



Data Visualization Goes Mainstream?

6/13/2007

By Stephen Swoyer

Data visualization is one of the hottest segments in BI right now, with a host of vendors—both old and new—plying the trade.

BI heavyweights have thrown their hats into the ring: competitors such as Business Objects SA and Cognos Inc., along with Microsoft Corp. (which acquired credible data viz technology from the former ProClarity), are wrangling with pure-play vendors such as Advizor Solutions Inc., SAS Institute Inc. (which markets its mature SAS JMP offering), Tableau Software Inc., and the former Spotfire Inc., which was acquired last month by enterprise application integration (EAI) stalwart Tibco Software Inc.

Add it all up and what do you have? Well, for one thing, there's a sense in which data viz itself—that is, the ability to metaphorically project the otherwise jumbled contents of one's data up onto a screen and sift through the chaos for patterns—amounts to a killer app of sorts for BI and PM. That might be one reason why Business Objects (which acquired both Infommersion—creator of Xcelsius—and, more recently, Inxight), Cognos (which acquired dashboard specialist Celequest), and Microsoft, among others, are jumping into the game.

First thing's first, however. After all, experts like to point out, long is the way, and arduous the path, from data viz also-ran-ed-ness to data viz best-of-breed-ed-ness. One upshot of this, they argue, is that the data visualization capabilities of the big business intelligence (BI) and performance management (PM) vendors can't match the features or functionality boasted by competitive offerings from Advizor, SAS, Spotfire, and Tableau. (See accompanying article.)

Data Viz Goes Supernova

That said, there's a reason so many vendors have gotten hip to the importance of data viz. For some applications, experts say, it provides a better way to consume and act upon data—better, that is, than traditional reporting and analysis tools.

"[P]atterns, trends, and exceptions in quantitative data are best presented using visual representations. No amount of words or numbers can adequately describe to people patterns that can only be seen when the data is presented visually," says Stephen Few, a principal with consultancy Perceptual Edge and a lecturer at UCLA's Haas School of Business. "For data analysis, the same is true. When you are looking for patterns, trends, and exceptions in the data and trying to understand them having found them, visual representations are superior to traditional, text-based BI approaches to analysis. Sophisticated statistical software is also good for many types of data analysis, but even the best statistical analysis software relies heavily on data visualization."

This begs a couple of questions. First, now that Business Objects, Cognos, Microsoft, and others are plying the data viz trade, has data visualization itself gone (or on the verge of going)

mainstream? And, secondly, if data visualization *has* gone mainstream, is it close to being commoditized?

The answer to the first question, experts say, is a qualified yes. A certain level of data visualization functionality—let's call it a baseline—*is* cropping up in today's BI and PM tools. What's more, users are starting to demand features that they associate with data visualization—especially eye-candy-crazy dashboards.

Even best of breed vendors acknowledge as much. That's one reason, they say, that some of the BI and PM heavies—including vendors like Information Builders Inc. and the former Hyperion Solutions Corp.—are OEM licensees of their technologies. (IBI OEMs Advizor's visualization technology; Hyperion, prior to its acquisition by Oracle, had a long-standing agreement with Tableau.)

"This whole industry sits around all day talking about bringing BI to the masses. But which product is doing that? There is no such product," said Tableau CEO Christian Chabot in an interview last year. "On the surface of it, it looks easy [for a competitive vendor to develop visualization technology], but if you look at what our competitors are coming up with, that clearly isn't the case," he added. "That's why [a vendor] like Hyperion uses us. They recognize that it's a lot easier to license [Tableau] than to put all the time, what amounts to years, into trying to build something like this on their own."

Kevin Brown, vice-president of marketing with Tableau, puts the matter even more starkly. "We're presenting graphics of what's actually going on that [customers tell us] they've never seen before," he said during a March interview. "[Business Objects'] Xcelsius, sure, it looks pretty, but really all it is, is [a tool] to visualize these [Excel] models. It's all about creating this eye-candy-looking visualization, but the underlying technology, which is basically just this Excel model, isn't really sophisticated. It's like, 'Watch me move the levels and the Flash [animation] automatically updates.'"

