Visual Detraction

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FYI Corp.'s catch phrase is "Understanding in an instant." It's a worthwhile goal, fueled by the current focus of business intelligence on performance monitoring, along with the growing interest in data visualization. But when vendors go astray in the attempt to furnish instant understanding, they can give data visualization a bad name. FYI's approach to data visualization is based on a variation of a glyph—a graphical object representing multiple data values simultaneously. FYI calls its glyphs Kegsets. Kegsets are made up of KEGS (Knowledge Enhanced Graphical Symbols). A complete Kegset represents multiple aspects (variables) of an entity, such as an organization, and each of the KEGS that compose it represents a single variable, such as a performance measure (for example, sales, profits, market share and customer satisfaction). Individual KEGS appear as rectangles containing visual attributes, such as distinct colors or symbol shapes, to express different values, such as revenues that are above target, on target, below target or dangerously below target. The left side of the diagram below shows a sample set of KEGS values, each exhibiting distinct visual attributes. Figure 1 shows a sample Kegset displaying call center performance.
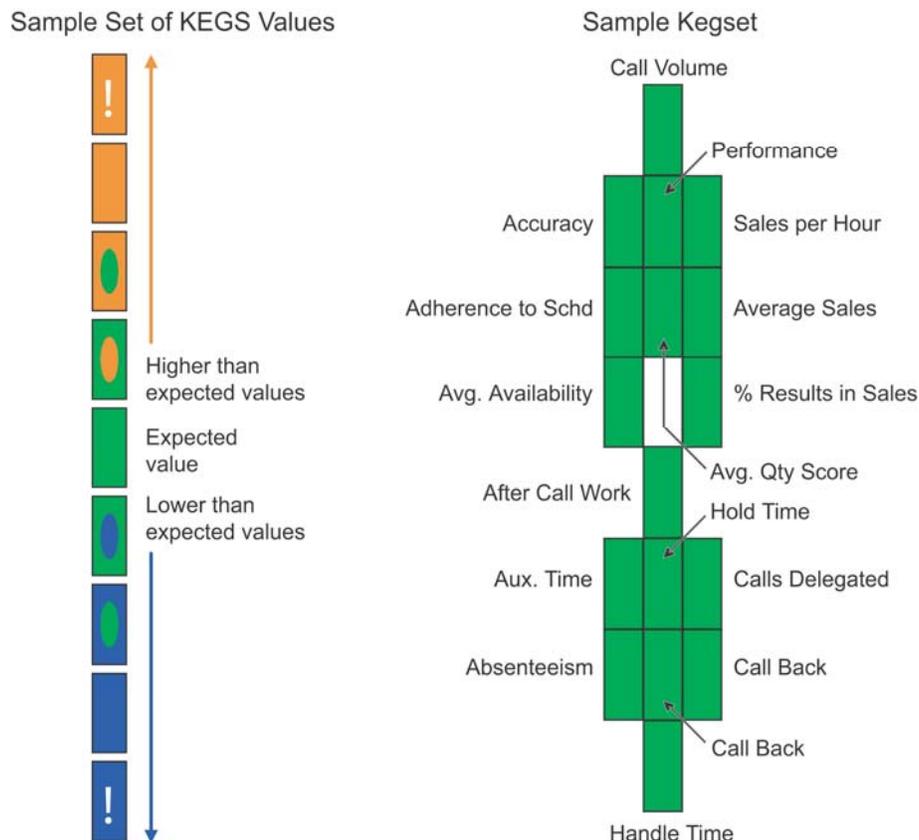

Figure 1: An example of KEGS values and a sample Kegset.

