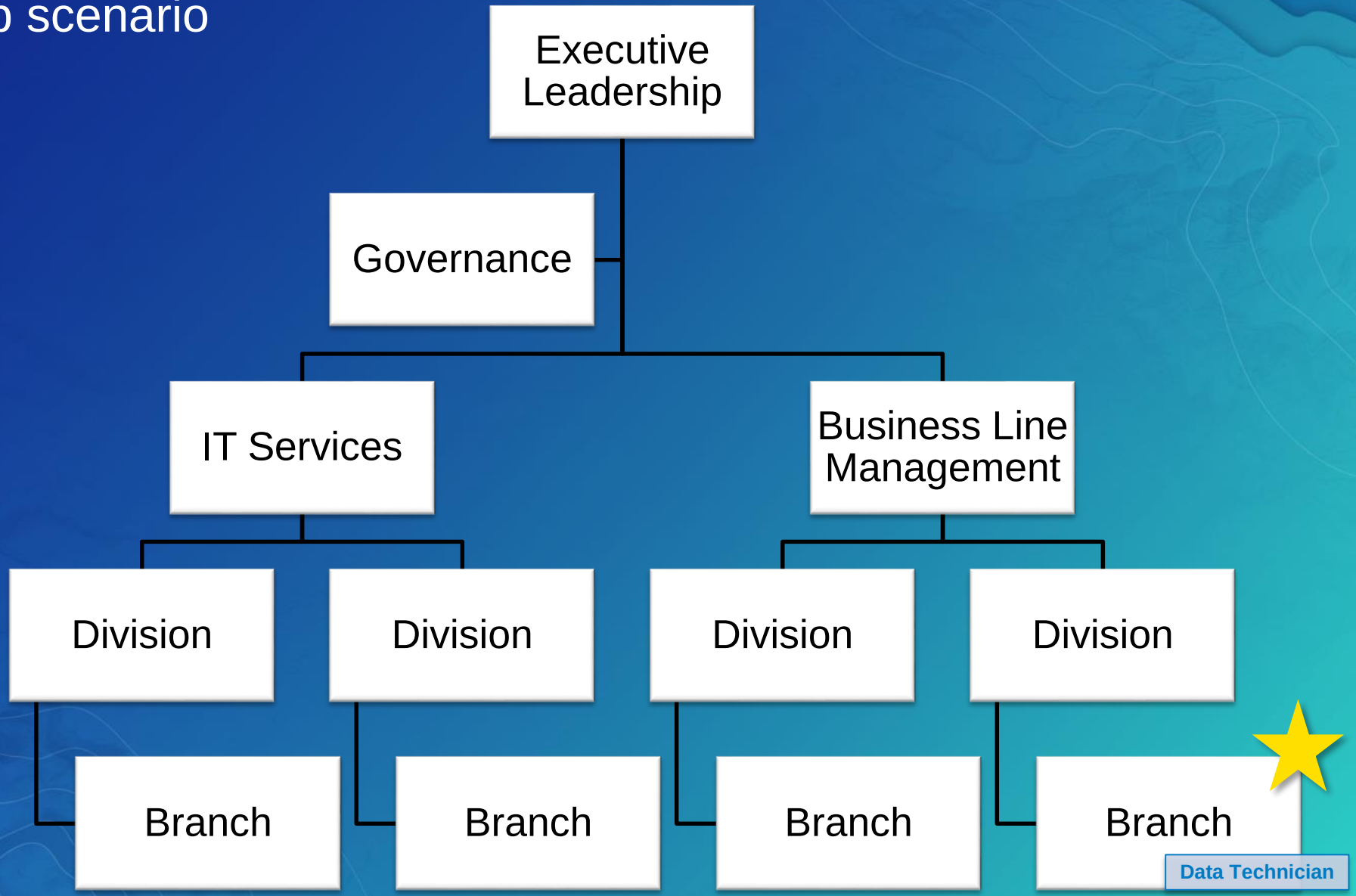
Perform edits
or
Note exceptions

Acceptable
or
Unacceptable



Demo: Managing quality results

