

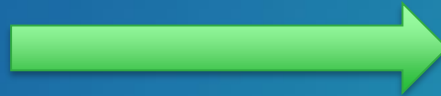
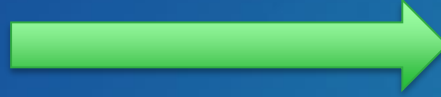
UC



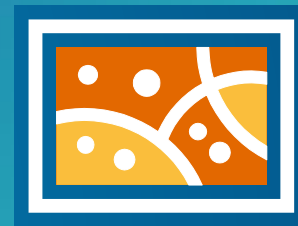
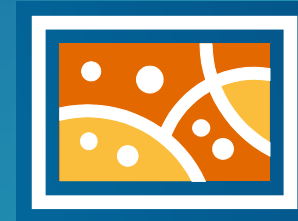
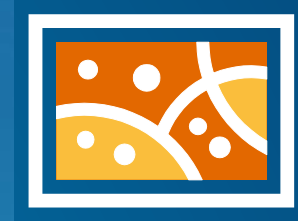
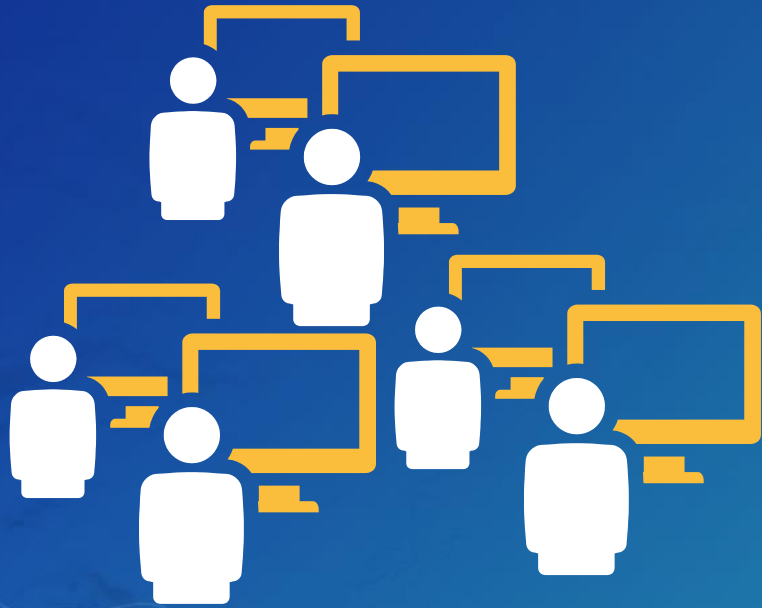
ArcGIS Extensions: Tools for Improving Data and Map Production

Amber Bethell & Sean Granata

No Standards



With Standards



Data and Map Production

Workflows

Quality
Control

Cartography

Productivity

Automation

Efficiency

Accuracy

Standardization

Quality

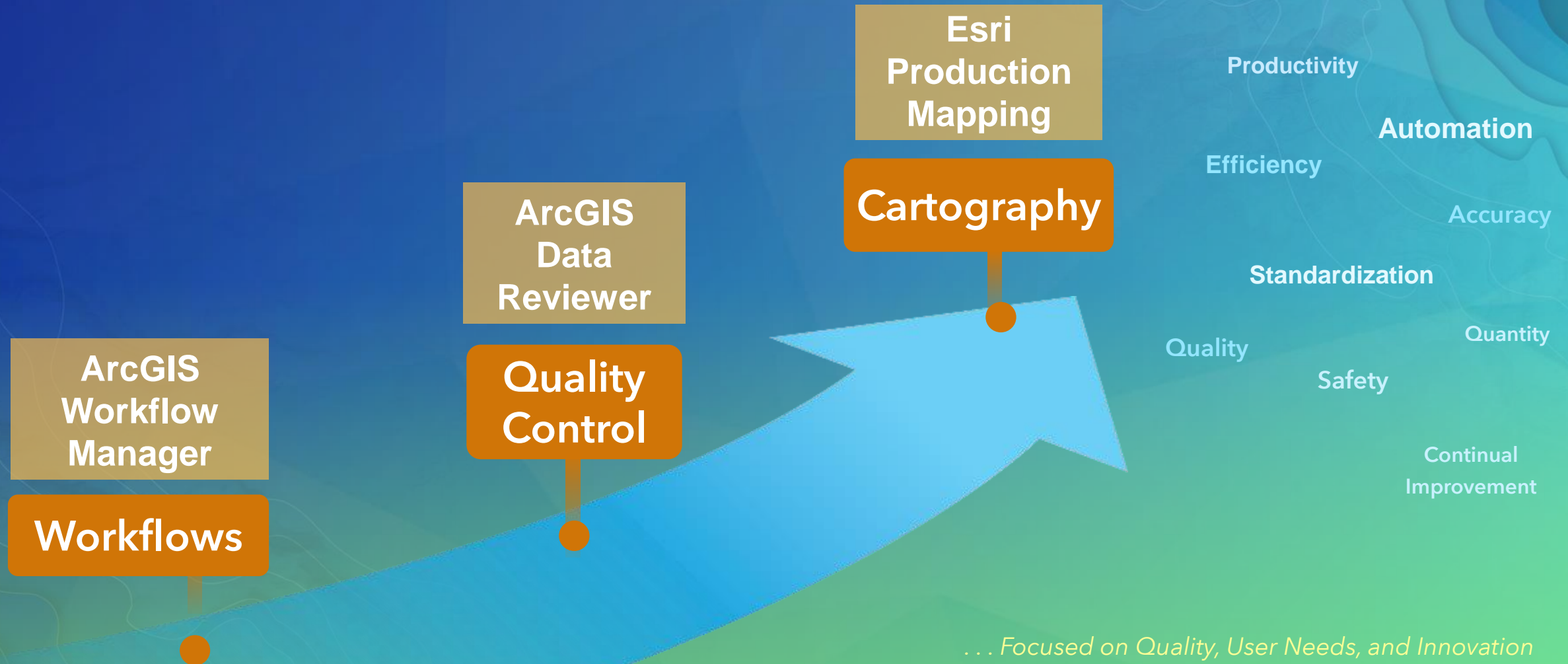
Quantity

Safety

Continual
Improvement

... Focused on Quality, User Needs, and Innovation

Data and Map Production



Managing Production Work

ArcGIS Workflow Manager

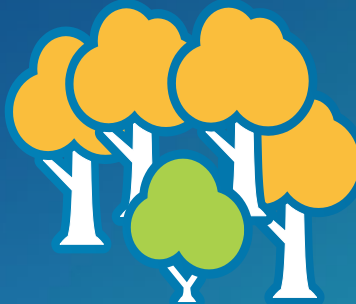


What is a workflow?

- A workflow is a sequence of steps that a unit of work has to pass from initiation to completion.



Infrastructure Repair



Forest Management



Emergency Management

Workflows - Example

The background of the slide is a solid blue color with a gradient that transitions from a darker blue on the left to a lighter, cyan-like blue on the right. Overlaid on this background are white, thin, wavy contour lines that resemble topographical map lines. In the top right corner, there is a small, square area containing a complex mosaic or pixelated pattern in various shades of blue.

Workflows - Example

Street Light
Damage Report
Received



Workflows - Example

Street Light
Damage Report
Received



Dispatch
Alerted



Workflows - Example

Street Light
Damage Report
Received



Dispatch
Alerted



Technician
Notified



Workflows - Example

Street Light
Damage Report
Received

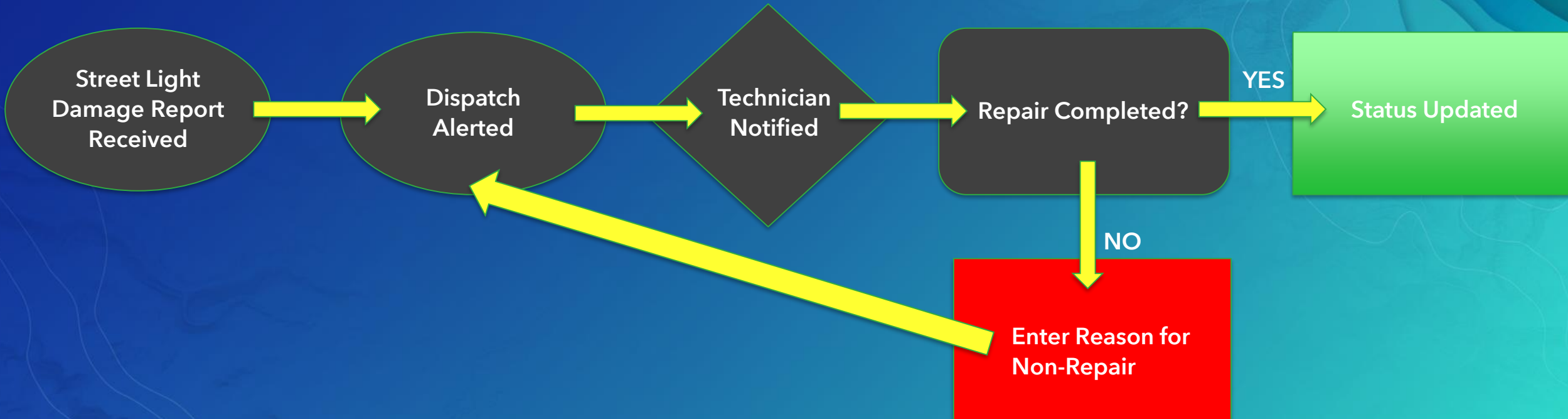
Dispatch
Alerted

Technician
Notified

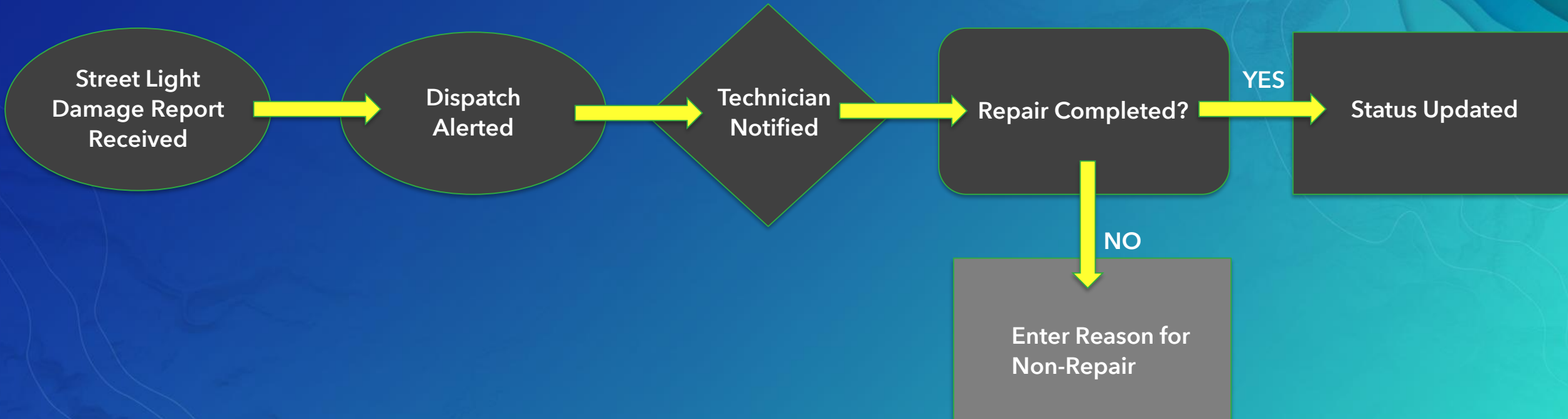
Repair Completed?



