

ArcGIS in Telecommunications

Leveraging ArcGIS Solutions to Enhance the Quality of Service

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About Us

- **InfoGraph** is the leading Geographic Information System (GIS) and Remote Sensing software supplier and GIS application provider in Jordan.
- It is the sole authorized distributor of Environmental Systems Research Institute (Esri), USA, the world-leading GIS company.
- The Company maintains a staff of professional GIS specialists, Esri-certified trainers, and technical support.
- Since 1991, **InfoGraph** has supplied Esri GIS products and provided services related to the development of successful GIS projects at several major institutions in Jordan and in the region.
- **InfoGraph** distributes GIS-based asset management software from Azteca Systems (Cityworks), and remote sensing software from Exelis (ENVI) and other vendors.

About ESRI

(Environmental Systems Research Institute)

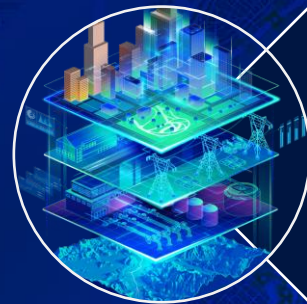
- Established in 1969.
- Esri is the market leader in geospatial mapping technology
- Used by more than 350,000 organizations worldwide.
- Used by more than 700,000 users worldwide.
- Esri platform delivers location-based solutions for the cloud, mobile, desktop and server.



Location intelligence technologies are fundamental for all telecommunications service providers.



Effective Network Management



Supports Comprehensive Understanding



Intelligent Decision-Making

The powerful location and mapping solutions provided by GIS make it a strong tool to for planning, construction, and management of communication networks.

Geographic information Systems (GIS)



Geographic Information System (GIS)

- A spatial system that creates, manages, analyzes, and maps all types of data.
- GIS integrates location data with all types of descriptive information to provide a foundation for mapping and analysis used in almost every industry.



ArcGIS Platform



ArcGIS is a Platform

Provide Mapping, Analysis, Data Management & Collaboration Capabilities

ArcGIS



Apps

Access and Management

Services and Systems

ArcGIS | Comprehensive Geospatial System

System of Insight (Analytics)

- Advance Analytics
- Pattern Recognition
- Decision Support



System of Engagement (Apps and Maps)

- Smart Mapping
- Share & Collaborate
- Mobile & Web Apps



Real-Time Measurement (Field / IoT / Remote Sensing)



System of Record (Transactions)

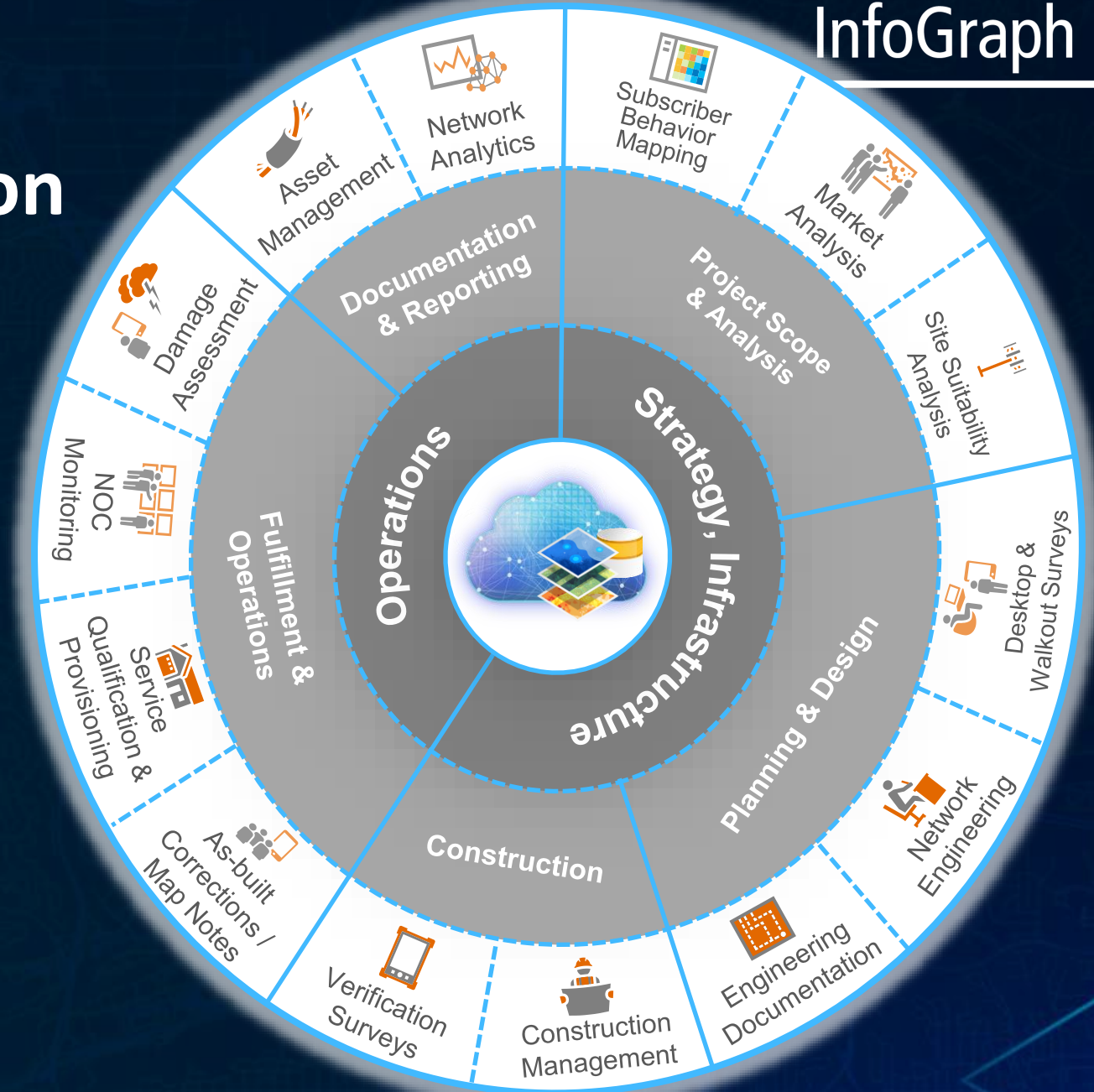
- collect & capture
- Advanced visualization



...as Software, SaaS, & PaaS

ArcGIS In Telecommunication

ArcGIS serves an authoritative, interconnected, and integrated system for all workgroups in a telecommunications organization to support everyday activities and to provide enhanced decision support.



