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THE EDITORIAL VIEW

COMMODITY PRODUCTS MAKE COMMODITY MARKETS

By Tom R. Halfhill {6/26/07-02}

Most companies fear commodity markets—those markets that subsist on razor-thin profit margins, providing sustenance only to the bottom-feeders. Typically, a new market opens with highly innovative products that command high profit margins. As more companies

enter the fray, competition drives prices down. Eventually, the products become so plentiful and similar to each other that they become a nearly profitless commodity.

That's Business 101. And it's what happened to desktop PCs, to cite only one example. In the U.S., the desktop PC market is dominated by a mere handful of system vendors (Dell, Hewlett-Packard, and Gateway), and their microprocessor suppliers have essentially dwindled to only two vendors (AMD and Intel). But there are still some imaginative companies that make high-end gaming PCs costing thousands of dollars—profitable prices not seen in the mass market for many years.

I think much of the damage of commodity markets is self-inflicted. Lately I've been wondering if the spread of embedded-processor technology is partly to blame. Much has been written about the ubiquity of microprocessors in products of all kinds, from jet airliners to cellphones. It's increasingly rare to encounter any electronic product that doesn't contain some kind of processor. Indeed, many products that didn't need electricity in the past are now electrically powered, solely for the purpose of embedding a processor. This trend is hailed as great progress—the infusion of machine intelligence into everything. It's supposed to improve efficiency and enable new modes of communication, sometimes even without a human in the chain, as these newly intelligent devices silently communicate with each other while performing their autonomous duties.

All that is true, and I agree it is progress. But now I'm noticing an unwanted side effect. When everything contains a microprocessor, every design seems to be dominated by engineers who create the hardware and programmers who write the software. Because those disciplines are highly technical and rather narrow, they tend to impose a sameness on everything—a sameness that can lead to commodity products, and hence commodity markets. It appears to me that people outside those disciplines are having less and less input into the overall product design. And that's not good.

Example: Digicams

Before proceeding further, let me assure you that I have nothing against engineers and programmers. I'm not forgetting that most readers of *Microprocessor Report* are engineers. My point is that any discipline that dominates the design of a product can't help stamping its imprint on the product, for better or for worse. When that dominant discipline crowds out other creative contributions, the design suffers. Of course, other factors also lead to boring products: downsized design teams, the relentless demands for cost cutting, and the rapid turnover of products in the marketplace, which forces shorter design cycles.

A good example is the market for point-and-shoot digital cameras. So many stultifyingly boring digicams are being introduced by so many uninspired companies that even the

product reviewers are crying for relief. One widely known reviewer, Thom Hogan, became so frustrated that he unleashed a rant on the subject, drew up specifications for his own camera design, and offered \$10,000 to the first company that would produce it. (See www.bythom.com/compact.htm)

Judging from the hundreds of digicams flooding the market, one might conclude that nobody in the world can make a lens that isn't a medium-wide to medium-telephoto $f/2.8$ – $f/4.7$ zoom. Almost every camera has the same lens. They all have the same crappy user interface, too—lots of itty-bitty buttons that are hard to tell apart and are overloaded with multiple functions. But among all those buttons, you won't find a shutter-speed dial or a lens-aperture ring—the two most essential exposure controls in photography. Even high-priced digital SLRs don't have them.

I have a Nikon DSLR whose top-deck LCD constantly displays the battery strength, the metering pattern, the white-balance setting, the autofocus mode, the image file format, the image size, the image-compression setting, the shutter-fire mode, the number of pictures that will fit on the memory card, and whether sound prompts are switched on. But without taking a meter reading, the camera won't display the two most essential exposure settings—shutter speed and f /stop. Even after a meter reading, the shutter speed and f /stop stay illuminated for only a few seconds. Yet there's plenty of room on the LCD, and power consumption obviously isn't an issue, considering all the other information on constant display. If the firmware were written by a photographer, not a clueless programmer, the camera would always display the f /stop in aperture-priority mode, the shutter speed in shutter-priority mode, and both settings in manual mode. A few lines of code would do the trick.

Looking at the bright side of this situation, helping a neophyte choose a digicam has never been easier. Just close your eyes and pick one. Unless the prospective buyer has an unusual requirement—such as AA batteries instead of a dedicated rechargeable battery pack—the choice hardly matters. In fact, some cameras that formerly boasted distinguishing features are now abandoning those features to embrace sameness. For example, some Canon digicams were famous for their swing-out LCDs that users could view in a variety of different positions; later models have fixed LCDs.

Meanwhile, camera makers are starting to complain about declining profits. Competition is driving down prices, and digicams are becoming a low-margin commodity. I think this situation is at least partly self-inflicted. Commodity products are creating a commodity market.

Return to Innovation

Inevitably, the digicam market is becoming saturated as people convert from film to digital. Some commoditization is

unavoidable. But there are still opportunities for designers who have the creative spark. Creativity needn't be abandoned just because a market matures.

Recently I saw an advertisement for a new “digital nature camera.” It's a green-camouflaged digicam intended to be tethered to a tree and left unattended. When a passing animal trips an infrared beam, the camera snaps a picture. This camera costs \$300, but it's only three megapixels. Normally, a three-megapixel digicam wouldn't command a price higher than about \$50 today (if that). Some clever designer probably wrapped some new plastic around an obsolete digicam platform, modified the firmware, and came up with a product that can sell at a very profitable price.

For at least five years I've wondered when the dummies at Minox will get around to making a digital version of their famous subminiature “spy camera.” I'm sure you've seen a classic Minox in movies—the tiny cameras that resemble cigarette lighters and advance their film with a push-pull action. A digital model with four megapixels of resolution would deliver higher quality than the 8×11 mm film cameras ever did. And a four-megapixel classically designed Minox could sell for several times the price of any other four-megapixel camera, with plenty of profit margin. What's taking so long?

Another idea is a super available-light camera. With the small image sensors in digicams, it's not particularly difficult or expensive to make a fixed-focal-length lens with a maximum aperture of $f/1.4$, $f/1.2$, or even $f/1.0$. A related model could have a 35–70mm equivalent zoom lens with a constant aperture of about $f/2.0$. In combination with low-noise high-ISO performance and image stabilization, such cameras could take pictures of the proverbial black cat on a coal pile.

How about digital reproductions of classic film cameras? Although Minox has been making digital reproductions of classic cameras (except, ironically, Minox's own classic cameras), they are drastically scaled-down toys with crippled features. I'm talking about reproductions closer to the real thing. For Rolleiflex fans, the digital model could offer the option of reversing the image on the waist-level LCD screen, just for old times' sake. The digital Speed Graphic could come with a fedora and a hatband press card. The digital Argus C3 (aka “The Brick”) could come with a first-aid kit, in case you drop the camera on your foot.

OK, I'm getting carried away—but only a little. My main argument is that we need more innovation, even if it's the silly stuff that gets brainstormed over drinks. Product design shouldn't be a process of finding the shortest distance between two points, and it usually takes more than hardware engineers and firmware programmers to breathe real life into an idea. ♦

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