Workflows - Example



Workflows - Example



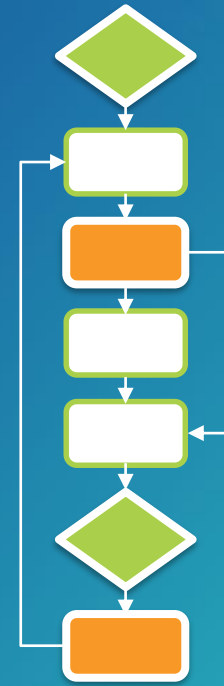
Centralized Workflows



Supporting GIS professionals and the entire organization

Configure and Create

- Configure Repeatable Steps
- Create Units of Work based on Workflows



Execute and Manage

- Manage Due Dates/Priorities
- Execute Workflow

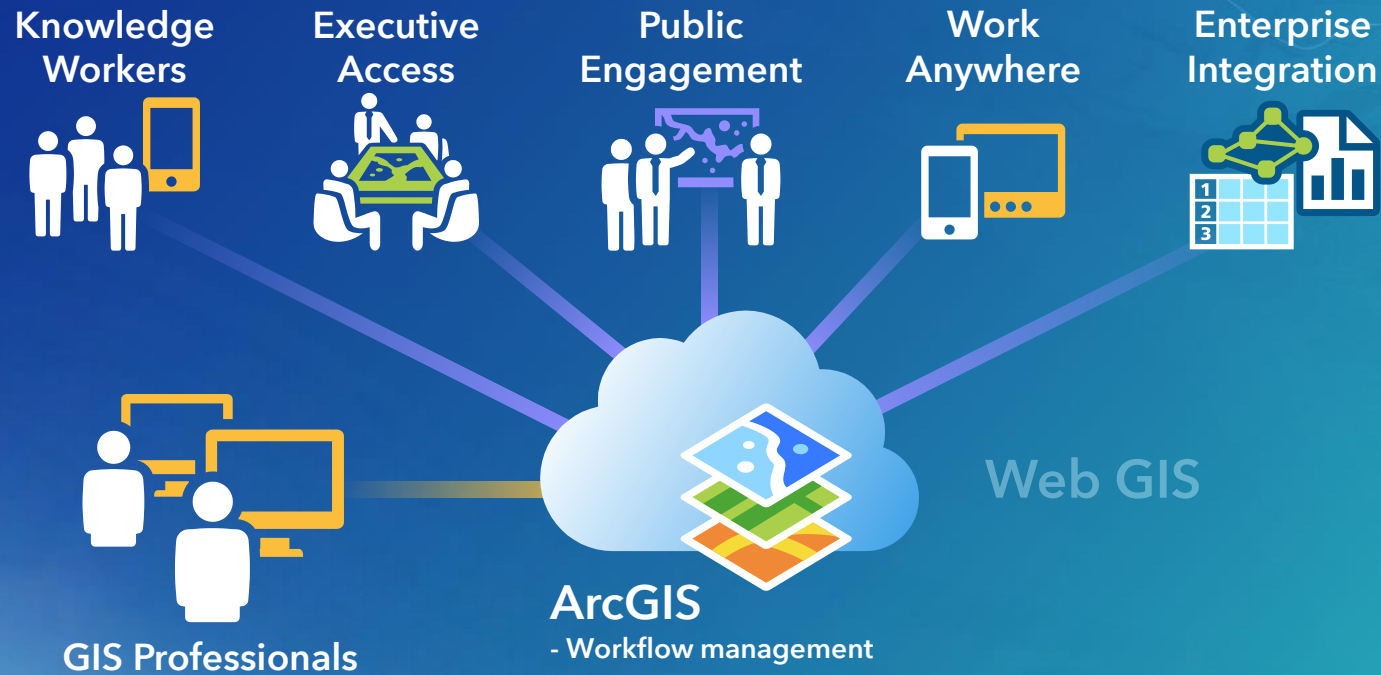


Evaluate and Improve

- Measure Performance
- Refine Workflows
- Adapt



ArcGIS Workflow Manager Server



Expose workflow capabilities to your entire Organization

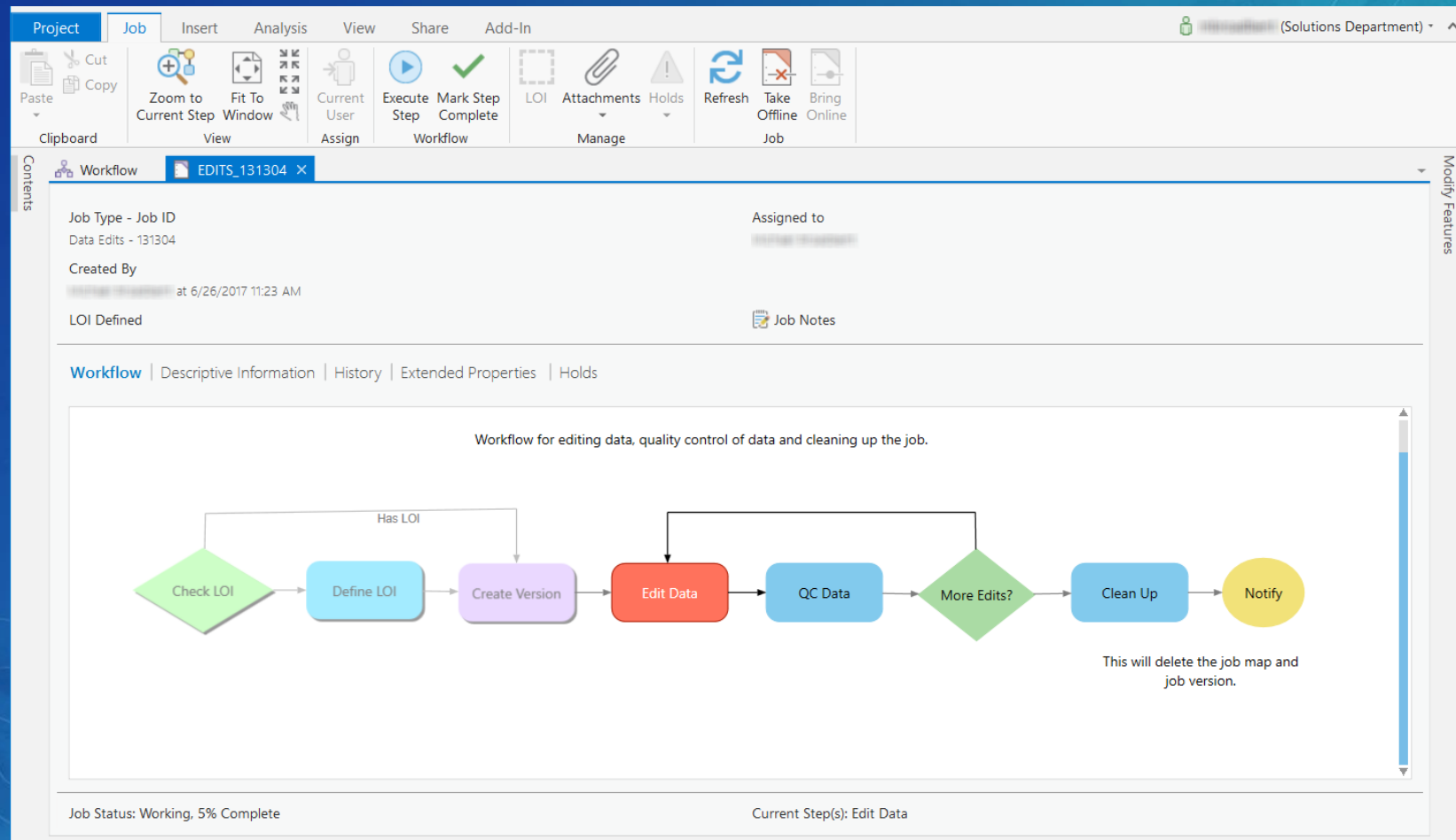


Demo

ArcGIS Workflow Manager

Workflow Manager in ArcGIS Pro

- Currently working on equivalency



ArcGIS Workflow Manager in ArcGIS Pro

The screenshot displays the ArcGIS Pro interface with the Workflow Manager tab selected. The ribbon includes the following tabs: PROJECT, WORKFLOW, INSERT, ANALYSIS, VIEW, and SHARE. The WORKFLOW ribbon contains buttons for Data Edits, Landbase Updates, Web Edits, Job Properties, Close, Export to CSV, Delete, Take Offline, and Bring Online. The main workspace shows a map of a city area with a red outline indicating a specific job area. The left pane shows the Contents pane with a tree view of jobs, including 'EDITS_1' through 'EDITS_9' and 'JOB_131304_'. The right pane shows the Workflow pane with a list of jobs, including 'EDITS_131302', 'EDITS_131303', 'EDITS_131304', and 'EDITS_129298_'. The status bar at the bottom indicates 'Charlotte Jones connected to Pro' and '1:58,038'.

Job List

Job Name	Filter
EDITS_1	
EDITS_2	
EDITS_3	
Web_Edits_JOB_4	
JOB_5	
Web_Edits_JOB_6	
JOB_7	
Web_Edits_JOB_8	
JOB_9	

Job LOI Map

- ☒ Reference
- ☒ wmx1.PM.StreetCasings
- ☒ wmx1.PM.RedlandStreets
- ☒ wmx1.PM.interstate
- ☒ wmx1.PM.MajorStreet
- ☒ wmx1.PM.boundaries
- ☒ wmx1.PM.Wash
- ☒ wmx1.PM.COUNTIES

Workflow

My Open Jobs | Open Group Jobs

Filter

- Priority - Medium ; Due Date :
- EDITS_131302
Priority - Medium ; Due Date :
- EDITS_131303
Priority - Medium ; Due Date :
- EDITS_131304
Priority - Medium ; Due Date :
- EDITS_129298_
Priority - Medium ; Due Date :
- IOR 129298

Job Details

Type
Data Edits

Assigned to
[User Name]

Status
Working, 5% complete

Current Step(s)
Edit Data

Execute Finish

Improving Data Quality

ArcGIS Data Reviewer



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



What is ArcGIS Data Reviewer?

