Location Analytics
for Financial Services

An Esri® White Paper
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Overview

Business analytics is now pervasive in almost every financial institution, large or small. Current estimates are that 97 percent of large companies leverage analytics, with over 100 million users worldwide. And this is for good reason. A recent study by the International Data Corporation (IDC) discovered that data-driven businesses—those that look at, analyze, and understand their data—are 6 percent more profitable and 5 percent more productive. Think it's only for analysts and line-of-business managers? Think again. Analytics users are spread out across all functional areas and all levels of management, from executives to line operations and from managers to knowledge workers. More than 45 percent of organizations realize benefits within six months of focusing on exposing analytics more widely across the business.

Location Analytics: Where Are You Missing?

Location analytics is the technology that helps people *see* and *understand* where their data is, not just what it is, using geography to add context, connect different datasets, and create intuitive visualizations. It's based on bringing together dynamic, interactive mapping; sophisticated spatial analytics; and rich, complementary data. It enables organizations to pivot from asking questions about *what* and *why* to predictive analytics and investigative data exploration that answer the *so what* and *what if*? This new lexicon becomes a way to share ideas and collaborate around predictions, goals, and opportunities.
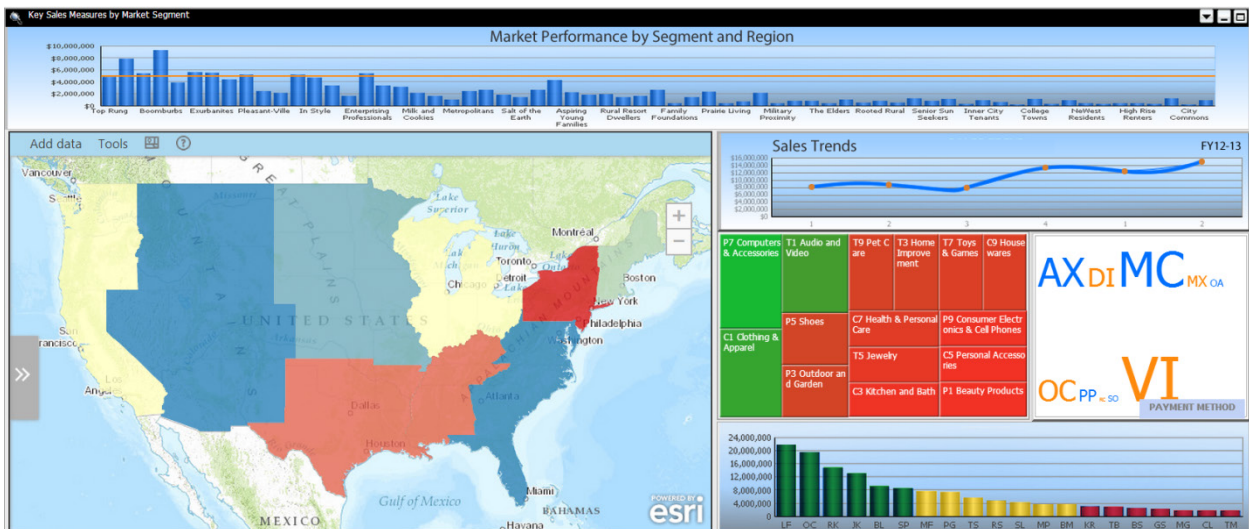
Add rich map interactivity and analysis to your BI dashboards.

More and more financial organizations are adopting location analytics to extend their established business analytics software and get new returns from prior investments in technology and process standardization. Spatial visualization was selected as one of Deloitte's top 10 technology priorities of 2012, while a Ventana Research report in September 2013 noted that while only 12 percent of all companies effectively capture and analyze location data today, analytics is the top-ranked technology focus in 39 percent of all organizations.

The mapping and spatial analysis process is emerging as an important segment of the business analytics software category. This new segment is helping organizations realize they don't need to solve the same problem over and over, because location analytics apps work directly within business analytics packages and enterprise data systems they have with no custom integration required.

