

SPORTS

FUTURE TODAY INSTITUTE'S 2024 TECH TREND REPORT

Our 2024 edition includes nearly 700 trends, which are published individually in 16 volumes and as one comprehensive report with all trends included.

Download all sections of Future Today Institute's 2024 Tech Trends report at <http://www.futuretodayinstitute.com/trends>.





THE YEAR AHEAD: TECH SUPERCYCLE

The theme for our 2024 report is Supercycle. In economics, a “supercycle” refers to an extended period of booming demand, elevating the prices of commodities and assets to unprecedented heights. It stretches across years, even decades, and is driven by substantial and sustained structural changes in the economy.

We believe we have entered a technology supercycle. This wave of innovation is so potent and pervasive that it promises to reshape the very fabric of our existence, from the intricacies of global supply chains to the minutiae of daily habits, from the corridors of power in global politics to the unspoken norms that govern our social interactions.

Driving this seismic shift are the titans of technology and three of their inventions: artificial intelligence, biotechnology, and a burgeoning ecosystem of interconnected wearable devices for people, pets, and objects. As they converge, these three macro tech segments will redefine our relationship with everything, from our pharmacists to our animals, from banks to our own bodies. Future Today

Institute’s analysis shows that every technology—AR/ VR/ XR, autonomous vehicles, low Earth orbit satellites, to name a few—connects to the supercycle in some way.

The ramifications are stark and undeniable. As this tech supercycle unfurls, there will be victors and vanquished, those who seize the reins of this epochal change, and those who are swallowed whole. For business leaders, investors, and policymakers, understanding this tech supercycle is paramount.

In this 17th edition of FTI’s annual Tech Trends report, we’ve connected the supercycle to the nearly 700 trends we’ve developed. Our research is presented across 16 technology and industry-specific reports that reveal the current state of play and lists of influencers to watch, along with detailed examples and recommendations designed to help executives and their teams develop their strategic positioning. The trends span evolutionary advancements in well-established technologies to groundbreaking developments at the forefront of technological and scientific exploration. You’ll see emerging epicenters of innovation and risk, along with a preview into their transformative effects across various industries.

We’ve visually represented the tech supercycle on the report’s cover, which is an undulating image reminiscent of a storm radar. Vertical and horizontal lines mark the edges of each section’s cover. When all 16 section covers converge, the trends reveal a compounding effect as reverberating aftershocks influence every other area of technology and science, as well as all industries.

It’s the convergence that matters. In isolation, trends offer limited foresight into the future. Instead, the interplay of these trends is what reveals long-term change. For that reason, organizations must not only remain vigilant in monitoring these evolving trends but also in cultivating strategic foresight—the ability to anticipate future changes and plan for various scenarios.

Our world is changing at an unprecedented rate, and this supercycle has only just begun.

Amy Webb

Chief Executive Officer
Future Today Institute

TABLE OF CONTENTS

05	Top Headlines	20	Sports Betting and Investing Soars	32	Commitment to Sustainable Sports
06	State of Play	21	Destination Sporting Events	33	Surprising Mergers and Acquisitions
07	Key Events	22	<i>Scenario: What if customizable content puts viewers in complete control?</i>	34	Alternative Leagues and Associations
08	Likely Near Term Developments	23	On the Field (Athlete Experiences)	35	Advanced Analytics for Scouting Talent
09	Why Sports Trends Matter to Your Organization	24	Augmented Game Management	36	Unique and Innovative Partnerships
10	Opportunities and Threats	25	Virtual Trainers	37	Geopolitics of Sports
11	Investments and Actions To Consider	26	Augmented Training Analytics	38	More Inclusive and Accessible Sports
12	Central Themes	27	Athletes as Brands	39	<i>Scenario: What if consolidation was inevitable?</i>
13	Ones To Watch	28	Innovations in Equipment	40	Authors
14	In the Stands (Fan Experiences)	29	Advances in Sports Medicine and Wearables	42	Selected Sources
15	Flexible Content Models	30	<i>Scenario: What if automated platforms democratized sports?</i>	46	About Future Today Institute
16	Fandom on the Blockchain	31	In the Office (Team/Business Management)	47	Methodology
17	Adaptive, Dynamic, and Immersive Advertisements			48	Disclaimer
18	In-Person Mixed Reality Experiences			49	Using and Sharing the Report
19	Augmented Experiences at Home				

TOP HEADLINES

The world of sports is being transformed by increased use of analytics, innovative platforms, and more customizable fan experiences.

01 Analytics Get integrated Into Sports

Sports are benefiting from data's abundance in all aspects of life, impacting both player performance and organizational management.

02 Athletes Steal the Spotlight

Since the days of Michael Jordan, athletes have been their own brands, but never more than now. Athletes are transcending their sports and all for the better.

03 Personalized Fan Experiences Rise

Personalization is now crucial for attracting and keeping new fans, and technology is enabling it across game viewing, shopping, and even advertising.

04 Extended Reality Goes Mainstream

XR and other augmented realities are becoming more pervasive for both live events and at-home experiences.

05 Sports and Politics Mix

Sports and politics have always been inextricably connected, but now, this connection is extending to the geopolitical realm.

STATE OF PLAY

A suite of technologies is creating competitive advantages for managers, coaches, and athletes, while also impacting how fans experience the game.

Technology is leaving an indelible mark on the world of sports at all levels. It is impacting how managements run their organizations and scout players, how athletes train, rehabilitate, and interact with the game itself, and how fans experience events at home and in person. While these areas seem somewhat independent of one another, they actually work in concert to affect the overall product on the field that is delivered to fans.

When it comes to managing the game, leadership and coaches are equipped with tools to make their jobs easier and remove biases. Platforms such as Plaier and AiScout are not replacing the role of the coach but are serving as supplementary tools to capture analytics and statistics that otherwise might have gone unnoticed. Such information is being stored in central repositories, such as the Chicago Blackhawks' Madhouse to inform all internal operations.

As athletes use technology to improve their skill set, they will see increased performance from a host of new innovations. Mixed reality goggles assist swimmers as they train. Virtual reality is increasingly helping athletes with reaction time and training for in-game scenarios, ultimately leading Germany's U17 football team to a championship. Platforms such as the Catapult athlete-monitoring system provide athletes with recommendations to improve performance and minimize injuries. These technologies are also impacting management and coaches' decisions.

Aside from these aspects, technology provides unique and customized experiences for fans, whether that be the game experience or how they shop and consume ancillary products. Augmented reality is providing fans with immersive experiences ranging from "Toy Story"-themed games to smart stadiums to virtual arcades. Universal golden records follow fans through omnichannel user journeys, allowing teams to engage the fans at all levels. As management teams find new ways to interact with fans, increased revenues will ultimately be used to enhance the product on the field, not just the experience in the stands.

KEY EVENTS

FEBRUARY 24, 2023

MLB Institutes the Pitch Clock

In a radical move to reduce game duration and minimize downtime, the MLB puts a time limit on pitchers and batters at the plate.

APRIL 17, 2023

Debut of the Cavs ARcade

During the NBA playoffs, the Cleveland Cavaliers use the augmented reality of ARound to create digital experiences at their Rocket Mortgage FieldHouse.

