



Insights, GeoAnalytics, and Predictive Analysis

The New Frontier in Spatial Business Intelligence for Water Utilities

Derek Lorbiecki

Jonas Rugys

Matt Kennedy

**GIS
INSPIRING
WHAT'S
NEXT**

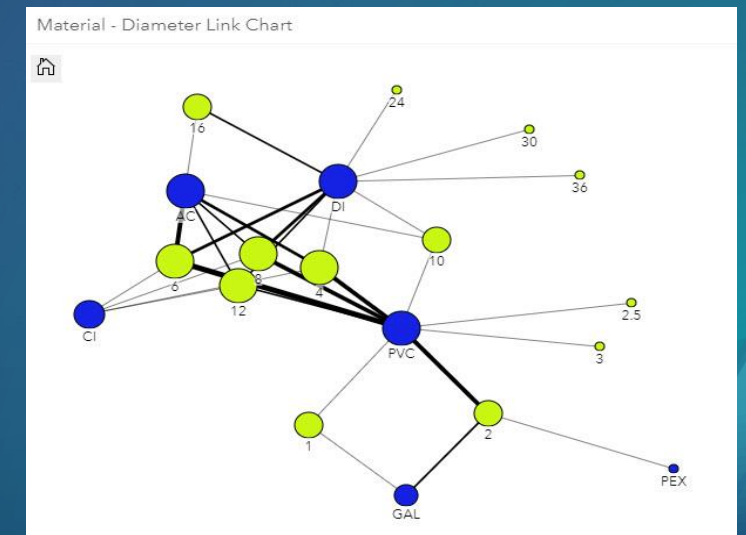
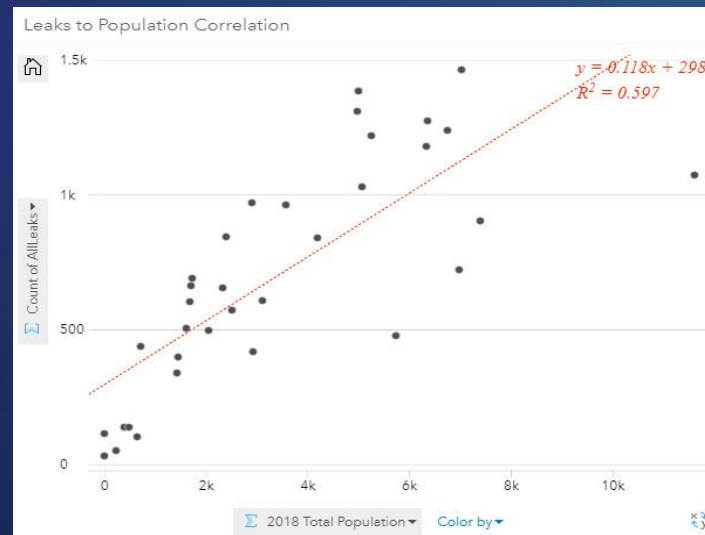
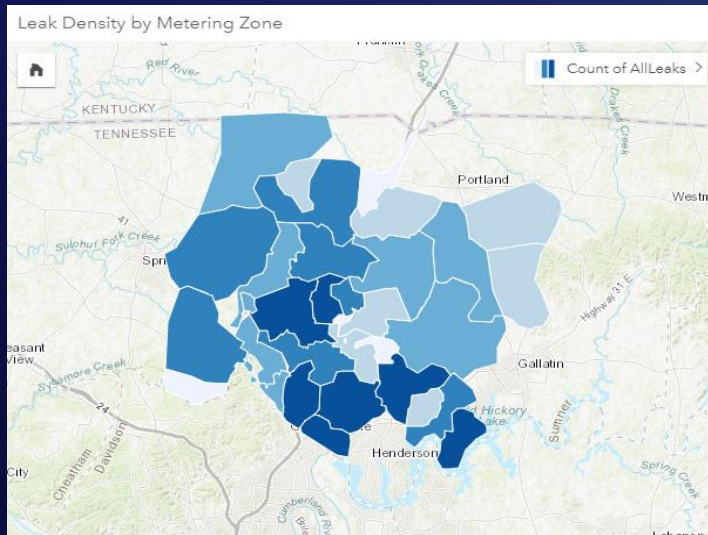
The Value of Spatial Analysis to Water Utilities

