

Revealing the 'Where' of Business Intelligence using Location Analytics

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Increasingly, data is viewed as the lifeblood of organizations. Across industries, information is sliced, diced and analyzed for trends, anomalies and insights that lead to better outcomes and strategies. In support of this, more and more organizations have adopted business intelligence (BI) solutions that help them fully capitalize on the data at their fingertips. In fact, according to Gartner, the worldwide market for BI platforms, analytics applications and performance management software market grew to \$12.2 billion in 2011. Moreover, a recent Gartner survey found that CIOs list BI and analytics technology as their No. 1 priority for 2012.¹

It's no surprise that these BI tools are increasingly used in conjunction with enterprise applications such as customer relationship management, enterprise resource planning and enterprise asset management, to name a few. By applying an analytics layer to these mission-critical applications, organizations derive greater value from the data they gather. Plucking new insights from and making more use of the data at their disposal helps businesses boost the ROI on these significant software investments.

That said, in a 2010 *IBM/MIT Sloan Management Review* survey of 3,000 executives across 30 industries in 100 countries, 60 percent of respondents said they have more data than they can effectively use.² And most organizations are missing out on a tremendous opportunity to bring a richer dimension to their data, namely in the form of location-specific information related to their businesses. While organizations capture a vast amount of data associated with locations (for example, store fronts, service centers, warehouse addresses and sales territories), many are unaware of its value or struggle to make use of it. As such, they put themselves at a competitive disadvantage.

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A TechTarget/Esri 2012 survey of more than 180 business and IT managers and staff at organizations of all sizes across multiple industries reveals some important trends and insights when it comes to location-based data:

- The use of maps to view business data in its geographical context is growing in importance.
- Managers and executives find it important to map data to manage everything from assets and customers to the field workforce and supply chains, as well as for operational awareness, real estate planning and risk management.
- A gap exists between the growing awareness of the importance of location-based data and the ability of organizations to make effective use of the data.
- While many organizations use simple online maps to view the location component of their business data, far too many still rely on ad hoc tools versus applications designed to analyze the geographic relationships in BI data.
- Most respondents associate data mapping with traditional geographic information systems (GIS) rather than with the newest generation of BI-specific GIS tools available to support this mapping.

This research brief further explores these issues and provides insight into why organizations may be struggling — or overlooking the opportunity — to take advantage of all the data in their environment.

Answering the 'Where' in Your BI

For years, organizations have relied on business intelligence tools to delve into their data and unearth important insights that inform better decisions. With these tools, they're able to determine what happened and when. Yet it's as if these organizations have been sitting on a two-legged stool. After all, virtually every important question in an organization is asked in the context of "where," the third leg in any well-balanced stool. As Deloitte says, "Time and place underpin everything that happens in our lives and everything we know and learn about the world. Today's technology allows us to collect information about nearly all of these events, fueling an explosion of real-time, location-aware data."³

Location analytics is the use of tools that enable organizations to visualize the relationship between corporate data, such as revenues and inventory, and location-specific data, such as customer and facility addresses. Specifically, these tools extend the value of traditional BI applications by letting people visualize, question, analyze, interpret and understand data. As a result, location analytics helps unearth relationships, patterns and trends that would otherwise remain locked away.

It's no surprise that a growing number of organizations are embracing the concept of location analytics. In the TechTarget/Esri 2012 survey, just over three-quarters of respondents said executives in their organizations feel it's somewhat or very important to use maps to view business data such as store locations, distribution networks, sales territories, revenue by region and competitor locations.

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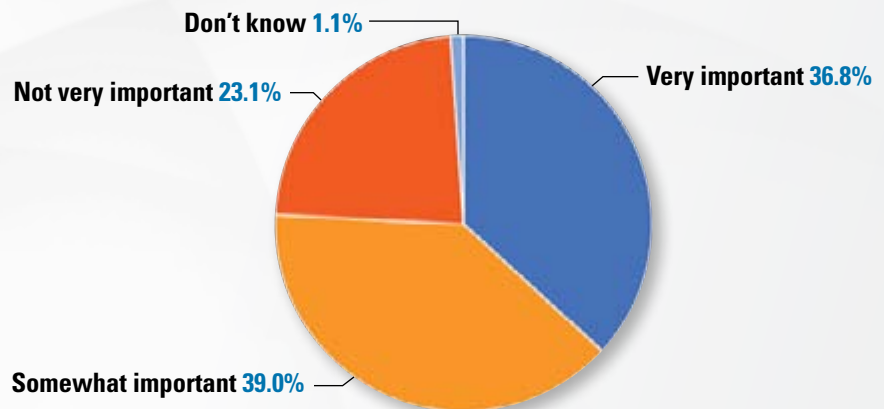
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Importance of viewing data on a map

How Are Maps Used? Let Us Count the Ways...

