

Independent Assessment

by Alan Radding

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Cashing in on the Data Investment

Will information visualization finally payoff?

The biotech industry is drowning in data. So is the retail industry as it captures point of sale and supply chain data. So are the financial services industry, the telecom industry, complex manufacturing, and just about every other industry. And they are spending huge chunks of their IT budgets each year to capture, collect, store, protect, and retrieve this data. Getting a payback on this investment, however, has been elusive.

The problem arises from the difficulty of effectively mining all this data. Spotting the critical pieces of information, relationships, and trends within an increasingly vast amount of data is a task far greater than finding the proverbial needle in a haystack. Pouring over pages of printouts, mammoth Excel spreadsheets, or millions of database rows simply does not work. Similarly, conventional query and reporting, OLAP, business intelligence, and even analytical applications are not up to such a monumental task.

Organizations need data visualization capabilities if they are to get any payback from so much investment already being pumped into collecting and storing this data. Only through visualization can those analyzing the information view large amounts of data in a single image that immediately reveals patterns, anomalies, relationships, and distributions in meaningful ways. Ideally, every image conveys something from which value can be quickly gleaned. In a single glance analysts can accomplish what otherwise might take days, weeks, months, even a lifetime of pouring over the raw data to achieve.

Effective visualization capabilities, however, do not come easily. Many popular business intelligence tools and analytical applications have some visualization built in, but they are pretty rudimentary. Even Excel will spit out colorful charts and graphs of spreadsheet data, but that hardly qualifies as data visualization. These tools simply cannot visually tell enough of the data story or tell the story in enough different ways to bring the desired answers to the surface.

Some vendors already provide very sophisticated data visualization capabilities. INT Inc., Houston, offers a set of complex visualization components. Similarly, The MathWorks Inc., Natick MA, offers MATLAB, a technical computing analysis

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language and environment. Inxight Software, Sunnyvale, CA, provides Inxight VizServer, which usually is incorporated into the products of others. Although all are advanced visualization products, none of these tool sets is something that end users --researchers or analysts sitting at their workstations--can use out of the box.

What researchers and analysts need are advanced visual analytical applications that they can use directly to perform the exact analyses they want to pursue. To date, however, most commercial analytical applications are neither sufficiently visual to handle complex, sophisticated visual analysis or sufficiently flexible to allow users to pursue whatever analysis they want. Rather, the analytical applications tend to offer the most common analysis a typical business manager wants to do, such as canned key performance indicators. That may be fine for general business analysis, but the real data analysis opportunity arises only when researchers and analysts pursue their own combinations of complex visual analysis. That's how new drugs, hidden petroleum reserves, subtle market risk, and such get discovered.

A new generation of data visualization applications attempts to combine powerful, complex visual analysis, flexibility to pursue any line of analysis, and the ease of use of an analytical application. Spotfire Inc, Somerville, MA, is a pioneer of this approach. It offers DecisionSite, a complex data visualization solution that includes guides, a form of super-wizard. The guides combine the analytic process, sophisticated computations, and a data interaction model to ensure that users can get results quickly and consistently. Spotfire, third parties, and users themselves can create any number of guides, thereby enabling the facile representation of any desired "what if" scenarios.

Regardless of whether the Spotfire approach with its guides catches on, it is clear that industries being overwhelmed with data today need powerful data visualization analytical applications their researchers and analysts can use quickly and easily. Otherwise, the effort and resources currently spent capturing and storing massive volumes of data will go to waste.