JUNE 6, 2023

PGA and LIV Shock the World

The former rivals announce their agreement to form a unified commercial entity.

OCTOBER 1, 2023

ESPN Hosts "Toy Story" Football

An animated telecast of the Jaguars-Falcons London game places NFL players in Andy's toy-filled room.

MARCH 14, 2023

Bally Goes Bankrupt

Diamond Sports, owner of Bally Sports, files for bankruptcy after missing a \$140 million interest payment.

APRIL 21, 2023

Russian Athletes at ALBA Games

Russian athletes were invited to compete under their nation's flag at the 2023 ALBA Games in Venezuela.

SEPTEMBER 20, 2023

MLB Hosts Virtual Game

After launching in the summer, the MLB's virtual ballpark hosts its first regular season game, between the Tampa Bay Rays and the Los Angeles Angels.

LIKELY NEAR TERM DEVELOPMENTS

SPORTS: COMPLEX AND DYNAMIC

The sports industry is poised for a major transformation in 2024, with a host of exciting challenges and innovations on the horizon that will have a profound impact on the way fans engage with sports, creating bespoke and immersive experiences like never before. However, alongside these technological advancements lie a range of business and political obstacles that must be overcome, putting the efficiency of decision-making mechanisms to the test.



More Immersive Experiences

Sports teams already use mobile devices to provide augmented experiences and activations for in-person events, and now this capability will occur in homes. Spatial computing allows for more 3Dt renderings of a game as if you were there.



Broadcasting Rights Lead to Turmoil

As live sports broadcasting contracts become more expensive, streaming platforms and tech companies will make more competitive bids to expand their user base. However, overpaying for negotiating rights could lead to long-term financial impacts, putting streaming platforms in significant financial trouble.



Olympics Serve as a Protest Platform

The Olympics have always served as a geopolitical platform, but the 2024 Games could be exploited in unprecedented ways. Considering the Israel-Hamas war and Jewish populations in France, along with Ukrainian's aversion for Russia, the Olympics will likely serve as a venue of protest unlike what we've witnessed in the past.



Increased Web3 Adoption

This year will reveal the true usefulness of Web3 technologies such as using blockchain for creating consolidated golden records, digital fan passports, and dynamic ticketing, and highlight how these novel approaches will impact the fan experience. As teams and leagues work out the issues and take advantage of Web3, more organizations are likely to adopt it.



Influence Expands from the Middle East

Golf has felt the impact of Saudi Arabia's sovereign wealth fund through the merger of the PGA Tour and LIV. Likewise, Qatar has leveraged its sovereign wealth fund to impact soccer clubs FC Barcelona and Paris Saint-Germain. These nations will expand their control with increased economic investment in sports including soccer, boxing, cricket, and even basketball.



Automated Game Management Expands

Technologies for managing games and matches, such as electronic line calling in tennis, automatic balls and strikes systems in baseball, and semiautomated offside technology for soccer, are creating fairness and minimizing human error. More leagues will be pressured to adopt similar technologies, especially as the stakes increase from sports betting.

11 MACRO SOURCES OF DISRUPTION



Technology



Media & Telecom



Demographics



Environment



Government



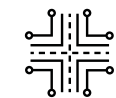
Public Health



Education



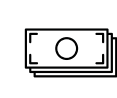
Geopolitics



Infrastructure



Economy



Wealth Distribution



WHY SPORTS TRENDS MATTER TO YOUR ORGANIZATION

Appropriating Environmental Solutions

Like many industries, sports play the role of both the victim and villain in climate change. The proactiveness of some sports organizations can provide lessons and solutions for smaller and more fledgling leagues or associations and for divergent industries such as the built environment.

Building a Personal Brand

Athletes are growing their individual platforms in unprecedented ways. New regulations in conjunction with a suite of technologies are offering athletes new sponsorship and monetization opportunities. These trends can impact younger athletes or even individuals in other industries hoping to grow their platforms.

Experimental Partnerships

Sports partnerships have traditionally been formulaic in nature. But now, more creative and unique partnerships are emerging. Some have matched brands with common synergies and core competencies, resulting in genuinely customer-focused services. These examples can serve as a template for other businesses seeking fresh ideas.

Customized, Personalized Advertisements

Sports associations have developed technology capable of creating targeted advertising that is customized to the market or even to individuals viewing a game. Implementing these methods, as well as frequency capping and frequency control, can result in unique advertisements less likely to disillusion the audience.

Inclusive Management Practices

While discriminatory practices in sports can occur at all levels and stages, some leagues have taken significant strides to eradicate them and create inclusive environments for employees and personnel. Other organizations, both within and beyond sports, also have valuable examples of ways inclusion has impacted their businesses.

Taking Advantage of Virtual Environments

The sports industry has embraced virtual environments and virtual reality as tools for training and conditioning. Although VR cannot fully replace real-life experience, it has shown to have a positive impact on athlete training. Other industries can learn from these examples and add new training modalities to their arsenal.

OPPORTUNITIES & THREATS

Threats

Legacy sports organizations must attract younger audiences to avoid financial losses. The MLB has taken steps to address this issue, but it remains to be seen whether they are enough to guarantee long-term success.

The speed of sports is getting faster, and with that comes the increased risk of injury to athletes. Organizations not exploring regimens to ensure reduced injuries are setting themselves up for failure, and ultimately an impact on revenues.

As climate change worsens, sporting events, especially those conducted outside, could become less tenable. Even indoor sports such as hockey could be impacted by rising global temperatures.

Using technology to address inclusivity and accessibility can prove to be valuable, but not fully pressure testing the technology can result in failure if it makes target audiences feel even more marginalized.

It is becoming more common for sports organizations to use centralized management tools or create a centralized operating system. Organizations that do not use these tools risk falling behind their competitors.

Opportunities

There is an immediate opportunity to resolve issues plaguing distribution models. The organization best poised to navigate regulatory hurdles and engineer new digital platforms could disrupt the market.

Individual sports teams will find tremendous benefits from building golden fan records and digital sports passports. Such platforms will enable teams to fully know their customers and track them through the entire customer journey.

Customized and personalized experiences and activations are becoming more viable and executable. They can be used to engage fans in ways that leave them feeling surprised and delighted.

Hosting destination sporting events in picturesque locations can be costly and difficult to carry out. However, new technology is enabling sporting events to take place in any virtual environment, offering fans special experiences.

Advanced analytics and artificial intelligence are leaving a lasting mark on various aspects of sports, including player performance, scouting, and team management. More opportunities will surface for using such applications in the future.

INVESTMENTS AND ACTIONS TO CONSIDER

1

Investments in sports science have dual benefits. Fewer injuries or reduced time lost to injuries is immeasurably beneficial to both sports teams and athletes. But value also comes from these new procedures becoming increasingly available to the general public.

2

Creating immersive experiences in extended reality will keep fans engaged, whether they are at a sporting event or watching from home. Mastering these new forms of storytelling can give organizations new revenue-generating opportunities if they share their knowledge through consultation with other groups.

3

Sports organizations will increasingly chase sustainability, whether that comes from an intrinsic need to help the environment or from a desire to impact their bottom line. First movers in this area will initially benefit from the advantage of sustainable practices, but can also sell climate IP to other businesses.

