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**X Marks the Spot:**  
Integrating Mapping and Data Analysis to  
Find Hidden Trends, Patterns and More

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**Date:**

05/26/2009

*Whether for real estate or for retail, location can make it or break it for your business, and leaders need to understand how location plays into performance.*



## Mapping for Analysis and Strategy

Look at a map, and you know it's all about location, location, location. Whether for real estate or for retail, location can make it or break it for your business, and leaders need to understand how location plays into performance. Maps help people visualize their environment and orient themselves, thus maps are the best format to visualize geographic data. But until now most businesses could not use maps effectively to orient this kind of business data.

Smart analytics departments continually ask questions about their data—What? Who? When? Where? How? —in order to get to the most important question: Why? As companies want to answer questions such as “Where are my products selling the strongest? Where am I losing money? Where is there room for improvement?”, the tools available to help answer the Where question often limit the flow of answers. Until now, maps have been mere static backdrops to a mess of data, or the more complicated mapping applications have required specialists to run them, which then interrupts the analytical flow. There are very few “people-friendly” analytical mapping tools.

### The Tools Available

In the past, companies had to choose whether to enlist a high-end, complex Geographic Information System (GIS) application or to resort to simpler, easy-to-use programs that create static, often one-dimensional maps.

On the complex end of the spectrum, products from companies like ESRI (Environmental Systems Research Institute) allow companies to dive deep into the mapping data, usually well beyond the immediate needs of the everyday business analyst. Even ESRI's business applications, for instance, offer so much specialized data and data options—street layers, road layers, buffers, centroids, point and polygons—that the programs require dedicated analysts often within a dedicated GIS department to run the program. MapInfo, while usually considered to be more oriented to business mapping, still requires one or two specialists within a department to do GIS analysis. With these kinds of programs, the business analyst has to hand the data off to another person to get a relevant map back.

But what if sales are dropping today? When you do an analysis to understand why sales are dropping, it's counter-productive if you have to stop your line of inquiry and pass it to someone else just so that they can do the geographic picture of it. You can't wait.

On the other end of the spectrum, business users can access simple programs like Google Maps to view one aspect of their data on a map. Companies and independent programmers have worked to create Google Mash Ups that integrate data with Google Maps. For example, with housingmaps.com, programmers took the Craigslist address format and programmed it into an interface that allows housing consumers to view available Craigslist rentals on



Google Maps. Since this process requires programmers, Google Mash Ups are still not an immediate, real-time solution to changing analysis needs. Furthermore, these Mash-Ups are endpoints—if the map shows you that several stores in Chicago are underperforming, the program can't answer your next question – such as how long they've been underperforming—or what products in Chicago have dropped in sales. You would have to bring in a programmer to build out an separate interface to answer every different question you may have.

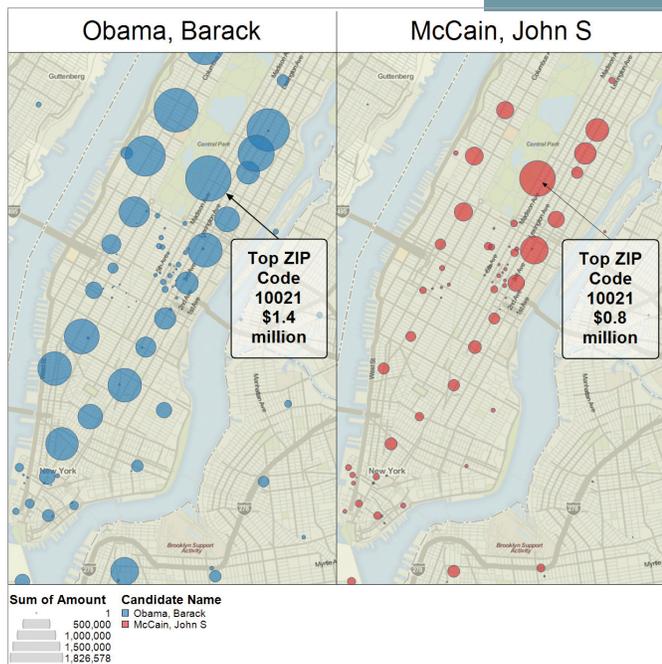
Comprehensive analytical solutions for geographic data have suffered from these limitations. Furthermore, some GIS programs such as MapPoint have taken their eyes off of the need for geographic data analysis. They've begun to offer location-based services, such as providing driving directions to mobile devices, or tracking the location of customers to target them with advertisements via mobile devices. For these map providers, the focus has moved away from analysis and towards targeted advertising. As a result, the everyday business analyst cannot use these services to answer the Why question.