In recent years, location analytics has become more accessible to a wider audience. Location is now increasingly part of business data; in fact, nearly every twenty-first-century data source now contains location. This makes it possible to connect different datasets to wire different data services and technologies, which include big data tools, social media, business intelligence, office and productivity tools, and content management. Location analytics is increasingly being used to operationalize exploration and insight so that people can seamlessly move from discovery to action. This benefits everyone, as location analytics can help organizations save time, increase profitability and competitive advantage, and reduce risk.

These systems allow financial organizations to maximize their investment in enabling people, process, and performance while shifting the business agenda to be more focused on predictive analysis rather than reactive activities. Transforming an organization's data into actionable information through discovering and illustrating patterns, trends, and relationships in tabular business data lets those organizations move from *what do I see* to *what does this mean*? Typical graphs and charts that are used as output for business information can miss the most important aspect of an organization's data—*where* things are located. Whether understanding why certain products are more popular at which branches, what is driving wallet share, or where to target your marketing campaigns, location-based information is an important piece of knowledge that too many executives are missing.

See Content in Context

Location analytics helps you discover and analyze what's important. In essence, it will help you not only find the proverbial needle in the haystack but understand what that needle means. Financial services companies are trying to make sense of what they have—to get to the facts, connect the dots, and get some actionable business intelligence. Yet the very nature of big data makes it hard to understand and find those all-important correlations and connections.

Financial institutions store almost everything, including financial transactions, customer interactions, social media messages, and so forth, and link them to histories, trends, and economic indicators. The whole sector is trying to get better answers and shorten the business cycle. However, for many companies, the answers just lead to more questions. Most businesses stop giving insight and delivering business value to businesspeople because they are not intuitive or because they don't provide actionable intelligence that is

used in making better business decisions. As a result, so-called business intelligence becomes just another data point, and the whole cycle starts again.

Location analysis is a powerful way to connect people to place, transactions to actions, responses to trends, and customers to both where they do business and what kinds of business they do. It converts big data into packets of insight information, expanding visual discovery and demystifying questions so they may be properly understood for the first time, every time.

Getting ahead of the Big Data Wave

From fraud detection to branch optimization and customer loyalty to product segmentation, location analysis is helping shift the advantage of big data in favor of financial services companies. The only question now is how many will seize the opportunity and put location analysis on the front line of the big data battlefield.

Hot Spots

Take heat maps, for example. Heat maps portray geographic patterns using color to represent clusters and concentrations. They convert individual data values into trends and patterns that highlight hot spots, anomalies, and distributions so they can be more easily identified and understood. Heat maps let you understand patterns over time and space so are often used for fraud analysis and to look at how financial transactions vary across the ATM and branch networks by day part, bank type, and outlet. Many financial institutions use hot spot analysis and heat maps to identify gaps and opportunities in their geographic coverage and competitive concentrations.
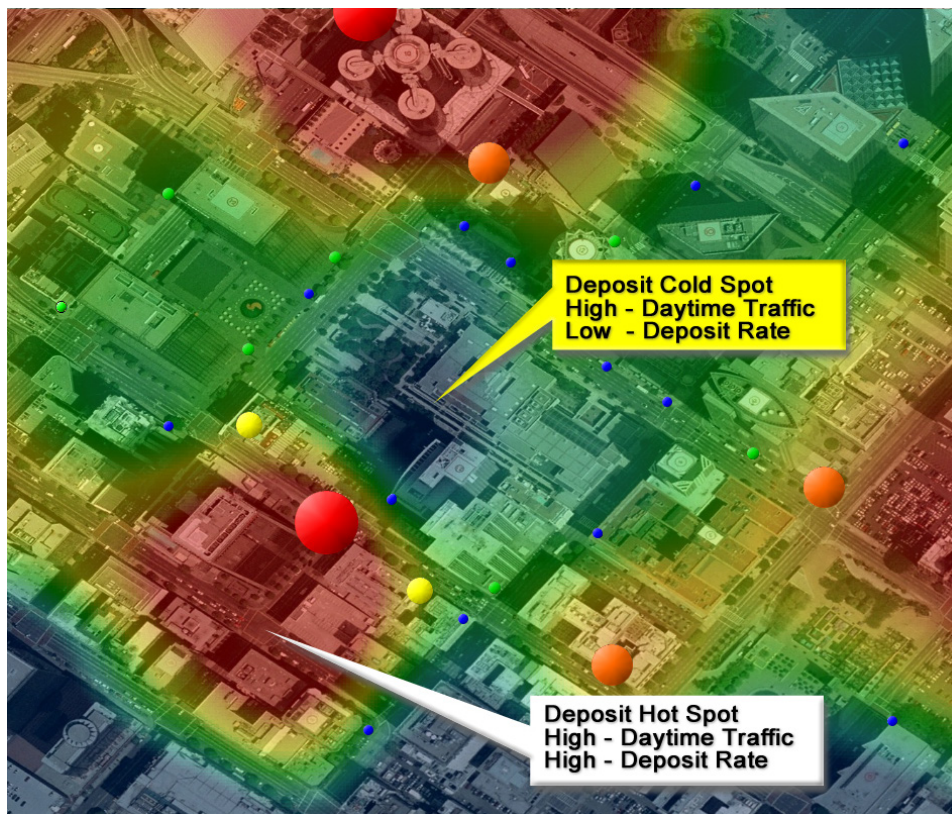

