

THE FUTURE OF SPORTS

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INTRODUCTION



Sports have drawn people together to cheer for their heroes for as long as there has been a record of human activity. Sports have been seen to rival religion in the power to unify diverse populations, and in some cases have sparked positive social movements that carry over to the worlds of business and government.

Sports are timeless, yet with each generation, new technology and social dynamics have changed and intensified how we experience sports. In the past fifty years, we have seen many radical changes — broadcast television and cable, credit cards, salary caps, player unions, integration, globalization of the fanbase, shared revenue agreements, and \$100 million player contracts.

The changes on the horizon will likely be even more disruptive.

For this project, we assembled a brain trust of futurists and experts to gaze into the next 25 years. Some of the underlying trends are undeniable. Medical advances are allowing us to alter the bodies of athletes. The computing power of smartphones doubles every 18 months. The appetite for sports is nearly insatiable — fans expect all-access passes into the clubhouse and into the boardroom.

Change is coming fast. But how these trends intersect, and what our industry will look like as a result, is far from obvious.

Discussing the future of our industry can be anxiety-provoking, simply because so much seems uncertain. No one wants to bet on the wrong trend. This project serves to remind us that the future is inherently fun — fun to debate, to contemplate, and to imagine. Some of these futurists' predictions will come true, and more of them likely won't. Our goal isn't to assert one version of the future over another; our goal in publishing this report is to ignite your thinking and to help us as an industry take charge of the conversation.

No futurist knows exactly what will happen next for our industry, but historians will someday write our chapter. Twenty-five years from now, we want the next generation to look back at this time and appreciate the groundwork we laid for them.

Jeremy M. Jacobs
Chairman of Delaware North
Owner of the Boston Bruins

September 2015

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Singularity University
 Paul Saffo, Salim Ismail, Aaron Frank

We set out to discover the future of sports, on the field and off. Barely had we begun when we noticed that the future seemed to be arriving way ahead of schedule. Scenarios we imagined could happen five to 10 years out instead were happening all around us.

The NCAA's amateur commandment was ruled to violate US antitrust laws. The month after we talked with experts at Singularity University about the driverless car, Audi put its autonomous vehicle on the road to cross the entire country. A virtual-reality headset called Oculus Rift went from crowd-funding to a \$2 billion acquisition by Facebook. (When one of us tried it, he was so hypnotized by the virtual world of the Rift that he fell backward off the stool he was sitting on, disrupting the Singularity University seminar going on in the next room.) World Cup television audiences surpassed NBA finals and World Series ratings.

Teenage video gamers started to receive college athletic scholarships, while others went pro and earned millions competing in e-sports tournaments. A female coach, Becky Hammon, joined the staff of the San Antonio Spurs. Another woman, Jen Welter, joined the Arizona Cardinals as an assistant linebackers coach. We learned that digital broadcast pirates had earned \$220 million the prior year on their stolen feeds. The NFL announced plans to livestream a Buffalo Bills game on Yahoo!

Chinese scientists used a breakthrough technique invented in the US to edit the DNA of 86 human embryos, paving the way for the creation of genetically modified superathletes.

Things were getting wild.

Over the next 20 years, the entire sports industry will face a globalizing culture and rapidly changing tastes, demographics, and habits.

The primary driver of all this accelerating change, Moore's Law — the doubling of computing power every 18 months — will give way to quantum computing. For the athlete, new genetic therapy will be available to make their bones unbreakable and their brains less susceptible to concussions.

These advances will pave the way for huge jumps in performance — and a global debate over theoretical limits of

enhancement. Star athletes with increasing financial and cultural power will control their own content streams and have ever greater influence over the management of teams and leagues.

For fans, it will be a new age of wonders. They'll be able to access an unlimited number of games, not to mention the private lives of their favorite players, on a round-the-clock basis. Virtual reality will provide fans the experience of standing next to their sports heroes as the action unfolds around them. By expressing their collective voice through social media, fans will take part in decisions that were once made by a small set of sports executives in boardrooms. Every fan will become a content provider: the amount of content streamed by fans from smartphones inside arenas will exceed the amount generated by official broadcasters — and will be seen by more people.

Leagues and franchises will inevitably have to abandon the safe harbor of traditional broadcast deals and embrace the perils and potential of the Internet. Non-broadcast media like Google, Netflix, Facebook, and, yes, Yahoo!, will provide new, highly personalized ways of watching live sports. Franchise owners will create their own Bitcoin-like cybercurrencies that blur the line between real money, loyalty programs, and gambling chips. Stadium designers will rethink the physical space that fans and teams inhabit. New open-concept megaparks that can handle up to 250,000 roaming fans will redefine game day.

We're grateful to the Jacobs family for sending us on the first leg of this journey. We can't give you a live tour of the future yet. But this report will serve as a tour of how the future is being imagined by the best minds of today.

Josh McHugh, Editor in Chief
Po Bronson, Contributing Editor
Ethan Watters, Contributing Editor

CONTRIBUTORS



Po Bronson
Contributing Editor

Po Bronson is the author of seven books, most recently, the New York Times best-seller, Top Dog: The Science of Winning & Losing, which has become mandatory reading at many professional sports franchises and USA Olympics programs. His science journalism has won nine national awards, including the top award from the American Association for the Advancement of Science, as well as the PEN USA Literary Award for Journalism. This work has been cited in over 100 academic journals and over 300 books. He lives in San Francisco with his family, where he serves as volunteer President of San Francisco Youth Soccer.



Ethan Watters
Contributing Editor

Ethan is an author, journalist and trend spotter who has spent the last two decades writing about culture and social psychology. Most recently, he is the author of Crazy Like Us: The Globalization of the American Psyche. Prior to that, he wrote Urban Tribes: Are Friends the New Family?, an examination of the growing population of the "never marrieds." Watters is a contributor to The New York Times Magazine, Outside, Discover, Men's Journal, Details, Wired, and This American Life. His writing on the new research surrounding epigenetics was featured in the 2003's Best American Science and Nature Writing series.



Josh McHugh
Editor In Chief

Josh's experience at the intersection of technology, media, and business began at Forbes Magazine, where he covered software and opened Forbes' Bay Area offices. Named four times to TJFR's Top 30-under-30 Business Reporters, he then became a contributing editor at Wired Magazine and a writer for Vanity Fair, Outside, and other publications. As a copywriter for Wieden + Kennedy, he worked on campaigns for Electronic Arts' Madden NFL and NCAA Football titles. Josh holds a BA in English from Yale. His efforts to dunk a basketball are the subject of Dunkumentary, which screened at the Cannes Film Festival. Josh is the CEO of digital agency Attention Span.



Chris Cowart
Contributing Editor

Chris is a designer, business innovator, and venture investor. Out of the office, he is a sponsored athlete in cyclo-cross and kitesurfing. While a design leader at IDEO for 14 years, he won numerous design awards and patents. He serves as a design faculty and futurist at Singularity University in Silicon Valley, where he works with global leaders to apply exponential technologies to address humanity's grand challenges. He writes for ESPN Magazine on future directions for sports performance and fan experience. He lives in Redwood City, CA, with his family, where he serves as a Trustee at Phillips Brooks School in Menlo Park.



Kevin Roberson
Design Editor

Kevin is a California-based graphic designer specializing in identity programs, packaging, and printed matter. Kevin creates engaging, dynamic, and purposeful work with minimal means and a modern eye. For his work, Kevin has received four Clio Awards, three British Design and Art Direction awards, and two Art Directors Club of New York awards. He has been featured by the American Center for Design, Communication Arts design annual, and International Design Magazine.



Tyson Law
Creative Director

Tyson is the Executive Creative Director for Attention Span. He received his Masters in Architecture from the University of Pennsylvania School of Design, where he studied the intersections of design, fabrication, space, technology, and communication. Ty is a multidisciplinary designer who specializes in user experience design and architectural environments. Tyson received his BA in Electronic Media, Arts & Communication from Rensselaer Polytechnic Institute.



Joseph Reilly
Principal Photographer

Joe Reilly's photographs have captured many of the most important political moments of the 20th and 21st centuries. He served as campaign photographer to presidents Jimmy Carter, George W. Bush and Barack Obama, and is a trusted personal photographer for former president Bill Clinton. Photographer and ultimately close personal friend of Joe DiMaggio, Joe Reilly was named Director of External Affairs of the Joe DiMaggio Children's Hospital and does extensive philanthropic work.



Michael J. Coren
Contributor

Michael is a science journalist and co-founder of Publet, a platform for media and business to create digital publications that work anywhere on the web. He is a contributor to Fast Company, The Economist, and Foreign Policy, and he served as the science producer at CNN.com. He holds an MESC in environmental economics from Yale and was managing editor of Cambodia's Phnom Penh Post.

Will going to stadiums to watch sports continue to be an important part of our culture? New megavenues that can handle up to 250,000 fans will redefine the game-day experience. The seating area around the field won't necessarily grow, but the arena space will extend outward to include a greater variety of ways fans can experience game day. Ballpark Village St. Louis is an early step in this evolution. Tickets will no longer be sold just for seats in view of the field; open-concept venues will provide tiers of access that allow fans to roam the complex. The tailgating experience will come inside the gates. The high-end fan will enjoy the luxury box, while the average fan brings the family to the pavilions, open at one end to the stadium bowl. These fans watch the game on massive high-definition jumbotrons from standing bar areas and picnic tables. Amusement-park rides will entertain the kids. Think of the experience as part Phoenix Open (189,000 fans per day), part Coachella music festival (75,000), part Kentucky Derby (165,000 fans), and part Disneyland.



CHRIS WHITE
VICE PRESIDENT
CISCO SPORTS AND
ENTERTAINMENT
SOLUTIONS GROUP

“The world of video and connectivity is not threatening the stadium experience. Look at the way that jumbo screens have been embraced outside of venues—think Wimbledon or the World Cup. We are still human beings and we still yearn for human interaction. There is nothing more uplifting than being in a positive crowd environment with a bunch of people having fun roaring for a team. The stadium experience is no longer just in-venue.”

ALTERNATE FUTURE

Immersive interactive entertainment takes the world by storm, and virtual sports experiences leave the in-person variety in the dust. High-end micro-stadiums built to cater to the super-rich proliferate, scaling down in size and up in intimacy and luxury levels, compensating for the diminished appetite for live attendance.

CONTRIBUTING FACTORS

- 01** Outdoor screen technology will continue to evolve and amaze with ever-larger and more vivid megadisplays.
- 02** Smart ticketing technology will use sports fans' social graphs to increase the pull of live events at the stadium by connecting friends before and during games.
- 03** Self-driving vehicles will eliminate the primary inconvenience of live sporting events: parking.
- 04** Hyperloop transportation will radically increase the radius within which a trip to the game is feasible.

