THE POWER OF SPATIAL ANALYTICS

How leading organizations uncover hidden insights in their data with technology from Esri and Microsoft

OVERVIEW

THERE'S NO SHORTAGE OF DATA. In fact, there's often too much of it. The central problem of data analysis is not finding more data. It's finding the best ways to describe data in the right context.

With so much data available from so many sources, what's needed is a way to tie it all together. Spatial relationships stand out as the most effective link—showing us what's happening and *where*. In this way, spatial analytics connects abstract data to the real world. Location makes volumes of disconnected data related, and poignant.

This is how geography is powering the latest analytics revolution. That single additional piece of data—*where?*—changes terabytes of numbers into something else: valuable insight.

FROM INSIGHT FLOWS ACTION. The biggest companies in the world have discovered the impact of spatial analytics and are using it to tackle a surprising range of problems.

It's not just about the location of assets. It's about the location of *critical* assets and the ability to identify those most vulnerable to climate change. It's not just about where the best sales were last month. It's where sales have changed, and why there?

If you're looking for new locations for a fast-food chicken company, or curbside pickup locations for a big-box retailer, those are "where" questions by nature. You can look at who your customers are, what land costs, what traffic patterns are every 30 minutes, and who is hungry or underserved by either fast food or big-box retail. You can use location data to look at all those things simultaneously—and choose spots for drive-throughs or curbside pickups that are convenient, meet unmet needs, and build business.

These are relatively simple problems for spatial analytics. That's the quiet power of where: It turns data into decisions.

MICROSOFT CHOSE ESRI AS ITS SPATIAL PARTNER in Microsoft Fabric, its new analytics and data platform. Harnessing the power of *where*, Esri is the global market leader in geospatial technology. Esri's consistent development and innovation of its ArcGIS geospatial platform make today's spatial analytics more powerful than ever.

Whether the problem is the optimal location for a new coffee shop or transit stop, or areas vulnerable to climate change, the question always comes down to *where?* And the more complicated the problem, the more intractable or multilayered it is, the more powerful Esri's ArcGIS technology can be.

Spatial analytics is a core component of any advanced analytics platform, precisely because it uncovers critical patterns, trends, and other hidden connections within data. Across industries and the public and private sectors, organizations can leverage ArcGIS spatial analytics inside Fabric, unlocking the power of location to guide efficient and ultimately successful planning, operations, and decision-making.

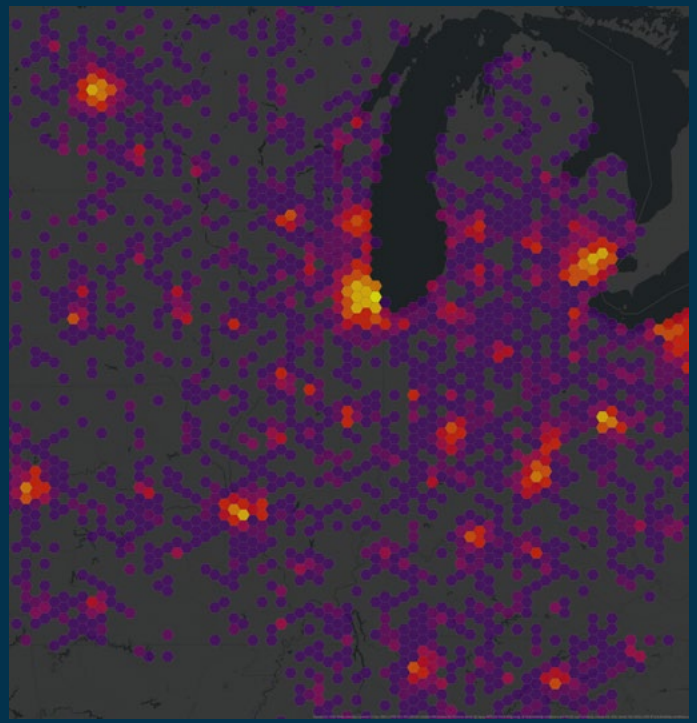
Why Spatial Analytics—and the Location Intelligence It Provides—Is Essential

SPATIAL ANALYTICS ANSWERS CRITICAL QUESTIONS, like where consumer markets are growing or where populations lack access to health care.

