



Put to the Test: Tableau 2.0

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One of the wisest software designers I know, Alan Cooper, the author of *The Inmates Are Running the Asylum*, believes that most software products are poorly designed and barely usable. He refers to them as dancing bears.

The sad thing about dancing bearware is that most people are quite satisfied with the lumbering beast. Only when they see some real dancing do they begin to suspect that there is a world beyond ursine shuffling. So few software-based products have exhibited any real dancing ability that most people are honestly unaware that things could be better—a lot better.

One year ago, Tableau first walked onto the stage with grace and presence. With the release of Tableau Version 2.0 in June, these qualities live on as the vendor expands the software's repertoire without resorting to cheap tricks.

Tableau (old French for table) features a tabular arrangement of data that extends the familiar model of cross-tabs and pivot tables, which conventionally express quantitative values as text, to more enlightening displays that replace text with graphs in the cells of the table. Quantitative data comes alive with clear patterns, trends and exceptions when displayed graphically, and a tabular arrangement dramatically increases the number of dimensions (variables) that can be simultaneously and meaningfully explored. With version 2.0, Tableau adds several useful features that extend the software's analytical power without complicating its simple model. I'll highlight the new visualization features that most business people will find especially useful.

Now You See It, Now You Don't

In version 2.0 it's even easier to explore information without taking your eyes off of it with the new set of filter controls. If you don't want to use a pop-up window to set filter conditions, you can use simple checkboxes to filter discrete values or sliders to filter continuous values. The screen shot below shows quarterly sales (expressed by the height of the bar) and profits (color of the bar) for two years across three regional markets. There are actually four regions in the data, but I used the checkbox-style filter on the left to uncheck the South region, thereby removing it from view.