Workshop scenario



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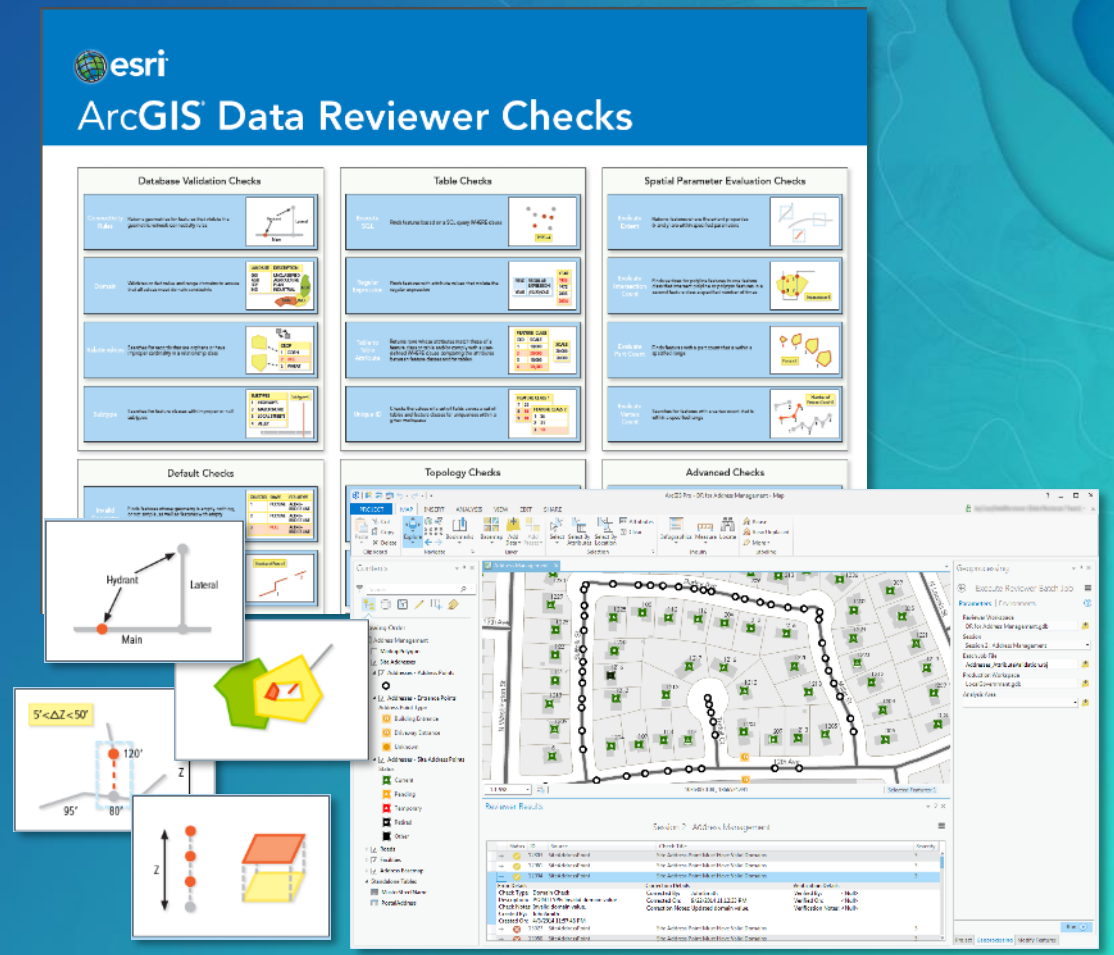
Workshop review