Understand hot and cold spots using performance indicators and transactional data.

Hot spot analysis is a powerful technique that allows marketers to find the most profitable customers in an area and then identify new targets that match that profile. Hot spot analysis, coupled with data mining, customer scoring, and other standard business intelligence tools, lets banks identify, target, and retain their most profitable clients. It improves understanding of valued customer segments and pinpointing where they live. By linking location analytics with core banking systems and other data, banks can also tailor branch services and product distribution to maximize their cross-sell and up-sell opportunities. Not only do banks reduce the cost of selling new products and services, but they also improve customer relationships, loyalty, and lifetime value.

Outliers
An unusual or extreme data value in a dataset is called an *outlier*. In data analysis, outliers can potentially have a strong effect on results—for good or bad. Outliers also tend to cluster and may be key to identifying valuable market opportunities and data correlations. Spatial analysis lets financial organizations overlay, visually compare, and statistically measure the significance of relationships between different data values and
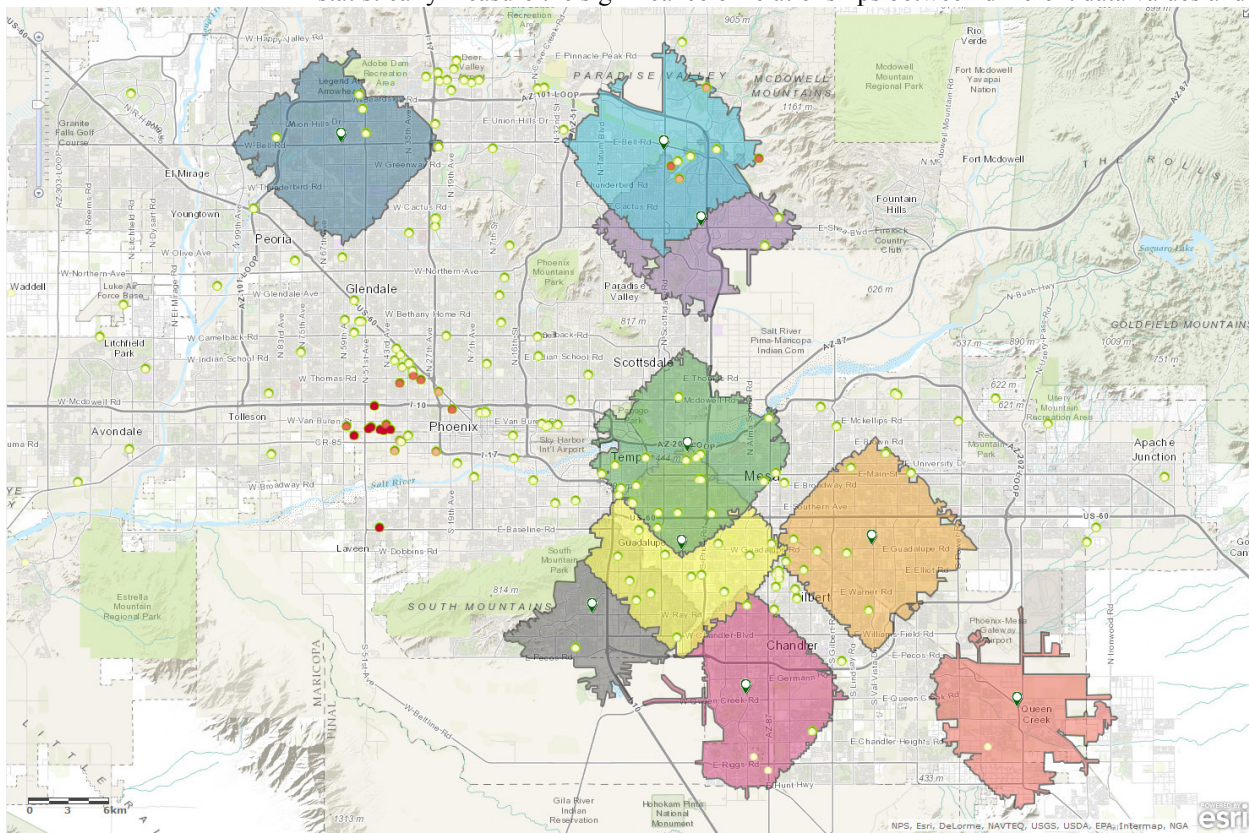
Find and categorize outliers to identify market opportunities and trends.