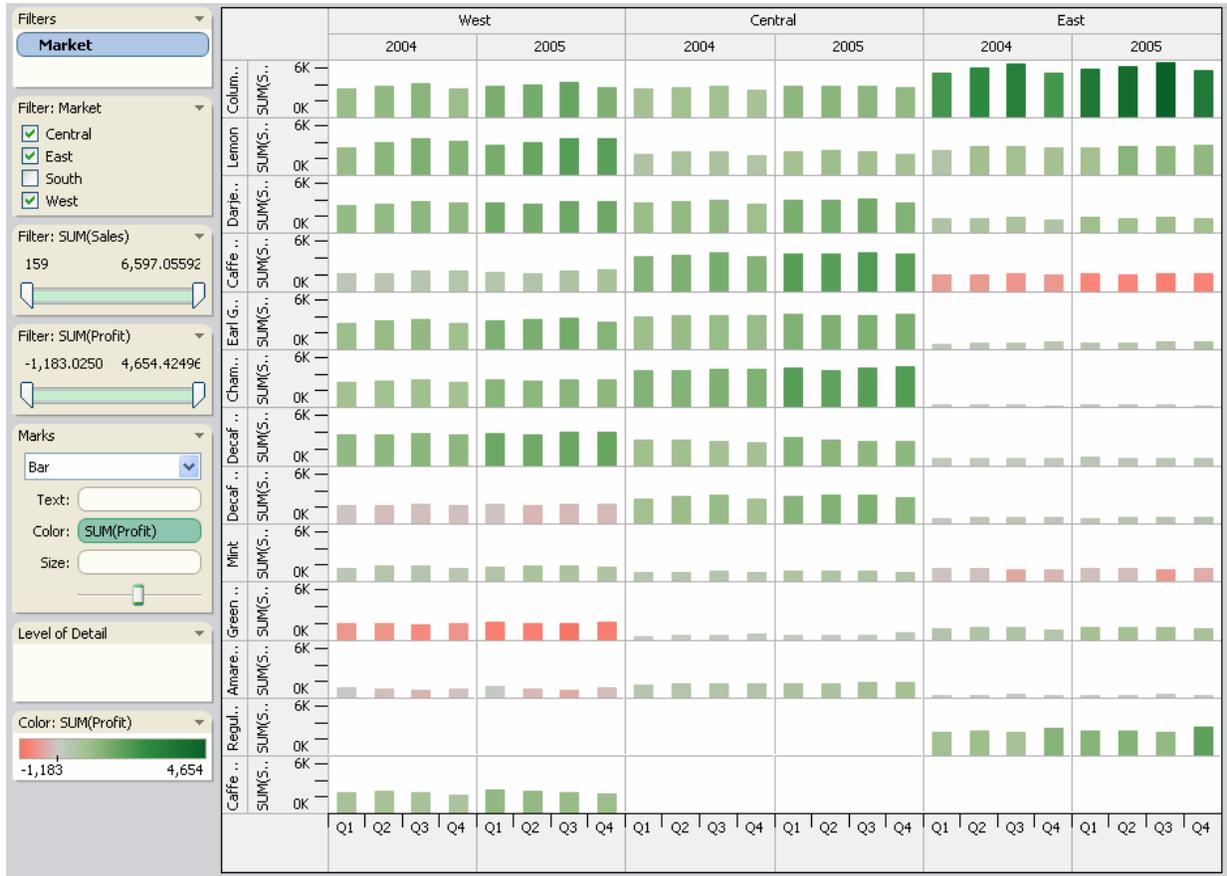


Figure 1

The few red bars that are visible indicate products that are losing money in certain markets.

As shown in the screen shot below, I can focus on these items by using the slider filter for profit (on the left panel near the vertical center) to remove from view all items with profits greater than zero.

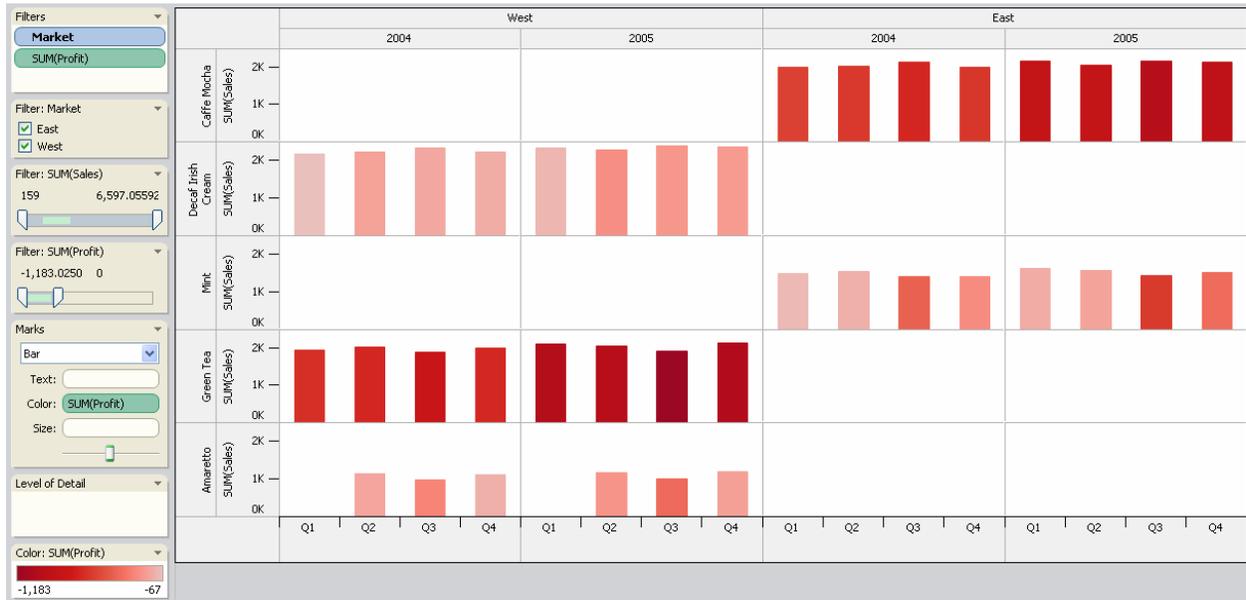


Figure 2

Filter controls such as these enable more seamless interaction with the data, letting you ask questions, manipulate the data and then view the results without taking your eyes off the data. You can also select one or more values right in the display itself, such as a set of points in a scatterplot or bars in a bar graph, and then exclude them. This is as easy as grabbing the bad apples in a barrel and tossing them out, and it's especially useful for quickly removing outliers that are exercising undo influence on overall trends.

Lines for Summarization and Comparison

Two new features in Version 2.0 make use of lines, in one case to visually summarize sets of values and in the other to improve comparisons between values. Trend lines summarize the overall trend of a set of values, and they're especially useful when applied to scatterplots to show the direction and strength of a correlation between two quantitative variables (for example, marketing expenses and sales revenues). Trend lines can now be easily added to any graph or series of graphs, and they automatically update as you manipulate the data.