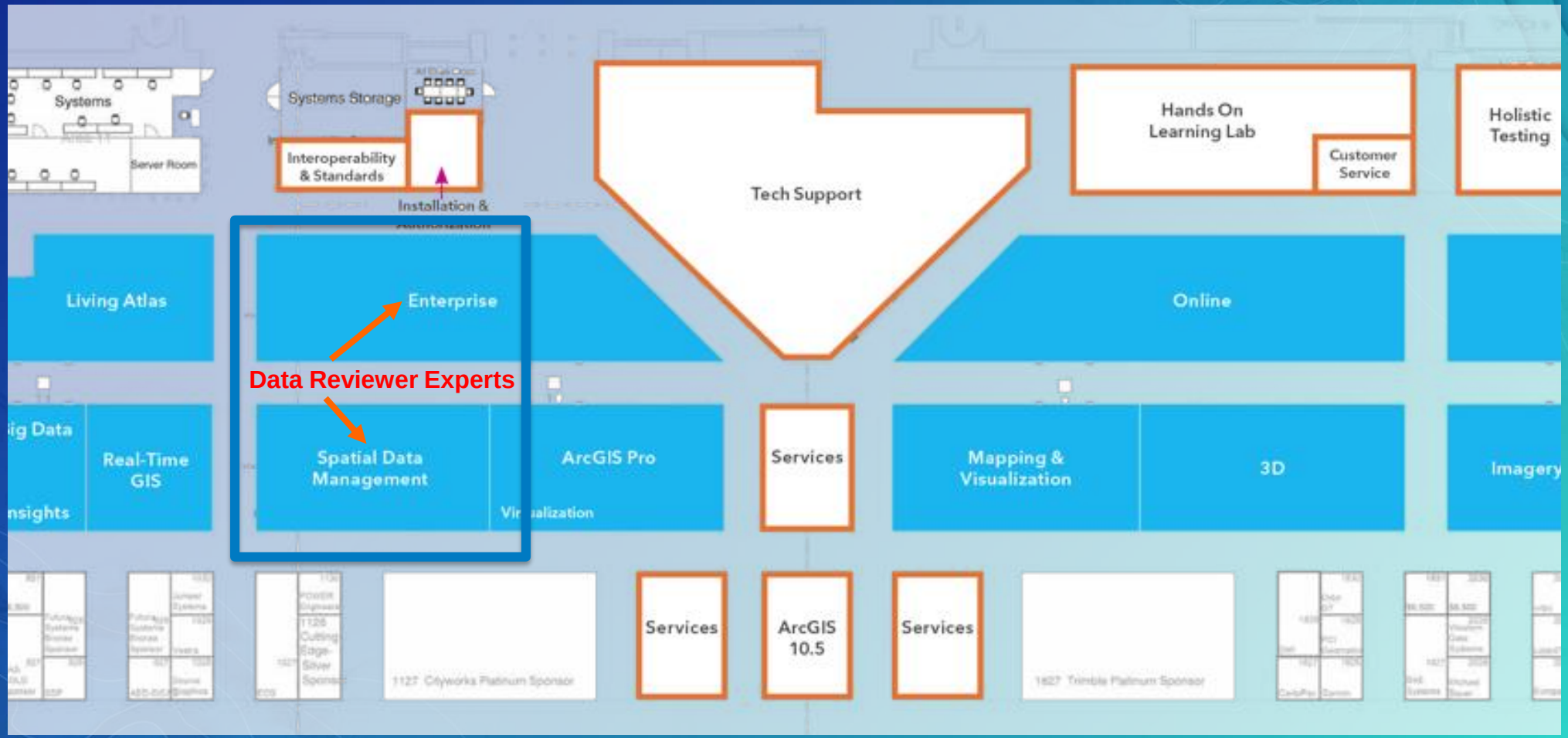
- Importance of data quality
- Forms of data quality control
  - Automated review
  - Semi-automated review
- ArcGIS Data Reviewer
  - Automated validation checks
  - Semi-automated tools
  - Error lifecycle management
  - Data quality reporting



Want to learn more this week?