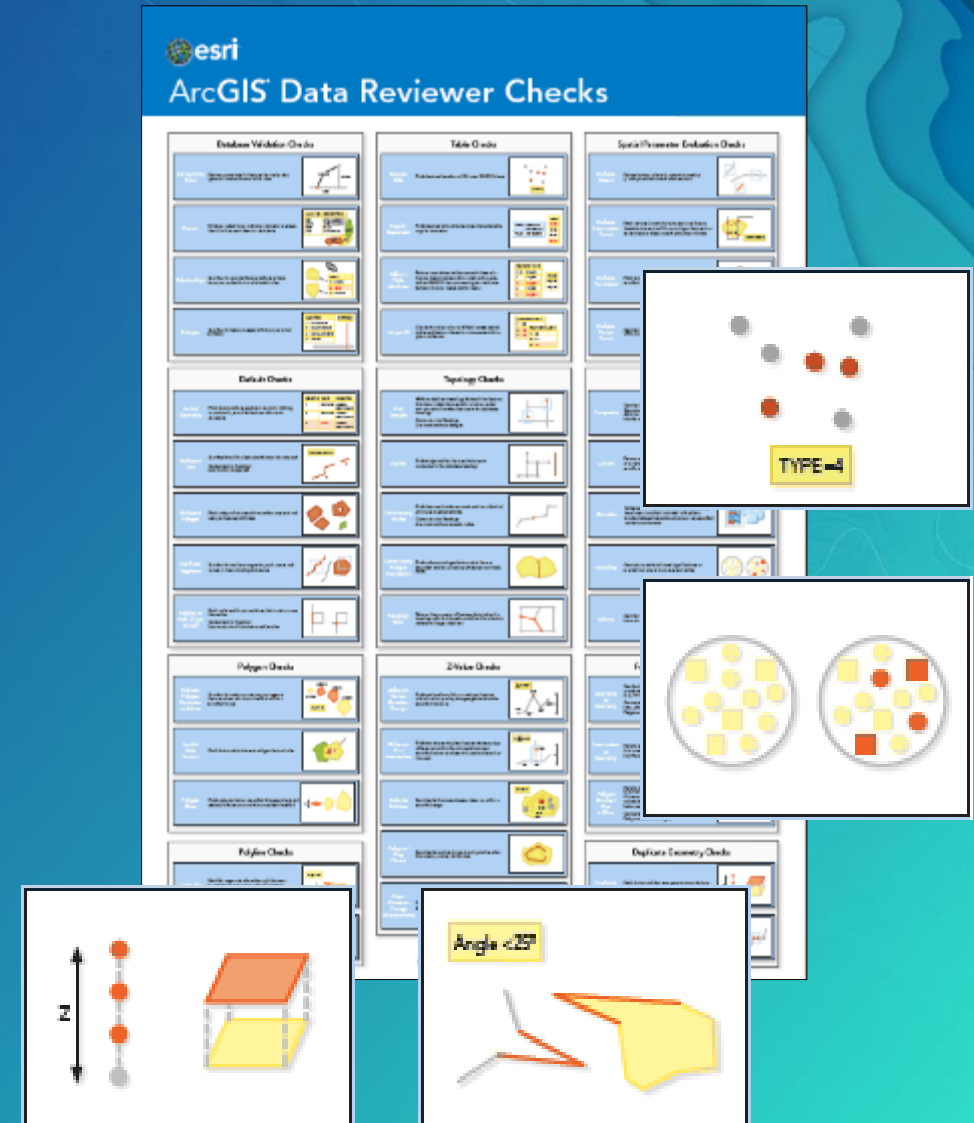
Data Quality Management for ArcGIS

- **Provides**
 - Rule-based validation
 - Interactive tools
 - Track errors
- **For individuals and enterprise**
 - Saves time/money
 - Less rework
- **For multiple domains**
 - Configurable
 - Extendable



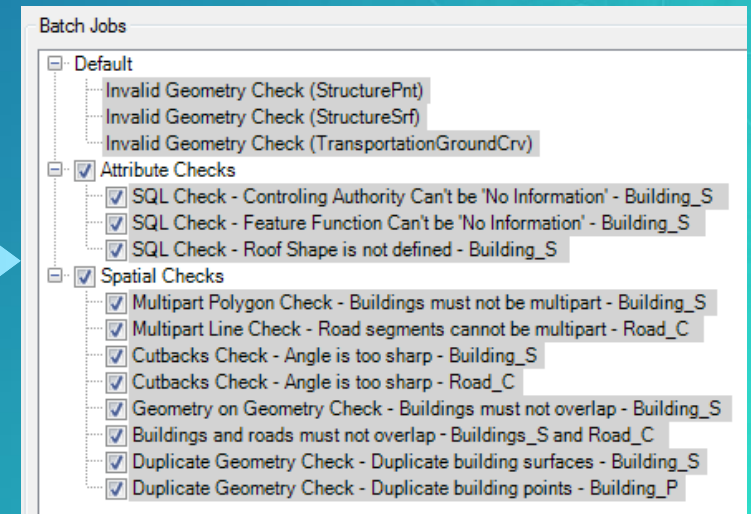
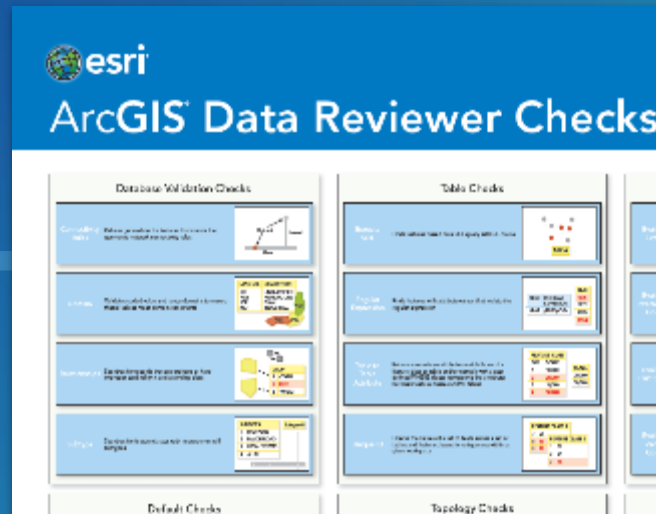
Automate data validation

- Data quality checks
 - 42 configurable checks
 - Attributes
 - Spatial relationships
 - Feature integrity
 - Metadata

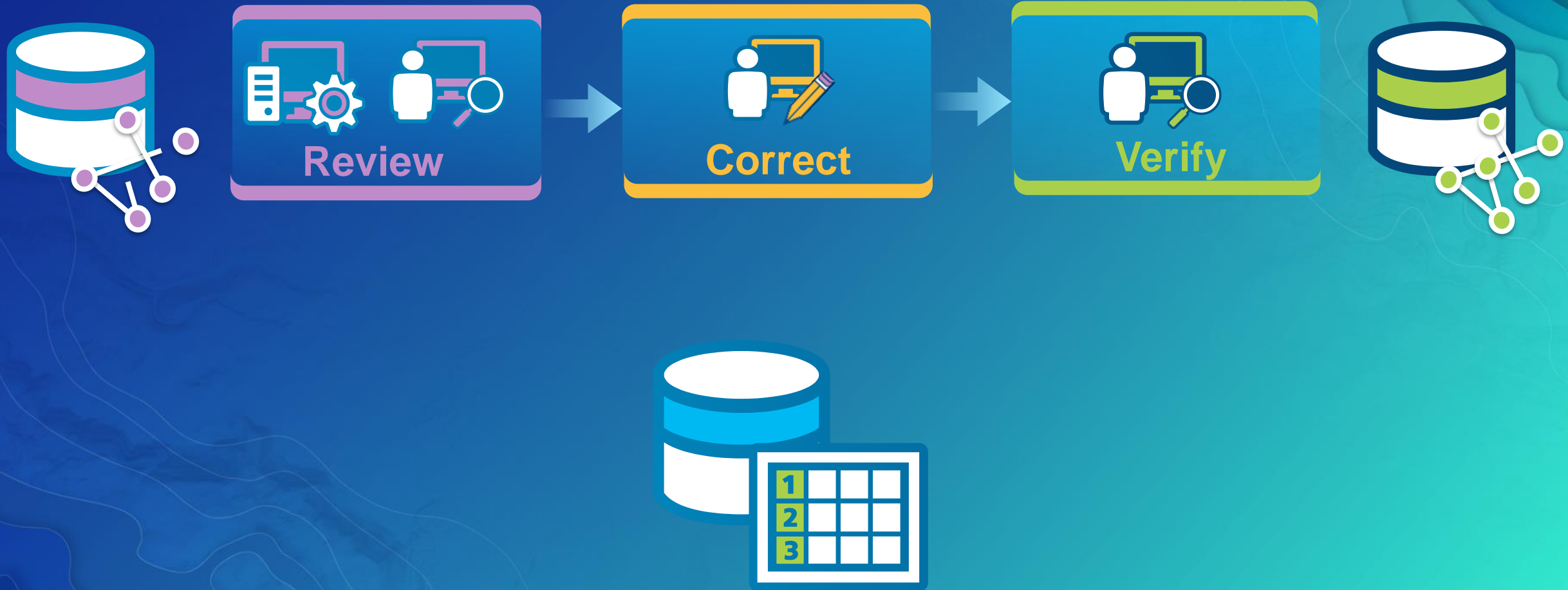


Automate data validation

- Define and encapsulate quality requirements
- Configure automated checks
- Design once and execute many times

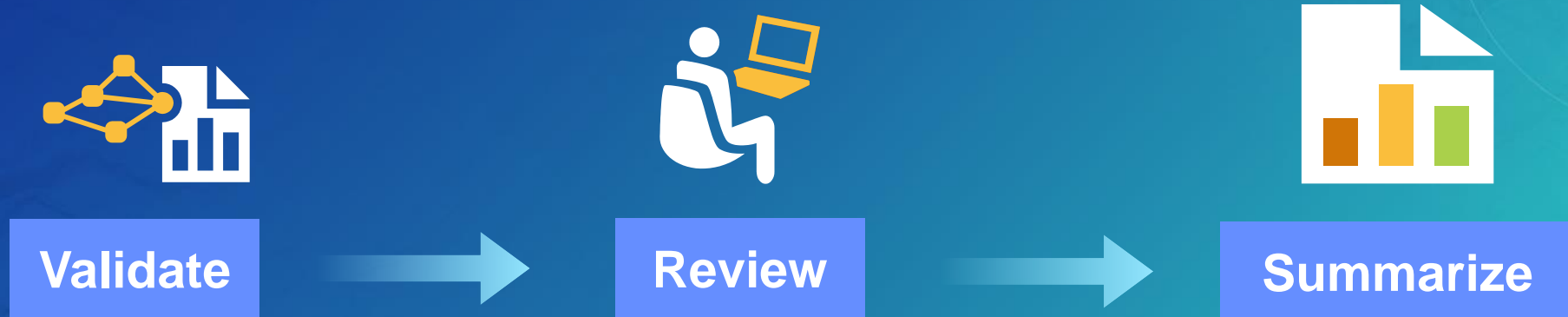


Quality control life cycle



What is ArcGIS Data Reviewer for Server?