indicators. When we see clusters of outliers on a map, we can start to explore and discover why those clusters occur and what's behind different relationships and patterns.

By finding the outliers, significant information can be ascertained to turn around a problem or take advantage of a new opportunity. For example, branches can be mapped, displaying deposits by income and the percent of population of that income bracket. It is easy to see which branches are doing well compared to their neighbors and the market as

a whole. Any outliers, under- or overperformers, will immediately stand out, so you can compare what you are seeing against what you expected to see.

With location analytics you can sort and slice the data in new and different ways to determine what factors are driving the results you see on screen. More importantly, you can test and develop different business strategies to deal with what is now understood and vet those business scenarios prior to putting them into practice. This helps financial institutions of all sizes develop market-leading financial strategies, products, and services to gain and maintain competitive advantage.

Data Enrichment   Location analytics is wired to handle both time and space, so you can see what's happening when and understand why. The best news? Spatial analytics benchmarks can be set to make sure you keep a handle on your competition, spot opportunity, and get answers to your most important question more quickly.
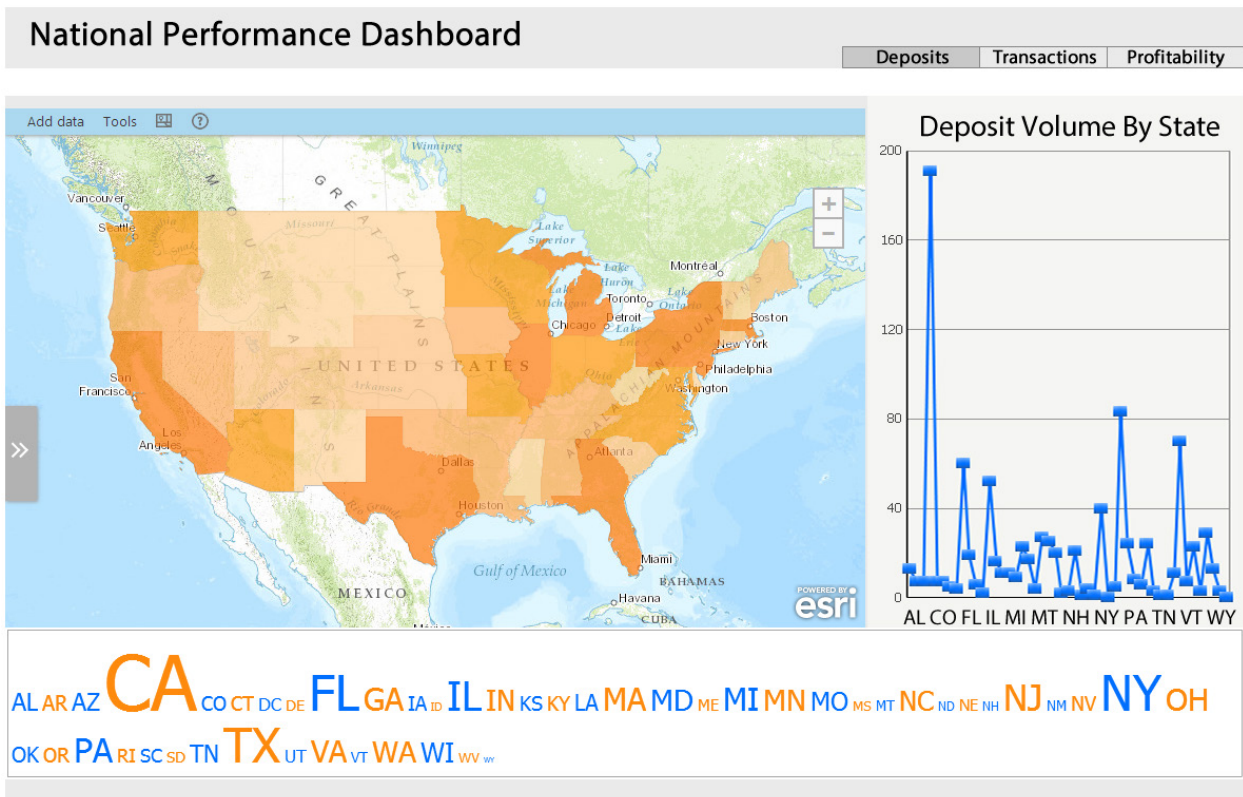
Want to know what your best customers are doing and why? Your customers are more than the deposits and withdrawals they make; they are a micro-GPS of activities and actions.

Smartphones and mobile banking mean you can pinpoint activities and opportunities at a scale never possible before. Rather than analyzing consumer behavior and patterns at the neighborhood level or broad demographic segments, banks can now connect and drill down into any layer of business information to understand the why behind the what.