4

Seek out partnerships with organizations adjacent to your own but not entirely in your domain. One example of such a partnership is that of the WWE and UFC: Together, these brands can cater to both audiences without cannibalizing their business. It also avoids antitrust violations.

5

Invest in technology and platforms aimed at building individual brands for athletes that help expand their reach and audience size. The phenomenon of athletes as brands is only becoming more pronounced, and organizations that can help facilitate this growth will reap significant benefits and rewards.

6

While risky in nature, upstart leagues offer opportunities, though they'll require unique value propositions. While examples like Tiger Woods' and Rory McIlroy's experimental golf league benefit from celebrity backing, there are significant investment dollars to be earned for such endeavors.

CENTRAL THEMES

Reach Fans Wherever They Are

The way we consume sports is ripe for change—and innovative solutions. Over the past year, it's become obvious that archaic distribution models are no longer adequate. Diamond Sports' Chapter 11 filing indicates that as consumers move to leave cable television in droves, the traditional way of broadcasting games is no longer a sustainable way to reach fans, and in turn a poor generator of revenue. Fans who have moved away from cable often cannot access local games because of blackouts. Even subscribers of streaming options like YouTube TV, Hulu + Live TV, or Sling TV have been prevented from watching their games of choice because of issues with renewal agreements. In response, Phoenix Suns owner Mat Ishbia has turned to primitive methods to reach fans, by offering free antennas that can access local broadcasting games. Such solutions will continue to be needed until new models of consumption are available to the masses.

Expanding to Younger Audiences

Reaching newer fans and younger demographics is challenging, and so is keeping their attention for prolonged periods. Gen Zers consume sports much like they consume other media, producing headwinds for the industry. According to Morning Consult, 54% of Gen Zers spend at least four hours daily on social media, primarily on YouTube, Instagram, TikTok, and Snapchat. These are also the very platforms where most Gen Zers discover news related to sports. Short-form media is obviously limiting when it comes to attracting this audience to full-length sporting events, but sports executives realize the magnitude of the challenge. To grow interest among even younger audiences, such as Gen Alpha, networks can continue to broadcast fully animated sporting events through partnerships with brands such as Disney's "Big City Greens" and "Toy Story."

Sports Tech's Alternative Uses

The most cynical among us may question the utility or meaning of sports, pondering why professional athletes are paid such exorbitant salaries to essentially play a game. But sports can justify itself to even the harshest critics through the innovations it brings to adjacent and seemingly unrelated industries. The sustainability measures implemented in auto racing and new stadium operations can be carried over to how we live our everyday lives, providing new solutions to address existential climate threats. Advances in sports medicine can have tremendous impacts on human health and longevity that could one day be available to mass markets. Advances in wearable technology can improve health diagnostics for general consumers. Sports can serve as the platform to resolve our cultural, political, and social conflicts and sticking points. In this way, sports transcend mere play and competition, emerging as a dynamic force that enriches our lives and champions progress.

Vulnerability Breeds Reactivity

Sports leagues, like many legacy organizations, have often been slow to evolve. Because of the hesitancy to make large-scale overhauls, sports leagues make themselves vulnerable to outside pressures. Consequently, specific leagues have been forced to make reactive decisions to remain relevant or as a means of protecting themselves from impending competition. Major League Baseball, a league traditionally resistant to change, took on the risks of implementing the pitch clock, step-off limits, bigger bases, and PitchCom for pitchers—to mixed results. As another example, such vulnerability forced the PGA Tour to seek partnership with its biggest rival, LIV, completing a full reversal of its initial stance and completely ignoring legal conflicts in the process to foster the merger. When sports leagues are slow to adapt, they ultimately will be caught flat-footed and forced to make decisions that can be inconsistent with their core values.

ONES TO WATCH

Sandy Khaund, CEO and founder of Credenza, for his contributions to Web3 and blockchain software revolutionizing the sports experience.

Brian Kaiser, co-founder at Hudl, for developing software that provides video analysis and coaching tools for sports teams.

Aron D'Souza, president of the Enhanced Games, for controversially pushing the boundaries of athletic competitions to drive human innovation.

Mat Ishbia, owner of the Phoenix Suns, for commitment to increasing accessibility of sports for his local market.

Shawn Beaudette, assistant professor of kinesiology at Brock University, for his contributions in creating a 3D motion capture system to impact sports performance.

Michael Horvath, co-founder of Strava, for developing technology that makes exercising more engaging and interactive.

Joel Embiid, basketball player for the Philadelphia 76ers, for launching Miniature Géant, a new production studio that amplifies voices and inspires a new generation of athletes.

Jeffrey Jordan, co-founder of Heir, for serving Gen Z fans by providing community-focused content centered around their favorite players.

Alex Morgan, Sue Bird, Chloe Kim, and Simone Manuel, co-founders of TOGETHXR, for creating a platform to uplift the next generation of women in sports.

Chen Shachar, co-founder and CEO at Play-Sight Interactive, for his contributions to the emerging market of affordable consumer sports analytics systems.

Oliver and Amber Marmol, co-founders of VS, for launching an edtech platform aimed at mentoring aspiring athletes.

George Sun, CEO and founder of Nextiles, for merging flexible electronics with soft goods to create a data analytics platform that measures human performance.

Olivia Dunne, American gymnast, for making it easier for female athletes to secure endorsement deals.

Phil Southerland, founder of Supersapiens, for using biosensor packs to create a system providing real-time glucose visibility to athletes.

Dr. Per Reinhall and Dr. Samuel Browd, co-founders of VICIS, for protecting players through innovative helmet designs.

Ben Sherwood and Reed Shaffner, co-founders of MOJO Sports, for creating a platform that keeps kids more engaged in sports.

Ted Sullivan and Kiril Savino, co-founders of GameChanger, for creating a tool kit to help athletes self-promote and get noticed.

Jonathan Soros and Jon Patricof, co-founders of Athletes Unlimited, for creating a public benefit corporation to empower elite women athletes.

Marie Donoghue, vice president of global sports video at Amazon, for bucking the trend of linear viewing and offering a new way of watching football.

Jan Wendt, Tim Schröder, and Johnny Wilkinson, co-founders of PLAIER, for developing a platform that democratizes player scouting in football.

Darren Peries, founder of Ai.io, for creating a platform to assist clubs and scouts in finding and developing amateur players.

Adam Silver, commissioner of the NBA, for unabashedly bringing innovations to a major sports league.

Eileen Jurczak, CEO of Xonic Golf, for creating iTQ, an AI-powered caddie app tailored to each golfer that provides real-time quick tips on how to improve.

IN THE STANDS

FAN EXPERIENCES

1ST YEAR ON THE LIST

FLEXIBLE CONTENT MODELS

WHAT IT IS

With the rapid demise of regional sports networks (RSNs), flexible and accessible content models will need to fill this new void. Direct-to-consumer streaming services could meet fans' expectations for personalized, flexible, and high-quality experiences. New platforms are emerging to give these fans what they want.