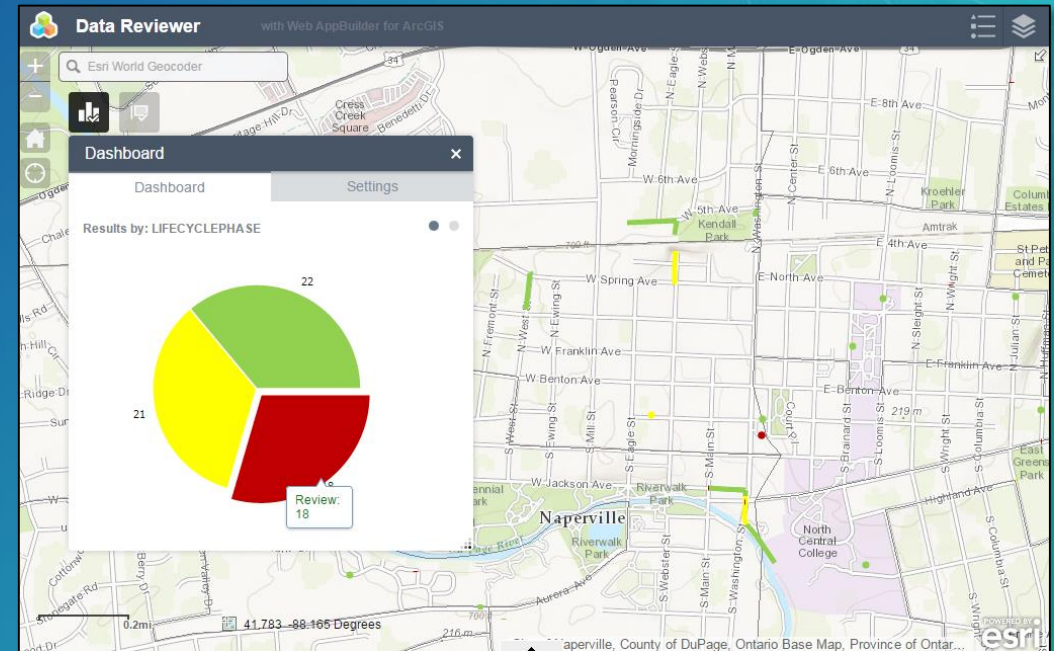
- Support data quality management
- Automate
- Measure data quality



Data Quality Reporting

Enabling transparency in data quality

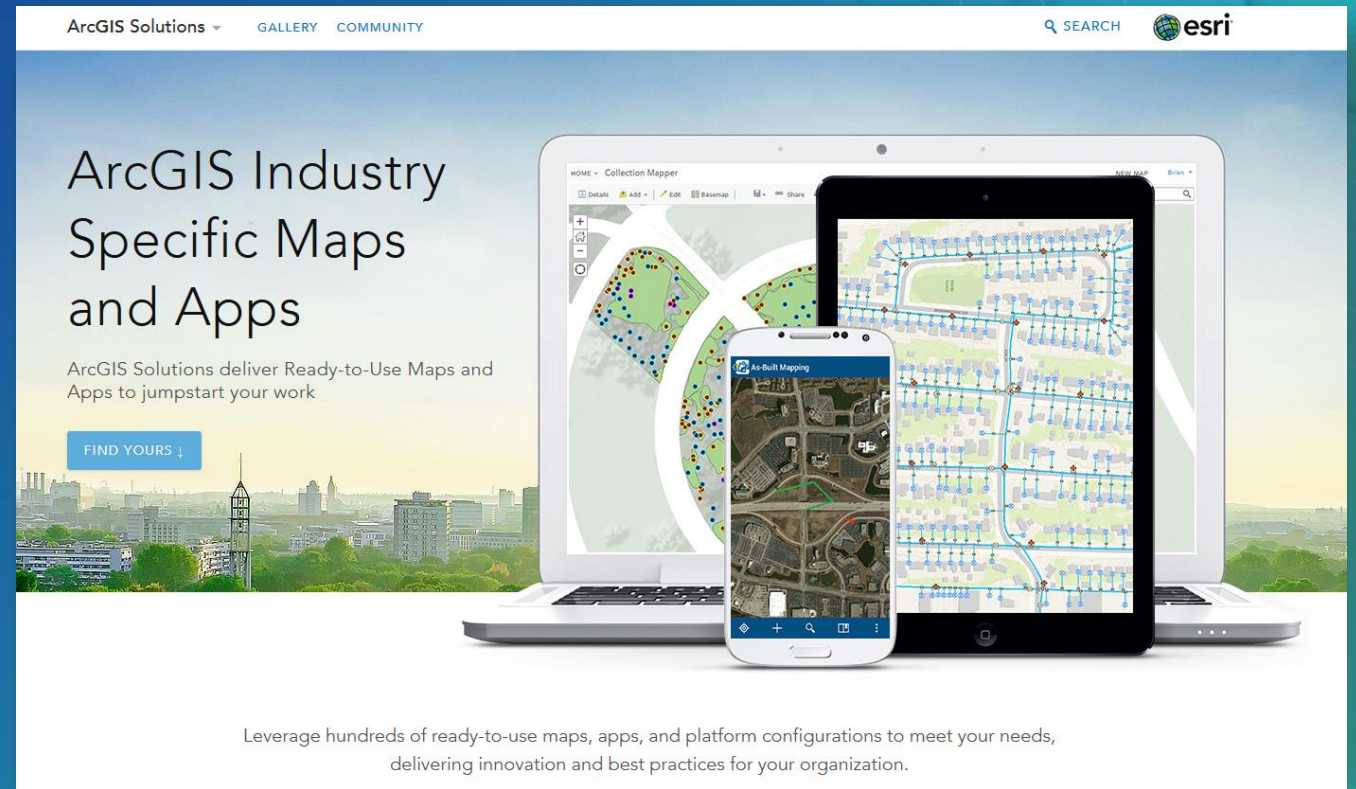
- Better decision making by communicating data quality across stakeholders
- Open quality reporting
- Shared across ArcGIS system
- Tools and methods to communicate quality




Where to start

Leveraging templates

- Data Reviewer Templates
 - Electrical utilities
 - Gas utilities
 - Local government
 - Topographic mapping
 - Water resources
 - Water utilities
- Based on Esri industry models
- Use as starting point



ArcGIS Solutions ▾ GALLERY COMMUNITY

SEARCH 

ArcGIS Industry Specific Maps and Apps

ArcGIS Solutions deliver Ready-to-Use Maps and Apps to jumpstart your work

[FIND YOURS ↓](#)

Leverage hundreds of ready-to-use maps, apps, and platform configurations to meet your needs, delivering innovation and best practices for your organization.

The banner features a laptop, a tablet, and a smartphone displaying various GIS maps and applications. The laptop screen shows a 'Collection Mapper' interface with a map of a city and a sidebar with various map tools. The tablet and smartphone show different map views, including a street map and a map with various data points.

solutions.arcgis.com

The background of the slide is a topographic map with contour lines, rendered in various shades of blue and teal. The map is oriented horizontally, with the top of the map towards the right side of the image. The contour lines are more prominent in the upper right and lower left areas, while the center is a smoother gradient of blue.

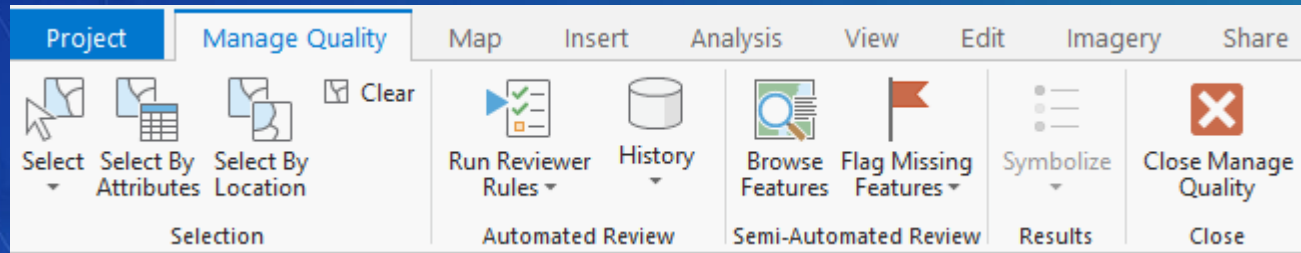
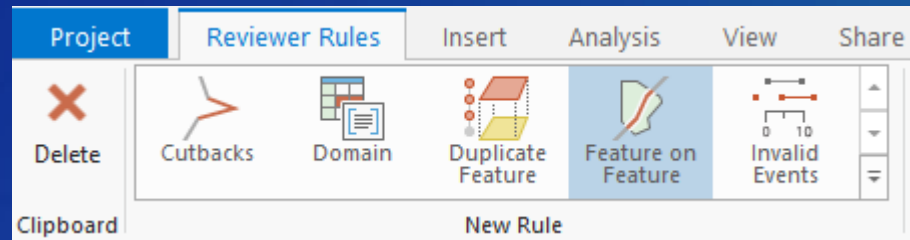
Demo

ArcGIS Data Reviewer

ArcGIS Data Reviewer in ArcGIS Pro

What's Next?

- Adding New Configurable Checks Each Release



Feature on Feature

▼ Data Sources

* Input Feature Layers

☐ Dirty Areas

☐ Point Errors

☐ Line Errors

☐ Polygon Errors

☐ VegetationPoints

☐ UtilityInfrastructurePoints

* Features to Compare

▼ Check Parameters

Spatial Relationship

Search Distance

☐ Invert relationship

▼ Result Details

Title

Notes

Severity (1-High, 5-Low)