ArcGIS & Enhancing the Quality of Service

QUALITY OF SERVICE

QoS

THROUGHPUT NETWORK
DELAY TELECOMMUNICATIONS RATES TELECOMMUNICATIONS
APPLICATIONS REQUIREMENTS PROTOCOLS
LATENCY PERFORMANCE
STANDARD
CONTROL

Challenges Throughout the Telecommunication Industry

Demographics

Network Outage

Consumer Demand

Field Work Management

Network Coverage

Competition

Data Consumption Rate

Address Marketing

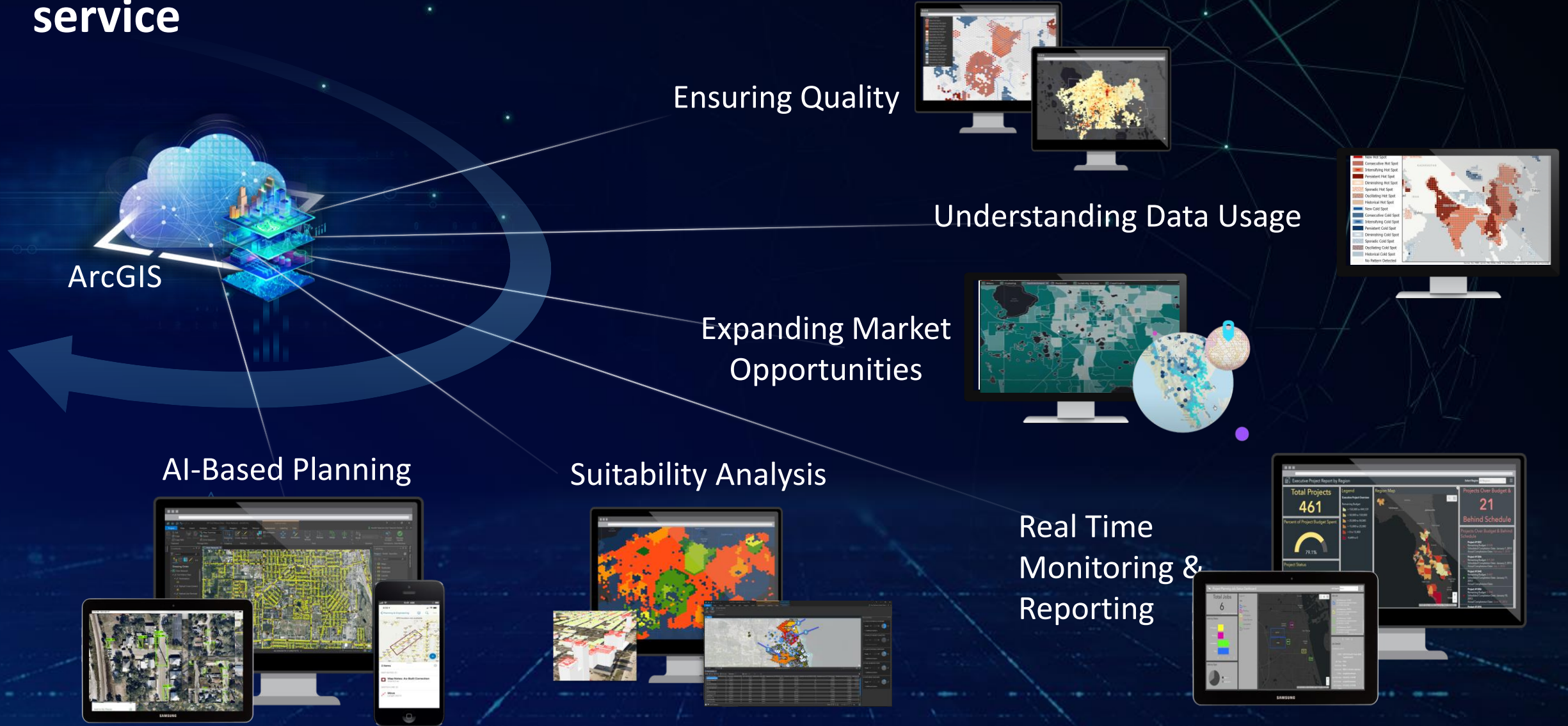
Real-time Project Status

Evolving Workforce

Accurate Location Intelligence

InfoGraph

ArcGIS Offers various analysis tools that can assist work planners in understanding where to enhance the quality of service



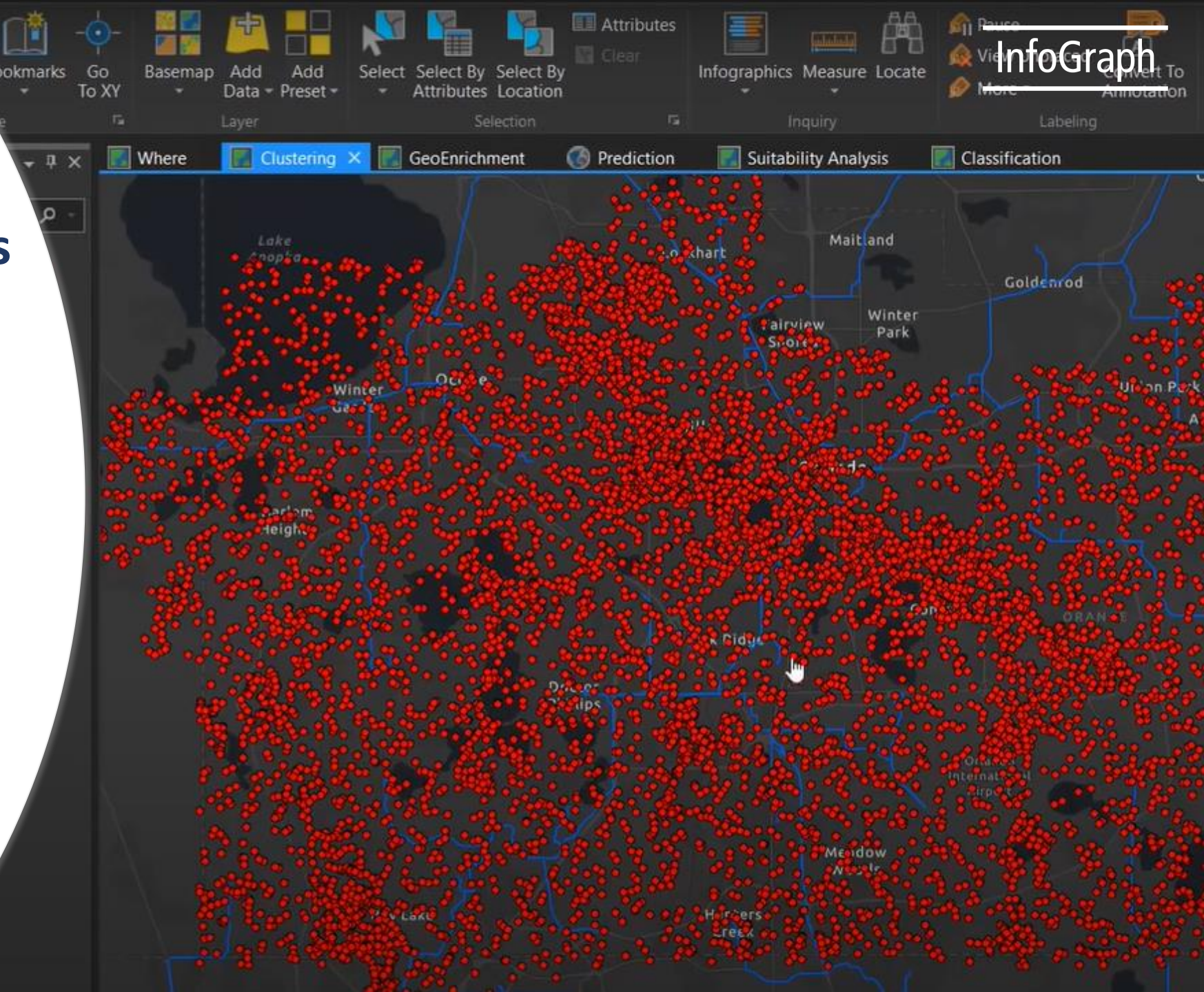
Ensuring Quality



Challenge:

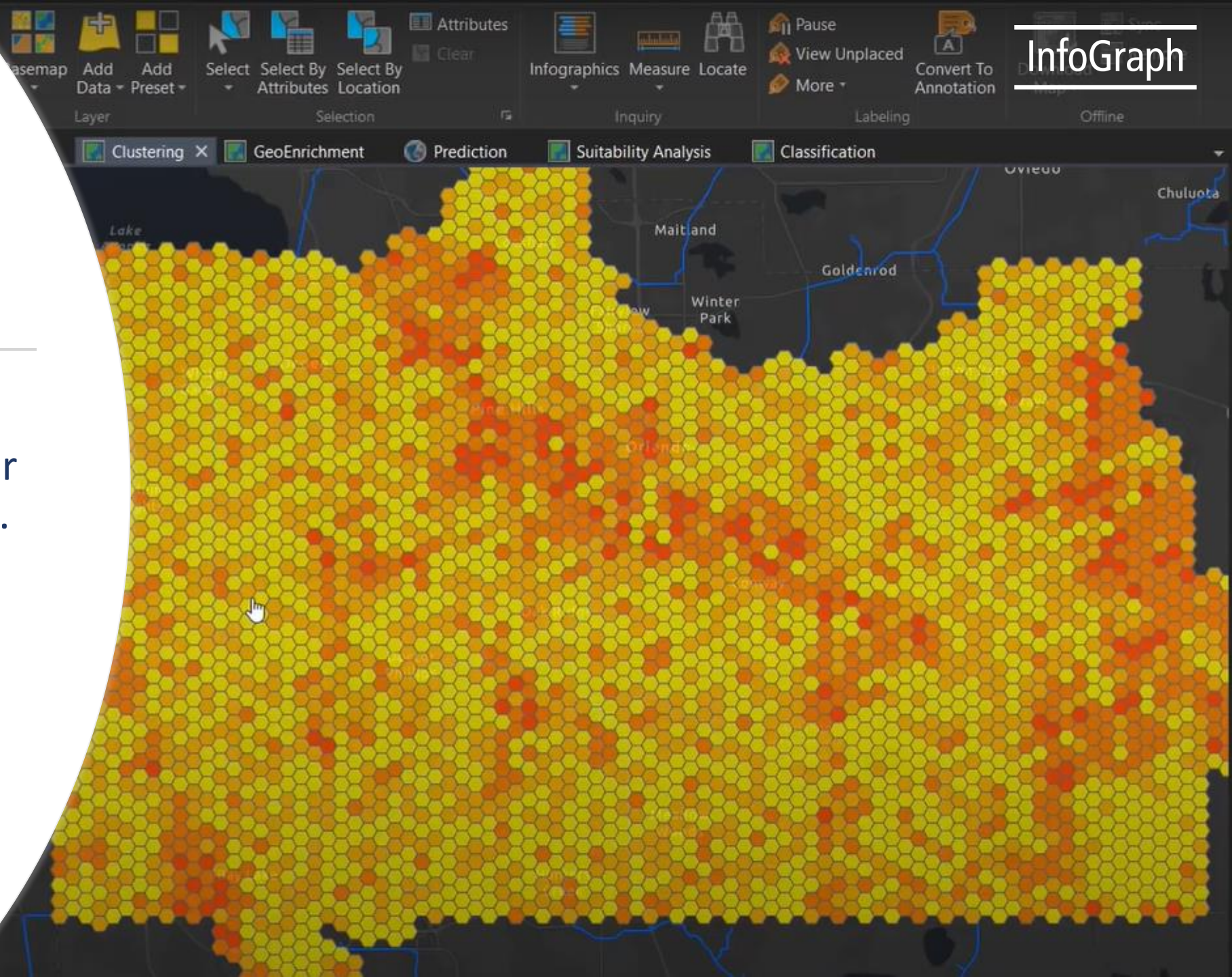
Dropped Calls Locations

- Unclear Patterns
- Lack of ability to define the locations with the most dropped calls

