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DEALING WITH TECHNOLOGY

Trading Floor Technologies

Heat Maps, Sound Cues and Hot Orbs

With markets moving at the speed of light, traders need to be firing on all senses and specialty vendors are helping them do just that.

NEW YORK—Heat maps, musical sound cues and oracular orbs tied to market movements are finding their way to trading desks as securities firms experiment with unorthodox tools to monitor market movements.

Trading floors have always been breeding grounds for innovation, and pipe dreams such as the World Wide Web, the Internet and instant messaging (IM) have become essential technologies for many firms, after inauspicious debuts.

Panopticon, Accentus and Ambient—just to name three—are aiming their IT wares at traders who need offbeat means to monitor the market. (A longer version of this story appears in this month's *Waters* magazine.)

Swedish vendor Panopticon offers the Heat Mapping Toolkit, which creates visual heat maps to monitor data. Derived from research by Ben Schneiderman, a professor at the University of Maryland in the 1980s, a heat map divides a computer screen into areas representing different groups of data, offering a bird's-eye view of a bank's data while letting the user drill down through the areas to specific reports and analytics. Rather than offering the streams of figures that a trader is used to, the tool uses the color, size and proximity of the different areas to visualize the underlying data. According to Willem De Geer, Panopticon's CEO, "Heat maps are far simpler than most data visualization tools."

Just ask Tom Troscianko, a vision scientist in the neuroscience department at Bristol University in England, who, to counter skeptics, points to the research and principles behind Panopticon's heat maps. "Information about color is used by human vision to understand the properties of large areas," says Troscianko. Nothing will replace the specific and detailed data offered by a line graph or straight figures, but the heat map is an easier way to monitor information as a whole, he says.

Panopticon's heat maps have been built into Web sites, intranets and standalone applications to help securities firms with managing portfolios and equity research.

While the heat map uses computer screens, the Auditory Display technology of Hanover, N.H.-based vendor Accentus encourages traders to explore the edges of their hearing. Accentus' product lets traders keep an ear on the markets through simulated musical instruments.

Skeptics might ask what all the noise will mean for others on the trading floor, but James C. Perkins, CEO of Accentus, says that many traders already use squawk boxes with added subwoofers for sound quality. "We're not talking a U2 concert here," he says. In some tests, playing continuous music that changes with the markets has worked, and Perkins boasts that passersby have overheard the sounds and asked for a CD of the music. However, the current software plays "discreet sonification," Perkins says. "The system plays fragments of music with changes in data," he says.

While both Accentus and Panopticon can both dream of wider applications of their technologies beyond financial services, Cambridge, Mass.-based vendor Ambient already offers its products to the retail market. Founded by researchers from the Massachusetts Institute of Technology (MIT), Ambient's devices are continuously updated via a wireless network.

The Ambient Orb, a hollow ball of frosted glass, has been described as a giant mood ring, plugged into any factor

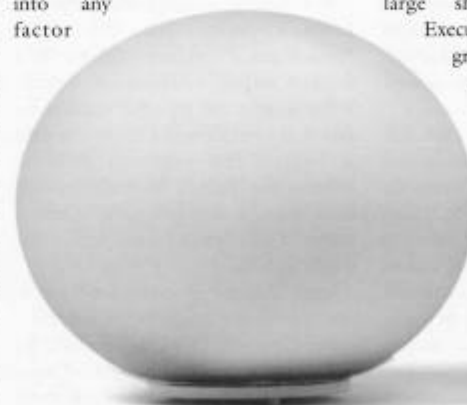
that end users choose. For traders, the pull is its promise to track the movement of equity prices. The Orb is initially set to track the Dow Jones Industrial Average, and it glows progressively greener or redder to indicate market movements up or down, or yellow when the market is calm.

Ambient co-founder, David Rose, teaches a course on information visualization at Harvard University, and echoes the principles behind both Accentus' and Panopticon's offerings as he describes Ambient's products. "Cognitive scientists talk of pre-attentive processing," Rose says. "In your peripheral vision, you can process the size, color, angle, and other characteristics of something even if you're concentrating on something else." The inspiration behind the devices was simple favorites such as clocks and thermometers, he says. Despite the advent of the Internet and more complex tools, such simple, useful objects are common to practically every home in the U.S.

Information overload was also a driver in Ambient's development. "Users in the financial services might disagree with Ambient's philosophy, saying they need details, not generalities," says Rose. "But I argue that they need an overview before they can decide which details to look at."

While the retail market has been surprisingly willing to shell out \$150 for a large shining globe, Ambient's Executive Dashboard could be of greater use to traders and the color-blind. Three dials, much like speedometers, can measure the performance of variables such as the S&P 500. Unlike the Orb, the dials can point to specific figures and monitor three variables simultaneously.

Philip Craig



The Ambient Orb changes color to indicate real-time changes in the financial markets. It glows red or green to show up or down movements.