

ONLINE FILE W3.3

Problems with Dashboard Displays

The metaphor for a performance dashboard is the automobile dashboard, which is designed to display, at a glance, the status and performance of various systems in the automobile (e.g., fuel, cooling, oil, engine) as well as the automobile's speed and distance traveled. The metaphor is a good one. The designers of automobile dashboards could clutter them with any number of indicators (e.g., they could display tire pressure for all the tires, the temperature in the trunk), but they have chosen not to. Similarly, they could use any number of specialized display devices to represent the status of the various systems, but, again, they have chosen not to. In contrast, many performance dashboards have suffered the same fate as the early enterprise information systems (EIS) and Web pages. The early EIS and Web pages were inundated with a wide range of specialized visual widgets or components. The same is true for a number of dashboards.

A number of books have been written about the types of visual displays to use with particular types of data. Harris's (2000) reference on information graphics, Tufte's (2001) well-known book on visual displays, and Few's (2006) recent book on dashboard design are all excellent references on the subject. There is not room in this book to go into the myriad details. In practice, only a few widgets are required to display the types of results generated by performance management and measurement systems. The keys to selecting the appropriate widgets rest on two principles (Few, 2005). First, the widget needs to be the most appropriate one for the type of data being displayed. Second, the widget needs to fulfill its purpose, even when it is substantially reduced in size.

The implication of these two principles is that many of the fancy or cute displays, such as thermometers and gauges, are overkill. The trappings of the displays (e.g., borders around the gauges, the bulb at the bottom of the thermometer) have little to do with the results being displayed and take up valuable real estate. Also, it is sometimes difficult to translate a visual metaphor into something meaningful for the results being displayed. For instance, the thermometers on a dashboard are often used to compare actual results against targeted goals (e.g., actual revenues and expenses vs. their budgeted or forecasted values). But what does it mean when the temperature (or mercury) rises on the dashboard thermometer? With a real thermometer, the target for humans is a steady state around 98 or 99 degrees. High temperatures are not good, nor are low temperatures. How does this part of the metaphor translate into the values being displayed for variables, such as revenue and expenses? Revenues and expenses do not have a steady state to aim for. We usually want revenues to be high and expenses to be low. So, in this case, why use a thermometer, or even a gauge, for that matter?

In many instances, standard charts and graphs or tables of numbers with color-coded values can adequately serve the same purposes as more elaborate displays. They generally take up less space on a dashboard. They are better known, shrink well, have little extra adornment, and are easily interpreted. There are also other specialized widgets (with little adornment) that can easily represent individual values and trends. Two of these specialized widgets are *performance bars* and *sparklines*. The dashboard in Figure **W3.3.1** contains three performance bars, representing visits to the main Web page, the product Web pages, and the download Web pages at a software company's e-commerce site. These have been adorned for sales purposes. However, a simple line or bar can be used to represent an actual value, and lines perpendicular to the value axis can represent various targeted values. In addition, the quantitative scale can be color coded to represent the qualitative designation for the performance (e.g., red is poor, yellow is adequate, green is acceptable or good). Similarly, sparklines, which were invented by Tufte, can be used to represent trends in values. You can think of a sparkline as a barebones line graph of actual values over time. A sparkline has no background, title, or labeled axes. It is just the line. Its whole purpose is to rapidly convey the trends and historical context for the measure of interest.

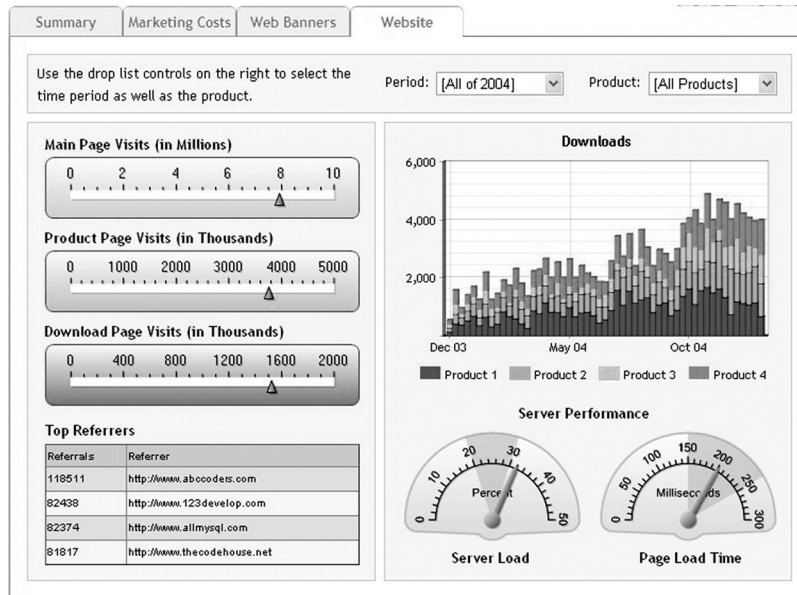


FIGURE W3.3.1 Sample Dashboard Widgets Source: Dundas Data Visualization, Inc.

References

- Few, S. (2005, Winter). "Dashboard Design: Beyond Meters, Gauges, and Traffic Lights." *Business Intelligence Journal*.
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