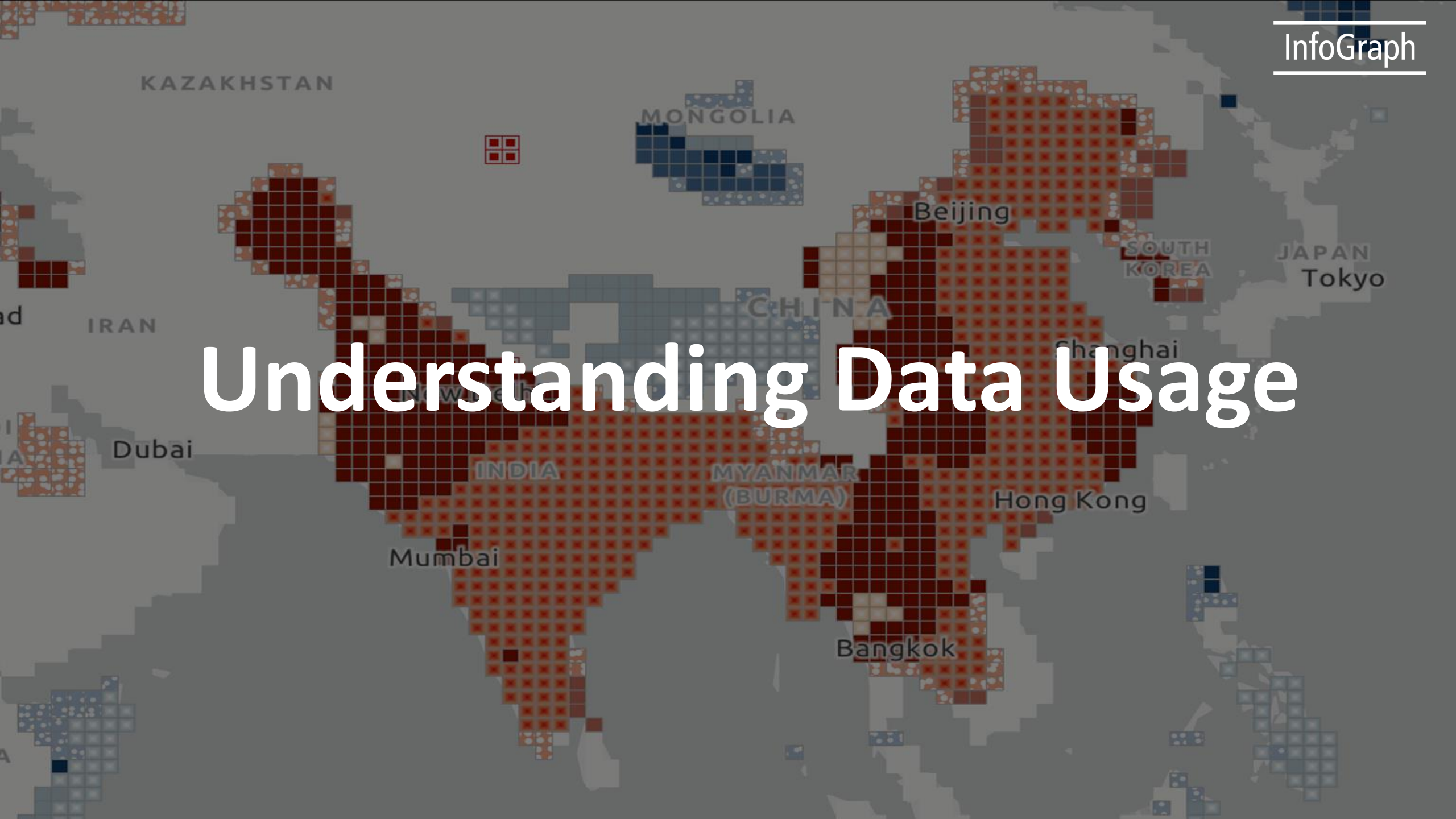


ArcGIS Solution: Cluster Analysis

- helps in group these points based on similar location or attribution.
- produce heat map of dropped calls which helps planners to identify areas with poor coverage Quality



Understanding Data Usage



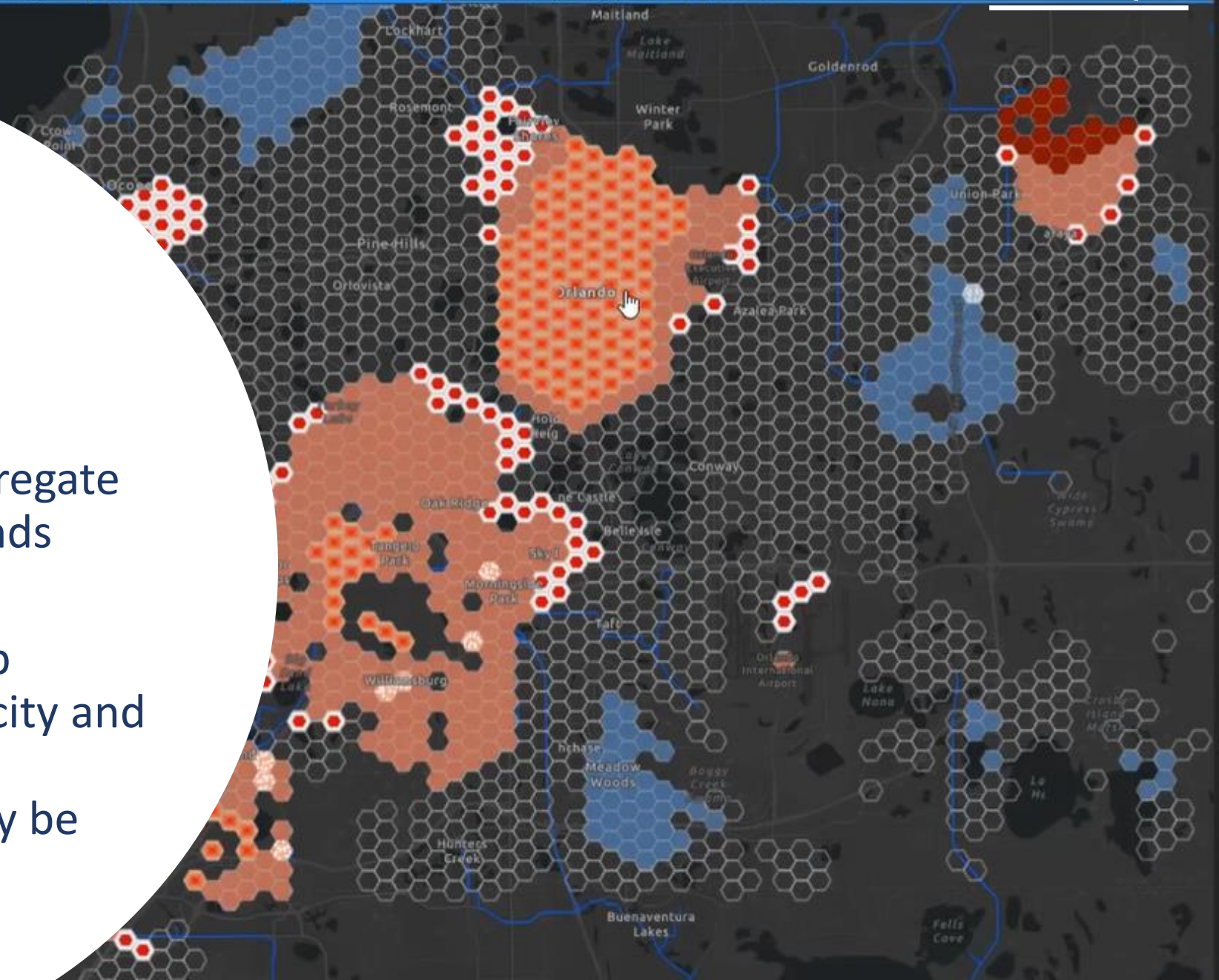
Challenge: Historical Data

- Lack of ability to define where and when was the highest data consumption rate
- Unclear vision of where to increase coverage and services.

*“Historical data from 2013-2017
for data consumption “*

ArcGIS Solution: Hot Spot Analysis

- Ability to visualize and aggregate historical patterns and trends within available data
- Helps to determine the gap between the existing capacity and estimated capacity so that necessary adjustments may be made.