HOW IT WORKS

Recast offers an alternative to traditional ad-based or subscription models for content consumption. Users are given the option to pay for content by either using an in-platform currency or by earning credits from watch ads. This serves as a flexible and privacy-laden solution for viewers while content creators benefit from larger shares of the revenue. Recast has currently been adopted by the World Curling Federation and the Hibernian Football Club of the Scottish Professional Football League. ESPN is exploring a one-stop shopping model that would connect fans to live sports broadcasts from various streaming services directly on its platform. ESPN would receive a portion of the revenue generated from sales, with the remainder going to streaming services originally in possession of the broadcast rights. Roku has delivered the Women's Sports Zone, a centralized hub on its platform that simplifies access to women's sports content. It aims to match the increasing demand for women's sports content and make it easier for viewers to access and watch. Google is adding new features and offerings for its YouTube TV coverage of the NFL Sunday Ticket package, including monthly payment plans, discounted options for students, features allowing viewers to watch multiple games at the same time, live chats, polls, and e-commerce integrations.

WHY IT MATTERS

RSNs in the United States are in dire circumstances, facing challenges from changing consumer habits in conjunction with other economic forces. In 2023, Diamond Sports Group, which runs the notable RSN Bally Sports, filed for Chapter 11 bankruptcy protection and missed payments to many of its partnering sports teams. Many RSNs are now exploring direct-to-consumer platforms, but existing contractual agreements are complicating such transitions. While the landscape is in flux, teams, leagues, and RSNs are scrambling to develop sustainable business models for consumers who value flexibility and accessibility.

A survey conducted by Verizon Media indicates that sports fans are largely willing to pay more for live sports streaming, but only if providers give more access to the sports teams and leagues they are interested in. The research ultimately determined that fans are demanding more personalized, flexible, and high-quality sports streaming experiences. In order to meet fans where they are, tremendous collaboration is required from forward-thinking sports leagues and media partners, as well as the patience needed to navigate the murky landscape of content distribution contracts. Regardless, the current distribution system is no longer sustainable, but the landscape is ripe for new opportunities.

1ST YEAR ON THE LIST

FANDOM ON THE BLOCKCHAIN

WHAT IT IS

Sports teams are increasingly using blockchain and other Web3 technologies to enhance fan experiences by creating a consolidated golden record, digital passports, or enhanced ticketing experiences. Teams will now be able to keep a universal record across multiple channels and track fans' interests and preferences through their entire user experience.

HOW IT WORKS

The St. Louis Blues, a professional hockey team, have a multiyear agreement with Credenza Inc. to integrate Web3 software and technology into their preexisting fan engagement platform, Bluenatics. This new platform iteration called Bluenatics Passport will effectively function as a universal ID, by tracking fan activities across ticketing, online purchases, concessions, in-person retail, and partner locations, and keeping a centralized repository of fan experiences across multiple touchpoints. Similarly, with their move from Oakland to Las Vegas, the Raiders needed to better understand their new customer base. The football team consulted Data Clymer to create their own golden fan record using Salesforce for customer data, Matillion for data extraction and transformation, Snowflake for data storage, and Tableau for analysis and insights. Sports Illustrated Tickets will use Web3 architecture for a different purpose: Its Box Office, a blockchain-based ticketing and event management platform, will offer the Super Ticket NFT product, which links video highlights, exclusive offers, and loyalty benefits to a ticket, enhancing customer relationships and providing greater visibility in resales. The project involves collaboration with ConsenSys and Polygon. By using their platforms and technology, Box Office will offer a more flexible, scalable, and cost-effective way of managing inventory and customer interactions.

WHY IT MATTERS

Web3 software has the power to revolutionize fan experiences and interactions. By having a consolidated record across multiple channels of a fan's habits, purchases, and behaviors, teams and brands can offer fans real-time discounts, offers, and exclusive experiences. Teams will have the opportunity to offer fans rewarding gamified experiences tailored specifically to the individual. They can enhance customer interactions through surprise-and-delight experiences, including free or discounted tickets, merchandise, or gift cards. Teams and brands can work directly with sponsors to craft unique activations touching on preferences and habits, backed by user data and analytics.

By having a comprehensive knowledge of each fan's habits and behaviors, teams will be better equipped to craft personalized marketing campaigns, delivering customized messages and offers as they form stronger relationships and boost engagement. Through unified records and omnichannel strategies, teams can curate experiences for fans at every possible touchpoint.

Through other applications of Web3 technologies, brands can tie personalized video highlights and other engaging and collectible content to the digital ticket or customer record. Fans will be empowered by having more visibility into ticket reselling, sharing, and gifting. Web3 technologies have the ability to imbue new life and opportunities into traditional ticketing experiences.

1ST YEAR ON THE LIST

ADAPTIVE, DYNAMIC,
AND IMMERSIVE
ADVERTISEMENTS

WHAT IT IS

Perhaps to the disappointment of fans, advertising through multiple channels has become more advanced, pervasive, adaptive, and dynamic. Advertising can be adapted during live broadcasts to cater to specific geographic audience segments or remain consistent across physical and digital realms.

HOW IT WORKS

The German professional football league Bundesliga was the first major European football league to adopt virtual advertising technology for broadcasted games. This technology digitally inserts advertising imagery onto LED perimeter boards surrounding the pitch and dynamically changes during the course of the match. This advertising is not viewable to the players or the fans in the stadium, only those watching from home. However, ads are different and tailored to specific regions. During the 2022-2023 season, the National Hockey League became the next major league to adopt similar technology. For these digital ads, the NHL partnered with the virtual ad company Supponor, and the initiative took seven years to develop.

Conversely, the Washington Commanders are using Bidstack Sports' virtual advertising technology to create consistency across different channels. Bidstack's technology actually synchronizes and manages activations both at the team's physical stadium and in digital environments like video games and the metaverse.

Millions.co is trying to capitalize on the hype of generative AI by developing an automated athlete influencer campaign tool. Brands can turn plain English statements into AI-developed campaigns that feature multiple versions. Brands can further customize content using specifics such as location, demographics, budget, and type. The AI purportedly then optimizes the strategy based on these inputs.

WHY IT MATTERS

As long as sports remain a major source of entertainment, companies will continue to develop new methods of advertising to reap the revenue that comes with it. After disruptions due to the COVID-19 pandemic, the NHL explored advertising opportunities to make up for lost revenues. The integration of dynamic board advertisement was undoubtedly to the benefit of the league; however, this did not come without criticism. Early on, fans complained that moving ads were distracting, and on several occasions, the glitchy software has resulted in obstructed views of the game. The technology has also been criticized for being problematic for those with sensory processing issues; however, the digital ads were nominated for a Sports Emmy Award, revealing their value for sponsors and owners.

To optimize the fan experience in the face of advertising, brands can adopt specific techniques. By including frequency capping and frequency control, viewers will not see the same advertisement repeatedly, reducing fatigue and annoyance, and enhancing fan engagement. Contradictorily, when teams such as the Washington Commanders create consistency of advertising across physical and digital realms, fans can have an elevated experience when playing video games, feeling more closely connected to the real modality. This also creates expanded revenue opportunities for teams and organizations.

1ST YEAR ON THE LIST

IN-PERSON MIXED REALITY EXPERIENCES

WHAT IT IS

Mixed reality, or the merging of real-world environments with computer-generated elements, is upgrading in-person fan experiences at sporting events. Through MR integrations, teams have new ways to engage with fans and fans have more dynamic experiences.