- Massive amounts of data, coming from everywhere
- Data rich, information poor
- Leverage solutions that turn data into understanding



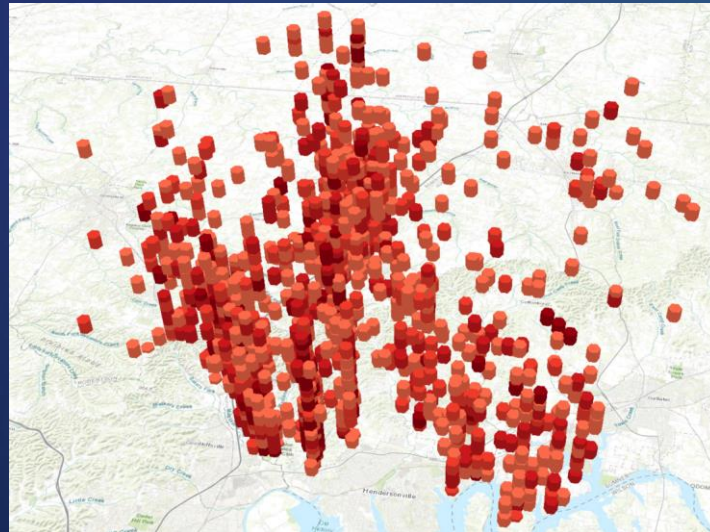
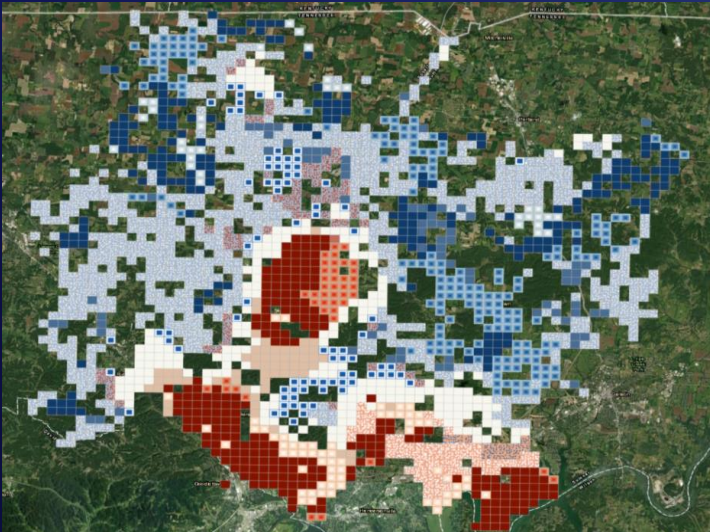
Insights for ArcGIS

- The spatial BI tool for the ArcGIS Platform
- Bring all the data you have to one place
- Spatial exploration helps discover patterns and trends that exist
- Discover the next questions to ask