Comparing values across multiple graphs can also be assisted by using reference lines. For instance, the screen shot below shows the monthly sales of three products across three regional markets, with a reference line in each graph to mark the average monthly sales across all of these products and markets. If you prefer, a separate average of monthly sales for the values in each graph could be calculated and displayed just as easily.

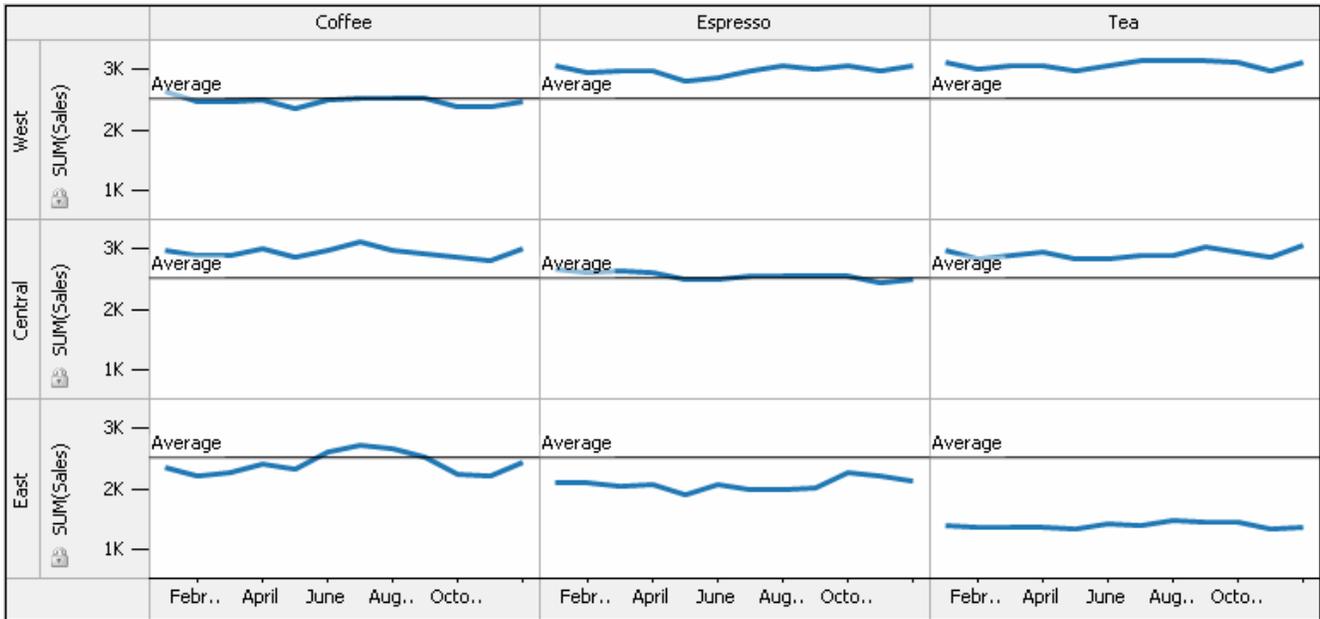


Figure 3

Animations that aren't Gratuitous

Line graphs can do a wonderful job of visually expressing change through time, but sometimes the primary relationships that you wish to reveal don't involve time. For example, the relationship between level of education and per capita income for various countries. A scatterplot can tell this story quite nicely, but if you also wish to show how this relationship unfolds through time, you're faced with an interesting challenge. In Version 2.0, Tableau has added a paging feature that lets you watch values actually change through time.

The screen shot below shows a series of scatterplots, one per quarter across two years, with marketing expenses on the horizontal axis, profits on the vertical axis, a circle for each product, the circle's color to indicate the product category and the circle's size to encode sales revenues.

