Insights for ArcGIS: Explore a new world in your data

- Discover the power of exploratory analysis
  - Visual and intuitive
- Combine Analysis and Visualization on cards
  - Linked and responsive
- Drive impactful decisions
  - Learn, record, share and collaborate

Quickly Increase Decision Confidence with Insights for ArcGIS
Working with Data – Intelligent defaults

Fields, or attributes are defined to a role

- Insights works directly against the fields
- Dimensional model created behind the scenes
  - Geo-Dimension
  - Temporal-Dimension
  - Categorical (Strings)
  - Quantitative (Numbers)

...roles help define actions that can be taken in Insights for ArcGIS
Relationships

Create Relationships

My Data

- well_production
- well_attributes

API

Choose Relationship Type

Relationship type determines the way data is combined.

- Intersect
- All
- Left
- Right

Choose Fields

Choose the fields you want to base the relationship on.

API

Cancel  Finish
Analysis: Interactivity
Analysis: Action Button, starts with questions
Results of Analytic Operations are expressed in Cards Visualizations
**Change**: process through which something becomes different, often over time

- A bar graph uses either horizontal or vertical bars to show comparisons among categories. They are valuable to identify broad differences between categories at a glance.
- A heat chart shows total frequency in a matrix. Using a temporal axis values, each cell of the rectangular grid are symbolized into classes over time.
- Bubble charts with three numeric variables are multivariate charts that show the relationship between two values while a third value is shown by the circle area.
- Graduated symbol maps show a quantitative difference between mapped features by varying symbol size. Data are classified with a symbol assigned to each range.
- A Density/heat map calculates spatial concentrations of events or values enabling the distribution to be visualized as a continuous surface.
- A Data clock creates a circular chart of temporal data, commonly used to see the number of events at different periods of time.
- Line graphs visualize a sequence of continuous numeric values and are used primarily for trends over time. They show overall trends and changes from one value to the next.
- A combo chart combines two graphs where they share common information on the x-axis. They allow relationships between two datasets to be shown.

**Distribution**: the arrangement of phenomena, could be numerically or spatially

- Histograms show the distribution of a numeric variable. The bar represents the range of the class data with the height showing the number of data points in the class bin.
- A box plot displays data distribution showing the median, upper and lower quartiles, min and max values and, outliers. Distributions between many groups can be compared.
- A choropleth map allows quantitative values to be mapped by area. They should show normalized values not counts collected over unequal areas or populations.
- Graduated symbol maps show a quantitative difference between mapped features by varying symbol size. Data are classified with a symbol assigned to each range.
- A Density/heat map calculates spatial concentrations of events or values enabling the distribution to be visualized as a continuous surface.
- A unique symbol map (areas or points) allows descriptive (qualitative) information to be shown by location. Areas have different fills and points can be geometric or pictorial.

**Part-to-whole**: relative proportions or percentages of categories, showing the relationship between parts and whole

- Donut charts are used to show the proportions of categorical data, with the size of each piece representing the proportion of each category.
- A treemap shows both the hierarchical data as a proportion of a whole and, the structure of data. The proportion of categories can easily be compared by their size.

**Measure**: ascertain the size, amount, or degree of (something)

- A bar graph uses either horizontal or vertical bars to show comparisons among categories. They are valuable to identify broad differences between categories at a glance.
- A tree map shows both the hierarchical data as a proportion of a whole and, the structure of data. The proportion of categories can easily be compared by their size.
- Bubble charts represent numerical values of variables by area. With two variables (category and numeric), the circles placed so they are packed together.
- A heat chart shows total frequency in a matrix. Values in each cell of the rectangular grid are symbolized into classes.

**Relationship**: a connection or similarity between two or more things or, the state of being related to something else

- A choropleth map allows quantitative values to be mapped by area. They should show normalized values not counts collected over unequal areas or populations.
- A chord diagram visualizes the inter-relationships between categories and allows comparison of similarities within a dataset or, between different groups of data.
- Scatter plots allow you to look at relationships between two numeric variables with both scales showing quantitative variables. The level of correlation can also be quantified.
- Spider lines, also termed desire lines, show paths between origins and destinations. They show connections between places.

**Interaction**: flow of information, products or goods between places

- A chord diagram visualizes the inter-relationships between categories and allows comparison of similarities within a dataset or, between different groups of data.
- Spider lines, also termed desire lines, show paths between origins and destinations. They show connections and flow between places.
Sharing

- Workbooks, Pages, Cards, Workflow Templates
  - Insights Viewer
  - Portal Items
- Result Datasets as Feature Layers
- Insights Pages can be embedded in Story Maps
Demo
How to Get Insights
Online or Enterprise

**SaaS**
ArcGIS Online

**OR**

Your Infrastructure (Physical, Virtual, or Cloud)
ArcGIS Enterprise
Enterprise

- ArcGIS Enterprise 10.5.1 or 10.6
- Base Deployment
  - Portal, GIS Server, Data Store, Web Adaptors
- Recommend minimum 32 GB of RAM
- Download Insights from MyEsri & install

Your Infrastructure
(Physical, Virtual, or Cloud)

ArcGIS Enterprise
Licensing (Enterprise and Online)

- The portal admin must assign licenses
Licensing

• **Insights for ArcGIS Online**
  - Includes 1,000 credits / license
  - Yearly (term) license

• **Insights for ArcGIS Enterprise**
  - Yearly (term) license OR or perpetual (up front fee for indefinite time)

• **EAs** (enterprise agreements) often include Insights licenses, based EA size. See your account manager for details.