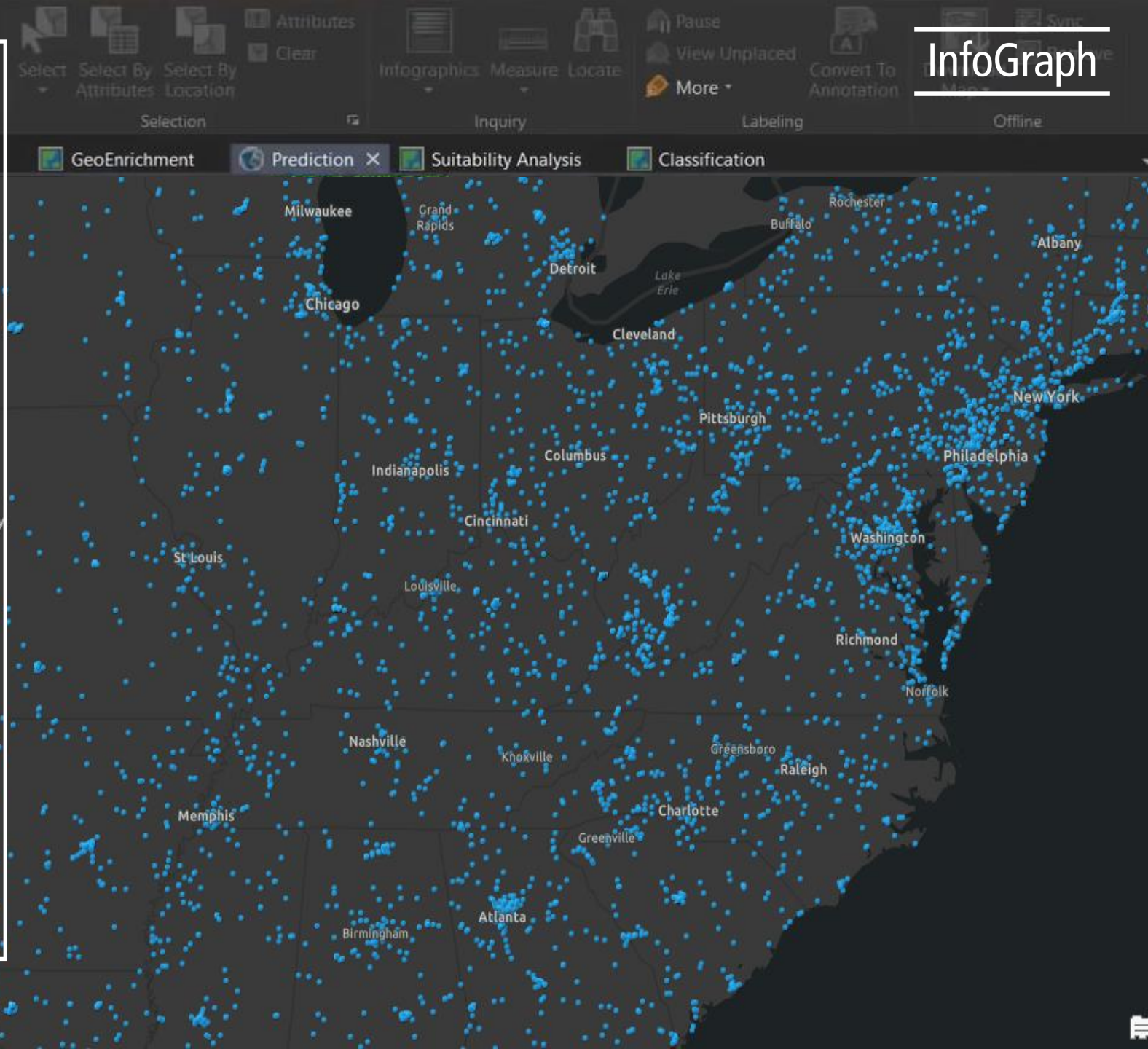
Expanding Market Opportunities

Expand



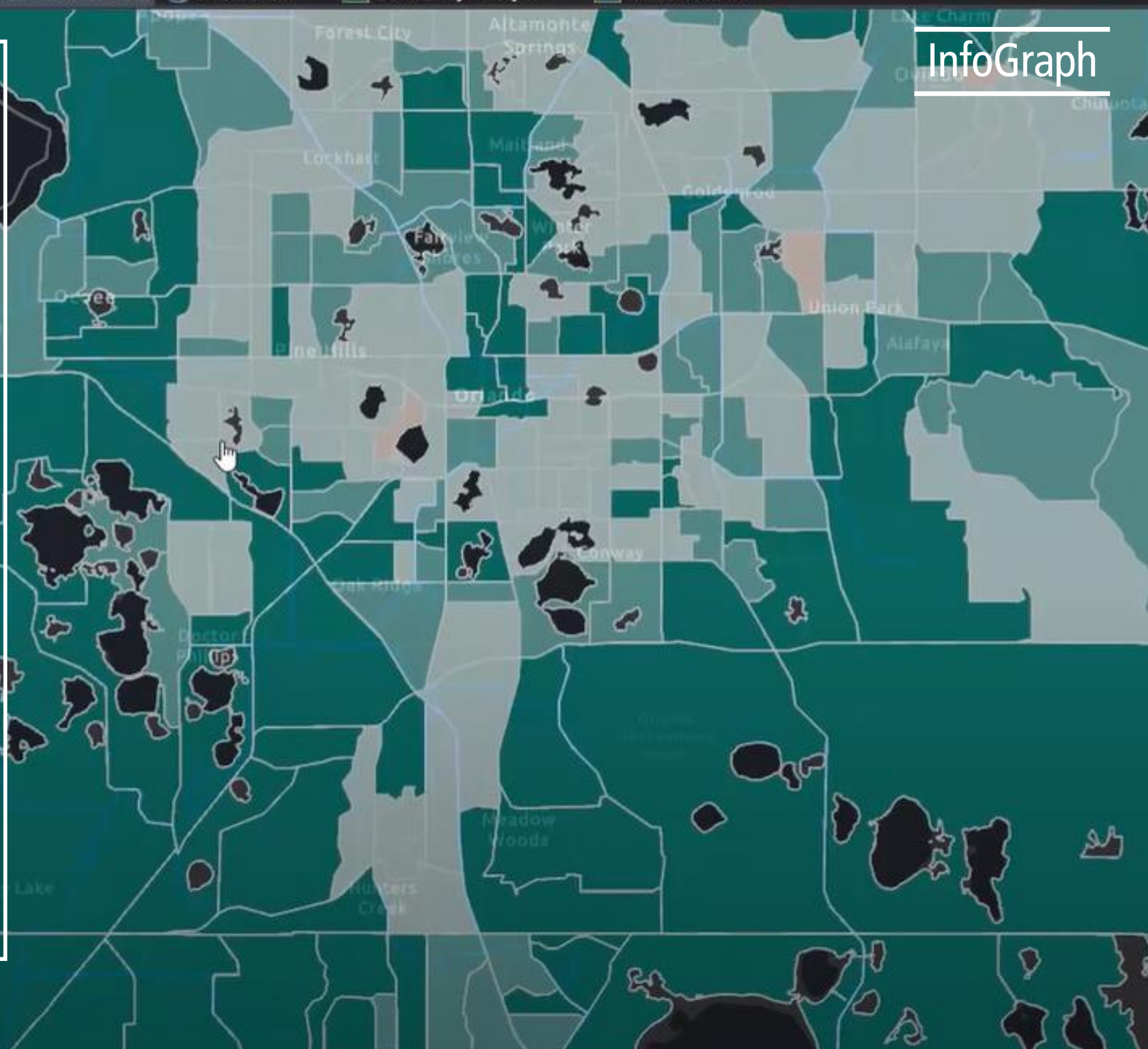
Challenge: Customer Prospecting

- Lack of ability to define where the potential customers are.
- Unclear vision of where to increase Marketing campaigns