Esri's geospatial capabilities inside Microsoft Fabric empower a wide range of spatial analyses directly on a map—with algorithms and workflows purpose-built for translating all kinds of data into map-based visuals.

Data scientists and analysts can share the results of their analyses with decision-makers and stakeholders in the same user-friendly map-based view. They can create interactive applications that allow nontechnical users to manipulate spatial data on their own, in addition to traditional reports with charts and graphs.

DATA PROFESSIONALS AND DECISION-MAKERS ALIKE can see what's happening, where, with great accuracy and greater context.



MARKET ANALYSIS

For one of the world's leading apparel companies, the ability to mesh different data sources has produced a wealth of actionable intelligence. For instance, company analysts can pinpoint how many degrees the temperature must drop before customers are motivated to buy winter wear. This information varies by geographic location and by whether customers decide to purchase apparel through online retailers or from brick-and-mortar stores.

For the company, the value of spatial analytics was not merely the way it helped analysts do their jobs. The intuitive nature of maps and accompanying dashboards available to employees throughout the company allows even non-scientists to draw more insights from data.

This democratization of data has led to an overall rise in the kinds of questions that can be asked and answered.

Press to hear the podcast

SITE SELECTION

As infrastructure funding increases, the scale of fundable projects requires a way to track parts and processes. That includes documenting progress and analyzing the expenditures of money and time.

One major firm specializing in large architecture, engineering, and construction projects uses spatial analytics to track development over a project life cycle. For instance, a 500-mile power line build includes maps that interlace dozens of datasets—everything from geographic boundaries to environmentally sensitive areas for contractors to avoid.

Construction and maintenance teams feed new data into the maps, helping project managers make decisions and adjust expectations. In this way, the hundreds of different people involved in the process can all consult a single source of truth.

Read the full story.

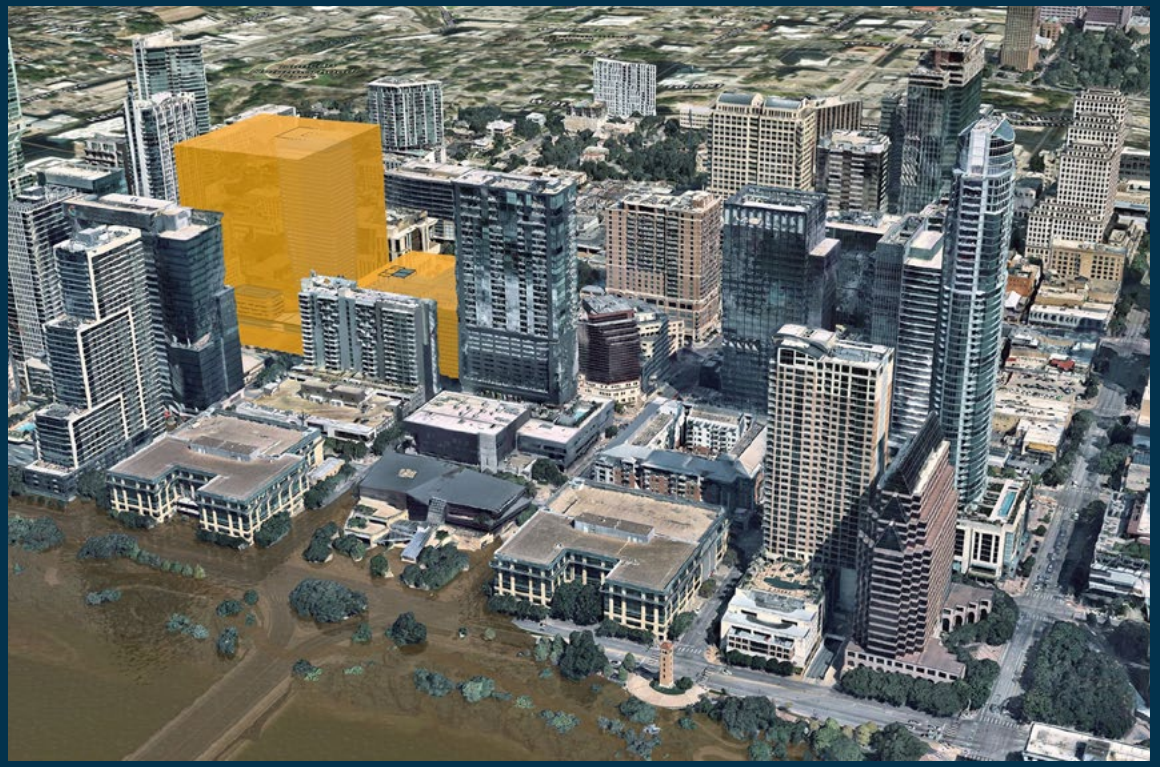
SUPPLY CHAIN OPTIMIZATION

Agricultural companies have emerged as some of the most enthusiastic practitioners of spatial analysis. Resource scarcity drives up the price of water and other commodities, while environmental concerns have spurred companies to adopt more stringent standards.

