

## THE NEW YORKER

### THE TALK OF THE TOWN

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#### STANDARD-BEARERS

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Issue of 2006-10-16  
Posted 2006-10-09

In 1888, at Thomas Edison's laboratory, in West Orange, New Jersey, a macabre event took place. While reporters watched, dogs were placed on a metal plate that had been hooked up to a thousand-volt alternating-current generator and electrocuted one by one. Edison wanted to convince the public that alternating current (which was offered by a competitor, Westinghouse) was too dangerous to be used in the home, and his own direct-current technology should be the national standard for electricity.

Edison's tactics may have been extreme, but his purpose would have been readily understood by the marketers of Sony's Blu-ray technology and those of Toshiba's HD DVDs: both companies are trying to convince us that their product will be the standard high-definition successor to DVDs. Technological standards—like the compact disk, or the protocols that make the Internet function—are essential to the smooth running of a global economy. Yet standards themselves are determined in unstandardized ways. Sometimes they are the product of government mandate. (The European Union wanted one cell-phone standard for the continent, and now virtually all European cell phones use G.S.M. technology.) Sometimes a quasi-governmental organization or a technological consortium steps in, and sometimes deals are cut between companies. But sometimes companies that have spent billions developing new technologies decide to slug it out in the marketplace, just as Edison and Westinghouse did. Such fights are called standards wars—a familiar example is Betamax's defeat by V.H.S.—and the biggest standards war today is the one between Blu-ray and HD DVD.

Standards wars involve lots of variables, and understanding them often seems more an art than a science. They generally involve just two big players, and end in a winner-take-all situation. So whereas Coca-Cola and Pepsi can happily share the soda market, Microsoft Word now has ninety-five per cent of the word-processing market, and WordPerfect has almost none. Thus the rules that govern these wars are different from those of simple free markets.

The most important rule is that, as the economist Hal Varian says, "the product that people expect to win *will* win." Consumers know that if they back the loser in a standards war they'll be stuck with an obsolete product, so convincing them that your product is a winner is essential. Some economists argue that this means that quality is irrelevant in a standards war, but the historical record suggests that survival of the weakest is a rare occurrence. Betamax fans still extoll its superior picture quality, but for most consumers V.H.S. was the better product; Betamax tapes could fit only an hour's recording time, while V.H.S. could record an entire movie. Similarly, Edison's attempt to make direct current the industry standard failed because alternating current was more reliable and allowed electricity to travel longer distances. Ultimately, the best way to make people believe your product will win is to have a better product.

That isn't enough, though. It's essential to develop as many partnerships as possible with companies that make so-called "complementary goods." Sony's Playstation, for instance, became a huge success in part because there were simply so many more games available for it than for its competitors. Companies also need to get their products to market quickly, because, once a standard is established, it's difficult to

dislodge. If someone buys a Blu-ray player and disks, he won't want to switch to HD DVD, and vice versa. But, while much has been written about the so-called "first mover advantage," the historical evidence for it is shaky. Alternating current was developed after direct current, V.H.S. followed Betamax, and RCA's color-TV technology (which eventually became the industry standard) was developed after CBS's. So you need to be fast but not necessarily first.

Both Sony and Toshiba appear to have taken these lessons, ambiguous as they are, to heart. Toshiba was first to market: HD DVD players appeared in the spring. But Sony made sure that Blu-ray machines appeared soon afterward. Sony has done a better job of making partners: it has signed exclusive deals with Disney and Fox, and almost every Hollywood studio is releasing Blu-ray disks. But Toshiba is the exclusive distributor of films for Universal, and has so far released more movies than Blu-ray has. Blu-ray's technology, which allows you to pack fifty gigabytes of data on a disk, is theoretically superior to that of HD DVD, which manages thirty. But for most users the differences in quality will probably seem negligible—movies look extraordinarily good on both machines—and Toshiba is offering its products at cheaper prices.

Curiously, though, a standards war in which both companies are avoiding obvious errors may not be in anyone's best interest. An extended standoff will likely make customers hesitate to buy either product, resulting in hundreds of millions of dollars in lost sales. And if it goes on long enough consumers may just decide to wait till they can download high-definition movies. The obvious solution to this impasse is negotiation. That's what happened with the original DVD—in the nineteen-nineties, a consortium of companies pooled patents and adopted a single standard. Sony and Toshiba did talk last year, but there's no sign that any kind of deal is in the works. Cutting a deal would require Sony and Toshiba to admit that they might lose the war, and right now neither company can afford to be seen to doubt its position. So they may end up staring at each other for a long time, and when, finally, someone blinks consumers may have forgotten what all the fuss was about.