THE STADIUM

SPENDTHRIFT STADIUMS

cost per seat (inflation-adjusted)

Candlestick Park
capacity 63,000
\$120 million
CPS = \$1,905

Houston Astrodome
capacity 60,000
\$262 million
CPS = \$4,367

Three Rivers Stadium
capacity 59,000
\$354 million
CPS = \$6,000

Seattle Kingdome
capacity 66,000
\$278 million
CPS = \$4,212

Sun Life Stadium
capacity 65,000
\$239 million
CPS = \$3,677

US Cellular Field
capacity 44,000
\$289 million
CPS = \$6,568

Gillette Stadium
capacity 68,000
\$426 million
CPS = \$6,265

AT&T Stadium, Dallas
capacity 85,000
\$1.43 billion
CPS = \$16,824

Levi's Stadium
capacity 68,500
\$1.3 billion
CPS = \$18,978

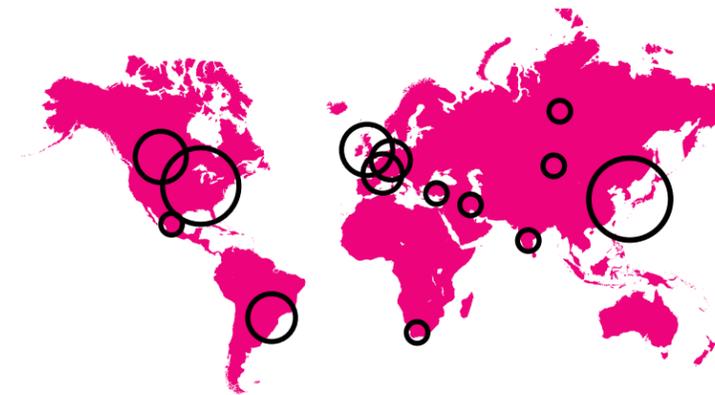


Will going to stadiums to watch sports continue to be an important part of our culture?

THE STADIUM

GREEN FIELD OPPORTUNITY

Number of stadiums per 1 million population, by country:



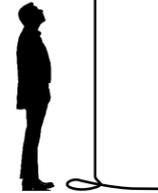
China	0.1
India	0.6
Russia	1.2
Iran	1.3
Mexico	1.4
South Africa	1.8
Turkey	2.5
Brazil	4.3
France	5.7
Germany	6.5
Canada	6.7
U.K.	6.7
United States	7.8
South Korea	8.2

The future is already flooding into stadiums, thanks to fans' handheld supercomputers, also known as smartphones:

- The Celtics and other franchises have started experimenting with seat upgrade opportunities via a mobile app for season ticket holders and offering fans video and audio programs.
- Above the Boston Bruins' home ice at Delaware North's TD Garden, a mobile app lets LinkedIn Lounge members know which of their professional contacts are at the game.
- The New England Patriots have promised that attendees will have access to cameras not available on TV. "You'll be able to watch a feed from a camera that is zeroed in just on Tom Brady." The Patriots have also hinted that fans might be able to listen in to radio communication between the coach and quarterback.
- In 2014, a cricket stadium in Australia launched LTE Advanced, a technology that broadcasts live commentary and video to fans with smartphones.
- Apps such as At the Ballpark already function as diaries of fandom. In all likelihood, when the kid of today is grown up, he will not just give his child his player cards, he'll download a lifetime of photos and video clips of games attended — digitally enhanced and preserved memories documenting his love of the game. The lore of the game will be enhanced and personalized by deep data, encouraging fans and the children of fans to attend games to keep the tradition alive.

Stadium security will evolve, combining heightened levels of safety with tech-enhanced capabilities. Fan-generated video is already being routinely used to identify and prosecute

Levi's Stadium required over 31 feet of fiber optic cable for each of its 68,000 seats.



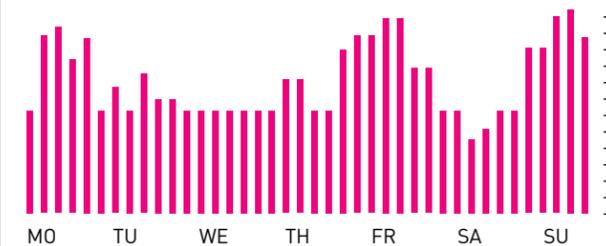
illegal behavior by fans at games. A company called Crowdoptics has patented a system that collects information on where fans are pointing their smartphones, allowing security officials to triangulate the location of security incidents and gain immediate access to video to assess the disturbance.

Just as airports have been reconfigured with more restaurants and services inside the security zone, stadiums will extend security perimeters farther away from the field, putting more restaurants and stores inside the zone. Ticketing systems will tie together names and online IDs of ticket holders, using facial recognition technology to know exactly who is inside the security zone.

1-5 YEAR FUTURE

There is no part of the in-person sports experience that won't be radically impacted by advances in technology. Safety, security, transportation, and connection to the on-field action are all evolving. For the stadium owner, the difficult question is this: With technology advancing so quickly, how do you know where and when to place your bets? Late adopters get left behind, and, as ESPN's recent failure with 3-D broadcasting demonstrated, early adopters often get burned.

Data Transfer of Football Content



Over a single week of NFL games, football fans are uploading and downloading the equivalent of the Library of Congress — twice.

The answer is to invest in technology that is proven but still has plenty of room for innovation. For the next five to 10 years, that technology is undoubtedly the smartphone and the growing number of connected devices. The adoption question is settled: There are now more mobile devices than there are people on the planet. However, we are just beginning to understand how they will be put to use.

Fans already expect the ability to tweet, upload pictures, view video, and access their social networks, and stadiums are working hard to keep up with the demand for data flow.

5-10 YEAR

- Video walls built into stadium architecture
- On-field holographic replays
- Glasses-free 3D technology in luxury boxes

"Fans want to know: Am I getting content that I can't get at home? Because if that's the case, then that's a benefit for me to come."

SASHA VICTORINE
SPORTING INNOVATIONS

10-25 YEAR

Stadiums built in the future will be more modular, less expensive to build, and more multipurpose. Predicted advances in ultra-lightweight carbon fiber and other materials will allow for morphing of buildings and rooftops.

The entire footprint of the stadium area will almost certainly change with the adoption of self-driving and self-parking cars. Cars that can drop fans and then park at a distance will likely free up 20 to 30% of near-venue area for other purposes. Pre-game tailgate parties will move from the parking lot to inside the venue.

The smaller footprint of stadiums will allow them to be built closer to city centers and thereby to become more useful and more integrated in the life of a city. The entire sporting complex — not just the seats at the game — will become an attraction. Many more fans will come into the complex and while not everyone has a seat, all will have a front-row experience.

How will broadcasting change? → Google, Facebook, or another so-called over-the-top player will outbid all traditional broadcasters for rights to a major global sport — and give the games away for free. → Athletes will assert control over their off-the-field media presences, carving out a valuable niche of content long held by leagues and broadcasters. → Advertising revenues from pirated sports content will top \$1 billion annually. → The term “broadcasting” will become obsolete.

CONTRIBUTING FACTORS

- 01**
Cord-Cutting: 25% of Late Millennials went completely cable-free in the past year.
- 02**
Piracy: More than 50% of Americans between the ages of 18 and 34 admitted to watching pirated content in a recent survey.
- 03**
Video streaming has overtaken live programming as the viewing method of choice in American households, 55% to 45%.
- 04**
Facebook can integrate your online friends with your viewing experience, something that mainstream broadcasters can't do.

BROADCASTING



THE THREAT

2014 year-over-year increase in sports video streams watched (Nielsen):

473%

Broadcast rights have increased steadily in value through recent decades. But the formerly cozy and exclusive content rights agreements between leagues and broadcasters are now under siege by a number of forces: the explosion of over-the-top digital video providers, social networks, user-generated content, and mobile content apps. The NBA's recent nine-year, \$24 billion deal with Turner and ESPN will most likely be the last of the all-inclusive agreements. Other leagues, most notably Major League Baseball, have had success managing their own digital platforms. The NFL, which has maintained the most conservative content plan among pro sports leagues, recently gave Yahoo! the green light to livestream a Buffalo Bills-Jacksonville Jaguars game.

CHALLENGES IN THE NEW MEDIA LANDSCAPE

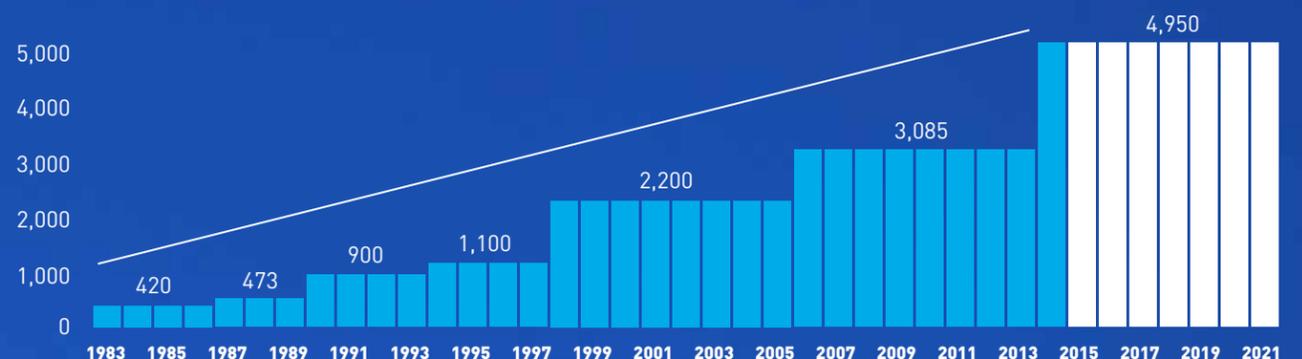
For Sports Organizations	For Broadcasters	For Digital Media and Broadband Companies	For Fans and Viewers
Maintaining exclusive dominion over regional viewership rights distinct from national and international contracts	Adopting a start-up mentality and becoming innovative leaders in online distribution of games and other sports media	Breaking the stranglehold that broadcasters hold over video content rights	Finding high-quality, relevant sports news and information based on personal preferences in a media landscape with hundreds of options
Creating new business models designed for online viewers; developing mobile content	Deciding whether to compete with or partner with new online venues and telecommunications providers	Establishing profitable business models for the delivery of online sports content	Determining which sites, commentators, and sources can be trusted for accurate, timely, and reliable content
Integrating live sporting events with videogames in real time	Preventing online piracy while responding to fans' desire to share images, video and other content	Offering reliable premium content that will attract viewers	Deciding whether to pay for sports content or access it for free through sites that offer pirated or substandard media content
Using the Internet to build new fans for minor and emergent sports	Reacting to quickly-changing viewer habits and practices during a time of regulatory uncertainty in a fast-changing media environment	Developing profitable new apps in specialty mobile news and highlight packages	Becoming media sources themselves by offering other fans commentary, video, data, or other content

“We are entering a time of commercial and policy confusion for sports broadcast and advertising. There will be a proliferation of niche channels and digital sports media. The supplementation, augmentation, or replacement of broadcast sports is a generational time bomb.”



BRETT HUTCHINS
 AUTHOR OF
**SPORT BEYOND TELEVISION:
 THE INTERNET, DIGITAL MEDIA
 AND THE RISE OF NETWORKED
 MEDIA SPORTS**

NFL TV BROADCAST RIGHTS (\$ million per year)



BROADCASTING

For over 40 years, sports leagues, franchises, and television networks enjoyed an unchallenged dominion over sports content. The roles were clear, the guarantees of exclusivity certain, and the profits reliable.

In December 1993, the NFL shocked the media when it granted the rights to NFC games to the upstart network Fox. The next major leap didn't come until this June, when the NFL granted Yahoo! livestreaming rights to a Jacksonville Jaguars – Buffalo Bills game. The real sea change will happen when an Internet giant wins a multi-season contract.

1-5 YEAR FUTURE THE DEATH OF ONE-SIZE-FITS-ALL BROADCASTING

Lulled into a sense of security by exclusive long-term rights contracts, broadcasters have been slow to innovate. Sporting events once offered free to national audiences have been increasingly moved behind paywalls (cable subscription or pay-per-view) in order to maintain profits. This creates a tension with a younger fan base that increasingly expects free and easy access to all forms of content online.

The floodgates to online access will finally open when a major online platform (likely Google) buys multi-year broadcast rights for a major sports league. At that point, traditional broadcasters will have to sprint to keep pace. Sporting events retain their immense value, but content becomes increasingly parsed and delivered in a multiplicity of ways to viewers using a variety of screens. The ongoing

embrace of online delivery represents a Cambrian explosion of ways to access and to monetize sporting events.