A Fortune 500 beverage conglomerate, for example, uses spatial analytics to analyze the output of the company's agricultural suppliers. This helps executives better understand cost fluctuation, while ensuring that all activities operate with maximum efficiency.

The ability to examine operations on various scales also helps the company ensure it is meeting sustainability goals.

Read the full story.



URBAN PLANNING AND DEVELOPMENT

A lot of questions about optimal locations require deep real estate knowledge. That means combining physical data (where businesses are located and who lives near them) with more abstract data (land prices over time and the many factors that influence them).

At one of the largest real estate firms in the world, agents, brokers, and analysts alike rely on spatial analysis to guide clients through decision-making. By layering consumer trends, demographics, labor availability, transportation routes, and other key location information onto a map, they can identify optimal locations for new developments—and see where to avoid.

Interactive maps and dashboards bring the data to life, showing the potential impact of new sites on the existing market. These powerful visualizations inform confident plans for long-term growth and sustainability.

Read the full story.

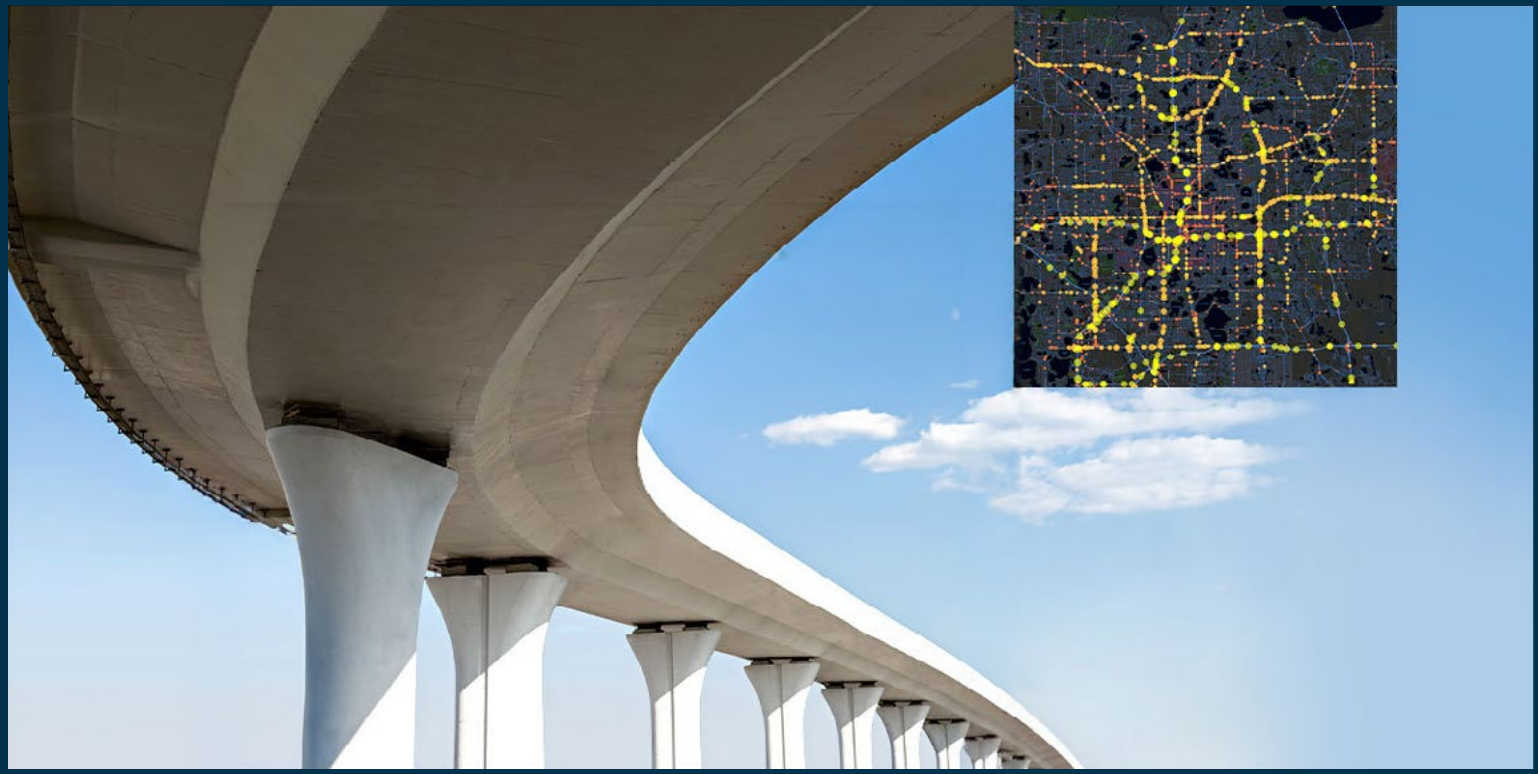
ASSET AND NETWORK MANAGEMENT

For CIOs, spatial analytics helps them approach IT tasks in new ways and drive value across the enterprise. The CIO for a large East Coast utility company merged data about billing, operations, and customer care with sophisticated maps of assets.

The result was a spatial view of the company's entire system that serves multiple purposes. When a tornado swept the state, technicians could see the exact locations of underground pipes, connections, system shutoff valves, and customers. They could also record where, how, and when operations teams repaired damage after the storm.

By continuously collecting and saving data, the spatial analysis possibilities increased over time. For instance, the company's sales and marketing managers now consult digital maps for an up-to-date view of prospective customers.

Read the full story.



TRANSPORTATION AND LOGISTICS

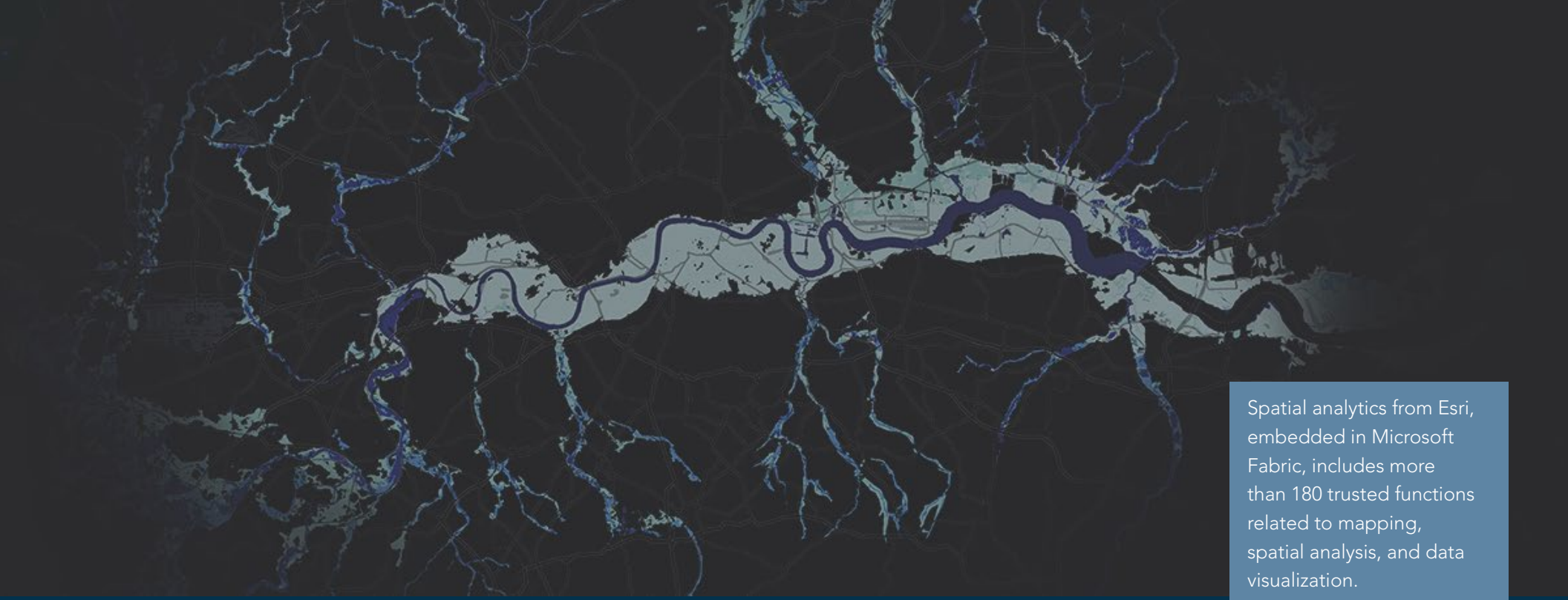
An organization's success depends on its ability to adapt to changing conditions—balancing speed, thoroughness, and efficiency. Spatial analytics enables companies to ingest large amounts of data from multiple sources and extract insights with unprecedented speed and accuracy.