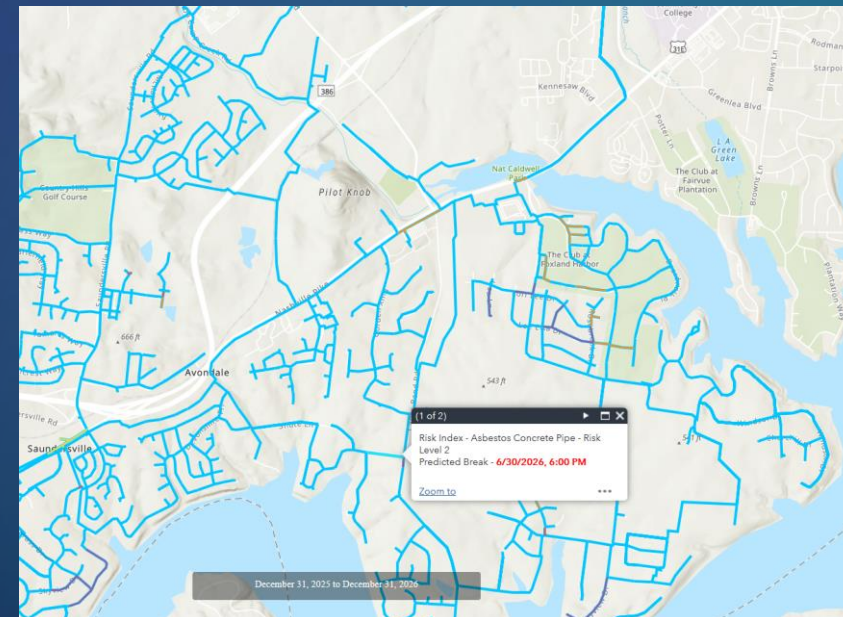
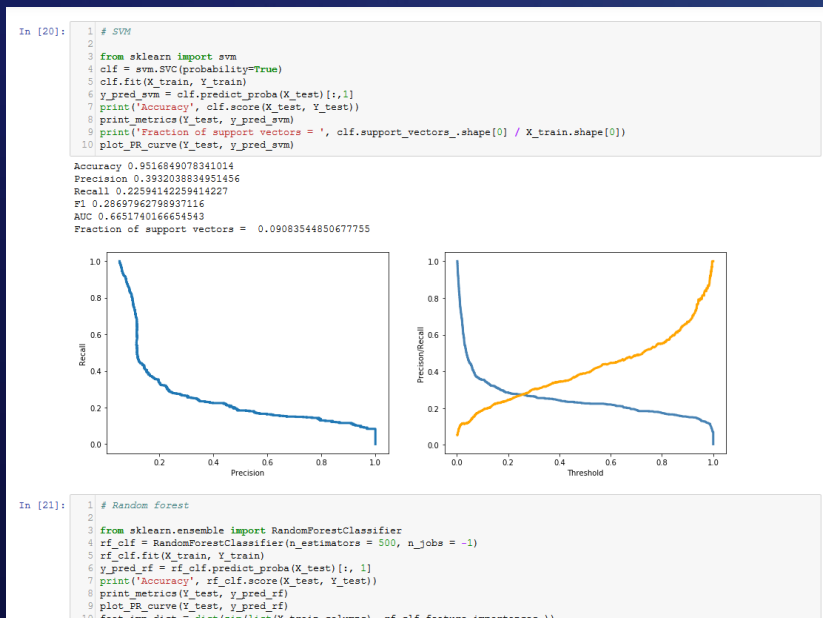
GeoAnalytics Server

- 3D space time cubes visualize data trends in both space and time
- Emerging hotspot analysis reveals that pipe type and age are just as important as density of infrastructure
- Join vast amounts of data to get a clear picture of all the factors that cause leaks



Predictive Analysis

- Detect patterns and make predictions using open machine learning libraries
 - *scikit-learn*
- Leverage visualizations available in Jupyter Notebooks
- Present results in a configurable web app with a time slider



Insights, GeoAnalytics, and Predictive Analysis

The New Frontier in Spatial Business Intelligence for Water Utilities

- Where have our leaks occurred?
- Why are leaks occurring?
- Can we predict where leaks will occur?

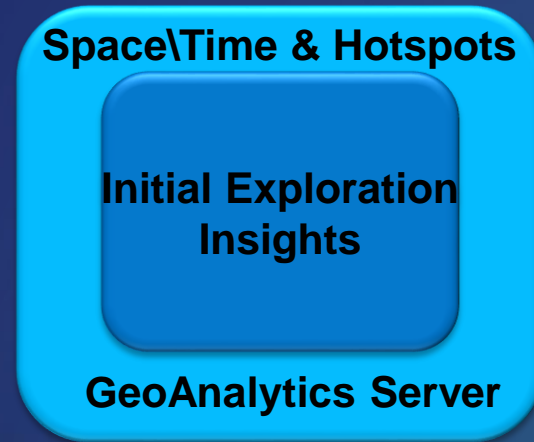


Where have our leaks occurred? Why are leaks occurring?
Can we predict where and when leaks will occur?