• All Esri **Partners** have Insights licenses.
Licensing

- Level 2 user + Insights license
- Level 1 user = Read only with shared items

For the ability to create and edit workbooks, Insights requires a level 2 named user plus an Insights license.

For viewing only, it is available to named ArcGIS users, including Level 1.
**Sharing**

- **Insights Analyst**
  - View shared page or workbook within the Insights viewer (read only)
  - Open shared model within Insights
  - Add data, and re-run analysis
  - Understand documented workflow

- **Public**
  - View embedded shared page within: story map, The Hub, web page
  - Access through iframe only

- **Viewer**
  - View shared page within the Insights viewer (read only)
  - Can not open shared workbook nor shared model

- **Level 1 user, any role**
  - View shared page within the Insights viewer (read only)
  - Can not open shared workbook nor shared model

- **Level 2, publisher role, + Insights license**
  - View shared page or workbook within the Insights viewer (read only)
  - Open shared model within Insights
    - Add data, and re-run analysis
    - Understand documented workflow

*Be sure to share data that the page or model needs.*

*Today, public sharing is only available with Enterprise (not Online).*

*Must be owner of a workbook to open it within Insights and modify it*

*Shared pages and workbooks support interactions of the read-only viewer*
Insights as a capability within ArcGIS
Quickly Breakdown Your Data

Linked & Responsive Cards

Repeat & Share Analysis

Access Data from Across your Organization

Self-service analysis
Explore both spatial and non-spatial data
Find answers, drive impactful decisions

Insights | Data Analytics Powered By Location

*Now in ArcGIS Online

Empower the Analyst
Putting Insights to Work

Retail
Analyze patterns in sales performance based on proximity to store and area demographics.

Banking
Conduct deposit, branch performance, and investment analysis by location.

Law Enforcement
Identify crime patterns and manage operational accountability processes.

Petroleum
Perform acreage analysis and manage the portfolio to improve exploration and production.

Health and Human Services
Analyze access to care, model what-if scenarios, and meet community health needs.

Local Government
Look at budget and human resource allocation to identify issues and find efficiencies across different regions.

Electric and Gas
Monitor system and asset performance and mine data from real-time sensors.

Insurance
Perform portfolio and claims analysis and understand spatial patterns over time.
Access Data Anywhere
Access Data Anywhere & Follow Your Workflow
Analytic Workflows, With Deeper Insight

**Visualization**
- Interactive data views
- Charts, graphs, tables, and maps
- Dynamic selection & cross filtering
- Context of the largest digital atlas in world

**Statistical Analysis**
- Descriptive stats
- Link analysis
- Regression

**Spatial Analysis**
- How is it distributed?
- How is it related?
- What's nearby?
- How has it changed?

**GeoEnablement**
- Geocode address
- Convert X,Y
- Join to boundaries
- Join to demographic variables

**Data Preparation**
- Format fields
- Calculate new fields

**Record & Repeat Analysis**
- Share model to analysts
- Document best practices
- Re-run with new data

**Share Results**
- Share with executives
- Tell your story
- Share with public

Empowering the Analyst and Scientist
When should I use Insights?

GeoSpatial Understanding

- GIS Analyst
- Data Scientist
- Data Analyst
- Business Analyst
- Knowledge Worker
When should I use Insights?
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Apps With Purpose

GeoSpatial Understanding

ArcGIS Map Viewer

ArcGIS Pro

GeoSpatial Analysis Capability
Usable Across Roles and Skill Levels

GeoSpatial Understanding

- GIS Analyst
- Data Scientist
- Data Analyst
- Business Analyst
- Knowledge Worker

Insights for ArcGIS
When to Use What
Apps with a Purpose

- Data **analytics workbench**. Advanced analytics with drag-n-drop tools, minimal clicks. Visual and interactive results, share and re-run analysis.

- Specific **guided workflows** for **focused problems** (site selection, market planning, customer targeting...)

- Real-time data. Common **operating picture** for making informed decisions. **Monitor** events, activities, and situations.
Insights Within the Platform

Working Together Across ArcGIS

- Workflows may benefit from (or require) multiple apps or users
- Different skillsets and roles.

- Preprocess and format data
- Perform custom analysis before OR after using Insights
  - Pro → Insights
  - Insights → Pro

- Share and distribute analysis results, with context and meaning.

- Access organizational data that’s managed and maintained

*Multiple Apps and Products, Working Together as One*
Insights vs. Traditional BI

The “GeoSpecial” Approach to BI

• No other BI tool allows looking at location in this depth
  - Traditional BI limited to points on the map
  - Spatial is a fundamental part of the analysis
  - Context from the world’s largest digital atlas

• Share and re-run analysis. Document tradecraft and best practices.

• How is it distributed?
• How is it related?
• What’s nearby?
• How has it changed?
Additional Resources

• Insights for ArcGIS help documentation

• GeoNet forum: Insights for ArcGIS

• Free eBook
  - *Five Tips to Jumpstart Your Spatial Analytics*

• Hands on Learning
  - *Get Started with Insights for ArcGIS*