HOW IT WORKS

In 2022, the Minnesota Twins were the first major sports team to bring augmented reality to their home stadium. AROUND, an AR app developed by Stagwell, allows fans to use their smartphones during breaks in the baseball game to play interactive games with other fans at Target Field. The app uniquely creates shared AR experiences for multiple fans. The Los Angeles Rams also hired Stagwell to create an AR experience for football games using AROUND. The application features AR effects, interactive content that coordinates with touchdowns and other events, unique player animations, and other in-game prizes and contests. German football league Bundesliga has collaborated with TV broadcaster Sky Deutschland and mobile operator Vodafone to create similar augmented applications on phones that offer multiple camera views and instant replays as well as graphic overlays with statistical information and analytics directly on the pitch. Through a different approach, the International Basketball Federation has installed LED glass courts to augment the fan experience. Real-time statistics and other graphics that directly appear on the court increase fans' understanding of the game and the action in front of them—and encourages them to look up, away from their smartphone. The NBA has also begun experimenting with the floor, leveraging it for part of the 2024 All-Star weekend. The celebrity game, skills competitions, and famous dunk contest all took advantage of the augmented court's abilities. However, the All-Star Game still occurred on a traditional wooden court.

WHY IT MATTERS

AR experiences provide sports teams and brands with new revenue streams and sponsorship opportunities. These can be offered not only at stadiums but also to those streaming or viewing live sporting events from home. More importantly, these experiences can cater to younger audiences—especially valuable for leagues such as MLB facing the challenge of reaching and retaining younger generations of fans. Potential sponsorship opportunities include branded AR filters, virtual billboards, or advertising space.

AR also brings value propositions for the fans. Through such technology, they can have access to real-time advanced stats with accompanying visual overlays to help them better understand an individual player's performance compared to the competition. Historical data visualizations enhance the experience, providing context and comparison to past performances. Interactive data experiences can provide fans with unique and immersive ways of engaging with the game. Finally, AR applications can also serve as an educational tool for fledgling fans trying to learn more about the sport.

1ST YEAR ON THE LIST

AUGMENTED EXPERIENCES AT HOME

WHAT IT IS

When it comes to broadcasted or streamed sporting events, the US' four major sports leagues are using innovative digital and virtual experiences to cater to new fans both young and old. These experiences can place your favorite sport in your favorite virtual setting, or they can place a virtual representation of you directly in the game.

HOW IT WORKS

Earlier this year, Super Bowl LVIII featured a special kid-centric broadcast on Nickelodeon, marking the first time the Super Bowl has had a separate telecast on another network. For the production, Nickelodeon's visual style was incorporated, including slime-filled end zones and appearances by characters like SpongeBob SquarePants. In a similar vein, ESPN, Disney, and the National Hockey League collaborated to create the NHL Big City Greens Classic. This innovative broadcast, made possible through player and puck tracking data, re-created an entire hockey game in real time within a virtual environment, using animated players whose movements and actions were synchronized with the athletes on the ice. During the 2023 NBA All-Star Tech Summit, Commissioner Adam Silver demonstrated a future live game streaming experience where fans can scan their own avatar and place it in the game to replace an actual player. MLB has debuted a new virtual ballpark currently accessible only on the web that allows fans to make customizable avatars with their favorite MLB jerseys and offers opportunities to interact with other fans virtually and participate in various mini-games. The virtual ballpark resembles an actual baseball stadium and features stands occupied by virtual spectators. A giant screen within the park livestreams games and other content.

WHY IT MATTERS

Augmenting the at-home sports viewing experience is another of the industry's attempts to attract and cater to younger audiences and generations. According to Morning Consult, almost three out of five members of Gen Z who have not watched a sporting event on TV in the past few years said the major reason was a lack of interest in sports. Following that, 20% claimed games were too long. Reflecting the shorter attention spans that viewers have developed in our digital age, Gen Zers primarily get their news about sports from YouTube, Instagram, and TikTok but don't use these applications to livestream full games. As a result, sports teams and leagues are increasingly focused on the "game beyond the game" as a way to attract younger consumers. As the NFL attempts to do this with its Nickelodeon partnerships, such broadcasts can serve both younger and older audiences, as added graphics do not completely obscure the game and invested parents can still enjoy a semblance of a football game. The NHL's approach with the "Big City Greens" collaboration will primarily just serve a younger audience, but the virtual environment could do more to keep them captive. However, either approach could be seen as too gimmicky and disillusion traditional fan bases. Still, customization is now the name of the game, and these virtual experiences deliver just that. Through such channels, fans can have a wider selection of alternate languages, high-profile influencer and celebrity commentary, enhanced camera angles, and even integrated betting.

1ST YEAR ON THE LIST

SPORTS BETTING AND INVESTING SOARS

WHAT IT IS

Technology and evolving regulations have changed the way that individuals place bets and make sports investments. The ease of access to new data, options for live betting, and mobile applications are bringing these services to broader audiences eager to win a large payout.

HOW IT WORKS

The combination of new technology and accessibility through mobile devices has caused the sports betting and investing industry to grow exponentially in the past several years. Seeing this value, in 2023, American licensed sports-wear retailer Fanatics acquired the US operations of PointsBet, the sports wagering operator and iGaming provider that offered scalable cloud-based technology platforms. This move marks Fanatics' entry into sports betting, giving it access to 15 states where PointsBet was licensed to operate.

To benefit the bettors and fledgling investors of sports, a host of technologies are being developed to enhance the customer experience. The sports investment app Commonwealth is revolutionizing horse racing ownership by letting individuals buy shares in racehorses for as little as \$50 and earn a portion of the horse's winnings. Rithmm is a sports betting application using predictive analytics to inform bettors' decisions and ultimately enhance their performance. The app allows users to build a custom analytical model backed by AI and based on their instincts, providing analysis for every game, recommended picks, predicted scores, win probabilities, and expected value on market odds. Rithmm aims to make users more informed and thereby make sports betting more accessible.

WHY IT MATTERS

Over \$180 billion has been legally wagered on sports in the past five years, generating \$13.7 billion in revenue for sportsbooks. In 2022 alone, American consumers allocated a larger portion of their spending to sports betting compared to expenses for ride-sharing apps and streaming services, with a total of over \$95 billion legally placed in bets within the nation. About 18% of American adults, or over 46 million people, either place bets or plan to place bets on sports during a single season. Regarding sports investing, Commonwealth enabled 390 shareholders of the Kentucky Derby winner Mage to increase their overall investment from \$170,000 to \$5 million by selling shares at \$50 each.

Technology is making both forms of activity more accessible and more attractive to a new demographic. Both betting and investing are attracting younger males in particular, who are looking to spend their disposable income. Additionally, the ease of accessibility through mobile sports betting apps in conjunction with tech-enabled quick payouts is leading to the adoption of new forms of betting and investing. However, this new trend is not devoid of concern. While sportsbooks have seen tremendous gains over the past few years, there is the worry that even with relaxed regulations in new states, the sports betting market might already be close to hitting its ceiling. But the bigger concern is the threat of increased gambling addiction. As betting only becomes more frictionless, so does the threat of an addiction epidemic.