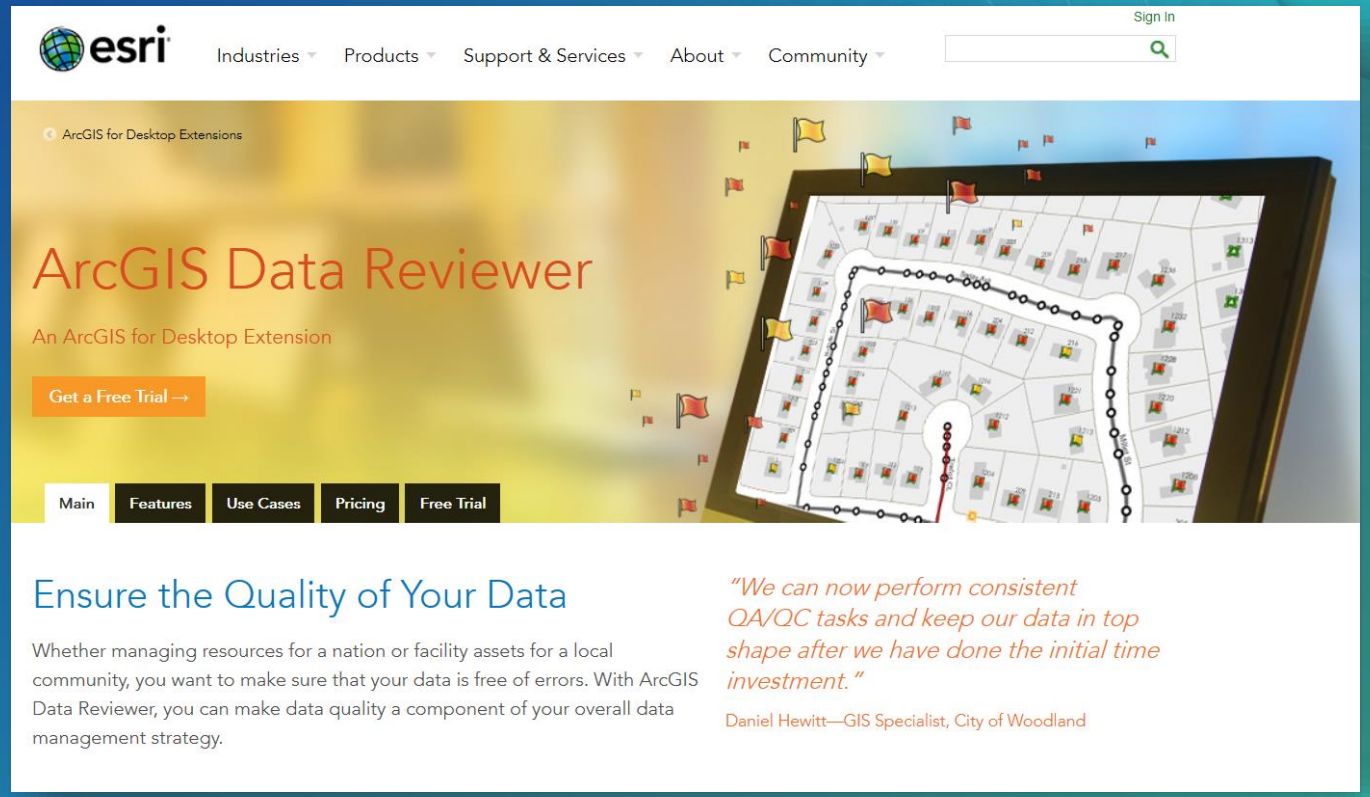
Day and Description	Type	Time	Location
Tuesday, July 11			
ArcGIS Data Reviewer: An Introduction	Technical Workshop	10:15 – 11:30am	Room 31B
Wednesday, July 12			
ArcGIS Data Reviewer: An Introduction	Technical Workshop	3:15 – 4:30pm	Room 31B
ArcGIS Data Reviewer: Integrating Data Validation Capabilities into Web Applications	Demo Theater	3:30 – 4:15pm	Demo Theater 8 Enterprise
ArcGIS Data Reviewer: Implementing Data Quality Reporting in Web Clients	Demo Theater	4:30 – 5:15pm	Demo Theater 8 Enterprise
Thursday, July 13			
ArcGIS Data Reviewer: Advanced Data Validation	Technical Workshop	8:30 – 9:45am	Room 31A
ArcGIS Data Reviewer: Leveraging Geoprocessing for Data Validation	Demo Theater	9:30 – 10:15am	Demo Theater 6 Spatial Data Mgmt
New ArcGIS Data Reviewer: Validating Linear-Referenced Events	Demo Theater	10:30 – 11:15am	Demo Theater 6 Spatial Data Mgmt

Want to learn more this week?