Unfortunately, most solutions either isolate the maps (and the data on the map) because the application requires specialty knowledge, or make the map so simplistic that a business user can't go past the map. In our view, mapping should be just another way of visually displaying information in an intelligent way that you can comprehend very rapidly. Maps should be as accessible and as easy to use as Excel.

## Agility with Integrated Mapping

If you're looking to deploy business intelligence or analytical intelligence, you need to consider how you get answers to geographic questions, because the Where questions are a key part of the analytical process. You need to answer those questions in the context of all your other data and in an accessible format. Geographic analysis should be as easy as opening Excel and looking at a chart. The map that's created should be a gateway rather than an endpoint. Simplicity and usability in geo-analysis for the everyday business person is what's needed.

This map indicates the total donations given to the Obama campaign (blue) and McCain campaign (red) in lower Manhattan by ZIP code. Note that the images on this map are designed to distinguish data points and that the colors clearly communicate candidate preference.



*Instead of turning to a GIS expert to lay the data on a relevant map for you, Tableau allows you to take your business analysis from the charts and graphs you know so well to another level—an integrated data map.*

The key is finding products and services that can help you elegantly and easily interpret geographic data within your analytical flow in real-time. When we enhanced the mapping capabilities of our data visualization software Tableau Desktop, we spent a long time not only asking users what they wanted but also observing how they work. We discovered there are four keys to people-friendly analytical mapping.

- **Does the application make the data the center of your analysis?** Is mapping just one of the ways to display your data because the mapping feature is integrated with all of our other tools?

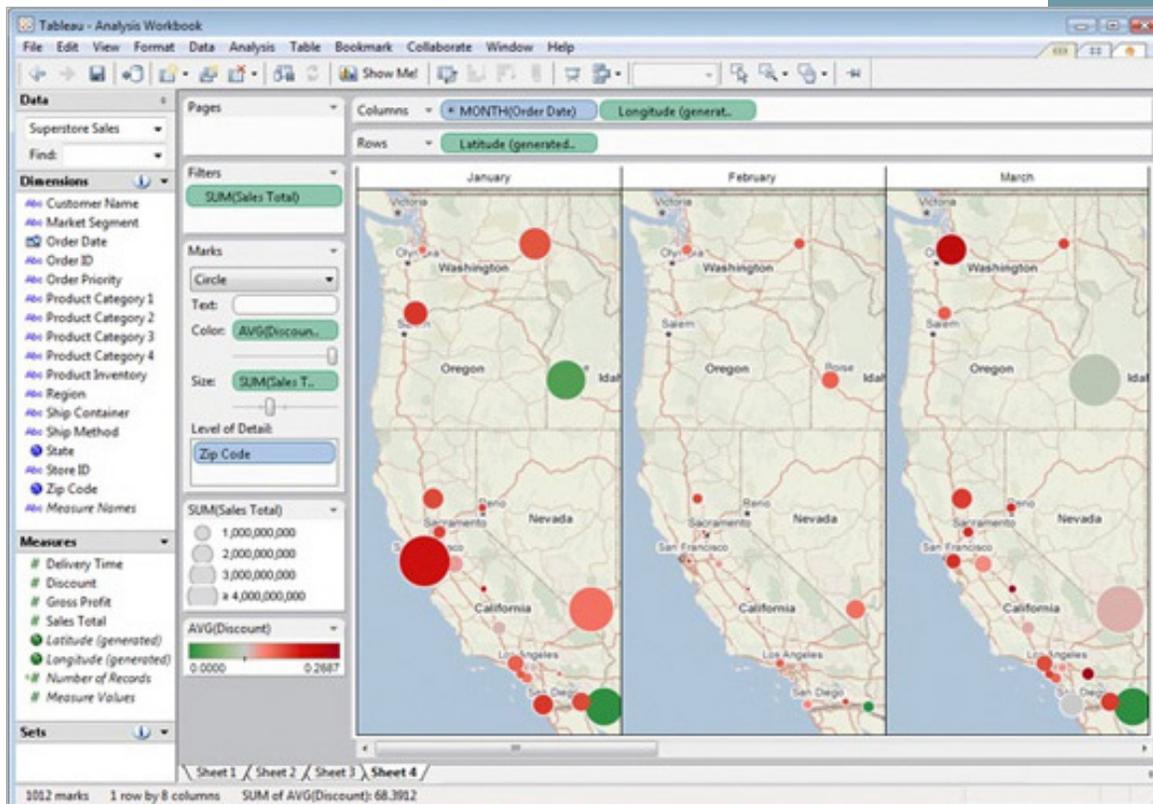
Our data-analysis product, Tableau, helps you elegantly and easily interpret geographic data within your analytical flow in real-time. We make the data the center of your analysis, and mapping is just one of the ways to display your data because the mapping feature is integrated with all of our other tools.