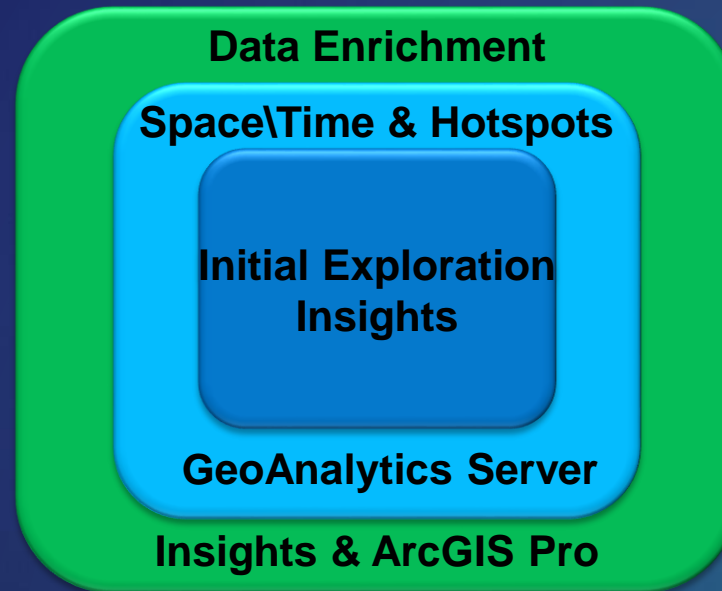
**Initial Exploration
Insights**

A blue rounded rectangle with a slight gradient and a drop shadow, containing the text "Initial Exploration Insights" in a bold, black, sans-serif font. The rectangle is centered horizontally and vertically on the slide.