Managers and executives within these organizations are using mapped data for a range of reasons, including:

- Asset management
- Business intelligence
- Customer relationship management
- Enterprise resource management
- Field workforce management
- Operational awareness
- Real estate planning
- Risk management
- Supply chain management

While no means an exhaustive list, these examples represent some of the most common uses of maps within organizations.

The survey provides insight into how executives and managers perceive the value of maps differently in the areas above. The widest divergence was seen in the following:

- **Asset management:** Nearly 47 percent of managers compared with just over 36 percent of executives view maps as somewhat or very valuable for asset management.
- **Field workforce management:** Just over 55 percent of managers compared with nearly 40 percent of executives see maps as somewhat or very valuable for field workforce management.
- **Real estate planning:** Just over 36 percent of executives compared with just over 24 percent of managers see maps as somewhat or very valuable for real estate planning.
- **Risk management:** Nearly 42 percent of executives compared with just over 34 percent of managers see maps as somewhat or very valuable for risk management.

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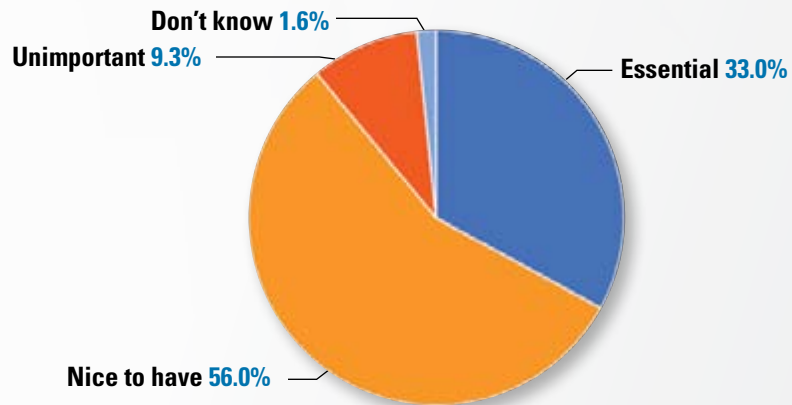
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These results may be due to the fact that executives and managers have different organizational responsibilities and priorities. In other words, managers may be more focused on asset and field workforce management than executives, while executives may be more concerned with real estate planning and risk management than their managers.

A Disconnect Between Perceived Value and Prioritization

In spite of the growing importance of using maps to understand the “where” associated with business activities, the majority of organizations view mapping of business intelligence activities as a “nice to have” capability versus an essential one. Specifically:

- Less than 10 percent of respondents see mapping as unimportant.
- One-third view it as essential.
- More than half view it as “nice to have.”



The role of mapping in business intelligence activities

Not surprisingly, many of those who view mapping as essential work in industries that have historically relied on location-related data: energy/utilities/telecom, government/federal, healthcare and retail.

The following are examples of how these industries typically use this type of data:

- **Energy/utilities/telecom:** to pinpoint the best locations for exploration and expansion
- **Governments:** to analyze population trends and resource utilization
- **Healthcare:** to track infectious diseases and analyze healthcare demands according to populations
- **Retail:** to perform site selection and market analysis

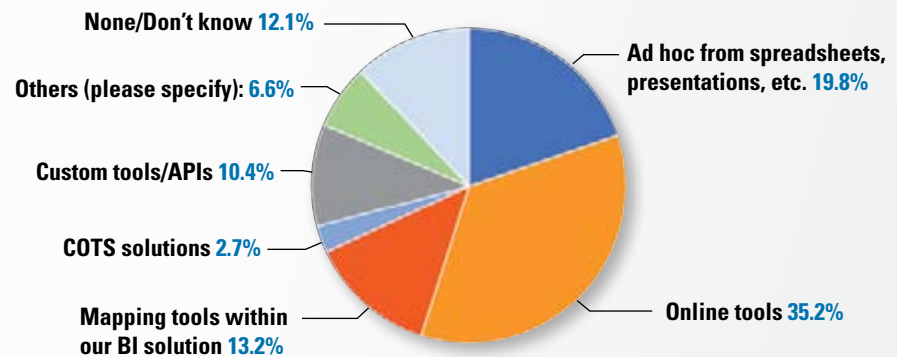
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Making Do Instead of Being Strategic

This prevailing attitude of mapping as a “nice to have” may help explain why most survey respondents rely on online tools or ad hoc means to view the location component of their business data. In spite of the actionable business intelligence to be derived from this data:

- Over 35 percent use online tools
- Nearly 20 percent view this data in an ad hoc manner using spreadsheets, presentations, etc.
- Just over 13 percent use mapping tools within their BI solution
- Just over 12 percent don’t use any tools or don’t know what tools are used
- Over 10 percent use custom tools/APIs
- Just over 2.5 percent use commercial off-the-shelf (COTS) solutions



Means used to view the location component of business data

Old habits, the consumerization of IT and general misconceptions or lack of awareness about location analytics may help explain the fact that location mapping is viewed as a “nice to have.” For decades, organizations have tried to use spreadsheets and other general tools to make sense of their data — despite countless studies showing the inefficacy of such an approach. At the same time, people often call upon the tools they use outside of work to do their jobs, so it’s logical that they would turn to online tools when trying to make sense of location-specific data in their organizations.