5-10 YEAR DIVERGENCE

Major networks become increasingly boxed out as leagues, franchises, players, and even fans themselves become popular content providers. Following the lead of Manchester United, sports franchises become their own media outlets, creating their own broadcast, radio, and online channels. Athletes increasingly step up to form their own media outlets. Derek Jeter's The Players' Tribune marks a critical advance toward this future. As one media observer noted: "Why would an athlete reveal news in an interview, when they can break news on their own media property?" Besides the networks, the biggest losers in this scenario are sports journalists, who increasingly become irrelevant as conduits of inside information.

Superfans take a seat at the table once exclusive to network commentators and sports journalists. Access to players through social media and other online formats is no longer the exclusive province of insiders. Superfans increasingly break national news stories by posting their own videos and encounters with players and owners. Viewers increasingly turn to these amateur announcers during games to hear in-depth, franchise-specific commentary that is not geared toward the average fan.

10-25 YEAR THE CONVERGENCE

The very word "broadcast" disappears from the popular lexicon. Fans will not only be accessing sports content from multiple places simultaneously, they will begin to integrate these streams into increasingly seamless, coherent, and personalized viewer experiences. These multi-layered viewing experiences may themselves be packaged and sold from fans to other fans. Depending on which friend's house you visit to watch the game, your experience will be radically different.

You might watch an entire game through a virtual reality headset from the perspective of your favorite quarterback while your friend in another town watches the game from the point of view of a key offensive lineman of the other team. You share your comments and highlights in real time. Don't like the outcome of a play? Simply click over to a multiplayer video game that can reset the exact conditions that you just watched and run the play your way.

→ Piracy and free online content pose a major risk to the value of broadcast rights.

In 2014 digital pirates generated over \$220 million in ad revenue using stolen content as their lure to draw online viewers. No army of intellectual property rights lawyers will make this problem go away. The disruptive arrival of the Periscope personal livecasting app underscores the issue.

For the fan — particularly the younger fan — watching pirated content carries no stigma. More than 50% of Americans between the ages of 18 and 34 admitted to watching pirated content in a recent survey. (Even New England Patriots quarterback Tom Brady publicly admitted in 2012 to watching the Super Bowl on a pirate video service.)

The increasing cost of accessing exclusive content is the very thing that is driving the increase in piracy. "The popularity of piracy has definitely grown, and the awareness of it has definitely grown among the general public," said Ricky Bruce, an analyst for NetNames, an anti-piracy company based in London. "Consumers are always going to find the cheapest way to consume content, especially if you're going to have to pay for something that you previously had access to for free."

Faced with these trends, broadcasters who are locked into rights contracts they bought for billions of dollars will have to scramble as they find that pay-per-view and cable consumers become a less reliable income stream.

How will innovations in biological science change the fairness, safety, and meaning of sports? Professional and scholastic sports will essentially become like NASCAR, with the human body regulated the way stock cars are. The often-hypocritical stigma against self-optimization in sports will disappear as the ability to improve one's own genetic makeup goes mainstream, thanks to gene-editing technologies like CRISPR. Safe and detectable drugs that boost key physiological factors to specific, pre-determined amounts will be legal and will level the playing field for all. Success will be determined more by character, teamwork, strategy, and the mental edge than by the genetic lottery. In this sense, sports will become a purer test than we have today.

CONTRIBUTING FACTORS

01

The first step in manipulating the genome — sequencing it — is accelerating along a cost/power curve that makes Moore's Law look slow by comparison.

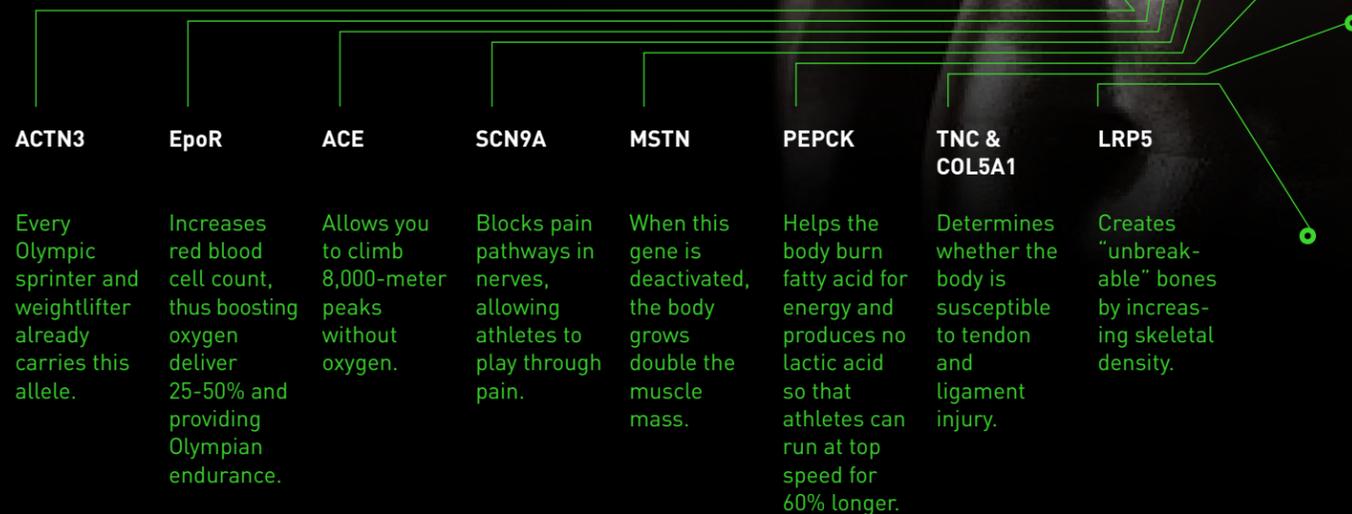
02

CRISPR, a breakthrough gene-editing system, makes it possible to selectively alter biological traits.

03

Gradual acceptance of so-called do-it-yourself biology grows as previously unavailable therapeutic uses for gene alteration become commonplace, and the line between nutrition and enhancement continues to blur.

KNOWN GENE VARIATIONS THAT CAUSE SUPERATHLETICISM



DISRUPTION

Uneven Playing Field "Gene doping" — in one-time-use virus form — will alter athletes' DNA expression; essentially invisible to detection, it will erode the implicit promise that the game has not been rigged.



OPPORTUNITY

Legal, safe, and identifiable ways to provide physiological advantages will be far more beneficial and impactful than current sports-doping methods.

DISRUPTION

10,000 Hours Is now a Pill The AICAR drug boosts mitochondria production in muscle cells, which will allow sedentary people to run like they've been training their whole lives.



OPPORTUNITY

AICAR's usage is easily detected in the bloodstream, and if it's truly safe, this drug should — and will — be used by everyone to prevent obesity and diabetes.

"Genetic engineering techniques are now cheap and widespread enough that any knowledgeable individual can order every material they need off the Internet and download the software to do their own experiments on themselves. Everyone in citizen science and the biohacker community has stories of being contacted by trainers, coaches, and athletes. There is absolutely no way to regulate it, and if you tried to it would be like stemming the tide with a fork."



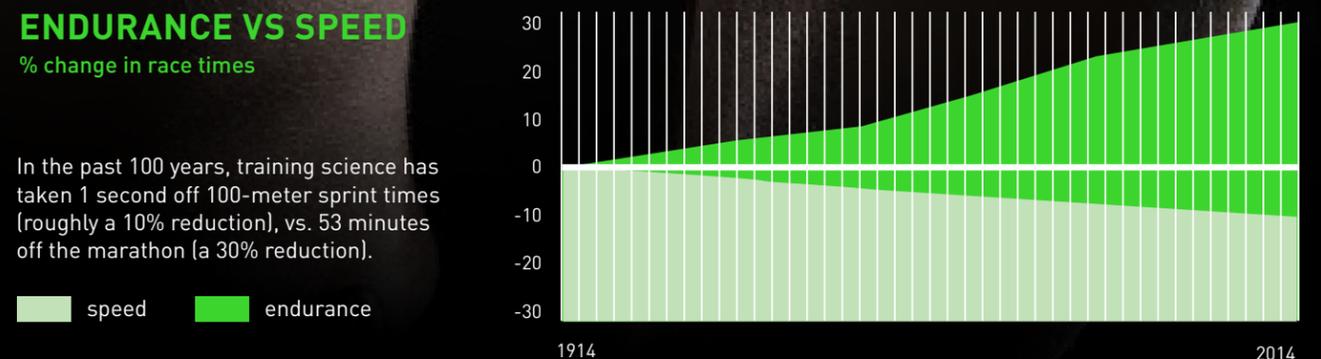
RAYMOND MCCAULEY
BIOTECHNOLOGY &
BIOINFORMATICS CHAIR,
SINGULARITY UNIVERSITY

THE ATHLETE

ENDURANCE VS SPEED

% change in race times

In the past 100 years, training science has taken 1 second off 100-meter sprint times (roughly a 10% reduction), vs. 53 minutes off the marathon (a 30% reduction).



THE ATHLETE

EARLY IDENTIFICATION IS ALREADY HERE

China already screens out youth divers at ages five to eight if their elbows can't touch above their head.

"In 5 years, we will see the first national sports federations looking for EpoR mutations in families, and encouraging their participation in endurance sports. Uzbekistan's Olympic Committee has already announced it is doing genetic testing on kids, but they will likely get it wrong. China will lead the way with genetic screening. They just have less cultural recoil at the idea."

DAVID EPSTEIN
AUTHOR OF [THE SPORTS GENE](#)

Science will soon cause a reversal in youth specialization. Children will remain all-around athletes until post-puberty, then be informed which sport they are most physiologically suited for. This is what Australia already does.

THE FUTURE OF INJURY RECOVERY: PART FRANKENSTEIN, PART EINSTEIN

By converting skin cells into stem cells, then spraying stem cells onto natural collagen scaffolds, we have already regrown ears, tracheas, and bladders — and successfully transplanted them back into humans. To restate: this is not the future. It's already happening.

Meanwhile, "fracture putty" has been invented and is being tested in humans. Broken bones heal in days, not weeks, thanks to a needle injection of stem cells and platelets into bone fractures.

Where is this headed in 20 years? The line between artificial body parts and natural ones will gradually blur as medical scientists converge on how to rebuild humans — first for injury recovery, then for life extension, and eventually for enhancement.

MATERIALS TECHNOLOGY DESERVES MORE CREDIT

According to David Epstein, author of [The Sports Gene](#), if Jesse Owens were teleported out of the 1936 Berlin Olympics and into today's world championships of the 100-meters, he would finish second behind Usain Bolt. The reason? Because back in 1936, when Owens ran it in 10.2 seconds, he did so on soft cinders and trowel-dug starting blocks. If he were racing on today's track surfaces, using modern starting blocks, he would finish a half-second faster. Racetrack surfaces have had a far bigger impact on sprint records than human improvements. Humans are not actually faster (well, one is). We just seem faster thanks to the track.

In the same way, special contact lenses already give baseball players 20/8 eyesight — improving their batting averages significantly. Football receivers' gloves are so sticky they turn the game into a magic show. Speed-skating ice is demineralized and sprayed on, a single mist

layer at a time. Low-friction swimsuits shattered world records so quickly they were outlawed — but the invention of gutters on the sides of the pool that prevented splashback made just as much of a difference. Most of these technological advancements are considered perfectly legal; it's only when they abruptly change the game (as with the swimsuits) that we declare them illegal.

Now imagine turf football fields designed to help every receiver hit 22+ miles per hour on a route. Imagine spring-loaded, carbon-fibre basketball floors that add six **more** inches to players' vertical leap than they have today.