1ST YEAR ON THE LIST

DESTINATION SPORTING EVENTS

WHAT IT IS

Professional sporting leagues have constructed outdoor facilities to enhance the viewers' experience, providing spectacular and picturesque environments to engage fans, both old and new. The advent of new technologies could enable sporting events to be hosted virtually in any location imaginable.

HOW IT WORKS

More than a decade ago, the National Hockey League began its annual outdoor ice hockey game, the Winter Classic, which was typically hosted at iconic football and baseball stadiums. In 2021, during the COVID-19 pandemic, the NHL televised a unique take on this concept, hosting two games without in-person fans near Lake Tahoe, instead focusing on natural landscapes capable of mimicking pond hockey. In a similar vein, Major League Baseball hosted its own events in iconic and scenic locations in 2021 and 2022. In both years, they took place at a ballpark adjacent to the “Field of Dreams” movie site in Dyersville, Iowa, a location popularized by the 1989 film. In 2023, NASCAR held the Grant Park 220 in the streets of downtown Chicago: the first time the NASCAR Cup Series held a street race. This developed from an imaginary street course NASCAR conceived of in 2021 for the eNASCAR iRacing Pro Invitational Series—a series of simulated racing events that occurred during the pandemic. And even when games wouldn't physically take place in scenic venues, technology can step in: The NHL is considering using the puck-tracking technology featured in last season's popular Big City Greens Classic to expand virtual viewing feeds in locations such as the National Mall or Central Park. This technology offers endless possibilities for projecting games in captivating locations.

WHY IT MATTERS

Organizing sporting events in nontraditional locations involves some level of risk. These spectacles are exorbitantly expensive, and low ratings could result in failure. But recent events have paid off. For instance, the Lake Tahoe NHL game featuring the Boston Bruins and Philadelphia Flyers drew over a million TV-only viewers, making it the most-watched NHL regular-season game on cable since 2002. It was also the most-streamed game in NBC Sports Digital history. Similarly, the Field of Dreams game between the Chicago White Sox and the New York Yankees attracted an average of 5.9 million viewers across TV and streaming, making it the most-viewed MLB regular-season game on Fox Sports since 2005. Additionally, this production was praised for its storytelling capabilities. Although the pandemic may have contributed to the success of these two examples, NASCAR's Grant Park 220 was also deemed a success and was the second-most watched race of the season. These events should be commended for their innovativeness, as they have the potential to encourage leagues to explore international expansion in more exotic locations and potentially grow global audiences. With new digital technology, leagues can also experiment with hosting events in virtual locations to test groundbreaking ideas before investing in expensive physical locations.

SCENARIOS

SCENARIO YEAR 2027

What if customizable content puts viewers in complete control?

While disappointment and frustration were the hallmarks of trying to access sports during the early 2020s, by the end of the decade, accessibility is no longer an issue because of the abundance of flexible content models. Sports fans have full access along with complete customization options. AI recommendation engines suggest content to users before they even access their personal portals. Once logged in, the system automatically selects the preferred viewing area of a particular user, whether that's directly behind the backboard or from an aerial birds-eye view. The viewer can change this with ease in real time as their preferences shift. The platform also suggests iconic overlays to virtually house the game in locations such as the Roman Colosseum or on the surface of Mars. If this isn't a viewer's thing, they can simply opt for the traditional analog setting. When the platform senses users are losing interest, it engages them in activations and activities to heighten the experience. And if you thought this could only be enjoyed at home, viewers can have the same experience in the stadium using augmented reality headsets. With all of their preferences saved, all viewers have to do is remember their headset. They can enjoy all their favorite customized settings at home or on the road.

ON THE FIELD

ATHLETE EXPERIENCES

1ST YEAR ON THE LIST

AUGMENTED GAME MANAGEMENT

WHAT IT IS

Leagues are increasingly using technology to augment or even replace human judgment and help make rulings within sports games. Some will colloquially refer to this phenomenon as *robo umpires* or *robo officials*. As the pace of sports becomes faster, an argument could be made that technological assistance can add integrity to the games.

HOW IT WORKS

The Association of Tennis Professionals announced that Electronic Line Calling (ELC) Live will be implemented into all matches beginning in 2025. Chair umpires will still oversee matches, but ELC Live will eliminate the role of line judges. In European football, the Champions League introduced semiautomated offside technology during the 2022-2023 season in an effort to improve the accuracy and speed of offside calls. This technology uses 12 specialized tracking cameras positioned underneath the stadium roof to closely monitor the ball's movement, capturing up to 29 distinct data points for each player on the field at a frequency of 50 times per second. The 29 data points account for all pertinent limbs and extremities needed to accurately determine offside calls and allow for accurate calculations of a player's on-field positions. As of 2023, all Triple-A ballparks now use robot umpires to call balls and strikes using the Automatic Balls and Strikes system (ABS). Half of the games will use an ABS challenge system where team managers can challenge calls—which will be overturned or upheld at ABS' discretion—while the remaining games will use ABS to determine all calls using an electronic strike zone.

WHY IT MATTERS

By implementing technology assistance into sporting events, the overall hope is that it would at the very least result in consistent calls, and at best ensure accuracy and perfection in the moderating of the games. As sports betting becomes ubiquitous, an increasing number of fans will endorse such technology, especially as they have money on the line, and the difference of millimeters, undetectable to the human eye, could mean the difference in a major payday or a significant loss. But purists will be more critical of the technology, saying that it goes against the spirit of the game and even that human error is fundamental to the sport. Implementing technology assistance into more events will affect stats, records, and individual achievements of athletes moving forward. Despite the view of fans from these individual camps, there are additional benefits for implementing such technology. It does have the potential to bring about consistency in officiating. The ABS system establishing a consistent strike zone has already received overwhelming positive support. Additionally, this technology could eliminate arguments with officials and make the games fairer. However, to ensure fairness in all instances, it will be complicated and difficult to develop more technology to completely replace officiating.

1ST YEAR ON THE LIST

VIRTUAL TRAINERS

WHAT IT IS

Virtual reality is increasingly being used for training regimens and conditioning. While not a substitute for the real thing, VR provides athletes with simulated scenarios that can enhance reaction time and decision-making, giving them new skills and perspectives to use in live game situations.

HOW IT WORKS

Sense Arena has been around since 2018, and since then has been pioneering the use of VR in training for both hockey and tennis. The comprehensive platform features over 60 drills that can be tailored to specific age groups and skill levels. Organizations including the NHL and USA Hockey have recognized the potential value of such training, which can place players in realistic game-like scenarios off the ice. The University of South Florida has recently introduced Sense Arena to its tennis program, allowing players to engage in training sessions without needing a full tennis court. To help simulate real-world experiences, players can adjust settings such as wind speed and court surface, and be subjected to crowd noise. Germany's U17 football team has also turned to virtual reality to train its players, specifically to improve their awareness, decision-making skills, scanning ability, and cognitive skills. The team cites such training as instrumental in achieving their first European U17 Championship in 14 years. Tulane University is also employing VR in its athletics program; however, it is taking a slightly different approach. The program uses VR headsets to help athletes achieve a more relaxed state before or during games and competitions. The Tulane football team has specifically used the headsets to deal with overheating, muscle cramps, and injury rehabilitation.