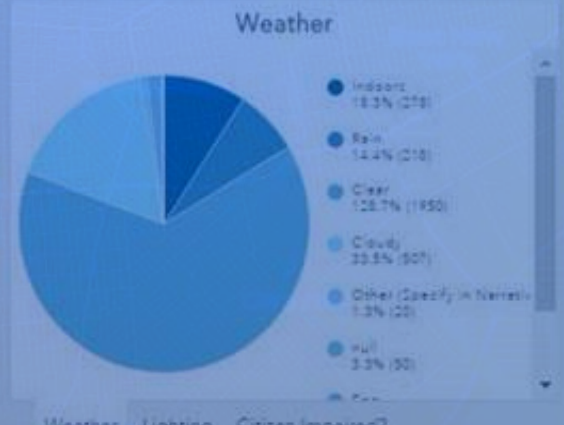
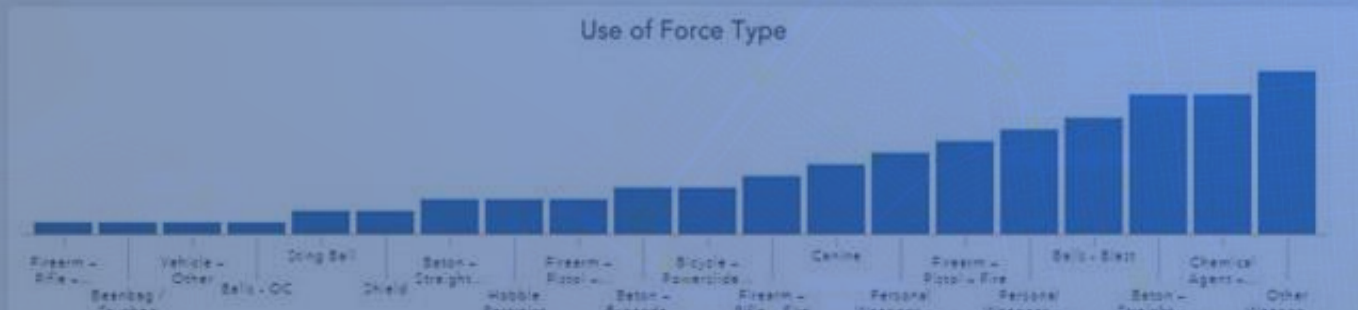
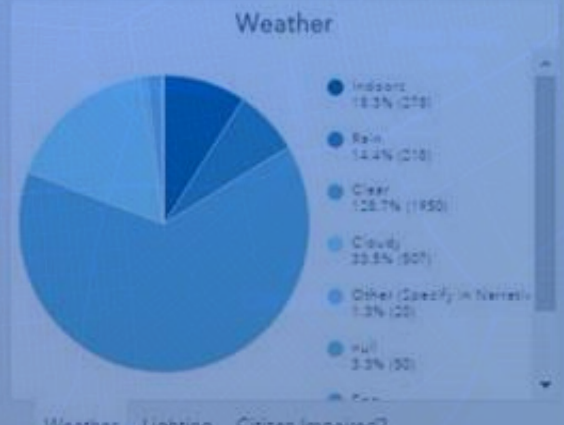
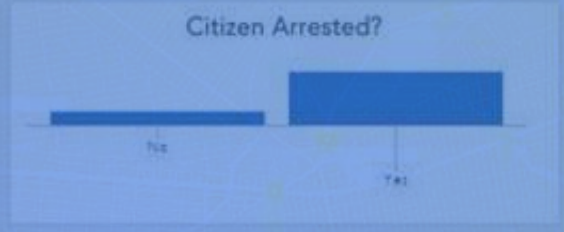
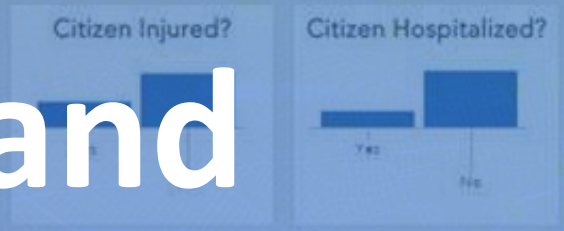
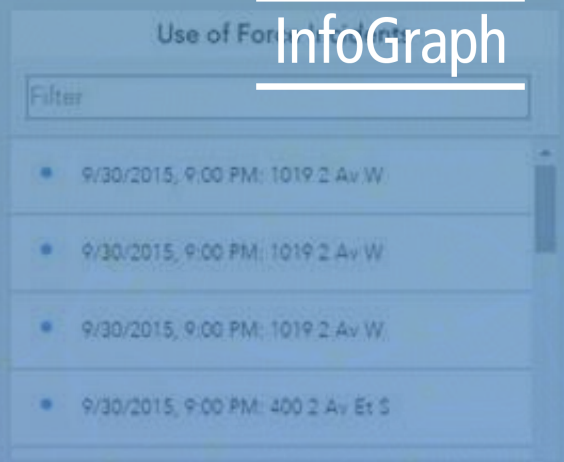
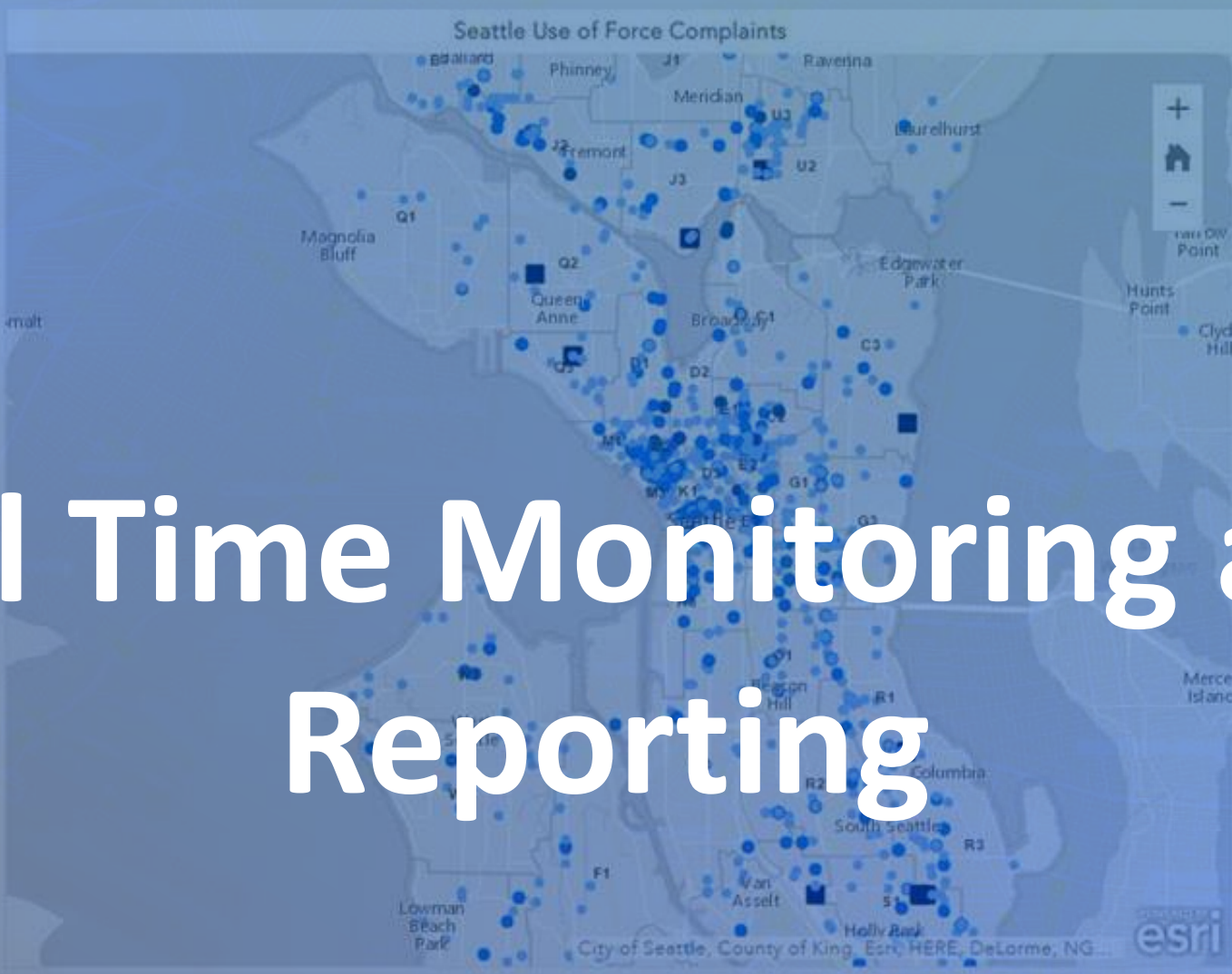
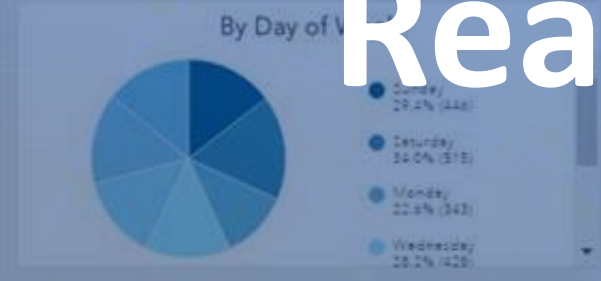
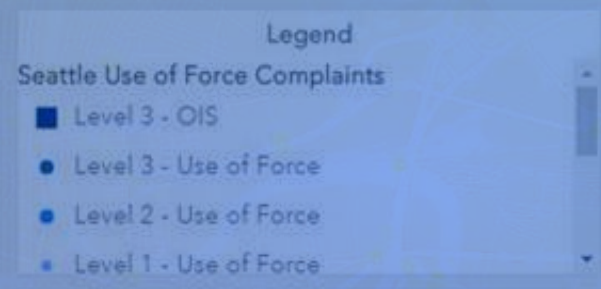