1-5 YEAR FUTURE

Sports continue to stumble as new cases of doping undermine fan interest. Regulators promise detection systems they can't deliver. Fan attention gravitates to athletes who succeed because of their mental edge, since physical advantages become increasingly suspect.

An obsession with athletic pedigrees leads to a fad of genetic screening at early ages, whereby the vast majority of children are told they have no chance at a professional, collegiate, or scholastic sports career before they even hit kindergarten. Eventually this categorical denial of hope becomes socially unacceptable. It's also bad for business; today's kids are tomorrow's fans.

5-10 YEAR

Athletes are first allowed to use genetic enhancements for injury prevention and safety. But as non-professional athletes and medical patients enjoy the benefits of these new treatments, we finally start letting professional athletes use the performance enhancers up to a predetermined, safe level.

10-25 YEAR

Future sports won't be a battle of humans vs. robots. There will be natural athletes, and there will be enhanced athletes. They will play in separate leagues, the same way today we have amateur collegiate leagues and professional leagues. But there will be a Super Bowl. Who wouldn't pay to see if natural-born humans can beat ones we "perfected" in the lab?

“Through technologies emerging today — flexible screens, motion controls, haptic — or tactile — technology, smart glasses, virtual and augmented reality — the merging of real and projected worlds will produce a seamless experience, a complete illusion. We are just starting to learn and understand how to control, manipulate and share visual and aural perceptions. The possibilities are vast.”



ANDREI SEVERNY
DIGITAL ARTIST AND
FILMMAKER

THE THIRD VENUE

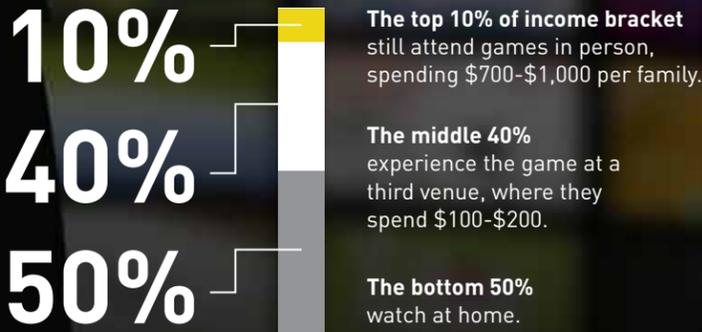
As more fans are priced out of attending live sporting events, where will they turn? “Third venues” will emerge as the go-to spaces to experience the newest and most exhilarating sports entertainment technology. Augmented reality, interactive table top technology, holographic replays, and 3-D displays will make their first public appearances in the 21st-century’s family-friendly version of sports bars. Thanks to Bitcoin and other cryptocurrencies, fans will bring real-time sports betting to third venues without traditional licensing issues. As driverless cars proliferate, alcohol consumption will triple.

CONTRIBUTING FACTORS

- 01 Major advances in entertainment technology will initially be too expensive for widespread home-entertainment adoption.
- 02 Fans crave a shared sports experience with equally passionate fans.

10-YEAR PROJECTION

by price segmentation



TODAY'S THIRD VENUES

- Sports bars
- Jumbotron simulcasts
- Movie theater simulcasts in XD
- Food truck parks outfitted with high-definition screens
- Pavilions in the shadow of stadiums showing the game

As more fans are priced out of attending live sporting events, where will they turn?

The meteoric rise of e-sports will accelerate third venue development. This August, thousands of Dota 2 players and fans who couldn't get tickets to The International, convened to watch the tournament live at "pubstomps" in sports bars and Internet cafes across the globe.

THE THIRD VENUE

In all likelihood, the first time you saw a widescreen HD television was in the original kind of third venue: the sports bar. Recent history suggests that breakthrough entertainment technology rarely appears in the home first. Cinema, video games, IMAX, and 3D all were launched at third venues — public spaces that are neither the home nor the stadium. The new immersive viewing technology on the horizon will also appear first in these spaces. As 360-degree video becomes more embedded in architecture, walking into the sports bar of the future will feel not just like walking into a stadium — but like walking onto the field.

What these third venues offer: the best elements of the stadium atmosphere, more creature comforts than the stadium, and fellow fans to celebrate with — the perfect integration of live and digital moments. This modular experience can be consumed a la carte to fit the personalized fan experience.

The big driver of the third venue is customer segmentation: only the top 10% income bracket of fans can routinely attend games live. The top 10% keep getting richer at a 3-5% annual rate, so ticket prices climb 3-5% consistently until they are out of reach of the rest of the fans — who watch on TV. The third venue is a way to get a family of four to spend an amount between the cost of attending the game (\$500 to \$1,000) and nothing (watching on TV). Perhaps at the third venue they eat and drink and get some of the feeling of having a live audience around them, while spending \$60-\$200, of which leagues get a cut.

Small-town divas can already go to their local movie theater to watch an Ultra HD simulcast of the Metropolitan Opera happening in New York City. Sports bar/cinema hybrids "hosting" sporting events in theater-sized venues aren't far off. Imagine walking in and feeling just like you're in a stadium luxury suite, watching the game through the skybox glass. Used as public and private venues, third venues allow an incredibly immersive sporting atmosphere — including the buzz of an excited crowd.

Third venues will be the first place you'll be able to see life-sized replays up close and in fully realized 3D. The first generation of these displays won't be true holograms (you won't be able to view them from all sides), but they will still appear fully 3D to the viewer. Initially this technology will be used to enliven pre-and post-game interviews. As the technology advances, it will bring life-sized instant replays into sports bars and luxury lounges.

COMING SOON TO A THIRD VENUE NEAR YOU

Location-based fan competition

Apps like Spogo and BarBets already facilitate fantasy play in real time — not against anonymous strangers around the country but against other people in the same place as you. The game within the game becomes an in-person experience. As Bitcoin gains increased acceptance and usage, it will turn a third venue into something unique and interactive.



Sensory Upgrade

4DX — adds motion, smell, wind, and other sensations to watching video.



Sphere of Influence

Barco Escape — surrounds the viewer with a 270-degree view.



Family-friendly atmosphere

While bars are for adults, the third venues will transform into places where you'd really think of bringing your family, the same way Las Vegas has transformed from an adult getaway into a family tourism magnet. Whether it's a sliding board built into the wall, or a virtual roller coaster booth that makes youngsters shriek, innovative ways of making kids feel welcome will emerge.



How will brands adapt to rapidly evolving sports content and distribution formats?

SCENARIO 1 → Brands move beyond sponsorships and advertising by developing—and owning—new sports, championships, and leagues. The Red Bull approach to brand-backed sports becomes the rule rather than the exception. It's not just your brand's name on the stadium—the sport itself embodies your brand.

SCENARIO 2 → Large, hard-to-quantify sports sponsorships become a thing of the past as brands redirect their marketing budgets to personalized, micro-targeted digital ad campaigns with an audience of one and an instantly verifiable return on investment. It's not about the most eyeballs but the right ones.

CONTRIBUTING FACTORS

01

Big Data: analytics, targeting and personalization

02

Explosion of new content-production options (GoPro, YouTube, Instagram, Periscope, etc.) giving brands new sports-related avenues to reach consumers, and consumers new, non-sponsored channels of their own

SPONSORSHIP + ADVERTISING

MEDIA TYPE	DEFINITION	EXAMPLES	THE ROLE	THREATS	BENEFITS
PAID (The old way)	Traditional advertising	-Television, radio, print advertising -Stadium rights -Display advertising	-Brand pays to leverage connection with league or franchises	-Declining response from savvy consumers -Getting above the noise in an increasingly cluttered media marketplace	-Maximizes potential eyeballs -Total control of content -Total control of timing
OWNED (For those with the resources)	Brand controls the content and the channel	-Red Bull TV -Regional sports networks owned by teams -Official Twitter and Facebook accounts	-Create direct relationship between franchise or league and fans	-Potential to be perceived as inauthentic -Low-quality execution -Slow to scale	-Strong control -Versatility -Directly targets most passionate fans
EARNED (The Holy Grail)	Word-of-mouth: when consumers become the channel	-Viral video -Social media not through official channels -Word of mouth	-Allows fans to share information and reactions that are meaningful to them	-Little control of message by brand owners -Can be brand negative -Scandals live on forever	-Most credible and authentic -Low cost



DISRUPTION

During Commercials, Fans Are Texting Their Friends
Commercial break advertising during sports loses its effectiveness because every viewer on the couch can just whip out their phone and get busy, ignoring the ad. More than 58% of those viewing a sporting event on television are already using mobile devices concurrently.



OPPORTUNITY

Multitasking consumers are not ignoring the ads — counterintuitively, they actually have better recall of the ads they view than those who are only viewing the event, according to Paul Verna, eMarketer Senior Analyst.

DISRUPTION

Who Owns the Ball Makes the Rules
More sponsors follow the Red Bull model, creating and owning original sporting events, diverting sports marketing dollars from traditional leagues. Broadcasters can play this game too: ESPN created and owns X-Games. Others will follow.



OPPORTUNITY

The more the landscape fragments, the greater the natural urge for a shared communal experience. Major sports will always retain their ability to bring people together.

DISRUPTION

Loss of Control
Advertisers control every frame of a television commercial — it plays exactly as they shot and edited it. Sponsors lose some control to the improvisation factor of an actual game; they can't totally control what a sponsored athlete might do or say. But control is completely relinquished on social media. Word-of-mouth publicity is free exposure and can have massive reach, but nobody can control the message.



OPPORTUNITY

Controversy is no longer taboo. Certain kinds of controversy are actually healthy and sustain the conversation that engages fans — such as a controversial call by an umpire, or a quarterback controversy, or the debate over a player trade. These kinds of controversies don't drive fans away, they suck fans in.



DR. DAVID K. STOTLAR
PROFESSOR, SCHOOL OF SPORT AND EXERCISE SCIENCE, UNIVERSITY OF NORTHERN COLORADO

“In 20 to 30 years, everyone will look like Red Bull. Red Bull is now the event. ESPN started this with X-Games, and it's the way things are going to go. All major leagues and sports will have proprietary networks. For each one, you're going to log in to watch what you want to watch and buy it directly from the supplier. Embedded in that are the sponsorships and product mentions and everything else that a sports property needs to monetize the event.”



FACTOID

In 2012, energy drink Red Bull sponsored Felix Baumgartner's supersonic freefall from 24 miles over Earth. Red Bull's live video feed of the event was broadcast by 40 television networks on 130 stations in 50 countries—garnering an audience of over 1 billion people.

24 miles over Earth

40 TV channels event coverage

1B 1 billion # of viewers

FACTOID

Alongside the 2 billion smartphones already in operation, 3 billion more new smartphone users will come online in developing countries in the next five years alone. Brand sponsors have an enormous opportunity to rush into developing markets such as Brazil, Russia, India, China, and the Middle East.

3B
3 billion smartphones

SPONSORSHIP + ADVERTISING

“One of the biggest challenges for marketers is fragmentation — not just in terms of the proliferation of brands, but also in terms of consumer interests. Twenty years ago, you could advertise on the networks; sponsor the four big sports; get involved with a few big-name concert tours and rest assured that your brand message was being delivered. Now, you have dozens of cable channels with programming that draws passionate followers; original programming that lives only online; emerging sports and local sports opportunities; a music landscape that is much more diverse; the impact of social media; and new trends and passions emerging every day.”

ANDY ENGLAND
FORMER CHIEF MARKETING OFFICER OF MILLERCOORS

Sports has never had it better; it's the one thing on television that hasn't been disrupted by DVR technology. People still watch sports live, so they don't skip through the commercials. This simple truth has drastically driven up the value of sports programming. In an increasingly fragmented media environment, sports are the one thing that still grabs the attention of a widespread audience.