WHY IT MATTERS

Using virtual reality to train athletes might appear gimmicky or awkward to some. It might also be met with criticism or doubt from specific athletes themselves. While of course virtual reality is not a sufficient substitute for the real thing, it can augment and assist traditional training and is proving to have its place in robust athlete training regimens. For athletes such as hockey players, VR can enhance their decision-making skills and overall performance. It can provide intense and targeted training scenarios for players, and it can position them in real-world situations at times when ice time is not available. Also, it can offer training opportunities to athletes with reduced risk of injury, as they can train without the risk of a 100 mph slap shot going high and striking them in the face.

Virtual reality training will not be for everyone, but it is already proving to be effective. As the fidelity of virtual experiences improves, so will the capabilities it will offer in the virtual training realm, providing athletes with more ways to train, even from the comforts of their own homes.

1ST YEAR ON THE LIST

AUGMENTED TRAINING ANALYTICS

WHAT IT IS

Sports programs and teams are turning to a constellation of technologies including motion capture devices, cameras, sensors, machine learning, and AI to improve player performance and training. By establishing clearer training objectives, both coaches and individual athletes will find benefits, impacting wins and career earnings.

HOW IT WORKS

Duke University's basketball program has implemented the Catapult athlete-monitoring system, which employs advanced sports science technology to enhance player performance and development. This system makes use of sensors, accelerometers, GPS, wearable anchors, force plates, body weight tracking, and biomechanical analysis. The New York Yankees have developed a state-of-the-art pitching facility and player development complex named the Gas Station. Within the facility are Trackman (radar) portable machines, Rapsodo (radar and camera) machines, high-speed Edgetronic cameras, and other equipment that produce real-time feedback for pitchers based on elements including spin rate, spin axis, vertical and horizontal drop, and velocity. Wake Forest University also employs a pitching lab that uses advanced technology including motion capture cameras, force plates, and video software to develop in-depth analysis of pitchers' movements and mechanics. Shawn Beaudette, an assistant professor of kinesiology at Brock University, has partnered with Chalk Monkey Labs to create a 3D motion capture system to impact sports performance. The technology employs reflective markers and specialized cameras to record movement data, which is then analyzed by machine learning and AI to help coaches establish objective benchmarks to help athletes make improvements.

WHY IT MATTERS

Coaches and athletic programs will try almost anything that promises to provide a competitive advantage. As it is, coaching can also be quite subjective, and coaching suggestions can sometimes be perceived as arbitrary. But by implementing tools such as machine learning and AI into performance analysis, coaches can gain a clearer understanding of player potential and use established benchmarks to arrive at a more quantified approach to their coaching, potentially minimizing biases that can impact their athlete assessments. Such systems can better gauge player intensity during games and practices and inform coaching staff of how to best adjust workloads for players during games. Analysis from these systems can also help players reduce their risk of injuries.

These systems might recommend just minor adjustments to athletes' performance and execution, but even the most minor adjustments can have monumental effects. Through practice and time, players can make holistic behavioral changes and adjustments to their game, which is especially beneficial during early and more formative years. This could really benefit individual athletes when they are ready to sign their next contract, and could mean the difference in millions of dollars.

1ST YEAR ON THE LIST

ATHLETES AS BRANDS

WHAT IT IS

Many athletes, like NBA legend Michael Jordan, have gone beyond their sports and created their own brands. This trend has become more prominent in the age of social media. With new technologies and regulations, a new generation of athletes can rise above their sports and create their own platforms.

HOW IT WORKS

Joel Embiid, a six-time NBA All-Star, is entering the media industry by launching a production studio called Miniature Géant in partnership with The SpringHill Co., backed by LeBron James and Maverick Carter. The studio aims to inspire and showcase stories of individuals who have achieved success through unconventional paths. Miniature Géant will explore various media formats, including unscripted, scripted, audio, and branded content. Jeffrey Jordan, Michael's son, co-founded a Web3 sports technology venture called Heir. The company has launched its first mobile app, which aims to serve Gen Z fans by providing community-focused content centered around their favorite players. Users can communicate with partner athletes, access exclusive content, and find player-focused highlights and statistics. The app also offers community features such as games and events with rewards. Current NBA stars and other athletes have already joined Heir with more expected soon. Olivia Dunne, an American artistic gymnast and social media personality, has taken advantage of a 2021 Supreme Court ruling that allows college athletes to capitalize on their names, images, and licensing (NIL). With over 4 million Instagram followers and 7.6 million TikTok followers, she is considered the top female athlete social media influencer and is estimated to be worth \$3.3 million. Dunne indicated that she has received over half a million dollars for a single post, making her one of the highest-earning college athletes in the NIL era.

WHY IT MATTERS

During Michael Jordan's athletic career, he was the face of multiple brands. But he didn't own his intellectual property during the peak of his fame. Additionally, he did not have the advantage of direct social media interaction with fans. Present-day athletes have more opportunities to benefit from technologies and platforms. With the emergence of social media, athletes have become media companies themselves. They can produce and distribute content directly to their fan base, shaping their brand and monetizing their influence. This shift allows athletes to control their narratives and tap into new revenue streams through endorsements and content licensing. By generating unique content such as podcasts, documentaries, web series, or books, athletes can diversify their revenue streams and strengthen their brand equity. Owning this IP gives them greater control over their content and the ability to license it to various platforms to generate income. With recent changes to NIL regulations, athletes can benefit from their personal platforms earlier in their careers. By embracing a media company mindset, utilizing social media, and focusing on original content creation, athletes can experience significant financial growth and open doors to new opportunities. This approach empowers athletes to control their narratives, expand their reach, and build strong relationships with fans and partners.

1ST YEAR ON THE LIST

INNOVATIONS IN EQUIPMENT

WHAT IT IS

Sports equipment is technology in and of itself, enabling athletes to achieve new feats and break previous records. Innovations in equipment have led to enhanced experiences for sporting events by improving player performance, making sports more entertaining, and reducing injuries.

HOW IT WORKS

The sports equipment manufacturer Wilson has developed a prototype for a 3D-printed airless basketball that never requires inflation. Wilson collaborated with EOS, an additive manufacturing company to create the lattice-based structure made from elastomeric polymer. The prototype primarily protects against deflation issues and contraction that can be caused by temperature changes. Per Reinhall and Samuel Browd worked together to start VICIS, a helmet company that makes soft-shell helmets designed to more efficiently absorb impacts. VICIS has worked with the NFL to manufacture position-specific helmets, customized for protection for key situations different football players find themselves in. Using a deformable outer shell, these helmets have contributed to reducing head injuries in football. MLB pitchers are now allowed to use PitchCom devices during games. These wearable transmitters allow players to communicate with one another on the field without giving away visible signs or verbal cues. Players (primarily pitchers and catchers) can use the device to send audio signals to other players indicating the desired pitch to use on a batter. This helps eliminate sign-stealing by opponents and offers language versatility to players whose native tongue is not English. BetterGuards braces are transforming basketball by offering players unprecedented 360-degree freedom of movement, while also providing paramount ankle protection.

WHY IT MATTERS

Innovations to sports equipment can impact the game at large, or just offer individual players customization and personalization. As the industry makes changes and advancements, not all innovations will be well received, but efforts to improve sports through experimentation are still applaudable behaviors.