Imagine that the performance of each member of a call center staff is being measured in real time, consolidated and then displayed on a single screen full of Kegsets, one for each person. A call center manager could potentially monitor an entire team's performance and respond to problems as they arise (See Figure 2).
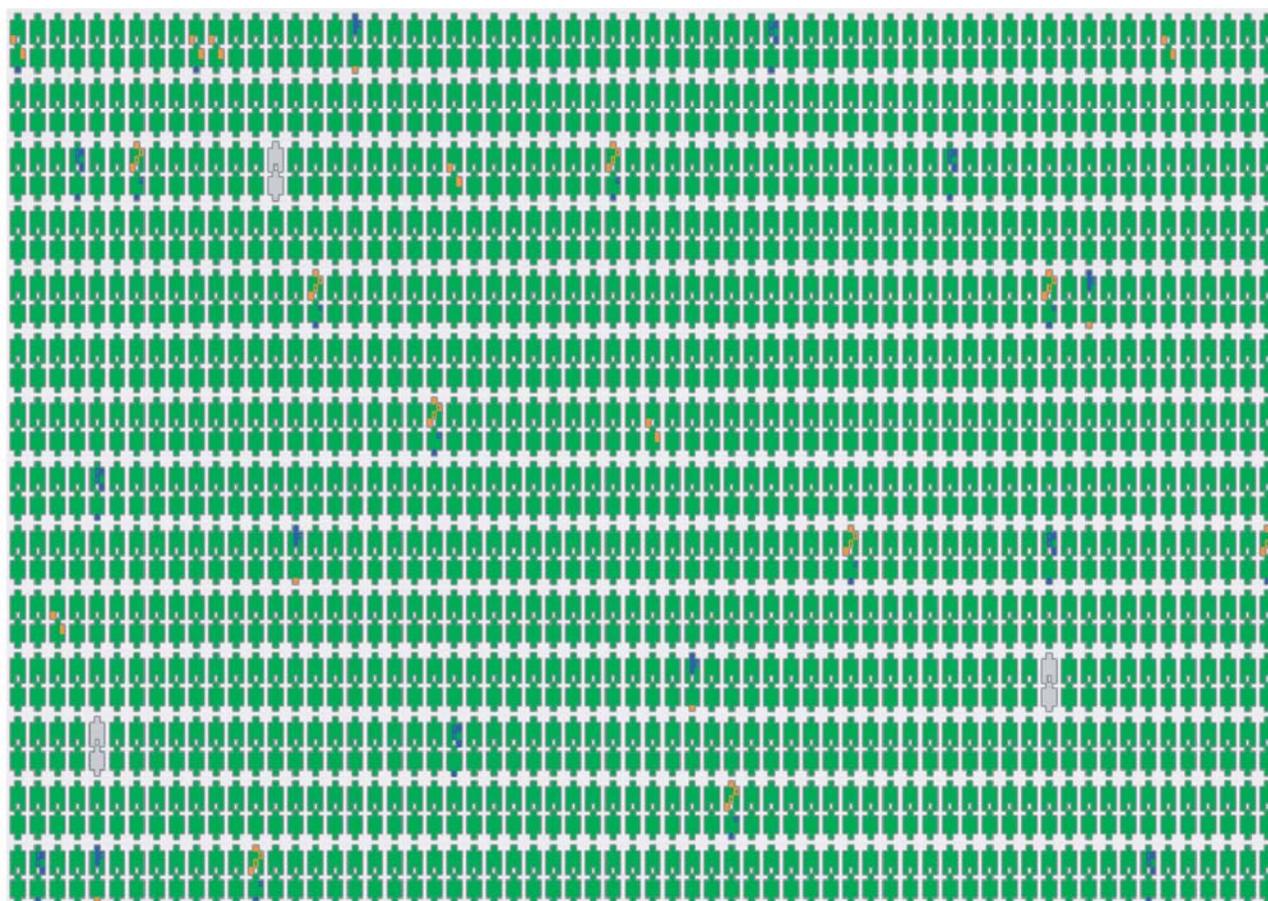

Figure 2: A full screen of Kegsets for monitoring a call center.

Displays composed of simple visual objects in which values are encoded as visual attributes efficiently monitor large volumes of data in real time, especially when compared to text displays. In the visual landscape dominated by green, the blue and orange exceptions stand out clearly and immediately. Thus, FYI Visual can monitor multivariate data if its displays are carefully aligned with the requirements of visual perception.

Unfortunately, FYI Visual has two big problems: First, like many software vendors, FYI applies its hammer to problems that aren't nails. And second, even when monitoring multivariate data, FYI's visualizations don't always hit the nail precisely on the head.

The vendor claims that "FYI Visual makes it possible to see event-driven and historical information side by side ... so that trends and patterns can be easily identified." FYI's use of KEGS to display quantitative values as they increase and decrease through time obscures the insights contained in the data. Simple line graphs would reveal more.

Even when addressing appropriate targets, the KEGS model is too rigid and has inadequate visual design choices. KEGS are always rectangles rather than forms that can be customized

to match the data they represent. FYI attempts intuitive design by supporting the arrangement of KEGS in Kegsets to approximate the shape of the represented entity or by placing KEGS at significant locations in a representation of, say, a map or floor plan. The visual impact can be helpful when done well, but you're still stuck with rectangles, which often lack the flexibility needed to make the data objects meaningful.
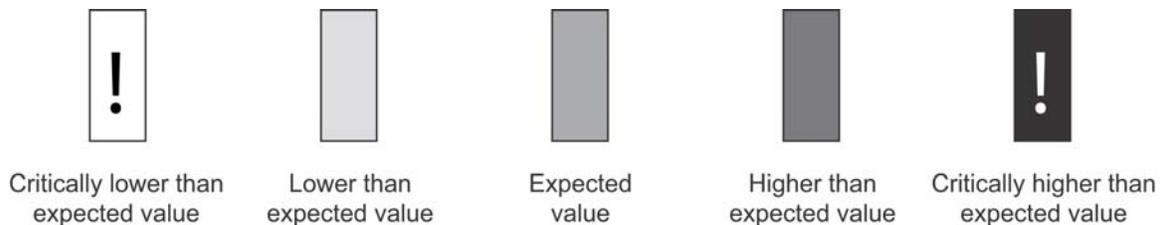

Figure 3: A simplified set of visual attributes helps users understand data rapidly.

The visual attributes encoded in KEGS aren't immediately clear. There's a limit to the number of distinct visual attributes we can rapidly scan, easily distinguish and meaningfully interpret. Most of FYI's examples use too many attributes. I recommend that users limit the distinct values to no more than five and use simpler visual attributes to distinguish them, such as the alternative set shown in the diagram in Figure 3. Distinct intensities of a single hue, such as grayscale, intuitively suggest a range of increasing values from low to high that are not naturally represented by blue, green and orange. Another advantage is that the colorblind can distinguish the varying intensities of a single hue.

Don't base a purchase decision on a vendor's dazzling demo. Carefully examine how effective the software would be in visualizing your data. If the visualizations don't quickly make sense after a little training, keep looking.

FYI Visual 2.0 entry-level pricing is $25,000 for a pilot system of up to 5,000 KEGS. For more product information, go to www.fyicorp.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.