Moreover, in organizations where location analytics is seen as “nice to have” versus essential, there’s likely little push to adopt more robust tools for viewing location-related data. As a result, many users turn to freely available, simple mapping tools or preconfigured graphic representations of maps. Finally, the relative newness of location analytics is another key reason for the slow adoption of advanced tools, such as those embedded within BI solutions. Yet, according to *Directions Magazine*, “... in 2004, integration of location and BI tools was hardly discussed; now it’s considered a must in all BI solutions.”⁴

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Users Are Behind in Their Awareness

Table 1 below shows survey respondents' familiarity with terms used to describe ways of exploring geographic data, measured on a scale of 1 to 5, with 5 indicating "most familiar." More respondents recognized terms such as *GIS* and *geographic information systems* than terms used in conjunction with tools designed specifically to help visualize the relationship between corporate data and location-specific data. In other words, across many industries, people may be unaware of the powerful tools available in the market and think it impractical to add a geographic dimension to their analysis and reporting.

	Least ← → Most				
	1	2	3	4	5
Location analytics	14.8%	20.3%	29.1%	23.1%	12.6%
Location-aware analytics	17.6%	25.3%	29.7%	17.6%	9.9%
Location intelligence	13.7%	24.7%	31.9%	18.7%	11.0%
Geospatial business intelligence	19.2%	18.1%	24.2%	22.5%	15.9%
GIS	18.7%	13.7%	22.5%	14.3%	30.8%
Spatial analytics	20.9%	23.1%	25.8%	17.0%	13.2%
Geographic information systems	9.9%	13.7%	24.7%	20.3%	31.3%
Data mapping	10.4%	8.8%	23.6%	31.9%	25.3%
Dynamic mapping	18.1%	18.1%	28.0%	20.3%	15.4%

Familiarity with terms related to location analytics

As Deloitte points out in its Tech Trends 2012 report, early spatial modeling tools, such as those used by engineers and other specialists, required proprietary knowledge, specialized software and advanced training. Moreover, location-aware data was scarce and expensive. Plus, it was time consuming to develop many of the models using these specialized tools, and as a result, the underlying data was often out of date by the time a map was created.

Much has changed in 2012, according to Deloitte. Organizations have ready access to geographic data due to the proliferation of mobile, social and sensor-based sources. Perhaps most important, today's analytics tools are easier to use, allowing everyday users to more readily and intuitively explore complex data in a visual manner.⁵

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Contact an Esri BI specialist at
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Conclusion

As more products and services become commoditized, the time-to-decision window shrinks and globalization increases competitive pressures, organizations are seeking every opportunity to stand apart from their rivals and improve their top and bottom lines. The information gathered across their environments is a gold mine for those that can find ways to fully extract the valuable nuggets from the data piles. And progressive organizations recognize that the next frontier of competitive differentiation is to be found in exploring and exploiting the location-based information at their disposal.

The key is to tap into today's advanced tools that make it possible to capitalize on the location component of existing corporate data assets. As Deloitte says, "In the past, only a handful of geographic information system (GIS) analysts in specific industries (oil and gas, governmental agencies, transportation and logistics firms) invested in using location as an organizing principle for advanced analysis. New tools and access to data are now allowing the power of location to be unleashed across many more business areas and to a much broader base of users."⁶

In fact, with the growing consumption of location-based consumer services on mobile devices, it's only a matter of time before users start demanding the ability to access location analytics within their organizations.

About Esri



Since 1969, Esri has been giving customers around the world the power to think and plan geographically. The market leader in GIS technology, Esri software is used in more than 300,000 organizations worldwide including each of the 200 largest cities in the United States, most national governments, more than two-thirds of Fortune 500 companies, and more than 7,000 colleges and universities. Esri applications, running on more than one million desktops and thousands of Web and enterprise servers, provide the backbone for the world's mapping and spatial analysis. Esri is the only vendor that provides complete technical solutions for desktop, mobile, server, and Internet platforms. Visit us at esri.com/news.

¹ TechTarget, *BI, analytics and performance management software sees growth in 2011*, May 24, 2012

² IBM, *IBM Transforms Data At Work, Accelerates Big Data Analytics*, October 24, 2011

³ Deloitte, *Tech Trends 2012: Elevate IT for digital business*, 2012

⁴ *Directions Magazine, Directions Magazine and Oracle Bring the Power of Place to Business and Government*, 2012

⁵ Deloitte, *Tech Trends 2012: Elevate IT for digital business*, 2012

⁶ Ibid