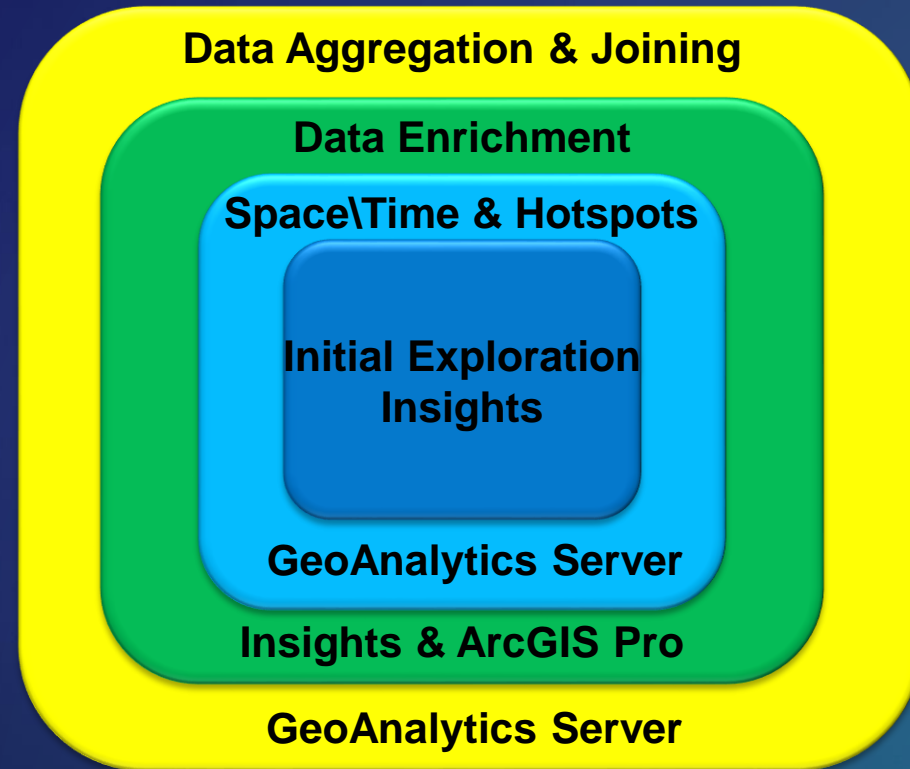
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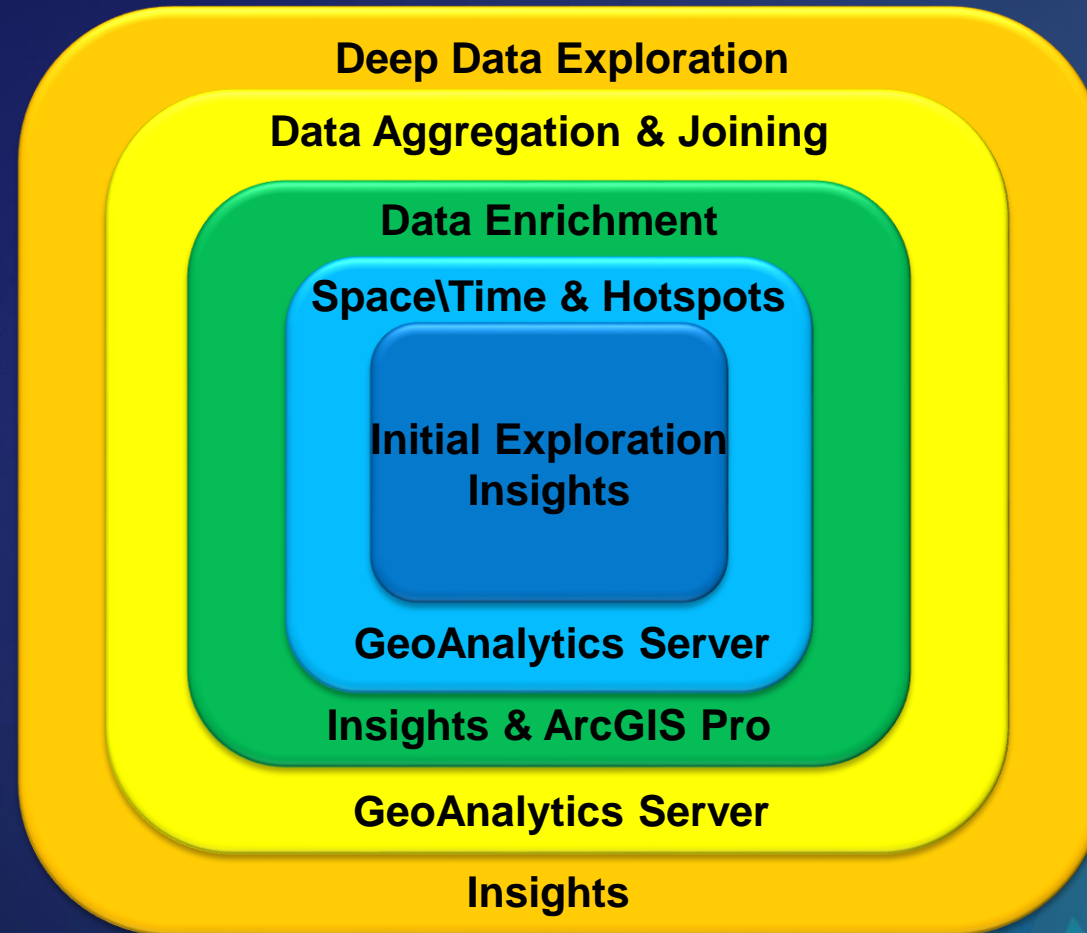
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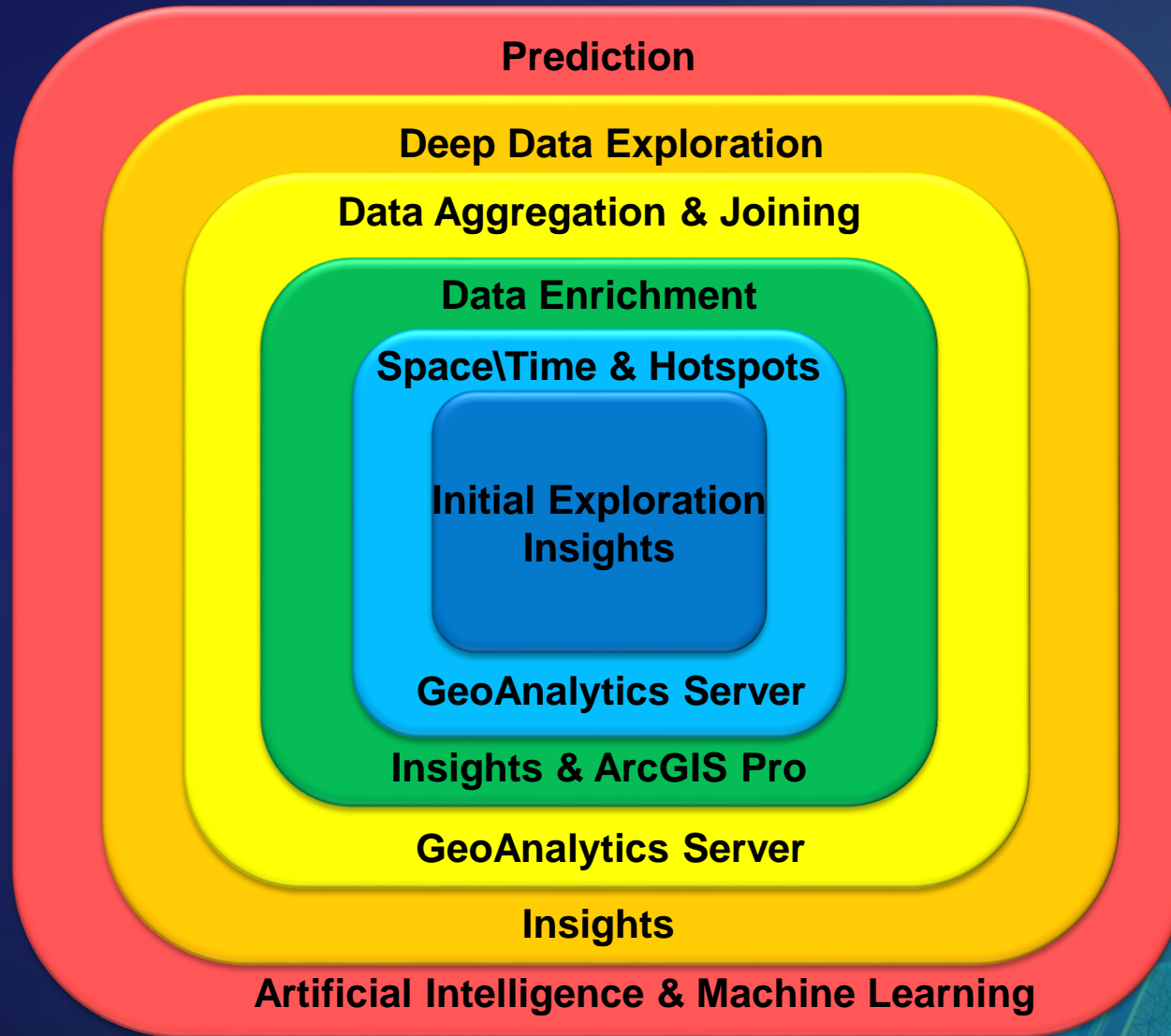