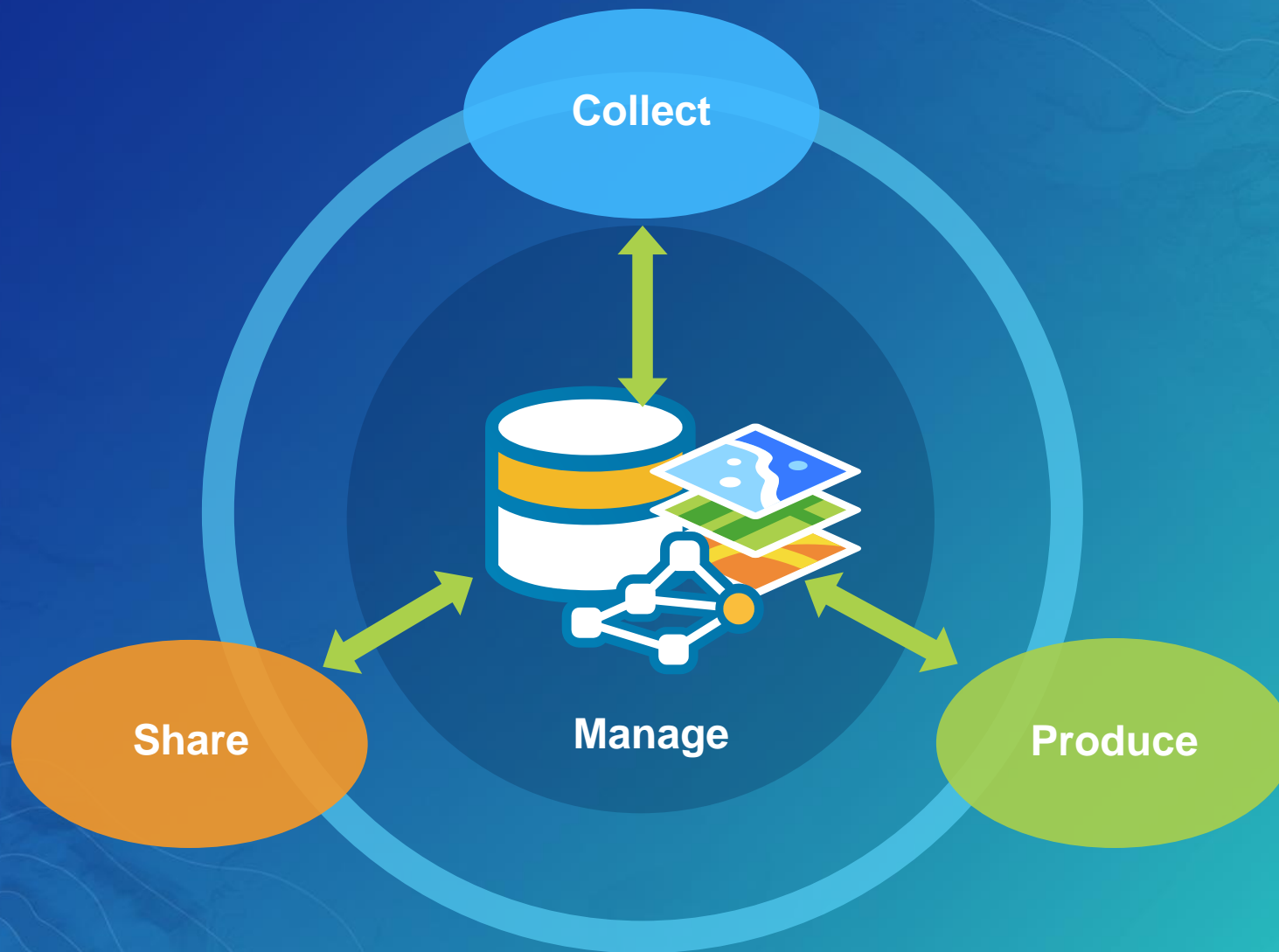
▼ Tags

Creating and Managing Specification Driven Maps

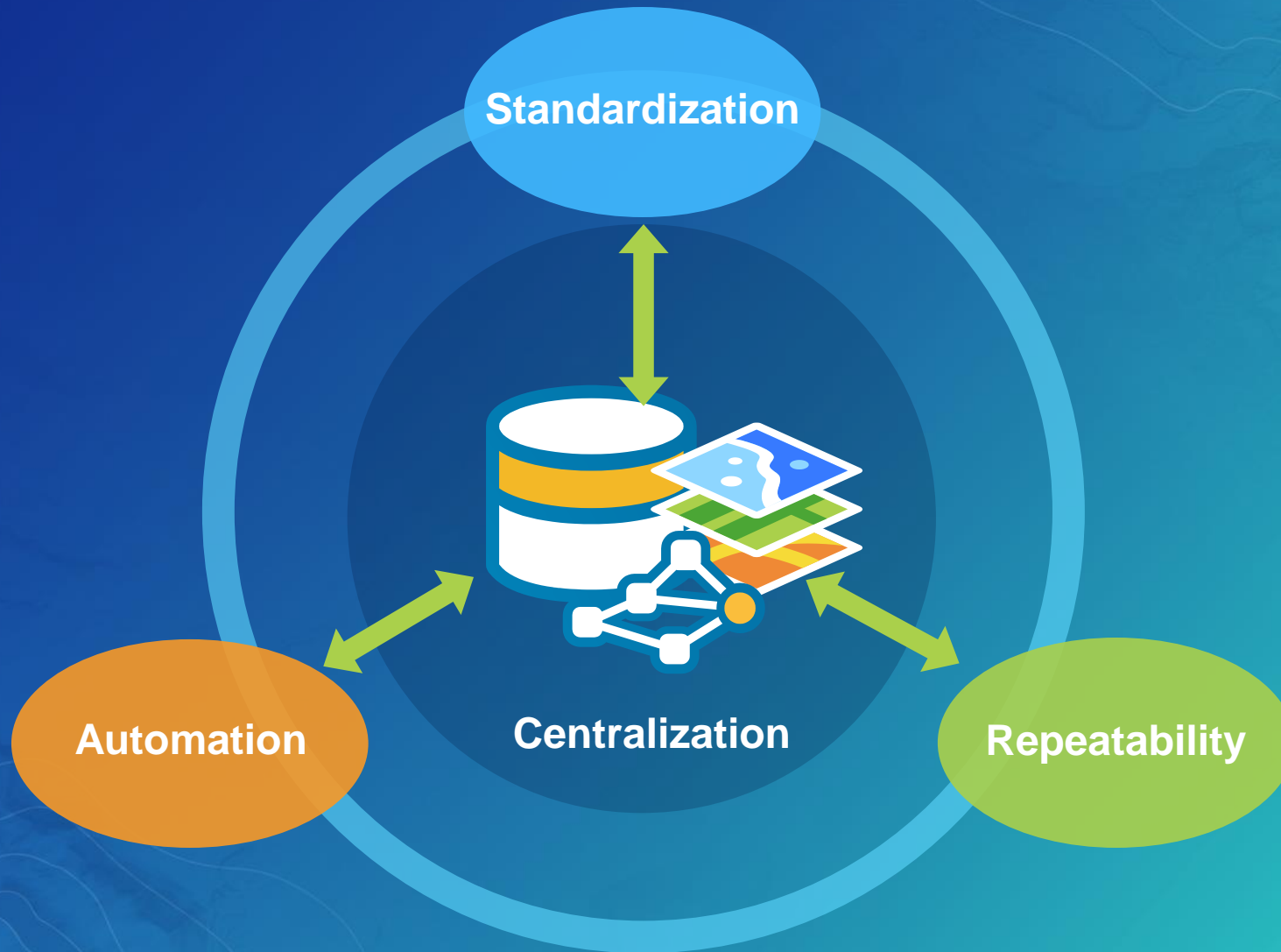
Esri Production Mapping



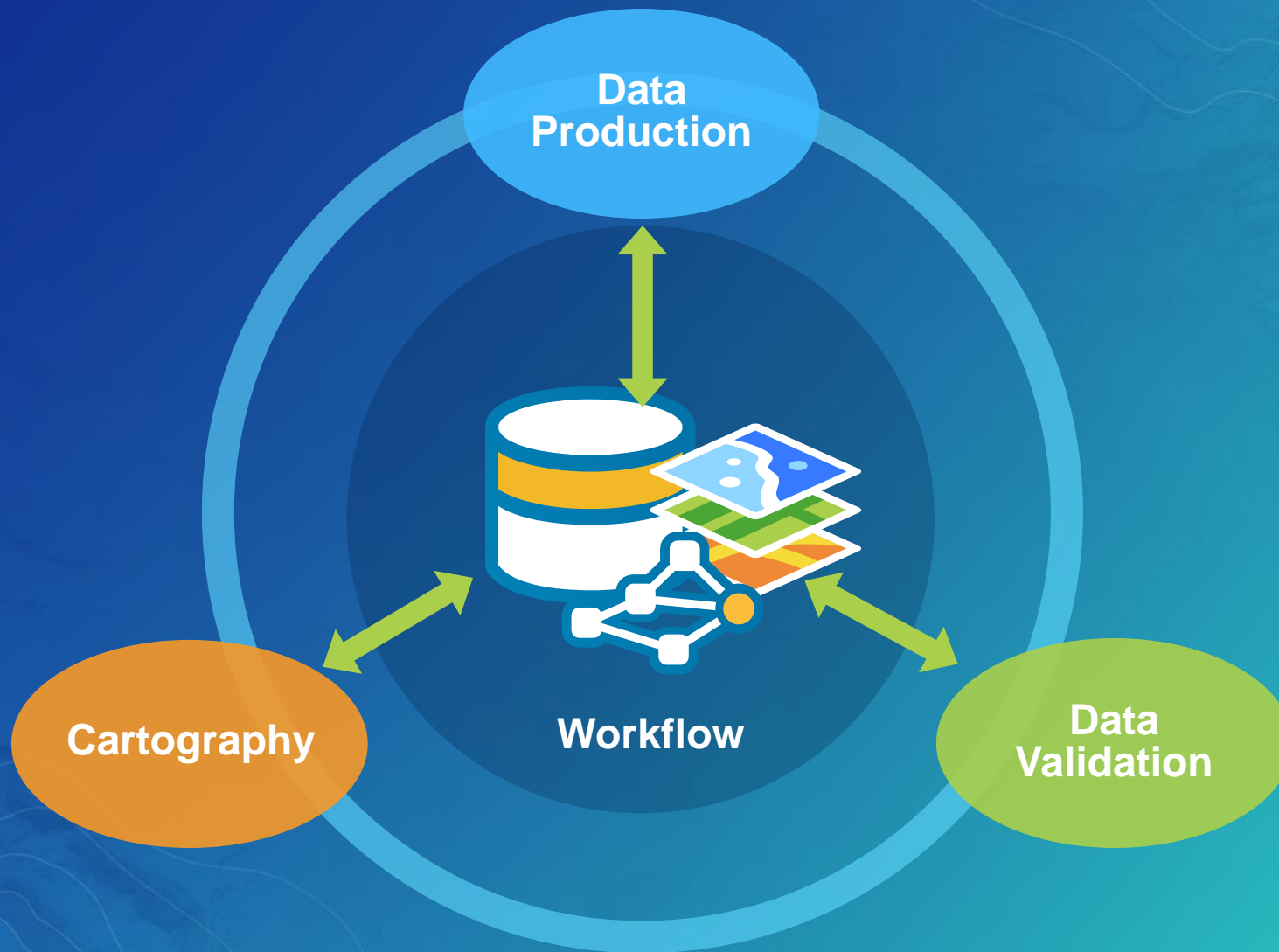
Your organization's processes



Your organization's needs



Esri Production Mapping solution

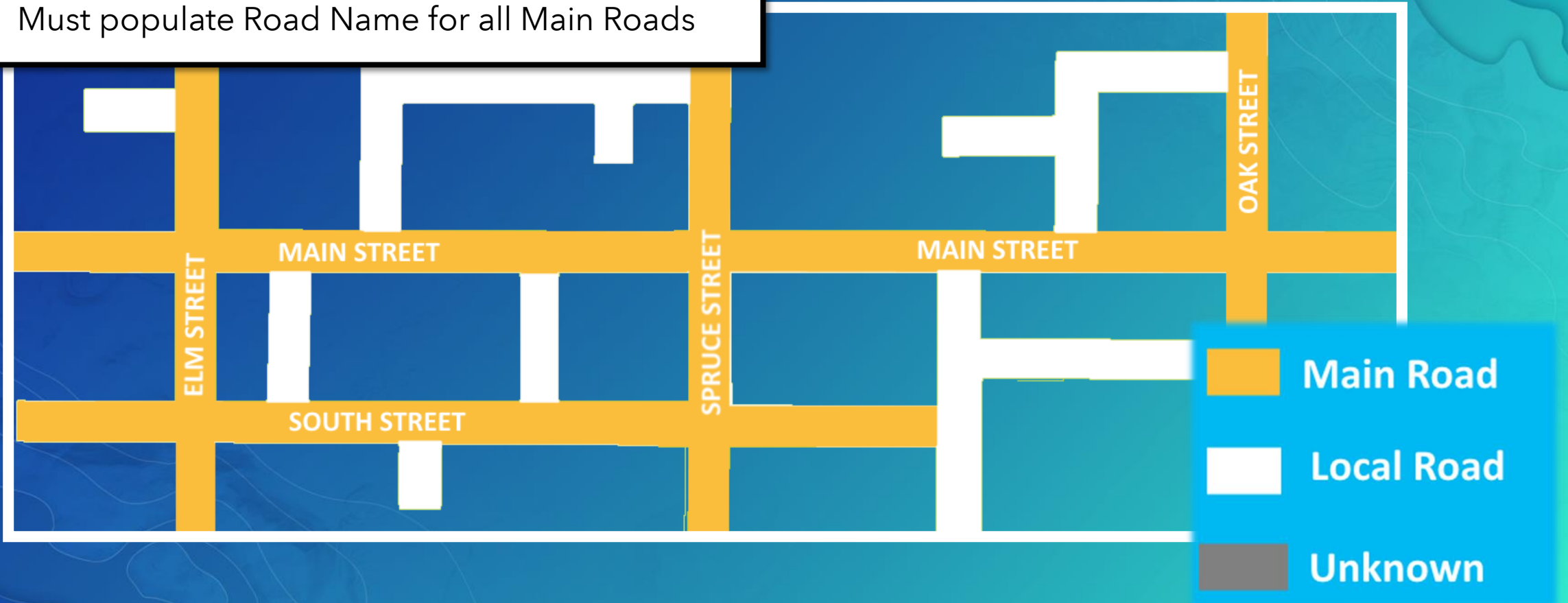


Without Collection Specifications

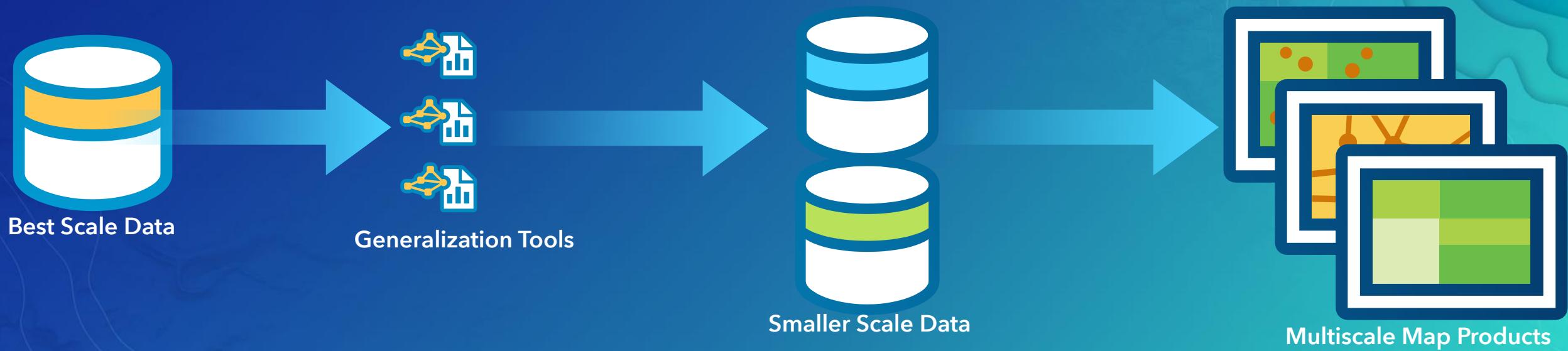


Feature collection specifications

Must Populate Road Type
Must populate Road Name for all Main Roads

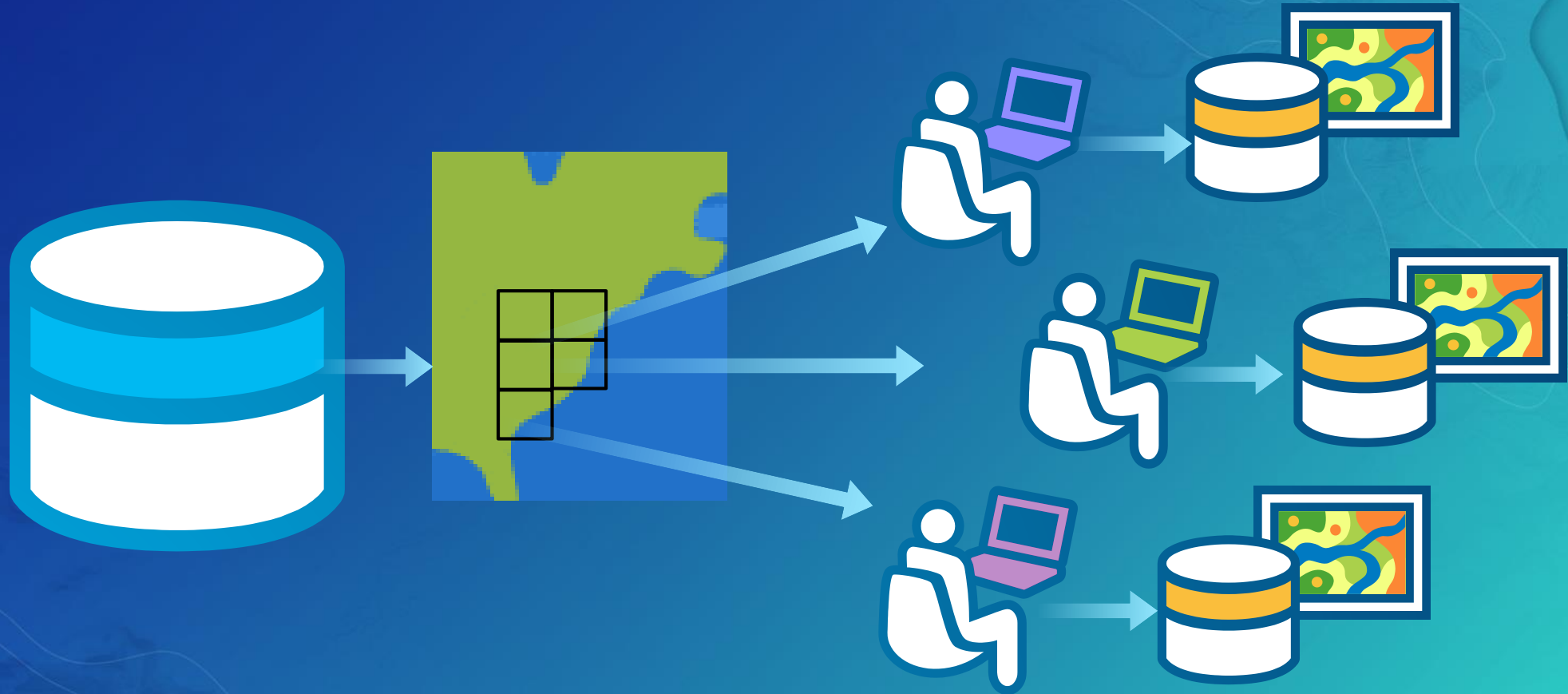


Generalization



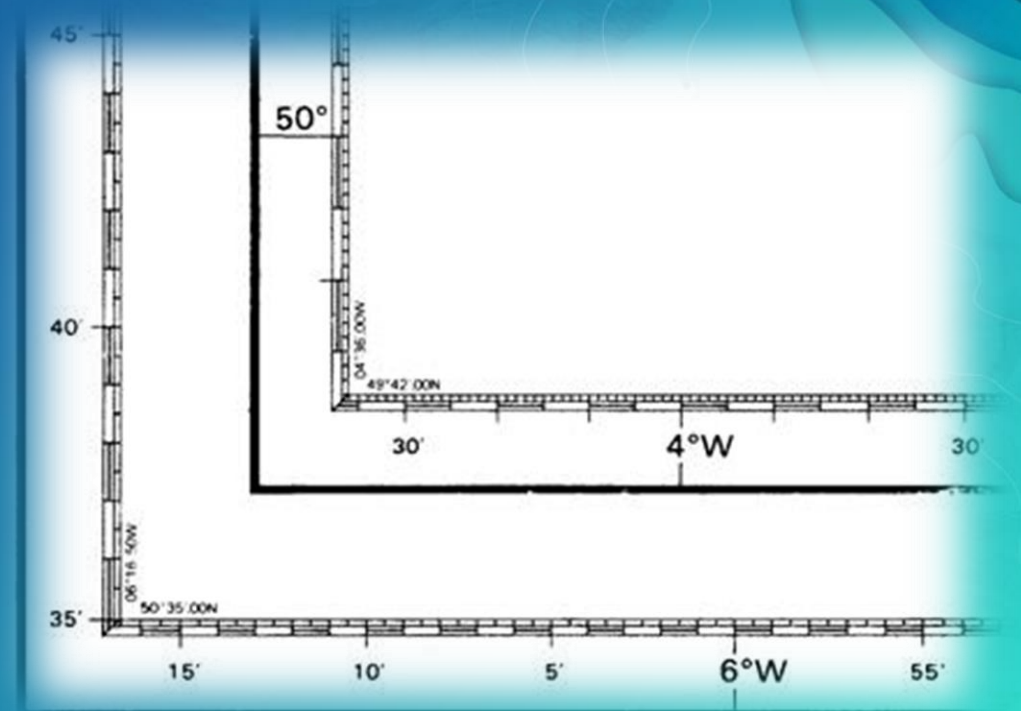
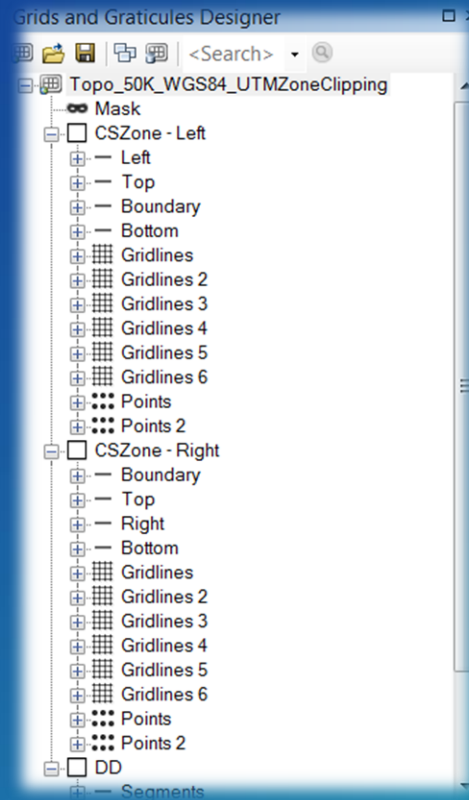
Traditional Cartography

With ArcMap



Grids and Graticules Design

- Feature Based
- Custom Design
- Geographically aware
 - Scale
 - Coordinate system
 - Rotation



Visual Specifications

Defining

- Create Symbolology
- Define Specifications

1L015 – BUILDING
POINT FEATURE... SYMBOL#1L015P011

ATTRIBUTES:

HWT – HOUSE OF WORSHIP TYPE