ArcGIS Solution: Geo-Enrichment Tools

- Take third-party data (ex: demographic data) and appends it to your own datasets.
- Helps in locate where we might have additional subscribers in the future.
- Identification of Market Trends and Competitive Threats



Real Time Monitoring and Reporting



Challenge: Static Network Outage Reporting

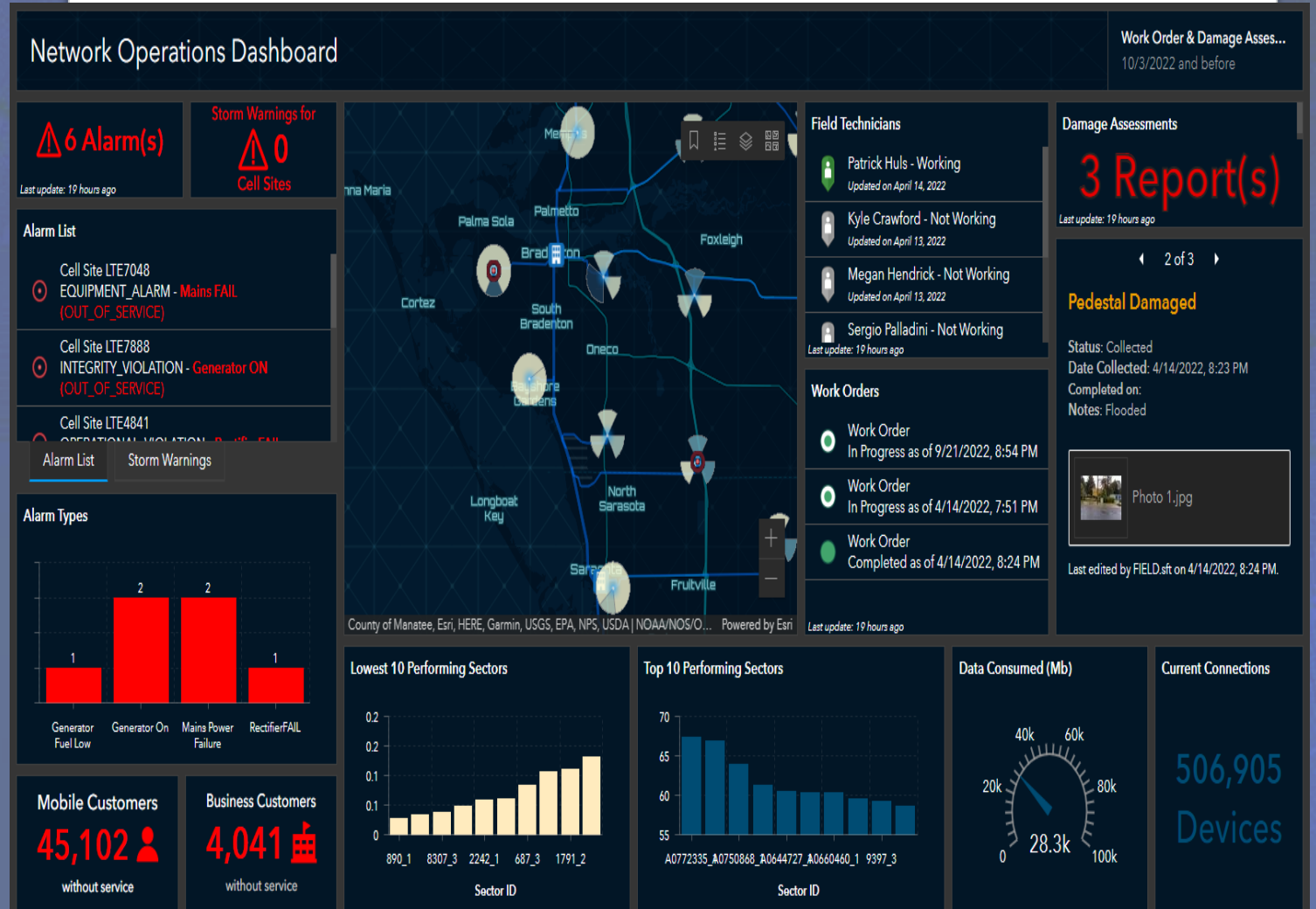
Hard to recognize:

- Location of the incident.
- Status of the field workers
- Status of the work orders

| Report Details | | | |
|--------------------------|--|--|---|
| Date Report | 26-Dec-17 | Recorded by | Larisa Tomanchiuk |
| Incident Number | Gen-223-TAS | Role of Recorder | Safety Supervisor |
| Incident Details | | | |
| Date of Incident | 21-Dec-17 | Location of Incident | Conference room #204, Building B, Hightower complex, Perth, Australia |
| Incident Type | Equipment Malfunction | Status of Incident | In Documentation Process |
| Incident Description | During a status update meeting between the PM and the SAP SME's, the built in projector stopped working. A helpdesk tech was called in to bring in a replacement projector, and the one that was brought in had a short power cable. The PM tried to connect it to a wall power socket, and while doing so dragged it a few inches on the table. The projector collided with an open coffee cup which was lid-less, causing it to spill on a laptop belonging to Grace Wozniak. The liquid caused an electrical malfunction, and the laptop stopped working as a result. | | |
| Involved in the Incident | | | |
| Name | Role | E-mail | Phone Number |
| Grace Wozniak | SAP MM SME | Gwoz@example.co | 1-202-551-6391 |
| Najib Patel | Project Manager | Npat@example.com | 91-55237-88456 |
| Jay Banes | IT helpdesk | Jbanes@example.c | 1-202-223-1017 |