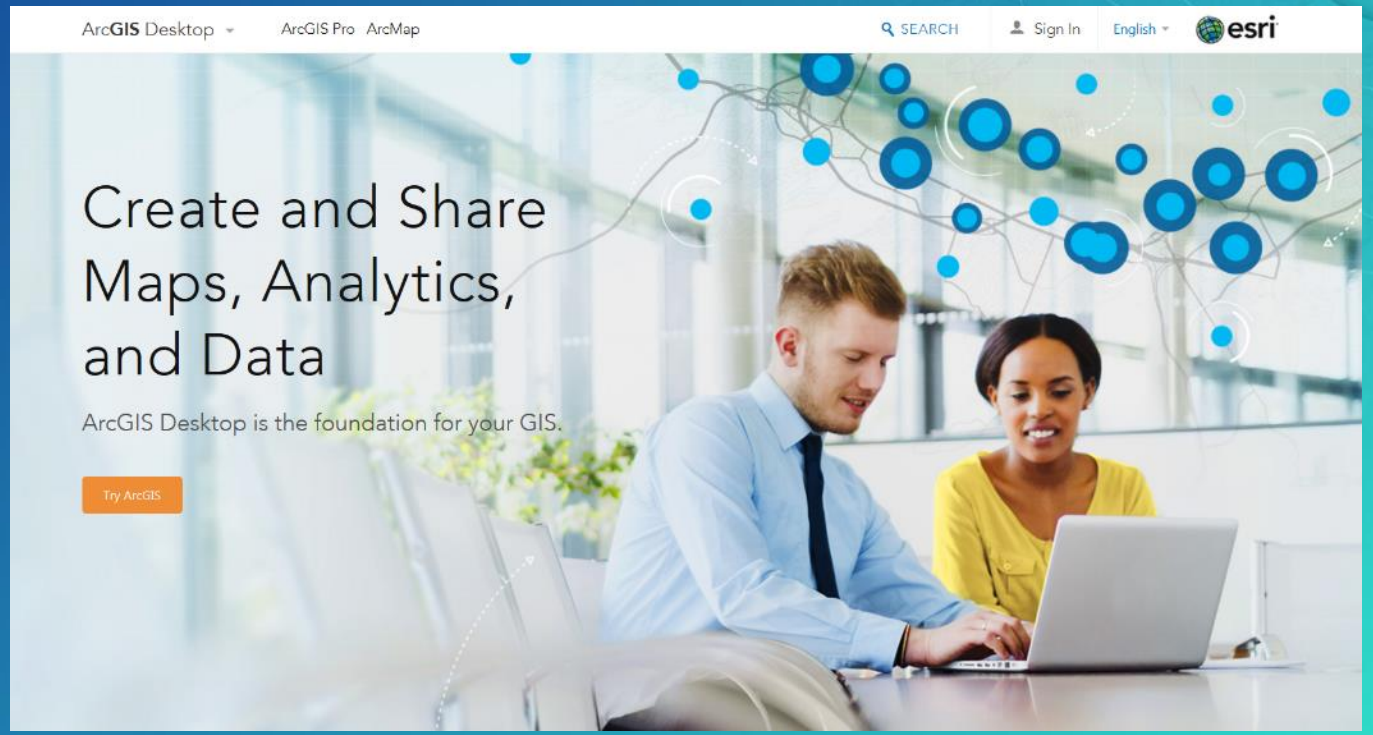
Want to learn more?

Product information
www.esri.com/datareviewer



Want to learn more?