THE CONVERSION FROM THE PLANNED TO THE IMPROVISED

Fans so crave authenticity that staged interactions are seen as stiff, and fail to get traction. The sponsorship game is going to have to be played like sports themselves — improvised instantaneously rather than packaged and planned. The winners in the viral social media space — where consumers become broadcasters — are those who will be able to respond quickly to new events and make the most of what are, essentially, broken plays.

Example: A tornado leveled large parts of an Oklahoma City suburb. Farmers Insurance tapped golfer Rickie Fowler to use social media to reach out to people in his home state. Farmers identified a boy who saved his dogs from the storm but lost his golf clubs; Fowler met with the boy and gave him a new set of clubs. Farmers tied that back to an appearance by the company's CEO in the area signing claims. "We used the celebrity of Rickie — bridging to what it is we do," said Chuck Browning, head of sponsorships, events, and corporate giving for Farmers.

THE RISE OF ATHLETE & TEAM CROWDFUNDING

Never has it been easier for the local school team to raise the funds online to get to that tournament across the country. But this phenomenon is much larger, and it's going to potentially crowd out traditional sponsors along two vectors:

Subsidization of costs

The US Ski & Snowboarding Association's RallyMe site currently helps skiers get to the world championships with a network of individual donors who contribute to individual athletes' training budgets. The athletes send their patrons personal thank-yous via email or social media. Look for more online one-to-one sports sponsorship marketplaces to emerge.

Participation in future revenue

Star athletes can take on investors. Fantex sells real securities linked to the earnings generated by a pro athlete's brand. Athletes get money up front in exchange for a share of future income; San Francisco 49ers tight end Vernon Davis raised \$4 million. The potential is there to create a futures market for young amateur athletes, to remove obstacles that keep them from maximizing their athletic potential.

1-5 YEAR FUTURE OVERCROWDING & FRAGMENTATION

Brands' messages get lost in a blizzard of marketing. Logos on the outfield fence or the hood of a stock car become indistinguishable due to overcrowding. As advertising grows more ubiquitous, the traditional "corporate graffiti" becomes increasingly invisible. Fans' attention is divided among a myriad of screens and entertainment options.

Athletes continue to fight their teams and their leagues over who "their" sponsor is. (See: Russell Wilson & Beats audio vs. the NFL.) Scuffles over exposure become common. Fans easily see through inauthentic sponsor deals. To cope with these challenges, brands seek to become part of the event itself, owning their original athletic endeavors — especially in the exploding new markets like the Middle East. On and off the field, the line between sport and sponsor is blurring. Brands want to give fans experiences they can't buy, or ignore — such as United Airlines giving its most frequent fliers batting practice at Yankee Stadium.

5-10 YEAR PERSONALIZATION & NATION BUILDING

The era of the "official" and "exclusive" sponsor ends. Tapping proprietary datasets about their fans, corporations focus on personalizing the perfect marketing/content mix for millions of "audiences of one" over tailored on-demand mobile device streams.

The big spenders on sports sponsorships are no longer just the corporations. They're emerging nations. Following the early lead of Qatar and Azerbaijan, developing nations realize sports sponsorship is the way to stand out in their region and to be seen as modern, egalitarian, and tourist-friendly. Their real goal here is gaining the stature to join intercontinental trade zones like the European Union, which opens up tourism, reduces interest rates they pay on government debt, and attracts further capital for modern infrastructure. Sports sponsorship becomes an important nation-building tool.

10-25 YEAR

All the middlemen begin to disappear, replaced by frictionless technology (descended from Google AdWords) that reaches sports fans more effectively for less. Everyone between the fans and the athletes is in jeopardy. This list of vulnerable targets includes advertising agencies, broadcasters, journalists, and even leagues themselves. Every smartphone is a broadcast-grade camera; every athlete has her own syndicate of sponsors. Feeling held back by shared revenue agreements, superbrand teams with global audiences ditch their leagues to barnstorm against international competition.

As sports access goes global, which teams — in which sports — will win the race to be worldwide superbrands? By the end of the next decade, sports begins to reach its full potential in the global market, and the top franchises in soccer, basketball, and baseball reach valuations over \$10 billion. The differential between franchises that cash in and those that get left out will become more extreme. Soccer, which is the dominant global sport, thrives despite this disparity between the winners and losers: the top five Premier League teams are approaching household-name status in the United States. Few Americans have heard of the bottom 15. The exposure of widespread corruption in the operations of FIFA will result in far-reaching reforms that, once complete, will accelerate the sport's growth. But while those reforms are being made, other sports looking to expand their global footprint have an opportunity to appeal to disenchanting fans around the world.

CONTRIBUTING FACTORS

01

Three billion new potential sports fans are expected to come online via smartphone by 2020.

TEAMS + LEAGUES

THE VALUE OF GLOBAL INTEREST

Global television live audience size:



ANITA ELBERSE
LINCOLN FILENE PROFESSOR OF BUSINESS ADMINISTRATION
AT THE HARVARD BUSINESS SCHOOL
AUTHOR, BLOCKBUSTERS: HIT-MAKING, RISK-TAKING, AND
THE BIG BUSINESS OF ENTERTAINMENT

“Some of the same dynamics that drive blockbuster bets on creative content also foster investments in superstars....Growing international markets in film, television, and other media are driving an increased focus on a select few superstars with global appeal. In sports, the expanding role of television and other media as additional sources of revenue (as opposed to ticket sales only) has significantly increased the income earned by the top-performing teams — and sometimes just the most star-studded teams.”

DISRUPTION

Winners Take All

Leagues that pit the few haves against the many have-nots will render too many games meaningless. The standings will lack the drama that attracts fans.



OPPORTUNITY

A full array of financial controls — from salary caps to revenue-sharing to Financial Fair Play — successfully fine-tune competitive balance to keep things interesting.

DISRUPTION

Must-See TV

Television audiences prefer to see the top teams at the highest level. Domestic leagues may lose their viewers to global superstars.



OPPORTUNITY

Time zones around the globe create significant protection. European basketball fans might want to watch the NBA rather than the Euroleague, but few Europeans are awake at 2 a.m. to watch.

DISRUPTION

Asia

Asia is the new battleground for fans, and inevitably Asian sports franchises will win on their home turf.



OPPORTUNITY

Sports entertainment is a luxury business, and the Asian markets are happy to import their bling.

U.S. SPORTS: BIGGEST CHALLENGES TO GLOBAL GROWTH



Few outside North America play it or watch it.



Weaker NBA teams stay on the bottom too long; 75% of the teams are irrelevant come playoff time.



Relating to a younger audience that wants the game to move more quickly with more action.



Converting World Cup interest into domestic league interest.



Needs to be a better television experience — the puck is hard to follow, and viewers can't follow the line changes.

As sports access goes global, which teams — in which sports — will win the race to be worldwide superbrands?

TEAMS + LEAGUES

Will financial inequality within leagues destroy competitive balance?

Not necessarily. It all depends on the “upset frequency” of the sport. The drama created by uncertainty provides a compelling reason to watch and attend the games. Pro football has the lowest upset frequency of any major sport — so the NFL needs its salary cap to engineer parity and stoke the drama. Meanwhile, Major League Baseball has a high upset frequency; despite financial inequality, the uncertainty of who will win is still compelling.

<p>THE VECTORS OF GLOBAL BRAND BUILDING</p> <p>Yes, winning drives global recognition. (With 11 championships, the Lakers are by far the most popular basketball team in the world.) But if you’re not hoisting trophies regularly, how can you grow your audience worldwide?</p> <p>Hire international players Asian baseball stars in the MLB like Masahiro Tanaka and Yu Darvish generate fan interest back home. Twenty-six percent of the players in the NHL are from outside North America, which drives interest in the league across Northern Europe. The question is, which American sports league will move the most quickly to integrate players from Asia, Europe and South America?</p> <p>Market rivalries Everywhere in the world, people understand the significance of rivalries. These monumental matches become a war of ideas, history, and lifestyle. Lakers vs. Celtics. Red Sox vs. Yankees. Bruins vs. Canadiens. Barcelona vs. Real Madrid. All Blacks vs. Springboks in rugby. India vs. Pakistan in cricket. Teams battle for supremacy of their state, their metropolitan area, their country. Since everyone can relate, these matchups make sense to even casual fans across the oceans.</p> <p>Tour and tour some more The MLB has hosted regular season games in Japan, Mexico, Puerto Rico, and Australia. The NFL goes to London. European soccer tours the US in the summer. Exhibition games and international friendlies go a long way — especially if a team makes the trip several years in a row.</p>	<p>Sell team values → Seattle embraced grunge music, then premium coffee, then made same-sex marriage and pot legal. So the city that loves being “alternative” is a perfect fit for the alternative sport, soccer. Sounders FC attendance has broken all US records.</p> <p>→ Working-class teams with “lunchpail” players may seem less relevant in an era when fewer workers are blue collar. But hiring hardworking players and emphasizing solidarity and gritty defense still fits historic working-class cities — even abroad, from Newcastle to Marseille to Dortmund to Turin.</p> <p>Pimp the stars Even if his team has a losing record, a single star player can help a team get global recognition. Star players are a vector by which small-market teams and upstart leagues (like Major League Soccer) can gain international renown. Stars who cross borders have an elevated global appeal.</p> <p>Be larger than life In the cosmopolitan cities, the lifestyle of celebrity culture can be embraced as an escape from it all. Players’ and owners’ big personalities and opulent lifestyles can be highlighted to draw the fans whose appetite for the rich and famous is endless.</p>	<p>1-5 YEAR FUTURE THE TINKERING PHASE</p> <p>Globalization continues to happen more slowly than expected. During its exhibition season, the NBA champion plays in a one-week Club World Championship against the top teams of Europe. The NHL All-Star Game is played in Russia. London and Mexico City are granted NFL franchises — but not to start play until 2028.</p> <p>5-10 YEAR THE FIRST DISRUPTION</p> <p>Some rules standardize internationally — Japanese baseball adopts the larger MLB ball, while European basketball adopts NBA rules. These have a similar effect to standardizing the width of rail lines and the size of shipping containers — it makes global player movement possible. The NFL opens in London and Mexico, but by the time it finally happens, it’s almost anticlimactic. Then, an unexpected, seminal disruptive event happens. It could be any number of things. But it creates a significant global shift in professional sports. Some possibilities:</p> <p>→ During a future labor contract strike, NBA players stay sharp playing in China, earning double what they’d make here; many end up staying, splitting the NBA’s talent pool.</p> <p>→ To prevent brain trauma, NFL rules on tackling change radically, prompting an increasing number of rugby stars to make the transition to American football. The NFL’s popularity booms in Oceania and Europe.</p>	<p>→ Scoring in soccer becomes so rare that the game’s appeal plummets, creating an opportunity for other sports to expand into soccer’s territory, winning over fans with more scoring and action.</p> <p>→ Taking advantage of genomic screening or medical manipulation, China starts cranking out superathletes who are faster and stronger than athletes in the rest of the world. (See The Athlete on page 16.)</p> <p>10-25 YEAR GLOBAL CONSOLIDATION</p> <p>Intercontinental or global leagues fully develop. Even though any one team’s players might be from many countries, the games take on that nation-vs.-nation excitement we know from the Olympics and World Cup. Extensive alliances are created to minimize business risk and control player development and movement to the superteams. Eventually, these coalesce across sports; superclubs in major global cities have pro teams in each viable sport.</p>
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Our definition of sports will change as video and real-life play converge.