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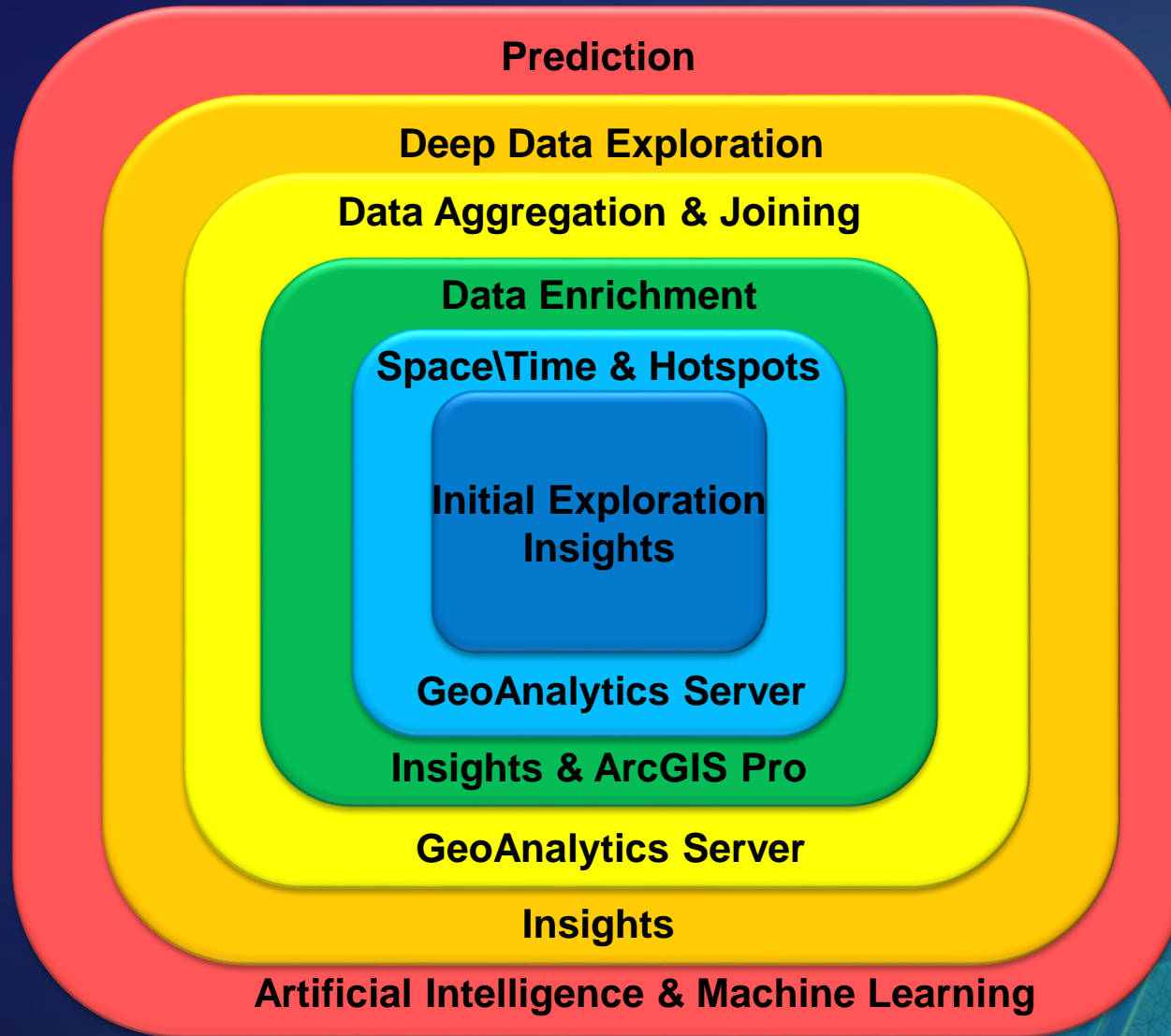
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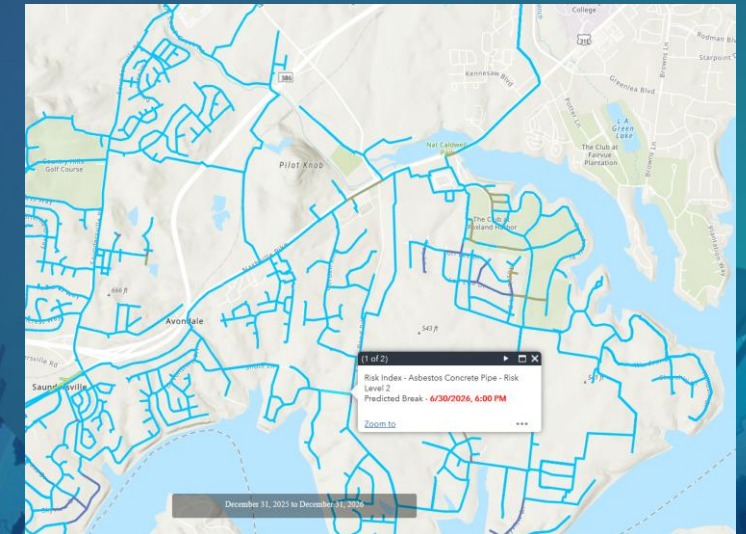
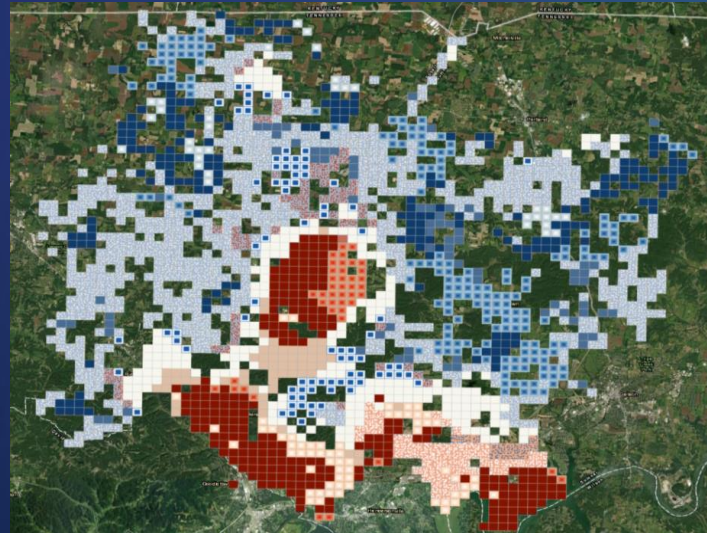