- **Is the mapping feature a fundamental part of the analytical program rather than a separate application?** The product should employ mapping as an intuitive tool in your analytical flow—the map transforms into an interactive frame rather than an endpoint, and the data becomes the focus of your attention. Some software providers bundle mapping applications as a separate application. That's a dead giveaway that mapping is probably not integrated well-enough to satisfy even an occasional analyst.

Unlike the applications discussed above, Tableau's mapping feature is part of its analytical program rather than a separate application. We've created a product that employs mapping as an intuitive tool in your analytical flow—the map transforms into an interactive frame rather than an endpoint, and the data becomes the focus of your attention.

- **Does the product allow you to take your business analysis from the charts and graphs you know so well to another level—an interactive data map?** Instead of turning to a GIS expert to lay the data on a relevant map for you using a complex GIS application and then waiting while the expert does your analysis, you want an application that can help you see what's happening in real-time without geo-coding your data or dealing with complex map layers. And there's no reason to stop there—you can create another map or chart by bringing other data dimensions into the view.

Instead of turning to a GIS expert to lay the data on a relevant map for you, Tableau allows you to take your business analysis from the charts and graphs



you know so well to another level—an integrated data map. But there’s no reason to stop there—you can create another dimension to view these dropping sales over time on a map. At your own desktop, you can view relevant geographic data for specific locations, products, and time.

This screenshot of the Tableau Desktop software shows how maps can be used in time series analysis. Each map pane represents a specific month; the size of the circles represent the amount of sales in a ZIP code while color represents the average discount (redder indicates higher discounts). Clearly a ZIPcode in Idaho had large sales in January along with low discounting while February saw a significant drop in sales despite higher discounting. March recovered in terms of total sales but did have larger discounts than January.

- **Is the application “geography-aware”?**

You shouldn’t have to know what a latitude or longitude is to ask “where” questions. The application should immediately recognize data fields that can be mapped (countries, states, provinces, cities, zip codes, etc). That way, within a few clicks and without worrying about map coordinates, the map can show you where profit margins have dropped—and if you want to know which products are suffering, you can view several maps at once to compare. At your own desktop, you can view relevant geographic data for specific locations, products, and time.



With Tableau, you can see what's happening in real-time without geo-coding your data, because Tableau immediately recognizes data fields that can be mapped (states, cities, zip codes, etc). And, you don't have to worry about map layers, boundary files, street files, etc. Of course, if you do have custom geographic levels, even ones that change frequently, Tableau makes easy to use that information as part of your analytics. Immediately, the map can show you where profit margins have dropped—and if you want to know which products are suffering, you can view several maps at once to compare.

### **Conclusion**

By showing the answers to the "Where?" questions in the context of all the other answers, Tableau's maps give companies the power to address the "Why?" questions elegantly and quickly. The companies that can immediately interpret geographic data increase their agility in a dynamic international marketplace. Understanding location and its relationship to your products and services means that you can better understand your company's landscape and act accordingly.

### **ABOUT TABLEAU SOFTWARE**

Tableau Software, a privately held company based in Seattle WA, provides software applications for fast analytics and visualization. The power of data visualization and analysis enables marketing professionals to quickly gain insights and make discoveries from all types of marketing data. Tableau allows marketers to dive deep into all types of data, quickly analyze campaign performance, conversion metrics, and easily determine ROI on marketing efforts.

Access a trial copy of Tableau Software to help you break out of the analytics rut.  
<http://www.tableausoftware.com/products/trial>