ArcGIS Solution: Dashboard

- Better visibility of network operation
- Monitor Work orders and trouble tickets
- Informative & real-time reporting.
- Tracking the location and status of the field workers



AI-Based Planning

PATTERN
RECOGNITION

ARTIFICIAL
INTELLIGENCE

MACHINE
LEARNING

NEURAL
NETWORKS

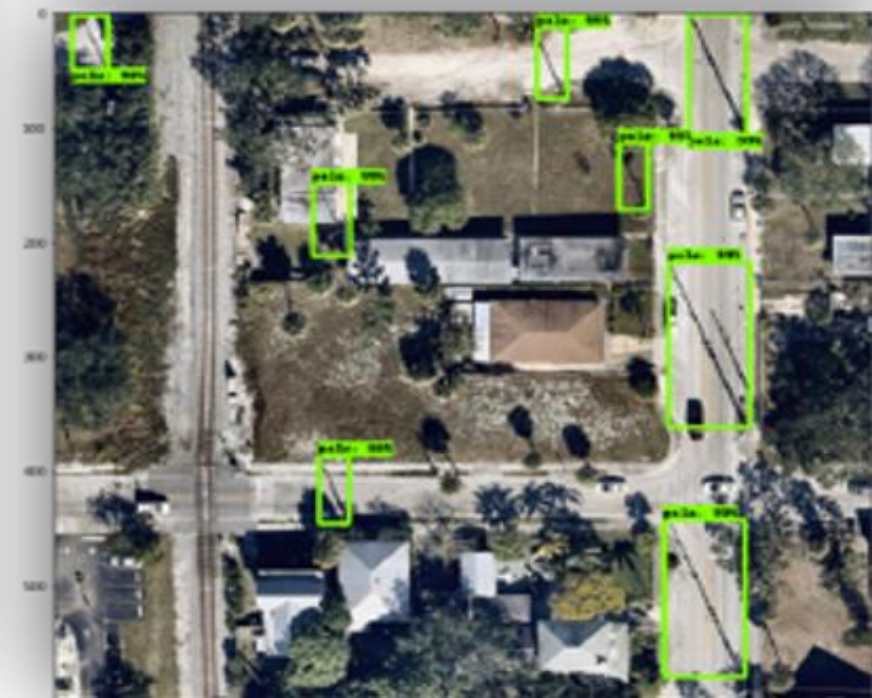
DATA MINING

ALGORITHM

PROBLEM
SOLVING

ArcGIS Solution: Object Detection (AI & Deep Learning)

- Locate objects within images
- Locate the poles, water towers and any other structure that can be potentially attached to our equipment
- Reduce the areas needed to be inspected by field workers

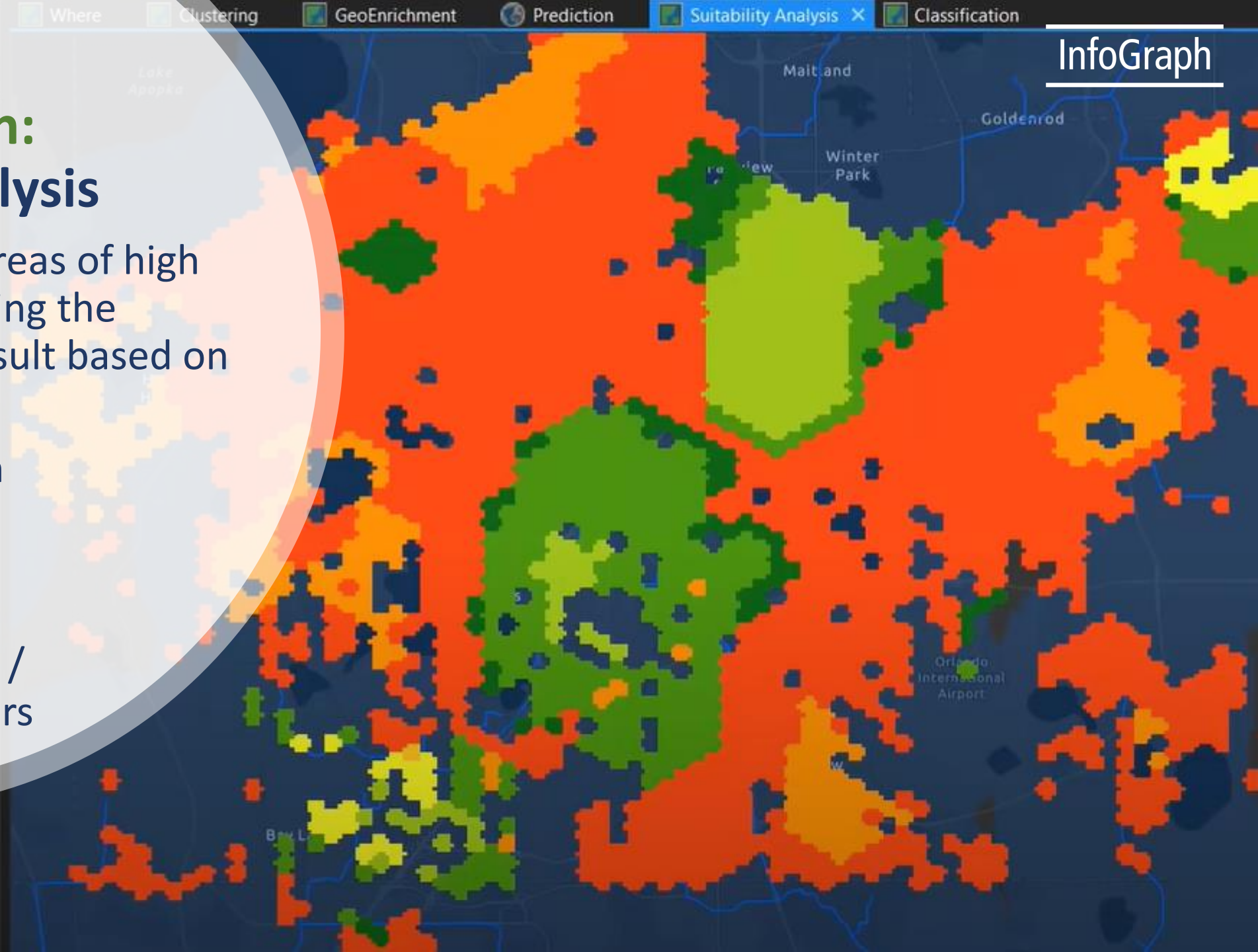


Suitability Analysis

ArcGIS Solution: Suitability Analysis

- Allows to locate areas of high suitability by ranking the spatial analysis result based on specific criteria:

- Data consumption
- Poor coverage
- Dropped calls
- No. of subscribers / potential customers



With ArcGIS, All teams in a telecommunications organization can be assured that they are making intelligent decisions, establishing competitive advantage, maximizing return on investments, and ensuring a long-term and positive customer experience.

Thank You