The Dallas Cowboys' AT&T Stadium will sell out, for an entire week (at an average ticket price over \$100) as fans pack in to watch on the Diamond Vision — not a football team but teenagers playing the war game League of Legends 5, set in the fantasy land of Azeroth.

CONTRIBUTING FACTORS

01

E-sports competitions are big business, with prize pools topping \$10 million at a single tournament.

02

Massive popularity of watching videogames online as entertainment.



E-SPORTS + FANTASY SPORTS

PEAK VIEWERSHIP

495,000

CNN

565,000

E!

635,000

MSNBC

773,000

MTV

775,000

TWITCH

DISRUPTION

The Celebrity Gamer As videogames soar in popularity, gamers themselves are becoming stars and gathering fans by the tens of thousands. Prize money and viewership for game tournaments have grown astronomically in recent years. Just this year, the Season 4 Finals of League of Legends sold out 40,000 seats in the Seoul World Cup Stadium — Asia's largest soccer stadium. As e-sports increase in popularity and realism, celebrity gamers will challenge physical sports stars for fans' adulation and screen time.



OPPORTUNITY

The best play for league franchises: Get closer to the gamer community. Gamers play as their favorite athletes, and athletes become fans of the best gamers — even to the point of recruiting top players to use their avatars. By embracing the gaming experience, pro sports leagues stand to foster more allegiance to their league, team, and players.

DISRUPTION

Competition for the Most Finite Resource: Time According to recent figures by the ESRB (Entertainment Software Rating Board), 67% of households play video games, and the average gamer is 34 years old. With Nielsen reporting that the biggest segment of sports viewers are essentially the same demographic, video games could chip away at the traditional sports revenue stream.



OPPORTUNITY

Despite increasing time spent on video games, gamer households are more tuned into sports on TV than ever. In what appears to be a virtuous cycle, traditional sports are actually benefiting from the growing sports game market. The large American turnout for last summer's World Cup has been partly attributed to popularity driven by the Electronic Arts' FIFA game franchise.

DISRUPTION

Fans Want to Control the Action Traditional sports viewership may lose its pull as a generation raised on gaming seeks more interactive entertainment. As metrics and simulation modeling become more available to the public, fans will increasingly want to run the teams themselves.



OPPORTUNITY

Real-world leagues should accelerate integration with their fantasy sports alter egos. TV viewership among fantasy fans is double that of non-fantasy fans, making it a perfect complement to TV broadcast. The now multibillion dollar industry has grown by 10 million fans since 2010, reaching an estimated audience of 41 million in North America. Companies like FanDuel are lowering the time and money investment for fantasy, making it easier for casual fans to participate and increasing overall engagement with their sport.

On Amazon's \$970 million acquisition of e-sports streaming network Twitch: "It's no longer just wanting to see how someone defeated the boss on Level 5. It's having that social experience and the comradeship of fellow gamers."



JAMES MCQUIVEY
AUTHOR
DIGITAL DISRUPTION—
UNLEASHING THE NEXT
WAVE OF INNOVATION

Our definition of sports will change as video and real-life play converge.

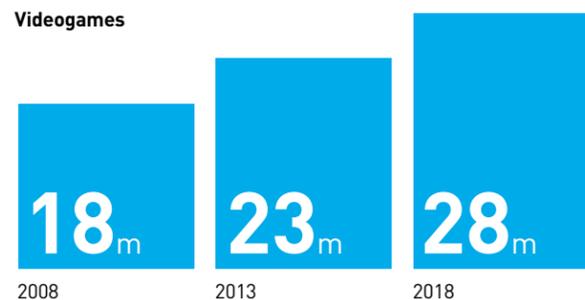
E-SPORTS + FANTASY SPORTS

Last year, Robert Morris University in Illinois offered 45 athletic scholarships to League of Legends videogame players. Yes, athletic scholarships for joystick jockeys. It turns out that when gamers stop playing against the computer and instead play against other real people, video games take on the human drama of sports. E-sports are here to stay.

One challenge for the sports industry: making sure kids keep playing sports titles rather than other genres. One leg up: Sports are a universal language, easy to get grounded in and understand. Drop into a basketball videogame for the first time, and you intuitively have a sense of what to do — get the ball in the hoop, or go for a rebound. Drop into League of Legends, and the average rookie would be totally lost. This is sports' massive initial advantage — which it needs to press forward on immediately while this market emerges.

Game technology is advancing beyond the current realm of recreation into player training, improvement, and comprehensive metric feedback. NASCAR is out to an early lead, using their racing simulator iRace not just to give fans their most realistic chance at driving a stock car, but also to train professionals — including motorsports legend Dale Earnhardt Jr.

Industry leader EA Sports has consistently advanced the in-home stadium experience. Soccer title FIFA 15 bathes gamers in authentic stadium cheers, chants, and reactions — each soundscape unique to one of the 20 Premier League stadiums. Ignite, EA's new game engine, features player-



Average minutes per day spent playing videogames per capita, United States

THE SUPER BOWL OF E-SPORTS

Stats from The International, the annual Dota 2 videogame world championship

24 minutes

Time elapsed before all tickets for the event at Seattle's 17,000-seat KeyArena sold out

\$18 million

Total prize money for the tournament

\$6.6 million

Amount split among five members of the winning team, Evil Geniuses

specific movement that depends on weight, momentum, and center of gravity. Even clothing stretches, billows, and affects a player just as it would in real life.

“The biggest metric we’re seeing is that TV viewership is extremely high among fantasy sports fans. Fantasy sports fans consume more than double the TV than that of non-fantasy sports fans. Ten years ago networks were sneering at fantasy sports; now they’re catering to us.”

PAUL CHARCHIAN
PRESIDENT, FANTASY SPORTS TRADE ASSOCIATION

1-5 YEAR FUTURE

Fans will find it increasingly easy to “play” against their idols. Not only will individual gamers become famous, but teams leagues, and franchises will also coalesce. EA has invested heavily in FIFA Pro Clubs, which allow for up to 11 players on one team to face off against opponents online. A talent

ecosystem will emerge, including coaches, high school and college teams, ranked amateurs, farm clubs, semipro and full-time professional players. As with sports, scouts will evaluate and offer contracts to younger and younger players.

5-10 YEAR

It's no longer about thumbs hitting controller buttons. Game-play sensors descended from the Wii and Microsoft Kinect make handheld controllers a quaint memory. A language of game control involving every limb and facial expression emerges, physical shorthand for larger movements in the video sport.

10-25 YEAR

Remote and in-person gameplay will be all but indistinguishable thanks to the combination of tactile feedback interfaces with virtual and augmented reality. As offline sports and online sports adapt to players' locations and abilities, participation in sports — a definition that now implicitly includes e-sports — will soar to include a higher percentage of humanity than at any other time.

Technology is radically changing the relationship between fans and the teams they love.

→ The amount of content produced by fans uploading video streams and images of live games (from smartphones inside the arena) will regularly exceed the amount generated by official broadcasters — and will be seen by more people. → Teams will designate fan-appointed ombudsmen to represent fans in major team decisions. Fan-sourced input will be common. → Mobile devices and augmented-reality headgear will display the statistical advisability of plays and audibles before they happen. Monday-morning quarterbacking will be real-time (i.e., live during the game), with crowdsourced polling generating play-calling recommendations (“Give it to Marshawn Lynch!”) faster than the coach on the field can get the real play into the huddle.

CONTRIBUTING FACTORS

- 01** The feedback loop of social media and the 24/7 news cycle have given fans unprecedented influence on team and league decisionmaking.
- 02** Mobile devices: The power of networked smartphones continues to accelerate in step with Moore’s Law, making every fan a one-person broadcast studio.

THE FAN

WHO’S FOLLOWING

Fans are looking past traditional media gatekeepers and directly to teams and leagues to get their sports information.

Circulation — major newspapers		Twitter followers	Twitter followers — sports league & team accounts	
2,379,000	Wall Street Journal	5,570,000	38,800,000	NBA
1,865,000	New York Times	14,700,000	32,615,000	NFL
1,674,000	USA Today	1,410,000	23,400,000	UFC
654,000	Los Angeles Times	1,200,000	18,914,000	MLB
516,000	Daily News	278,000	14,000,000	NHL
501,000	New York Post	716,000	6,474,000	NASCAR
475,000	Washington Post	3,800,000	3,608,000	MLS

“The balance of player, team, fans, and media has shifted. Fans no longer just watch. They participate, analyze, critique, deconstruct, fantasize and connect with their favorite players and teams in real time. Thanks largely to digital innovation, being a sports fan has never been so emotionally charged, or fun, as it is today. Over time as fans have gotten more and more organized, the virtual monopolies teams and leagues have enjoyed have been broken. You can’t drown out a crowd if you flagrantly do things that they don’t believe in. Organizations have to be able to react a lot faster in this new world and have an increased tolerance for mistakes and missteps. You have to figure out your values and be true to them. Leagues and teams will have to learn how to communicate with authenticity or be ignored.”



KYLE BUNCH
GROUP DIRECTOR OF MOBILE AND SOCIAL PLATFORMS FOR DIGITAL AGENCY R/GA

THE FORSEEABLE FUTURE

For the foreseeable future, fans will expect increasing access, increasing content, and connection anytime and on their terms. The leagues and franchises that will lose in this new environment will be those that fight these new tides, attempting to serve up games, highlights, and access to athletes only through certain channels that they control. The winners will be those leagues and teams that embrace and partner with these new boisterous and unpredictable brand ambassadors.

Technology is radically changing the relationship between fans and the teams they love.

THE FAN

“Everything about sports is participation and fan participation is critical. It’s about engagement, giving the fan control, power and accessibility. That’s what it means to be a fan.”

CHRISTINA MILLER
NBA DIGITAL GM AND SVP OF STRATEGY

“If you treat your fans like customers long enough, eventually they’ll start behaving that way, reducing their irrational love for their team to a cool-headed, dollars-and-cents decision to buy tickets or not, with no more emotional investment than deciding whether to go to the movies or buy new tires.”

JOHN BACON
AUTHOR OF [FOURTH AND LONG: THE FIGHT FOR THE SOUL OF COLLEGE FOOTBALL](#)

NO LONGER JUST A FACE IN THE CROWD

Being a fan is no longer just about watching and cheering. Empowered by social media, fans now expect an unprecedented level of access to players, coaches, and owners. What is more, they expect to be part of decisions that were once made behind closed doors.

Fans have increasingly used their collective power to influence leagues and franchises. With access to myriad Twitter feeds and other sources of information, fans not only have more power but more potential points of conflict and disgruntlement. What might set them on the warpath will become increasingly difficult to predict. A team’s financial decisions, broadcast blackouts, rule changes, trades, or off-field behavior may spark outrage. Social media can rekindle and give new life to long-simmering disputes, like the controversy around the Redskins’ name and logo. Or the backlash can happen nearly instantaneously. If a star player gets in an altercation at an after-hours nightclub, fans will be discussing and building consensus about the incident before the sun rises the next day.

How will the rapidly increasing power wielded by connected fans change the business of sports?

Traditionally, fans counted on sportswriters, talk radio hosts, and TV commentators to lead the conversation about their favorite teams. The emerging generation of fans — armed with powerful media devices and always-on connectivity, and social media platforms with massive reach — have started to

take control of the conversation, effectively becoming a major media entity in their own right. Teams, leagues, and sponsors who fail to respond to activist fan movements risk major damage to ticket sales and brand equity.

FANS WON’T BE IGNORED

→ Scottish Ranger Union fans hired an analyst to examine the financials of the organization’s merchandise deal to discover that little profit was benefiting the club. They organized an effective boycott to express their displeasure.

→ The NBA narrowly headed off a fan (and player) boycott of the Clippers by banning Donald Sterling prior to game 5 of the 2014 playoffs.