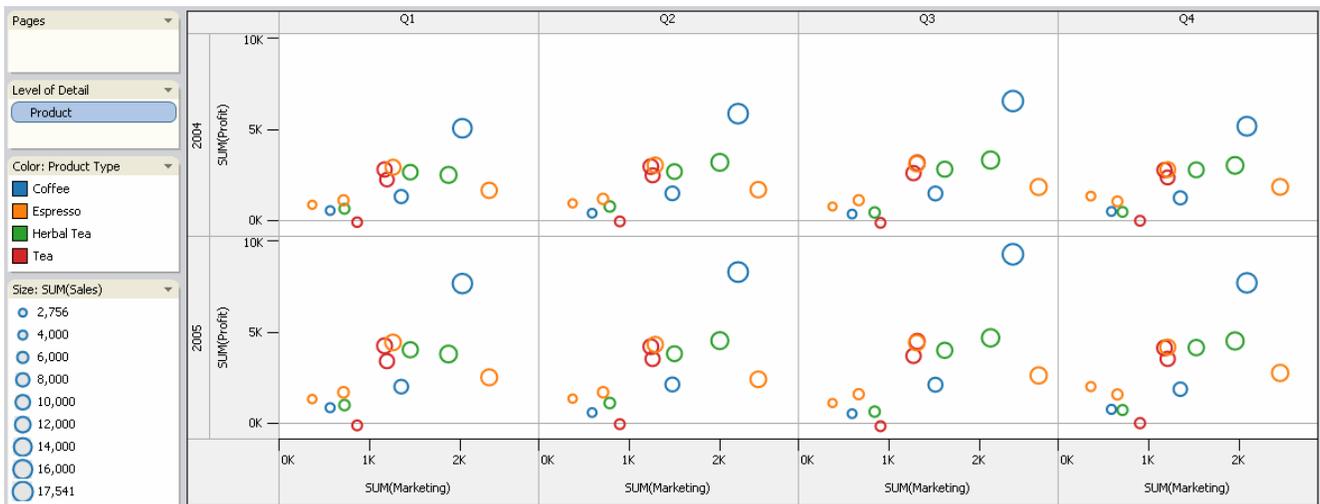


Figure 4

This is a typical Tableau view of the data. With Version 2.0's paging functionality you can look at this same data as a single large scatterplot that changes from month to month, either by means of an automated animation or by using a slider to manually move from month to month at your own pace.

Animations (or manual paging) are most compelling when displaying change through time, but this feature lets you page through any variable. It isn't one of those silly animations that vendors sometimes throw into their software to titillate potential buyers (such as spinning pies). It unveils a story, frame by frame, that might be difficult to comprehend in any other way. Unfortunately, when the view changes from state to state, the data abruptly switches from one view to the next. This works fine for discrete variables (for example, from one department to the next), but the fluid nature of change through time would be better displayed by showing the movement of the values (bars, data points, etc.) from one state to the next. Hopefully, a future release of Tableau will smooth out the rough edges of this animation.

Take a Turn on the Dance floor

The new release corrects the one thing that annoyed many of Tableau's customers in previous versions: you will no longer waste time scrolling around or struggling to get the tabular arrangement of graphs to fit the screen. Now, with nothing more than a click of the mouse, you can get everything to neatly fill the screen, even when there are many columns and rows of data.

Much more could be said about Tableau 2.0, but only enough space remains to list a couple more features:

- Data from multiple sources can now be joined for integrated analysis.
- Dynamic calculations have been added for running totals, percent change, moving averages and such.

Tableau still can't do everything, but it is maturing at a sensible pace. With each release, a great deal of thought seems to go into choosing the features that are most valuable and making sure that they actually work. This level of attention to what really matters is rare. If you're tired of being partnered with lumbering beasts, take a spin around the dance floor with Tableau.

Tableau 2.0 is priced at \$995 for the standard edition and \$1,799 for the professional edition, including one year of software maintenance and unlimited technical support. For more information, go to www.tableausoftware.com.

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About the Author

Stephen Few has worked for over 20 years as an IT innovator, consultant, and teacher. Today, as Principal of the consultancy Perceptual Edge, Stephen focuses on data visualization for analyzing and communicating quantitative business information. He provides training and consulting services, writes the monthly *[Visual Business Intelligence Newsletter](#)*, speaks frequently at conferences, and teaches in the MBA program at the University of California, Berkeley. He is the author of two books: *Show Me the Numbers: Designing Tables and Graphs to Enlighten* and *Information Dashboard Design: The Effective Visual Communication of Data*. You can learn more about Stephen's work and access an entire [library](#) of articles at www.perceptualedge.com. Between articles, you can read Stephen's thoughts on the industry in his [blog](#).