A senior analyst at one of the nation's largest truck leasing companies employs spatial methods to automatically analyze and map sales territories for its 1,500 sites—achieving in one day a task that previously required six months to complete.

With this new efficiency, the analyst can respond to management concerns by generating new maps as new considerations arise. These maps help achieve objectives as varied as identifying risk exposure and ensuring sales territories do not overlap.

Read the full story.


TEN BUSINESS BENEFITS OF SPATIAL ANALYTICS
The value of organizational data magnifies when paired with the crucial context of location. By taking advantage of spatial analytics, organizations can:
1
Answer crucial questions like, "Where should we deploy resources to mitigate climate risk?" or "Where are our best customers and more like them?"
2
Monitor, manage, and analyze key performance indicators with maps that reveal asset performance plus location-based patterns—both hyperlocal and big picture.
3
Locate areas of opportunity, such as untapped markets or underserved populations, to better serve customers and constituents.
4
Optimize operations using data from sensors, real-time feeds, weather, demographics, and more to analyze assets, customers, workforce, resources, and supply chains.
5
Leverage AI and machine learning for spatial analyses and predictive modeling that can create reports and data visualizations with unprecedented speed and accuracy.
6
Make high-stakes decisions with a clear understanding of all the factors that impact your business to drive new levels of efficiency and growth.
7
Improve collaboration and situational awareness by sharing information across teams using tools like smart maps, charts, and data storytelling.
8
Model and predict change by forecasting scenarios for proactive planning, resource allocation, and risk management, then iterating those scenarios to see where to maximize profit and minimize risk.
9
Make sense of big data at pace and scale for a complete, up-to-date operating picture of business systems—from a single site to a global network.
10
Promote sustainable outcomes by analyzing the impact of business decisions, such as where a proposed development would impact biodiversity, where sea level rise will affect vulnerable people or assets, or where to reroute a weak link in the supply chain.



Spatial analytics from Esri, embedded in Microsoft Fabric, includes more than 180 trusted functions related to mapping, spatial analysis, and data visualization.

CONCLUSION

THE POWER OF ADVANCED SPATIAL ANALYTICS has become indispensable for achieving successful business operations.

With Esri's best-in-class geospatial technology in Microsoft Fabric, enterprises gain access to a comprehensive array of spatial data and analytics tools. The patterns and trends they can uncover and the connections they can make will empower new levels of efficiency and growth.

With location intelligence from spatial analytics, organizations are better equipped to explore new opportunities, mitigate risks, and execute strategies that align with both their operational goals and broader environmental and social responsibilities.

As spatial analytics continues to evolve, the partnership between Microsoft and Esri will likely play a key role in shaping the future of effective problem-solving and strategic decision-making.

Explore the power of spatial analytics.

ABOUT ESRI

Esri, the global market leader in geographic information system (GIS) software, location intelligence, and mapping, helps customers unlock the full potential of data to improve operational and business results. Founded in 1969 in Redlands, California, USA, Esri software is deployed in more than 350,000 organizations globally and in over 200,000 institutions in the Americas, Asia and the Pacific, Europe, Africa, and the Middle East.

Esri has partners and local distributors in over 100 countries on six continents, including Fortune 500 companies, government agencies, nonprofits, and universities. With its pioneering commitment to geospatial information technology, Esri engineers the most innovative solutions for digital transformation, the Internet of Things (IoT), and advanced analytics.

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