→ Multiple fan boycotts have been called to protest the continued use of the Redskins team name and logo. Boycotts have even been called for FedEx, which owns the naming rights to the Redskins’ stadium.

→ In Italy, Lazio soccer supporters boycotted a home match against Atalanta in protest of President Claudio Lotito’s running of the club after the sale of playmaker Anderson Hernanes to Inter Milan and a series of bad outings. Only 2,000 tickets were sold in a venue that has a capacity of 82,000.

→ Turkish fans demonstrated and boycotted soccer matches after authorities introduced a new ticketing system.

→ Fans launched the Twitter hashtags #boycottNFL and #FireGoodell after recent accusations of domestic violence surfaced against prominent players.

1-5 YEAR FUTURE

Fans become an ever more powerful force in breaking news and creating consensus with little deference to traditional sources of information like sports journalists or official commentators. Teams and leagues have to become increasingly responsive to what University of Kansas Assistant Professor Jordan Bass calls “forced crowdsourcing” of critical decisions — like whether to fire a player or coach after a scandal. “[Teams] just can’t control the message on their own anymore,” said Bass. “There are too many competing voices. [Fans] see the ability to become a media star by breaking stories. I think one of the biggest challenges for the next five years or more is how to deal with these situations in an immediate way.”

5-10 YEAR

Fans become a prime source of broadcast video production. No matter how many professional cameramen are employed, there is almost always a fan who is closer to the action. With the increasing adoption of high-quality wearable video devices, broadcasters increasingly turn to fan-recorded moments to give energy and color to the program. Want to know whether that fan in the bleachers interfered with the home run ball? Just tap into that very fan’s video feed to share the answer. There are apps for that.

10-25 YEAR

Fans are officially given a seat at the table. Decisions both on and off the field are made with near-instantaneous input

from fans as well as complex algorithms that predict fan reaction. Fantasy sports become so widespread and legitimized that private quant jocks are consulted or hired by franchises when making trades or drafts. The role of the sports scout is taken over by fan-generated video and data combined with advanced artificial intelligence. Emboldened by their new inclusive role, fans become more passionate about their teams.

“Using crowdsourcing as a method to incorporate [the fans] into internal decision-making processes will enhance an organization’s engagement with its core demographics,” according to Irving Rein, professor of communications at Northwestern University and author of [The Sports Strategist](#). “Because they are now included in strategic discussion, audiences are more likely to purchase more tickets, merchandise and sponsorships.”

SPOTLIGHT: SUPERFANS — NOW WITH SOCIAL MEDIA SUPERPOWERS

The most outrageous fans have, over the years, become well known or even famous. Clipper Darrell, the Broncos’ Barrel Man, The Canucks’ Green Men, and the Redskins’ Hogettes are part of a long tradition of “superfans.” Their reward: a few seconds on TV and some pats on the back.

Today’s most important superfans aren’t always big on outlandish costumes and facepaint, but when they talk, teams listen. One example: Virginia schoolteacher Anthony Young, who runs the Twitter account @NFLRT, “NFL Retweet,” curates the most hard-hitting and outrageous NFL-related tweets and boasts a grassroots followership of 132,000.

At what point should traditional sports franchises consider diversifying into this booming new market? By 2020, extreme sports will challenge professional and collegiate team sports for the title of most-watched category of sports content. With 100 hours of GoPro video currently being uploaded to YouTube every minute of every day, and sales of action cameras growing nearly 50% annually and projected to hit 9 million in 2018, the extreme sports juggernaut looks unstoppable.

CONTRIBUTING FACTORS

01

Personal sports media production

02

Competitive feedback loops

03

Exoskeleton technology

EXTREME + ADVENTURE SPORTS

“GoPro is the fun equalizer. On video, it is no longer a competition for who is fastest or biggest — but for who is having the most fun. GoPro enables a platform for people to do things that are cooler than established sports allow. Collectively, the extreme sports fanbase is definitely as big as any national team’s fanbase.”



SAUL GRIFFITH
MACARTHUR FELLOWSHIP
“GENIUS GRANT” RECIPIENT
MIT MEDIA LAB PH.D., CO-FOUNDER OF
OTHERLAB, MAKANI POWER, OPTIOPIA,
POTENCO, INSTRUCTABLES,
HOWTOONS, AND SQUID LABS

DANGER IS MY MIDDLE NAME

Sport	Micromort
Skiing / snowboarding	0.7 per day
Marathon running	8 per run
Scuba diving	10 per dive
Base jumping	430 per jump
Climbing Everest	39427 per ascent
All causes of death in the US	22 per day

1 micromort = 1 in a million chance of death

PEAK-PERFORMANCE PROGRESSION

Degrees rotated	Platform Diving	Skiing	Snowboarding	Skateboarding
2x 720°	1904	1999	—	1985
2.5x 900°	—	—	—	1999
3x 1080°	—	—	2002	2012
4.5x 1620°	2004	2011	2009	—
5x 1800°	—	2014	—	—

At what point should traditional sports franchises consider diversifying into this booming new market?

EXTREME + ADVENTURE SPORTS

ATHLETE MOTIVATIONS

Traditional Sports

Improving over an incremental record (100m dash)

Winning the iconic competition (Super Bowl)

Extrinsically motivated by the nature of organized competition and coaches



Extreme + Adventure Sports

Innovating and pioneering — expanding and creating new fields of competition

Creating an iconic and transcendent moment through extreme expression of sport

Self-determined and intrinsically motivated

Fueled by easy recording and upload technology like GoPro — paired with YouTube and over-the-top broadcasters — interest, participation, and performance levels in action sports are soaring. Today they're a blip on the screen compared to the big business of professional sports, but participation in action and adventure sports has surpassed conventional sports at the recreational level.

And it's not just online video driving that growth. San Francisco-based Strava Inc. is the foremost example of the competitive feedback loop underlying the explosion of action sports participation. Outdoor athletes track their performances via Strava's apps or their own biometric devices, then upload their results to Strava's database, which becomes a de facto book of records for every trail run and every 100-mile route biked — a standing, always-on challenge that drives performance levels higher daily.

A group that includes owners of the Boston Celtics and San Francisco 49ers recently placed a bet on the explosion of interest in action sports by investing in Street League Skateboarding, a professional circuit headed by skater and MTV star Rob Dyrdek.

Dozens of new sports will emerge. In 20 years, sports like skysurfing will look as old-fashioned as the shot put. Advances in exoskeletons, prosthetics, and, yes, rocket packs will herald a golden age of new sporting competitions.

EXOSKELETON TECH

Exoskeletons will be implemented at first for their incredible enhancement of athlete protection, followed by motorized advances that increase strength and speed.

THREAT TO THE GROWTH OF ACTION SPORTS

Limited access — "Not on my wave"

→ With the growth and popularity of sports like surfing, skiing, and snowboarding, access to the critical and finite resource — good, uncrowded conditions — is limited.

→ The best surf spots across the South Pacific are turning into private resorts, such as the ones in the Mentawai Islands and Fiji.

→ In addition, when we consider climate change over the next decade, what sports will either cease to exist or be forced to change location?

Solution

The endless, perfectly shaped wave is coming to inland communities and will open access to thousands of new surfers. The WaveGarden was prototyped in central Spain, and a full production facility opened in 2015 in North Wales, UK.

Solution

Previously unrideable waves are being conquered with a polarizing new technology, the jet-powered surfboard. In November 2014, famous multi-sport Maui athlete Kai Lenny

rode the massive Jaws surf break going to the left — long considered too dangerous even for tow-in surfers. He rode it safely and escaped the inside rocks on the JetSurf board.

EXAMPLES OF THE EMERGENCE OF NEW ACTION SPORTS

Skydiving → outer-space diving

Triathlons → Tough Mudder obstacle races

Extreme skiing → skiing with a parachute canopy

1-5 YEAR FUTURE

The Red Bull team faces off against the Mountain Dew team in the newly formed XSL - eXtreme Sports League. Individual athletes and small groups band together and compete across the globe in a year-round cycle. Some of the competitions are in the same place, while others are held in disparate skateparks — the action is stitched together using augmented reality, which provides a single viewing experience. Social platforms for athletes, like today's Strava, enable athletes to document and share their constant progressions. All of the competitions and video highlights are served up on a NFL Red Zone-style stream of extreme highlights.

5-10 YEAR

Let the robot try it first...In an effort to keep progressing extreme and emerging sports, athletes and technologists team up to make their daily experiments just a bit safer. Imagine an athletic robot to demonstrate a big-air snowboarding 1800-degree trick or a BASE jump equipped with the latest wingsuit. Onboard cameras and sensors capture the forces like angular momentum, and physical cues like spotting the landing zone. It becomes a learning experience for the athlete to see and feel how the trick can be executed.

10-25 YEAR

More athletes and adventure teams make use of newly created sports zones in national wilderness areas under the Bureau of Land Management. Self-maintaining, sustainable terrain parks open up. Extreme sports injuries diminish as the use of robotic exoskeletons becomes the norm. Self-powered body suits not only increase performance but protect against debilitating injuries deep in the backcountry.

How will innovation in payments technology and venue logistics change the way fans experience sporting events? Dynamic pricing, micropayments, digital wallets, virtual currencies, and frictionless transactions will transform the way that fans spend — and the way franchises profit. Artificial intelligence(AI) will enable venues to offer increasingly compelling seating offerings. **SCENARIO** → Your favorite hockey team’s arena offers tickets in a section populated exclusively (for tonight at least) by 100 transplanted New Yorkers under 30 who attended ACC schools. You can pay for your ticket — and beers at the game — with HockeyBucks, the league’s own digital currency.

CONTRIBUTING FACTORS

- 01**
Dynamic ticket pricing and seat assignment
- 02**
Custom currencies built on the blockchain technology underlying Bitcoin
- 03**
Queue-management systems



DISRUPTION

Traditional middlemen in ticketing and payments — ticket brokers and credit card networks, and eventually regulators and central banks — face obsolescence.



OPPORTUNITY

Increasingly efficient and fraud-proof payment methods mean more of the value of sports tickets and merchandise will remain with venue owners and fans.

“Never in the history of the payments industry has there been a time of such disruption and opportunity across regions. Digital technologies will upset the competitive order and the role that payments play both in the operations of businesses and in the daily lives of consumers.”



JOHN HENRY CLIPPINGER
FOUNDER, BERKMAN CENTER FOR INTERNET AND SOCIETY LAW LAB HARVARD UNIVERSITY;
RESEARCH SCIENTIST, MIT MEDIA LAB
FOUNDER, ID³

PAYMENTS + TICKETING

THE INTERNET OF THINGS

With the evolution of location-based technologies, mobile payment systems, and a continual decrease in technology costs, this concept of truly frictionless commerce is quickly becoming a reality. The Internet of Things is bringing Amazon’s 1-Click ordering experience to sports venues everywhere.

BITCOIN TRANSACTIONS PER DAY



How will innovation in payments technology and venue logistics change the way fans experience sporting events?

PAYMENTS + TICKETING

INTELLIGENT TICKETING

Dynamic ticket pricing has already drastically expanded who attends games. Fans can pay what they want, as often as they want, sitting as close to the action as they can afford. The result is sold-out stadiums, with plenty of cheaper tickets available and an overall revenue increase of 7%.

AI ticketing takes this one step further: You set your preferences, but you don't actually know which seats you will get until shortly before the game. The ticketing system will maximize your desires for you. Because the new sales platforms (think Facebook) have much more detailed data about you than old outlets, the experience represented by your ticket can be customized in a variety of ways. Want to sit near Facebook friends? The system can do it. Want to send 35 employees to the game as a reward? They no longer have to sit in the nosebleed section in order to sit together. Want to be near other families? Want to go with the guys and actually meet single women? The system can handle it all. All the various reasons people have for wanting to attend the game can be isolated, packaged, and priced according to demand.