Overlaying many different information sources allows you to sort fact from fiction and more easily share that insight with others in your organization.

Using the real movements of customers, their origin and destination, and facts about those locations, you can build accurate trade areas based on real customer behavior rather than approximations. This is essential to understanding the differences between predicted and actual performance. Financial institutions can gain a significant advantage over their competition by

■ Delivering services at the right time and place for every person based on real-world insight.

■ Enhancing customer experience while minimizing both cost and risk.

■ Creating better customer profile, direct mail, and social media targeting campaigns.

■ Improving the operational productivity and financial health of the business.

With location analytics, you gain a clearer understanding of your customers across both personal and commercial lines. You can identify which businesses are attracted to your products and services by NAICS or SIC code as well as business demographics. This allows you to prioritize investment into where and what you should expand based on precise business and merchant patterns.

Seeing Is Understanding

As the saying goes, seeing is believing. With location analytics—the blend of analytical reasoning and interactive visual information—you can get an instant insight into and understanding of the patterns in your data. It links elements on your charts and tables to objects on the map, powering new forms of visual discovery. It enables decision makers to better combine their experience, knowledge, flexibility, creativity, and awareness with the software's analytical capabilities. Using intuitive visual interfaces and data controls, like dials, sorting, ranking, and filtering tools, you can directly interact with data to explore ideas, validate hunches, and reduce decision complexity by filtering the signal from the noise.