- Documentation
  - Desktop *(desktop.arcgis.com)*



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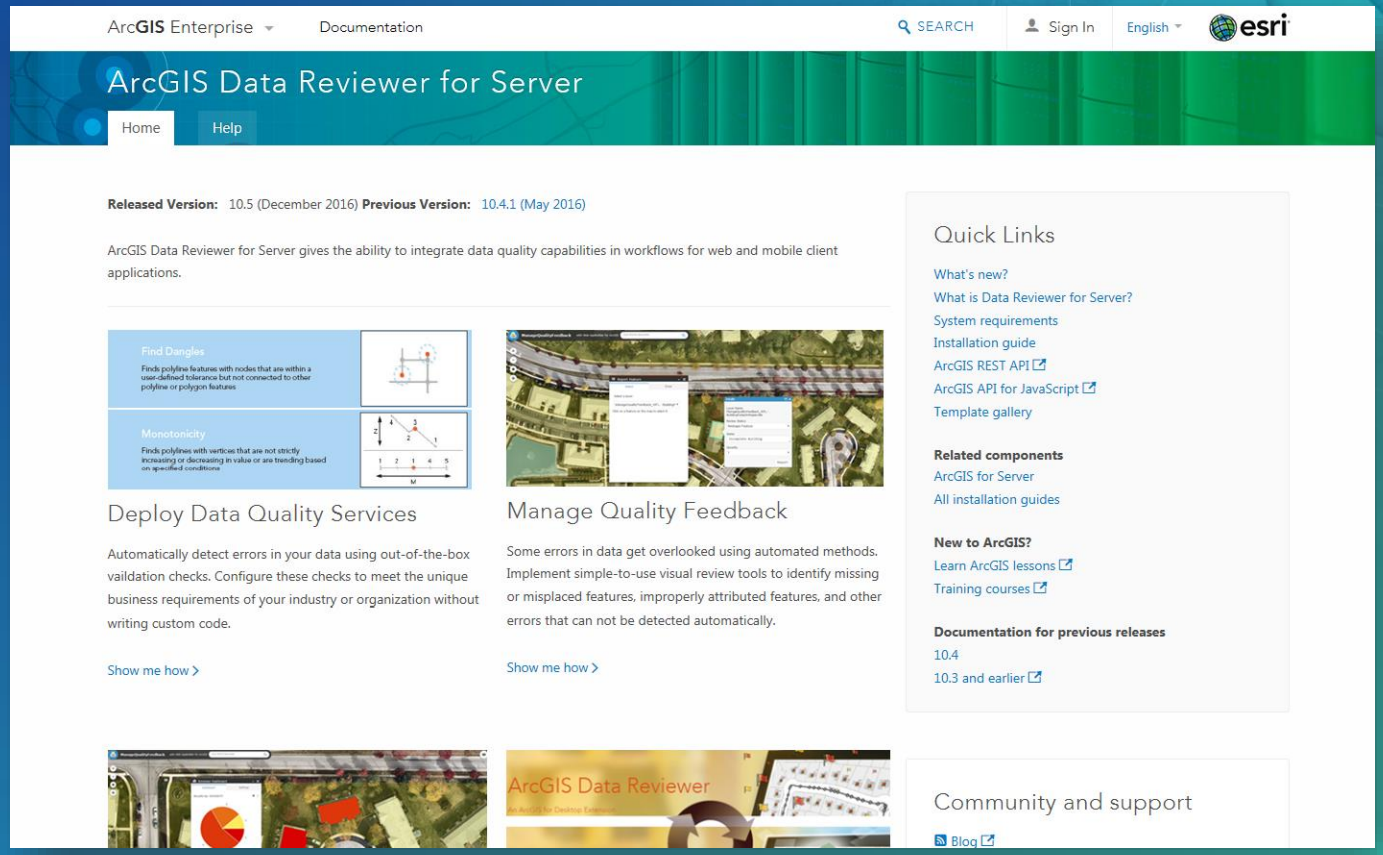

Want to learn more?

- Documentation
  - Desktop
  - Server

- Training *(training.esri.com)*
  - Assessing Data Quality using ArcGIS Data Reviewer *(Seminar)*
  - Evaluating Positional Accuracy Using ArcGIS Data Reviewer for Desktop *(Seminar)*
  - Data QC with ArcGIS: Automating Validation *(Web Course)*
  - Data QC with ArcGIS: Visual Review *(Web Course)*
  - Quality Control Using ArcGIS Data Reviewer for Desktop *(Instructor-Led)*

Want to learn more?

