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## **THE BEST AND WORST SPORTS-RELATED TECHNOLOGIES**

Technology is present in all aspects of our day-to-day lives, including athletic performance. It is changing the way fans watch and interact with sporting events, and in some cases it is changing the sports themselves [1; 2]. Many technologies can enhance a fan's enjoyment of sports. Some others are just plain annoying.

Before we get to the bad, here are *the sports technologies we love* [3].

*High-tech stadiums.* Sure, old-time ballparks like Fenway Park and Wrigley Field have their charm, but fans are being treated to some really cool, interactive technology at state-of-the-art arenas such as the new Yankee Stadium and Cowboys Stadium. Both facilities make use of Cisco's Stadium Vision, which «allows fans to interact with the event experience by taping and accessing instant replays on a handheld device and sharing it with other participants, or with anyone on the Internet,» as Network World reports . The Cowboys stadium also features the world's largest HDTV and 3,000 HD displays featuring customized game footage and real-time information.

*Streaming Internet video.* Let's say you're a Boston Celtics fan who lives in Scotland. Or a Celtic Football Club fan who lives in Boston. Twenty years ago, watching all the games would have been a near-impossibility. But now, with league- and team-sponsored video services, fans can catch live, high-quality game feeds no matter where they live, with an Internet connection and a fast enough computer.

*Games on demand.* The luxury of watching any game you want isn't restricted to your laptop. All the major U.S. sporting leagues now offer cable packages that let you watch every single game, all season long. A lot of TV channels offer the most diehard fans a way to see their favourite teams and scout out the competition. You can even watch live action from a half-dozen games at once with a split-screen format. One quibble: not enough games in HD.

*Electronic pin locators.* You won't see Tiger Woods using one, but amateur golfers could shave a few strokes off their scores with new devices that calculate one's distance from the pin. One such device called the Leica Pinmaster shoots a laser

at the pin to measure distance, helping you decide whether to use the six-iron or the seven. With any luck, lost golf balls will someday be a thing of the past as well, with new gizmos that help duffers find balls hit into the rough or woods.

*Fantasy sports Web sites.* It seems like every football fan cares about two teams: the hometown boys and his (or her) fantasy squad. When rotisserie leagues were organized with pen and paper they were more busy work than fun. But fantasy sports have ballooned in popularity thanks in part to Web sites like CBSsports.com, Yahoo etc. which offer live scoring, an easy-to-use draft application, injury reports, and detailed statistical analysis and player comparisons. Most importantly, the sites' chat forums offer a convenient place to hone your trash-talking skills.

*Instant replay.* Major League Baseball took its first, hesitant step into the 21st century last season by implementing instant replay on home run calls. Unbelievably, a sport that features advanced cyborg technology such as Barry Bonds had previously refused to implement a simple video replay system to determine whether home runs were called correctly. Safe and out calls on the base paths are still subject to flawed human umpires. Luckily, the NFL implemented replay years ago, preventing many (though not all) football games from being marred by referee error. Perhaps the best replay system belongs to professional tennis, where player challenges can be resolved accurately and within seconds. If tennis replay existed in the 1980s, even a malcontent like John McEnroe would have been a perfect gentleman and never complained during matches.

*HDTV.* If sports isn't the reason high-definition television exists in the first place, it should be. Once you've gone to HD, standard definition seems like a Stone Age technology, particularly for sports such as ice hockey and football, in which a clear, life-like picture enhances our admiration of individual feats of brilliance and the intricacies of team strategy and positioning.

*Personal replay technology.* Very often when you ever look up and see a replay from a bad angle or, worse yet, no replay at all? Someday that won't be a problem. At Pittsburgh Penguins hockey games, a new service called «YinzCam» lets fans call up live video and replays from any angle they wanted with mobile phones and Wi-Fi-enabled devices. Expect this technology to spread throughout stadiums over the next few years.

*Advanced prosthetics for disabled athletes.* «Performance enhancers» usually take on a bad connotation – but not when the goal is to help the disabled perform feats that would otherwise be impossible. One great example is South African Oscar Pistorius, who runs on blade-like artificial limbs and has been dubbed «the fastest man on no legs». After a court battle in which it was alleged that his prosthetic limbs gave him an unfair advantage over athletes without disabilities, Pistorius was allowed to compete in events against able-bodied runners. He did not end up qualifying for the Olympics, but holds several world records for double amputees and won three gold medals in the 2008 Summer Paralympics.

After we have looked at the best sports-related technologies, let us examine those that change fan experience for the worse – *the sports technologies we hate* [3].

*Online ticketing systems.* Yes, it's nice that the Internet lets sports fans buy tickets from the convenience of their living rooms, and without having to deal with

annoying telephone systems. But too often, fans end up getting shut out or feeling ripped off. If you're lucky enough to buy tickets, Ticket master rewards you with the privilege of paying «convenience fees» and building charges that can make a \$30 ticket cost \$40 to \$45. And if the event sold out on Ticketmaster, your next option is going to a ticket broker that can sell tickets for more than face value. It's no surprise that fans are suspicious of Ticketmaster's relationship with ticket resale sites – since Ticketmaster happens to own one of the most prominent, that being TicketsNow. Numerous lawsuits have been filed against the companies and a recent settlement forced them to «curb deceptive tactics and pay \$50,000 for consumer fraud enforcement and education,» according to the Wall Street Journal.

*The yellow first down line.* Watching a pro football game today would be inconceivable without the yellow first down line – a computer-generated stripe projected onto the field for the TV viewing audience. There's just something satisfying about seeing a runner blast his way past that line – and something frustrating when a receiver catches a pass and then steps out of bounds a half-step before crossing it. Although seemingly simple, creating the line is a relatively complicated, requiring the work of multiple cameras, eight computers and several technicians. A similar technology in baseball shows the flight of the pitch through the strike zone. But instead of enhancing enjoyment of the game it seems to cause more confusion than anything, because the strike zone as called by umpires is often quite different than the electronically generated one shown to TV viewers.

*Ineffective doping tests.* Fans want to believe sports are free of doping, or at least that professional leagues are making an honest attempt to catch cheaters. But while some athletes get caught, the evidence in front of our eyes suggests anti-doping technology is at least two steps behind the offenders. Without steroids, you probably wouldn't find many NFL linebackers who are 6'2», weigh 270 pounds, hit as hard as Hulk Hogan and run nearly as fast as Carl Lewis. Even worse, pro football and baseball don't even bother testing for the commonly used human growth hormone, because no urine test exists and players have lobbied against blood testing.

*Crazy swim suits.* A lot of new world records were set not because swimmers suddenly became more talented but because they got better swimsuits. Just as steroids have tainted the baseball record book, swimming competitions have become a joke because of full-body, speed-enhancing swimsuits made from polyurethane. The suits are water-repellent, reduce drag, improve buoyancy and use a corset-like grip to maintain optimal body position in the water.

In sum, we may conclude that almost any athlete can improve the sporting results using technological advances. Nevertheless, proper training, correct nutrition and motivation cannot be replaced by any state-of-the-art technology.

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