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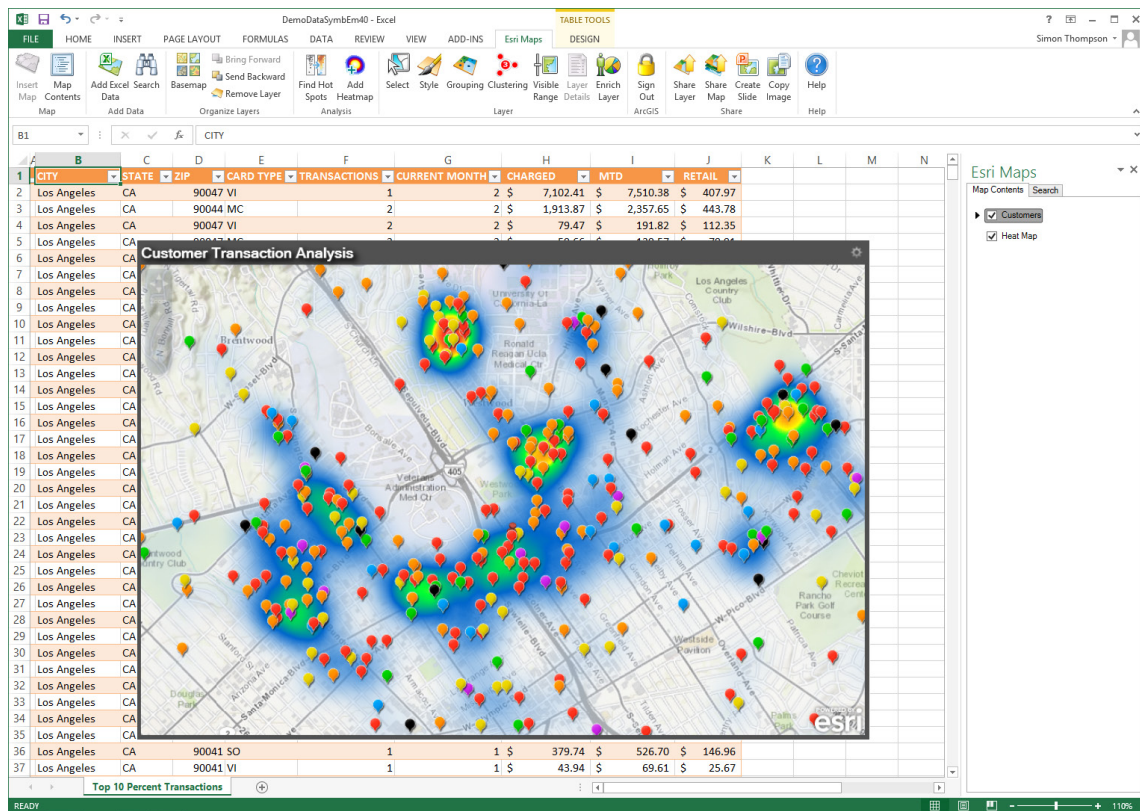
Get to the heart of what matters and why using visual analytics.

Don't miss business opportunities because your branch, products, and services desk or ATM is in the wrong location. Geography can uplift your understanding and let you see what really matters and just how significant those factors really are.

In business, you don't always know what you are missing, but what if you don't even know you don't know what you are missing? What else is there? What else should you be looking at? Visual and location analytics will help you cut through the fog of indecision so you can find out what matters and see where the important stuff is happening. Better still, you can find out why and make plans to do something about it. Success is you and location analytics working together. Give it a try.

Esri's Tapestry Segmentation Data

Tapestry™ Segmentation represents the fourth generation of market segmentation systems that began more than 30 years ago. The 65-segment Tapestry Segmentation system classifies US neighborhoods based on their socioeconomic and demographic compositions. The power of Tapestry Segmentation allows you to profile consumers. Neighborhoods with the most similar characteristics are grouped together, while neighborhoods with divergent characteristics are separated. Tapestry Segmentation combines the *who* of lifestyle demography with the *where* of local neighborhood geography to create a model of various lifestyle classifications, or segments, of actual neighborhoods with addresses—distinct behavioral market segments.

For more information, visit esri.com/banking.

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Esri inspires and enables people to positively impact their future through a deeper, geographic understanding of the changing world around them.

Governments, industry leaders, academics, and nongovernmental organizations trust us to connect them with the analytic knowledge they need to make the critical decisions that shape the planet. For more than 40 years, Esri has cultivated collaborative relationships with partners who share our commitment to solving earth's most pressing challenges with geographic expertise and rational resolve. Today, we believe that geography is at the heart of a more resilient and sustainable future. Creating responsible products and solutions drives our passion for improving quality of life everywhere.

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