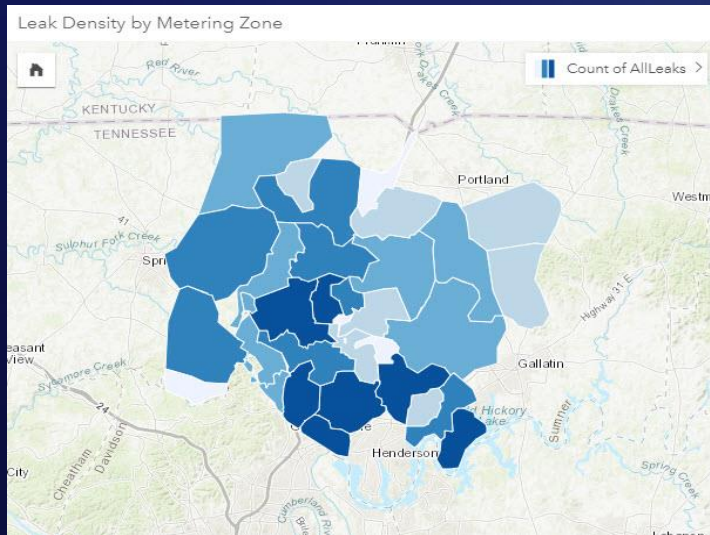
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Spatial Business Intelligence

Spatial Analysis is Critical to Water Utilities

- Insights for ArcGIS – Understand our past
- GeoAnalytics Server – Analyze big data in space and time
- Predictive Analysis – Forecast where future problems might occur





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**THE
SCIENCE
OF
WHERE**