VIRTUAL CURRENCIES

Already, the total value of loyalty programs in the United States is a \$165 billion annual virtual economy.

When you enter a casino, you don't spend cash. You trade your cash for casino chips, and then you use the casino chips. As the line between real currency and virtual currency

becomes ever more fluid, it will be the same way with your favorite sports team or league.

Fans will both buy and continuously earn affinity points convertible into virtual currency. They'll be able to wager these points during games, earn more by promoting the game on social media, and spend some on a better bat for their video game star avatar.

Though it is the most high-profile digital currency to date, Bitcoin is almost certainly NOT the payment technology most fans will end up using, at least not directly. Bitcoin transactions take seven minutes, on average, to clear the system's multi-party verification process. Nor is Bitcoin optimized for individual micropayments (the legendary low processing charges only materialize for large or aggregated transactions). Instead, the future lies in new layers of payment processing technology built on top of Bitcoin — essentially private currency networks. Between any two customers on these private networks, transferring money is instantaneous and free, or close to it.

The race is on to determine which of the new payment-service providers will become the VHS of cryptocurrency and which will become the Betamaxes. Currently, BitPay and Coinbase are the early Visa and American Express of the burgeoning Bitcoin processor industry.

“Digital wallet payments enable our fans to engage and transact with us in a more fluid manner. There's a lot of friction at the sports arena — battling traffic, distributing tickets, waiting in line. Payments is one of them. You have to pull out your wallet, deal with change or credit cards. One-click technologies minimize the friction. And we're focused on minimizing friction points wherever we can.”

BEN GUMPERT
CHIEF MARKETING OFFICER, SACRAMENTO KINGS

In the spring of 2014, the Kings became the first professional sports franchise to accept Bitcoin as payment.

1-5 YEAR FUTURE

Smartwatches and mobile devices using fingerprint technology become hugely popular for payments — not because they save money but because they're more convenient and secure from fraud. This lays the groundwork to move all tickets to digital form.

5-10 YEAR

Paper tickets go away. Apple bypasses credit cards, establishing its own banking technology.

10-25 YEAR

The end of the line: The only time fans will stop moving is when they're sitting in their seat or using the rest room. Lines disappear, and event attendance and revenues increase.

The relative wealth of the middle class is already shrinking, but automation and robotics will further accelerate the decline. Who in the future will be spending time and money experiencing sports, and how will their relationship with sports be different?

SCENARIO 1 → Sports marketing evolves to focus more on women, making up for the decline in middle-class wealth by successfully building the upper-middle-class professional female fanbase. Later, developed countries adopt “basic income” programs to offset the job displacement caused by widespread automation of service jobs.

SCENARIO 2 → Sports teams and leagues fail to field affordable on-site offerings for the bottom 90% of their fanbases’ earners, and live attendance at games declines steeply.

CONTRIBUTING FACTORS

01

Rapid innovation in robotics and artificial intelligence

02

Growing wage disparity, increased concentration of wealth

03

Three billion new potential sports fans joining the global economy in the next five years

FANBASE ECONOMICS



DISRUPTION

Some futurists predict that by 2030 over 2 billion jobs will disappear thanks to automation. Driverless cars will wipe out taxis and delivery vehicle drivers, as well as staff for parking lots, traffic courts, and traffic police departments. Kiosks, smart vending machines, and scanners are eliminating cashiers. Robots are replacing farm hands, fast-food preparers, and soldiers. Teachers will be lower paid as education gets disrupted by online courseware.



OPPORTUNITY

Near-term

Income disparity trends may be suppressing the salaries of individuals — but most households that make up the middle class now have two earners. Those two-income families are the ones who, for the near-term future, will still have the money to buy millions of smartphones, pay for the bonus cable TV packages, and buy tickets to games. Teams and leagues that successfully market to professional women will surge ahead of those that don't.

Longer-term

With 3 billion new smartphone users coming online in the next five years, the most successful sports organizations will retool their branding and marketing to create global audiences, learning how to thrive on making less per fan from massively larger fanbases.

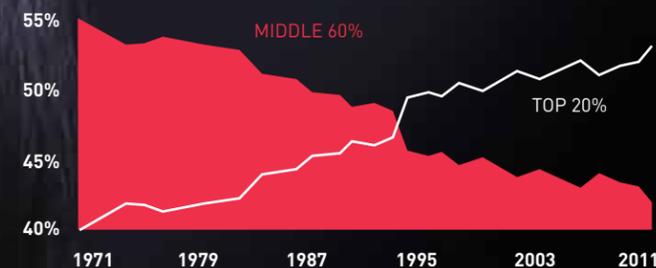
“Teams and leagues looking to grow their female fanbases will have to go beyond gimmicks like pink jerseys. It has to be based on empathy and true engagement. Women care about family — the smarter leagues will be looking at ways that sports can bring families together. Women want positive role models for their daughters, but networks are resistant to showing women’s sports highlights. Leagues that want more female fans should get people to capture and share amazing plays by women on social media. There are so many examples of women kicking ass in sports — be the league that helps them get it out there. And in a lot of cases, women haven’t spent as much time with a sport as men have. So use technology — immersive virtual reality or augmented reality — to help women school up fast.”



CARIN WATSON
MANAGING DIRECTOR,
CORPORATE INNOVATION
AND EVP, BUSINESS
OPERATIONS,
SINGULARITY UNIVERSITY

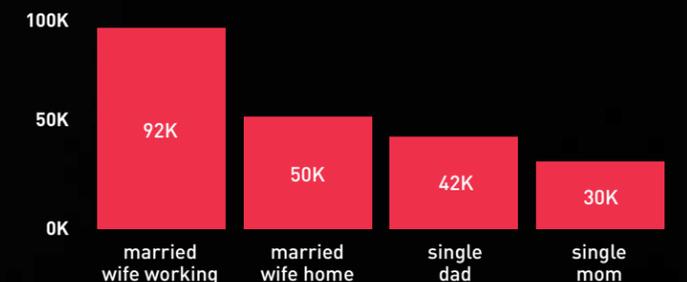
DECLINE OF THE MIDDLE CLASS

Share of the aggregate income per household income group



TWO-INCOME FAMILIES

Median income by family (\$) 2012



Who in the future will be spending time and money experiencing sports, and how will their relationship with sports be different?

FANBASE ECONOMICS

The per-capita income of the middle class as a whole is steadily declining, and the dual-income approach is becoming increasingly important. This makes the rise and inclusion of the female sports fan critical to franchises and leagues.

Women make up almost half the sports fan community but spend far fewer hours on fan activities — only watching sports one-third as much as men.

Women make up

- 47.2% of Major League Soccer fans
- 46.5% of MLB fans
- 43.2% of NFL fans
- 40.8% of fans at NHL games
- 37% of NBA fans

Purchasing power

- Women purchase 46% of official NFL merchandise.
- Women spend 80% of all sports apparel dollars and control 60% of all money spent on men's clothing.

Smaller time window

- Women make up about one-third (34%) of the adult audience for ESPN sporting event programs.

Recent years have seen increasing participation of women in the presentation of sports. Women NBA referees, broadcasters, and announcers — even coaches — are becoming accepted parts of the game. League and franchise campaigns for breast cancer research and against domestic

violence have also appeared on the scene. The cultural role model for the avid female fan, however, is still a work in progress.

A major issue keeping women (and therefore their families) from being more involved in sports is their **lack of free time**. Throughout the Industrial Revolution, technology saved effort, money, and time. It's poised to do the same for the family. It is already doing this in small ways (when is the last time you drove to the library to look something up?). As technology gets smarter and more sophisticated, it will increasingly take on the tasks that make our lives feel so busy.

1-5 YEAR FUTURE

Female fans become the free agents that sports leagues and teams vie for. Women no longer have to "speak sports" to join the club. Women's sports apparel takes up more shelf space than men's gear in every store. It's not just Spurs shirts in pink; we start to see Spurs logos on yoga pants and women's sneakers.

5-10 YEAR

The huge numbers of women who grew up playing soccer and basketball easily transition to being avid sports fans as adults. More franchises establish women's teams — not expecting them to generate revenue but in the name of equality for the good of their brand. Driverless vehicles create major job displacement. We see increasing numbers

"Quite possibly, we could experience massive shifts in women's sports consumption in the course of the next three to four decades."

ANDREI MARKOVITS
AUTHOR OF *SPORTISTA*

of American men living more like migrant workers, moving to remote regions to work in data centers or electric-car battery plants, wiring paychecks home to their families.

10-25 YEAR

Drones, kiosks, and robots further displace the low end of the workforce.

Fifty percent of the workforce lack a full-time job; now joining the "gig economy," they work for short-term stints on discrete tasks — whatever is still slightly too complicated for a robot to automate. They have less money but more time. Basic income programs provide enough resources for the most dedicated fans to save enough to attend sporting events.

Technology provides women significantly more free time. While women still make up a small minority of fantasy sports players, and don't listen to endless hours of sports radio, they become a strong majority of live game attendees, attending games with girlfriends or family members socially.

"I think it's likely that the pace of job automation will outstrip job creation in the short term and cause a lot of unemployment and underemployment. In the Industrial Revolution you could jump off of any unskilled labor job, take some courses, learn some new skills, and find a new, likely higher paying job. What's different this time is that we now have AIs and machine learning algorithms that can replicate many of the cognitive skills these individuals would be pursuing, and they can do it much faster. In many winning cases, we will see people partnering with AI and robotic systems to deliver productivity not possible with artificial intelligence or humans alone."

NEIL JACOBSTEIN
HENRY CROWN FELLOW, ASPEN INSTITUTE; CHAIR, ARTIFICIAL INTELLIGENCE AND ROBOTICS, SINGULARITY UNIVERSITY

THE FINAL WORD

New technologies will continue to bring us ever closer to the game and to those transcendent moments of physical grace under pressure that we all long to witness. It's a great time to be a sports fan, and it's only going to get better.

But fans are now expecting more than just a better view. Technology has changed the nature of fans' relationships with their teams and leagues. Empowered by social media and other new ways to access information, fans now expect 24/7 all-access passes, not only to the field of play but to the locker room and front office as well. They expect a seat at the table where decisions are made, and — given their increasingly active role in creating, distributing, and marketing sports content — they deserve it.

That new relationship and new level of transparency come with some risks — and potentially great rewards. Fans are drawn to sports because sports represent the best of our shared humanity: honor, fair play, and the value of hard work and dedication to a team. Fans will expect to see those characteristics manifested not only on the field but throughout our organizations and leagues. If we live up to those expectations, the future holds enormous opportunity for all the stakeholders in the sports industry. Fans are increasingly becoming more than sports consumers. They are becoming true partners in our brands. Nurturing this new relationship with foresight and wisdom will be every bit as important as harnessing the accelerating wave of disruptive technology. Now — let's get ready for the future of sports.



Jerry Jacobs Jr.
Co-Chief Executive Officer
Delaware North



Lou Jacobs
Co-Chief Executive Officer
Delaware North



Charlie Jacobs
Chief Executive Officer
Delaware North's
Boston Holdings

THE FUTURE OF SPORTS

/ **THE STADIUM** / **BROADCASTING** / **THE ATHLETE** / **THE THIRD VENUE**
/ **SPONSORSHIP + ADVERTISING** / **TEAMS + LEAGUES**
/ **E-SPORTS + FANTASY SPORTS** / **THE FAN**
/ **EXTREME + ADVENTURE SPORTS** / **PAYMENTS + TICKETING**
/ **FANBASE ECONOMICS** /

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