000 – UNKNOWN
002 – CATHEDRAL
003 – CHAPEL
004 – CHURCH
NAM – NAME CATEGORY
ANY

PARAMETERS:

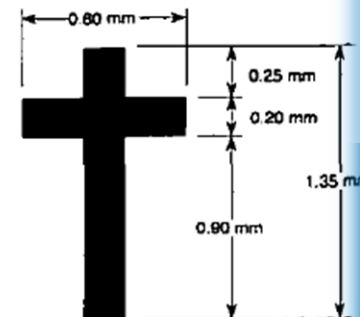
Origin: Center of square

FILL: SQUARE
 Lineweight: 0.630mm
 Length: 0.630mm
 Color: BLACK (#58600)

LABEL: NAM
 Type Size: 6 point
 Type Style: Upper/Lower Case, Condensed
 Color: RED (#60862)

POSICUT
 Posicut: #21
 Color: BLACK (#58600)

POSICUT # 21



Cross lineweights : 0.20 mm
 Origin : Base of cross

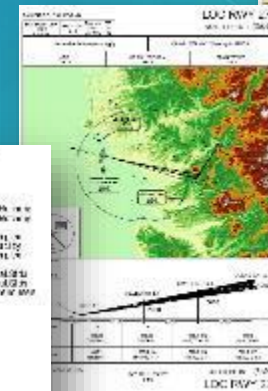
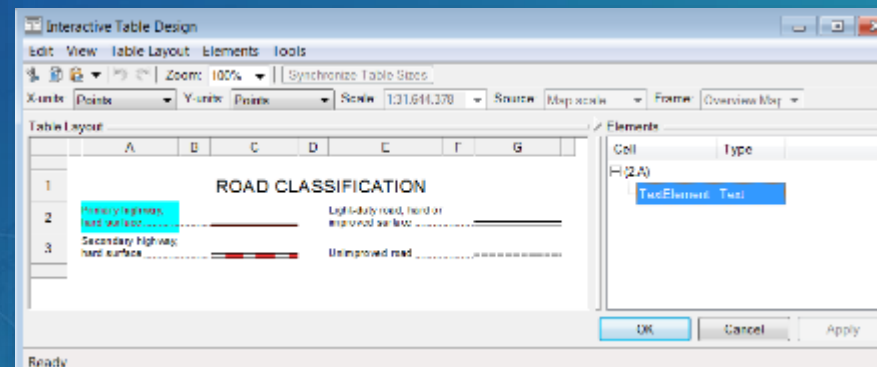
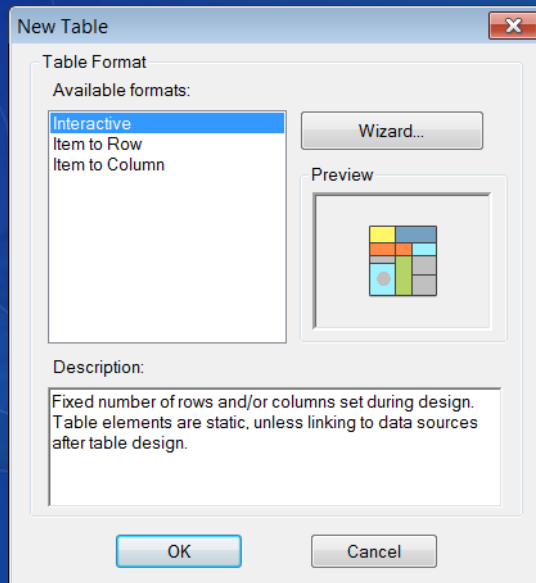
Rule Description	Dataset	SQL Statement	Preview
Tower	StructurePnt ...	SELECT <TargetTable.OID> FROM <TargetTable> WHERE F_CODE = 'AL241'	Structure: Tower (with Annotation) Pnt ...
Church	StructurePnt ...	SELECT <TargetTable.OID> FROM <TargetTable> WHERE HWT in (000, 002, 003, 004)	Structure: Building, HOW - Christian Pnt ...
Building / Shed	StructureSf	SELECT <TargetTable.OID> FROM <TargetTable> WHERE F_CODE = 'AL013' OR F_CODE =	Structure: Building