- Documentation
  - Desktop
  - Server
- Training
  - Assessing Data Quality using ArcGIS Data Reviewer
  - Evaluating Positional Accuracy Using ArcGIS Data Reviewer for Desktop
  - Data QC with ArcGIS: Automating Validation
  - Data QC with ArcGIS: Visual Review
  - Quality Control Using ArcGIS Data Reviewer for Desktop
- GeoNet *(geonet.esri.com)*
  - Data Reviewer place

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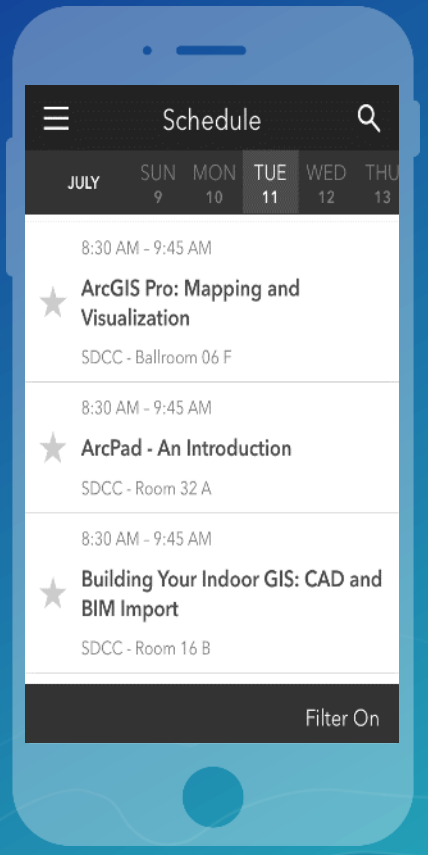
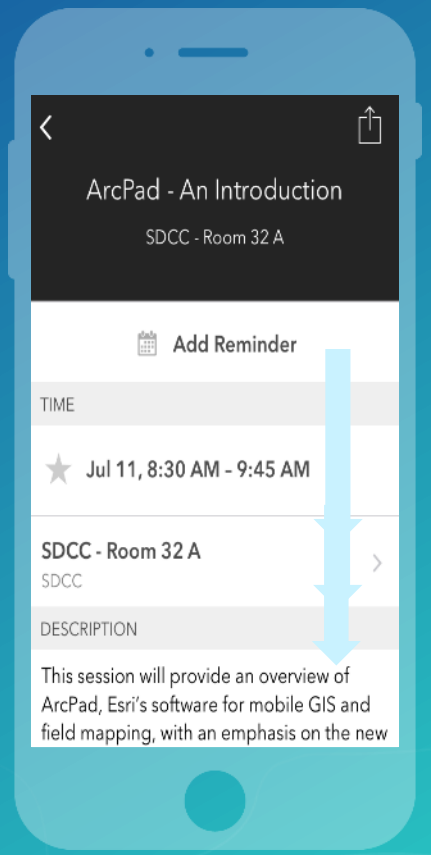
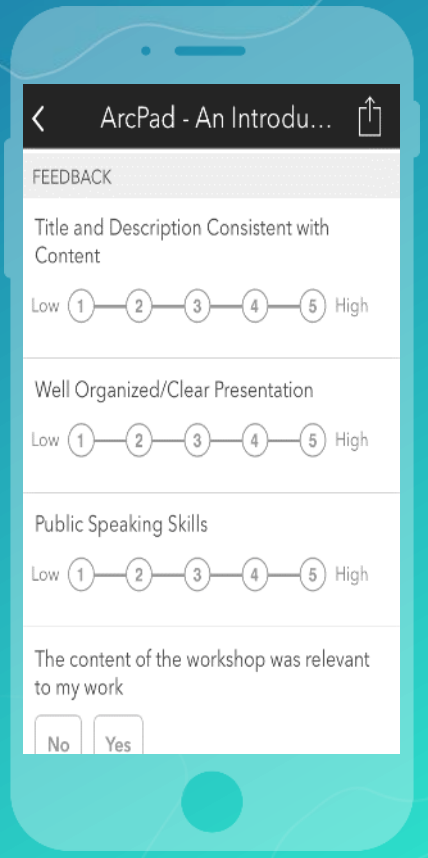


Scroll down to find the survey



Complete Answers and Select "Submit"



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