But does the mainstreaming of data viz augur its commoditization, too? Almost certainly not, experts say. After all, when Microsoft and Oracle first turned their attentions to extraction, transformation and loading (ETL), incorporating ETL capabilities into their RDBMSes, the data integration market both went mainstream and—to a degree—became commoditized. But neither SQL Server Integration Services (SSIS) nor Oracle Warehouse Builder (OWB) have all the bells and whistles of best-of-breed ETL tools like Informatica Corp.'s PowerCenter or IBM Corp.'s DataStage.

What's more, ETL "commoditization" also helps accentuate the differences—e.g., integrated data profiling and data cleansing, federated data access, sophisticated data modeling, and unstructured data handling capabilities—that separate the best-of-breed players from their mainstream challengers.

In the data viz segment, too, best-of-breed players deliver value over and above the mainstream, or "commoditized," baseline. In this respect, they're largely the province of a certain class of "rock star" users—let's call them the user cognoscente: analysts, business power users, and others.

There's a reason for that: even though data visualization tools facilitate the spotting of patterns, trends and relationships, they're rarely designed for rank-and-file users.

"I think advanced data viz is getting more use by power users—I kind of view it as next-generation OLAP-in-memory-based processing that offers fast performance and great visuals that let analysts spot outliers much more quickly than drilling down and across hierarchies of tabular data," comments Wayne Eckerson, director of TDWI Research. "But it takes time to understand the new visual paradigms and chart types, and only power users have the patience for that."

opposite is the case for the rest of us, Eckerson indicates. For most users, in fact, glossy—even "pretty"—Flash- and AJAX-powered visualizations can potentially transform decision-making activity. On the other hand, it's probably a mistake to categorize such technologies (which are typically exposed via dashboards) as "data visualization" tools—not, at least, in the classic sense of the term. "[Business Objects'] Xcelsius really is quite fetching eye candy for managers and executives who love the idea of being able to move a slider and see how it changes all the other values on their dashboard chart," he comments. "Basically, this is Excel visualized—instead of switching worksheets to see different scenarios, now you can move the slider bar—i.e. change price or sales forecasts—and see it how affects sales, profits, revenues, etc.," he explains.

There's a further wrinkle here, too. Dashboards haven't just come to the fore, they're frequently identified—thanks to the attention-grabbing, candy-apple prominence of products like Crystal Xcelsius—with data visualization itself. In other words, skeptics point out, having a dashboard is tantamount—for some vendors, and increasingly for many users—to having a data visualization strategy.

Perceptual Edge's Few, for his part, is highly critical of this trend. "We find it annoying in the physical world when glaring light reflects off the surface of an object, making it difficult to see, so why would we want to reproduce this effect in a display of business information?" Few wrote in a blog post on his site.

That's one reason he likes to differentiate between interactive dashboards, which he says are mostly tapped as a means to monitor what's going on, and "displays"—or, in Few's parlance, Faceted Analytical Displays—which combine several charts on a screen for the purposes of analysis. The latter are rarely sexy—not, at least, in terms of candy-apple sheen—but can be infinitely more valuable, he says. "Multi-chart analytical displays have tremendous potential, but they are very different in design and function from dashboards," writes Few.

Obviously, he says, the faceted analytical displays he has in mind don't place as much of an emphasis on gloss, sheen, or "pretty" visual effects. "Just placing multiple charts on a screen alone does not produce analytical discoveries such as those we've just seen. In other words, it is possible to produce a faceted analytical display that doesn't work very well. One typical problem that plagues other forms of data visualization as well, such as dashboards, is that the effectiveness of faceted analytical displays can be undermined by gratuitous visual effects, decorative display media, and poor use of colors," he points out.

Stephen Swoyer is a technology writer based in Athens, Ga. You can contact Stephen via E-mail at swoyerse@percipient-analytics.com.