Options >>
OK
Cancel

Layout

Providing Context

- **Graphic Table Element**
 - Dynamic table creation
 - Linked to feature layers
 - Include text, symbols



Category	Reference Number	Feature Name
1	4	Primary highway, hard surface
1	12	Secondary highway, hard surface
1	18	Unimproved road
1	5	Water
1	13	Forest
1	21	Public Utility Network
5	41	Water
5	24	Forest
5	25	Water
5	26	Forest
5	27	Water
5	28	Forest
5	29	Water
5	30	Forest
5	31	Water
5	32	Forest
5	33	Water
5	34	Forest
5	35	Water
5	36	Forest
5	37	Water
5	38	Forest
5	39	Water
5	40	Forest
5	41	Water
5	42	Forest
5	43	Water
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5	45	Water
5	46	Forest
5	47	Water
5	48	Forest
5	49	Water
5	50	Forest

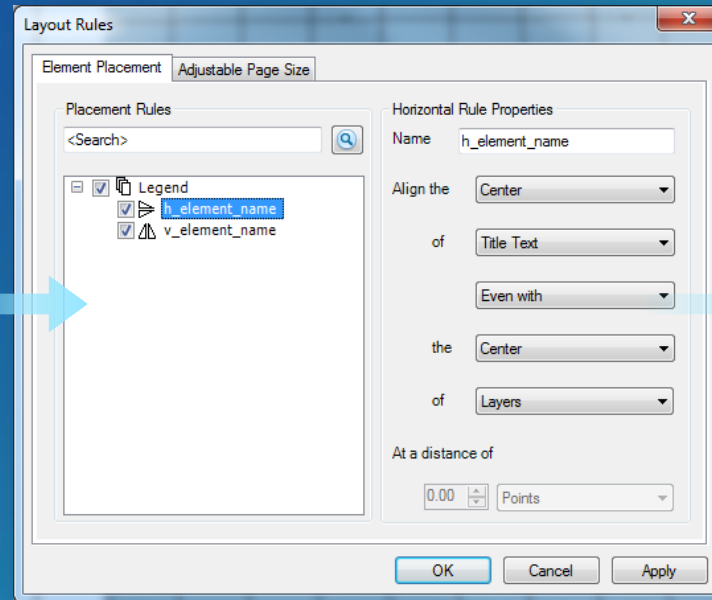
INDUSTRIAL AND COMMERCIAL

Number	Grid Reference	Name
1	100	Industrial and Commercial
2	101	Industrial and Commercial
3	102	Industrial and Commercial
4	103	Industrial and Commercial
5	104	Industrial and Commercial
6	105	Industrial and Commercial
7	106	Industrial and Commercial
8	107	Industrial and Commercial
9	108	Industrial and Commercial
10	109	Industrial and Commercial
11	110	Industrial and Commercial
12	111	Industrial and Commercial
13	112	Industrial and Commercial
14	113	Industrial and Commercial
15	114	Industrial and Commercial
16	115	Industrial and Commercial
17	116	Industrial and Commercial
18	117	Industrial and Commercial
19	118	Industrial and Commercial
20	119	Industrial and Commercial
21	120	Industrial and Commercial
22	121	Industrial and Commercial
23	122	Industrial and Commercial
24	123	Industrial and Commercial
25	124	Industrial and Commercial
26	125	Industrial and Commercial
27	126	Industrial and Commercial
28	127	Industrial and Commercial
29	128	Industrial and Commercial
30	129	Industrial and Commercial
31	130	Industrial and Commercial
32	131	Industrial and Commercial
33	132	Industrial and Commercial
34	133	Industrial and Commercial
35	134	Industrial and Commercial
36	135	Industrial and Commercial
37	136	Industrial and Commercial
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93	192	Industrial and Commercial
94	193	Industrial and Commercial
95	194	Industrial and Commercial
96	195	Industrial and Commercial
97	196	Industrial and Commercial
98	197	Industrial and Commercial
99	198	Industrial and Commercial
100	199	Industrial and Commercial

Layout

Providing Context

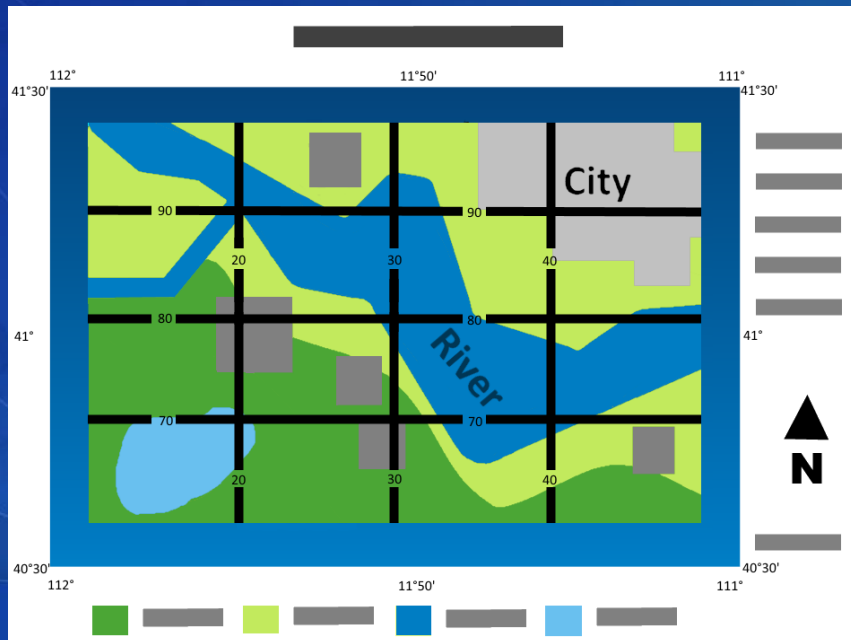
- Element Placement
 - Layout rules



Output

Production PDF

- Color Separation
- Transparency
- Overprint
- Etc.



Color Mapping Rules (changed)

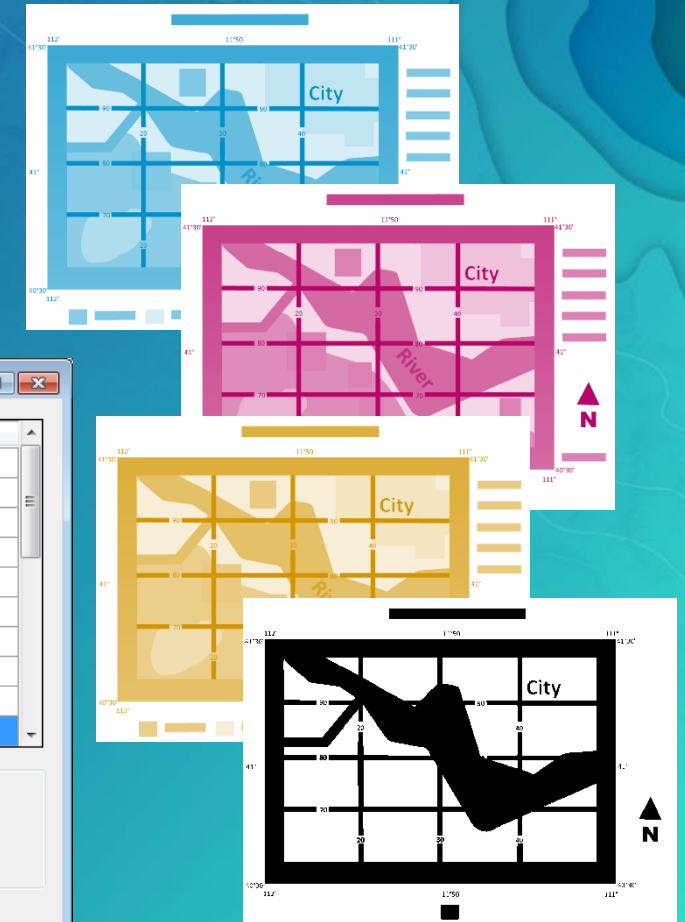
Input	Input Value	Output	Output Value	Tint %	Overprint
	RGB 255 255 255		CMYK 0 0 0 0	n/a	<input type="checkbox"/>
	RGB 0 0 0		CMYK 0 0 0 100	n/a	<input type="checkbox"/>
	RGB 153 0 0		CMYK 40 100 100 0	n/a	<input type="checkbox"/>
	RGB 255 0 0		CMYK 0 100 100 0	n/a	<input type="checkbox"/>
	RGB 230 0 0		CMYK 10 100 100 0	n/a	<input type="checkbox"/>
	RGB 221 232 198		CMYK 13 9 22 0	n/a	<input type="checkbox"/>
	RGB 118 145 59		CMYK 54 43 77 0	n/a	<input type="checkbox"/>
	RGB 255 247 191		CMYK 0 3 25 0	n/a	<input type="checkbox"/>
	RGB 230 200 0		Mustard 10 22 100 0	100	<input type="checkbox"/>
	RGB 205 233 239		CMYK 20 9 6 0	n/a	<input checked="" type="checkbox"/>

Current Map Review

Use this button to add colors from map to the table.
Only colors that are not in the table will be shown.

Show preview for selected input color(s), vector graphics only.
This starts the PDF viewing application registered in your system.

1 out of 24 selected Warning(s) ...

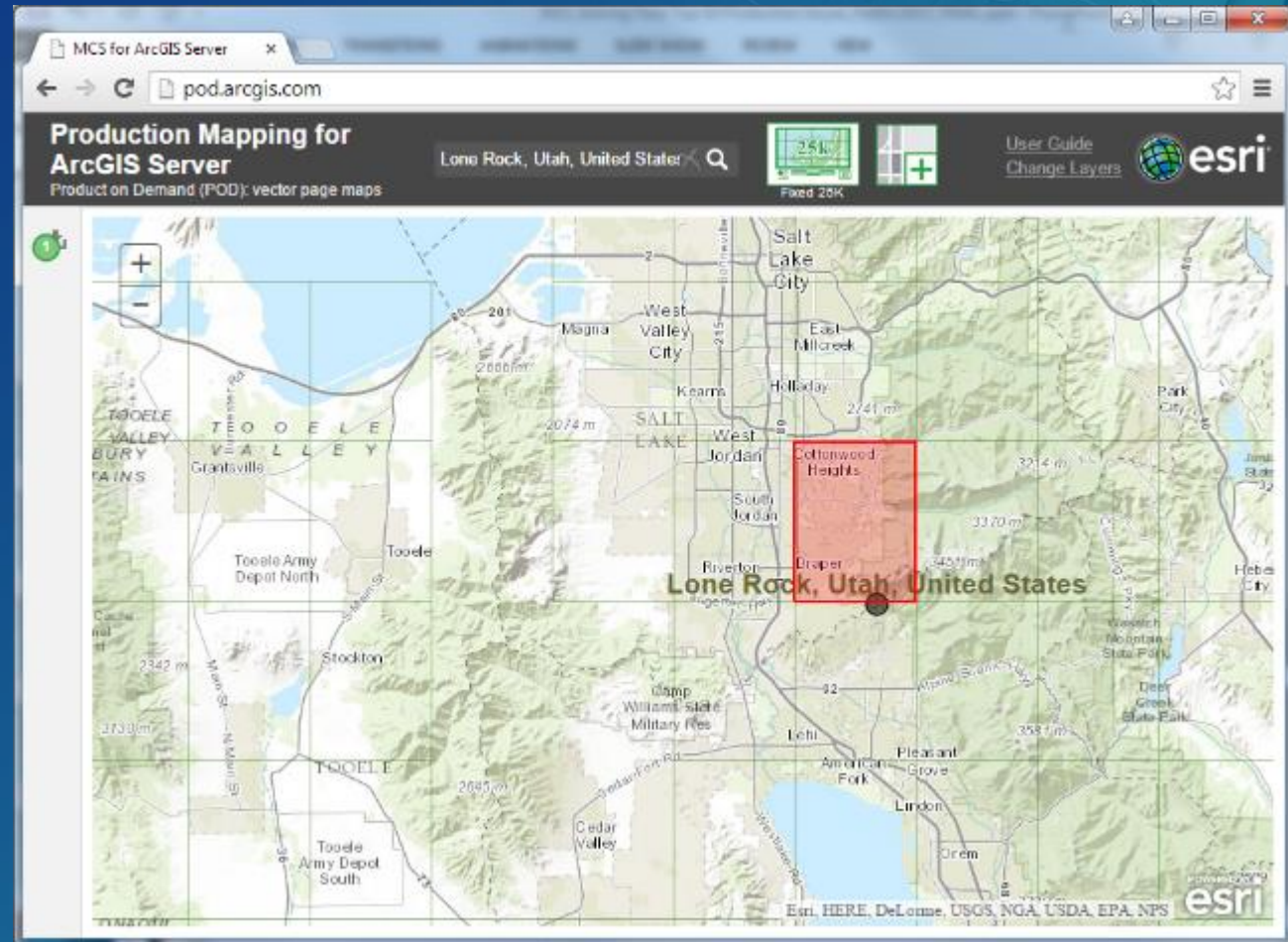


Production Mapping Server

Product on Demand



Production
Mapping Server



Demo

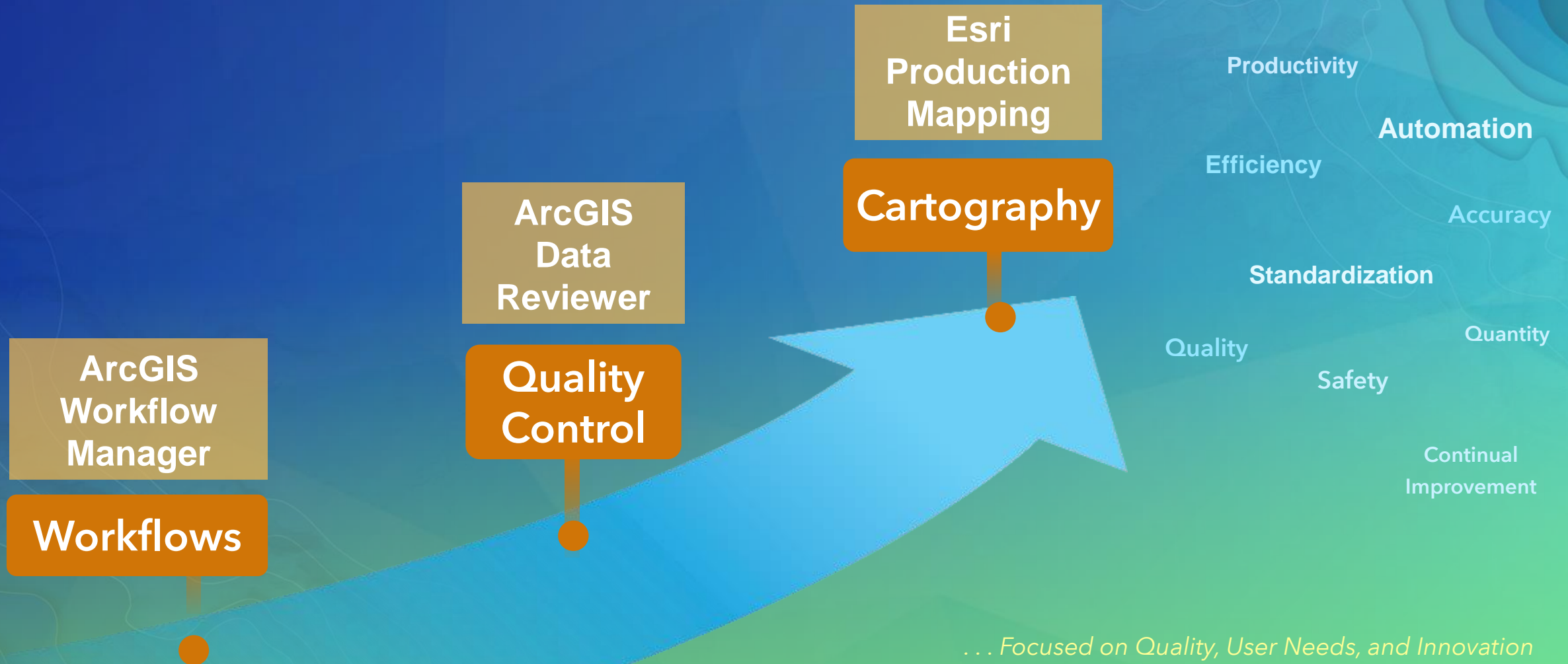
Production Mapping Cartography and Server

Moving Forward to Pro

- Production Mapping functionality will be known as Topographic Production
- First functionality will be at the next release



Data and Map Production

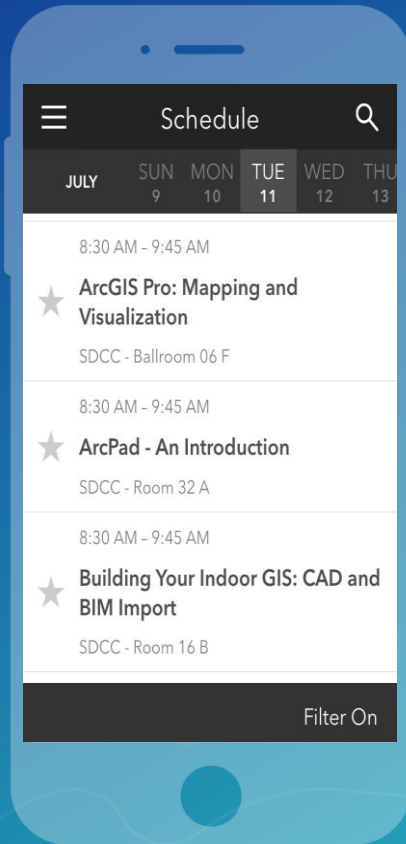


Please Take Our Survey on the Esri Events App!

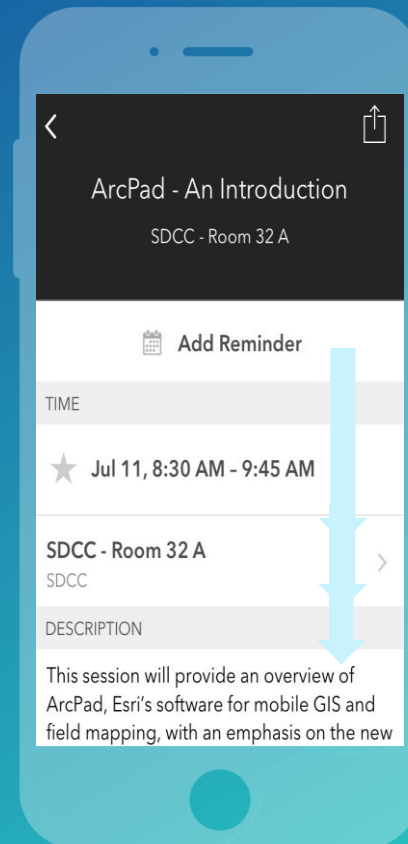
Download the Esri Events app and find your event



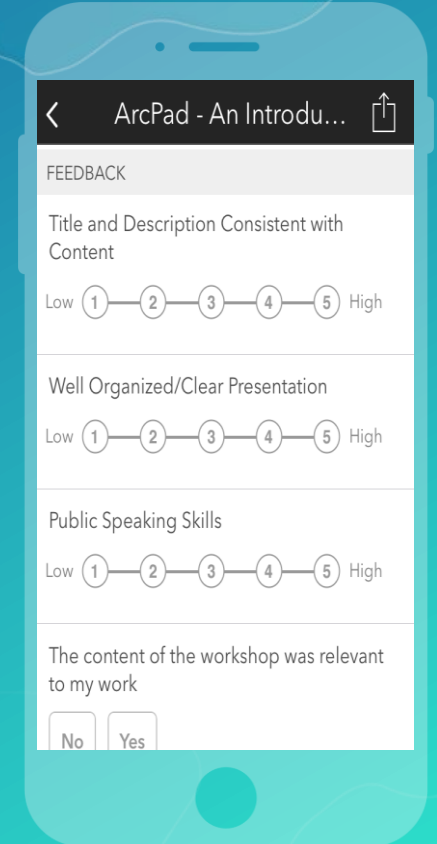
Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"



Want to learn more this week?

Day and Description	Type	Time	Location
Wednesday, July 12			
ArcGIS Workflow Manager: Advanced Topics	Technical Workshop	10:15 - 11:30am	SDCC Room 31
ArcGIS Workflow Manager: Integrate Tasks into your Workflow Process	Demo Theater	11:30am - 12:15pm	SDCC Demo Theater 06
Esri Production Mapping: Generating High Quality Product-on-Demand Maps Over the Web	Demo Theater	1:00 - 1:30pm	SDCC Demo Theater 18
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 Workflow Manager: Integrating Geoprocessing and Python into your Business Processes	Demo Theater	3:30 - 4:15pm	SDCC Demo Theater 06
Esri Production Mapping: Automate Map Production with ArcGIS Workflow Manager	Demo Theater	3:30-4:15 pm	SDCC Demo Theater 03
ArcGIS Data Reviewer: Implementing Data Quality Reporting in Web Clients	Demo Theater	4:30 - 5:15pm	Demo Theater 8 Enterprise
Thursday, July 13			
Supporting Daily Workflows with Tools	Demo Theater	3:30-4:15pm	SDCC Demo Theater 03
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
ArcGIS Data Reviewer: Validating Linear-Referenced Events	Demo Theater	10:30 - 11:15am	Demo Theater 6 Spatial Data Mgmt



esri

THE
SCIENCE
OF
WHERE