Ultimately, innovations to athletic equipment can improve the pace of play, make sports more entertaining, reduce injuries, or even impact sustainability. According to Persistence Market Research, the sports equipment industry is anticipated to reach \$178.5 billion by 2033 with a 6.5% compound annual growth rate from now until that year. Businesses and organizations can continue to capitalize on the growth of the sports and fitness industries by developing revolutionary equipment for both professional and recreational sports markets. Innovations such as PitchCom have already proven their worth by speeding up play during baseball games and adding more integrity to the game by eliminating sign stealing. Baseball is a great case study for the argument of bringing innovations to the sports industry, as the sport has traditionally been so resistant to change. But even minor technological implementations have brought improvements to the product in just a short period.

1ST YEAR ON THE LIST

ADVANCES IN SPORTS MEDICINE AND WEARABLES

WHAT IT IS

With intense competition comes the risk of injury. Unfortunately, it is not possible to avoid, yet companies are developing a host of technologies and wearables to try to proactively reduce injury when possible, and provide new methods for more reliable diagnosis and treatment in the face of inevitable injuries.

HOW IT WORKS

Nextiles is a smart fabric technology company that focuses its products on athletes. The brand combines flexible electronics with proprietary sewing technology into fabrics using Bluetooth connectivity to measure mechanical changes, primarily to improve athletes' techniques and reduce the risk of injury. Notus Labs also has the ambition of reducing injury through wearable devices. The Notus One is about the size of a quarter and provides noninvasive real-time monitoring of heart rate, core temperature, and player movement. With its integrated platform, Notus can help prevent heat-related injuries. When injuries cannot be prevented, Indian startup NxtQ aims to revolutionize physiotherapy using wearable sensors from Movella DOT. Using these sensors, NxtQ gathers important data for physiotherapists to administer remote diagnosis and treatment. NxtQ algorithms also help interpret data and aid in diagnosis. Madrid-based company ThermoHuman is pushing for the adoption of thermographic technology in the medical departments of top European soccer clubs. By using thermographic cameras to detect areas of heat and pressure in the body, this technology can provide insights for injury diagnosis and treatment through fast and noninvasive methods.

WHY IT MATTERS

Sports are getting faster, and the risk of injuries is becoming greater. Over the course of 13 seasons, the average number of injuries for all four major North American sports was 62.49 injuries per 100 players per season, according to the journal *Nature*. Sports-related injuries have impacts on health care, creating potential cost burdens, and in extreme instances have harmful long-term physical and psychological implications. However, advancements in sports medicine and science in conjunction with technology such as wearable devices can help the industry keep pace with the rates of injury.

The primary concern is maintaining long-term health and vitality for the athletes themselves. But the longer players are out, the more significant their impact on team performance and potential to impact business performance. This is especially the case for star players missing significant time in the NBA, as individual players can have a greater influence on the outcome of games. Teams and organizations have a vested interest in preventing injury and expediting recovery time when injuries are unavoidable.

Significant opportunities exist for companies to explore preventative measures as well as post-injury rehabilitation, especially as the sports medicine market is predicted to reach \$7.2 billion by 2025, according to Allied Market Research.

SCENARIOS

SCENARIO YEAR 2034

What if automated platforms democratized sports?

If Elliott Sartorius had been born during any previous generation, the likelihood of him becoming the world's most prominent soccer player would have been near-impossible, due to his family's poverty. But thanks to automated scouting and coaching platforms, Sartorius discovered that he had a natural, yet raw, talent for the game of soccer. At a young age, he used the CoachU platform, which assessed his natural ability and mental acumen for the game of soccer, and indicated he excelled at all levels. Through motion capture technology, CoachU gave Elliott virtual and augmented suggestions and recommendations to enhance his game before he developed any unhelpful habits at a young age. In his teenage years, right before his eligibility to go pro, CoachU offered Sartorius an option to mutually benefit himself and his fledgling fan base. Through fractionalized investments, his fans could essentially buy stock in his athletic career, helping Sartorius overcome the financial hurdles that would have previously limited his involvement in the game at such a high level. By believing in himself (or believing in the assessment from CoachU) Sartorius rose to stardom, winning lucrative paydays for both himself and his early supporters.

IN THE OFFICE

TEAM/BUSINESS MANAGEMENT

1ST YEAR ON THE LIST

COMMITMENT TO SUSTAINABLE SPORTS

WHAT IT IS

As climate change persists, sports play the role of both victim and villain. Sports teams and organizations are beginning to lead with their actions by implementing programming and operations that result in the use of less carbon. These measures will be crucial to ensure that sports remain viable for years and decades to come.

HOW IT WORKS

Across the world, many sports are going greener. IndyCar has adopted several eco-friendly alternatives to traditional practices in an attempt to reduce environmental impact. That includes using 100% renewable racing fuel—the second-generation ethanol derived from sugarcane was developed by Shell and Raizen and has led to a 60% reduction in greenhouse gas emissions. IndyCar has also adopted Firestone tires made from sustainably sourced materials, which are recycled after use. Beyond IndyCar, the racing industry has moved toward electric and emissions-efficient hybrid alternative-energy vehicles, with Formula E leading the charge. In Seattle, Climate Pledge Arena, the home of the NHL’s Seattle Kraken and the WNBA’s Seattle Storm is Zero Carbon certified by the International Living Future Institute. This third-party certification highlights highly energy-efficient buildings designed to fully account for their carbon emissions impacts, and requires that 100% of the energy tied to the project must be offset by renewable energy sources. Climate Pledge Arena also includes rainwater harvesting to support resurfacing the hockey rink ice and a zero-waste approach. German soccer club Bayern Munich is partnering with the Schwarz Group in a bid to enter the circular economy. Under this partnership, the environmental service provider PreZero will oversee all waste management at the club’s facilities. The mayor of Paris announced the city will prohibit single-use plastics during the 2024 Olympic Games as a significant step toward addressing plastic pollution.

WHY IT MATTERS

David Goldblatt, author of “Playing Against the Clock,” has identified sports as both a victim of and contributor to the climate crisis. Climate change has negatively affected sports and individual athletes in numerous ways. In 2020, poor air quality from wildfires led many tennis players to withdraw from the Australian Open. During the 2021 Tokyo Olympics, athletes passed out and faced threatening health issues because of exorbitant heat. The UN Department of Economic and Social Affairs projects that a quarter of England’s football stadiums (23 of 92) will be partially or totally flooded every year by 2050. In a 2018 report by the NHL, the league acknowledged that the climate crisis could endanger the sport’s heritage of being played outdoors on frozen ponds, but issues will also come with the increasing difficulty of maintaining indoor ice rinks with extreme temperature increases.

At the same time, Goldblatt estimates the sports industry is responsible for potentially emitting 300-350 million metric tons of carbon dioxide per year. Creating the concrete needed to construct stadiums and arenas and producing the fabric for sportswear are also major contributors to carbon emissions. The onus is on the industry to make meaningful change, and it is in a unique position to galvanize action: Its broad social platform can be a strategic tool to influence attitudes and perceptions. Beyond this, sports can also serve as the testing ground for new innovations. IndyCar is an example of taking learnings from the track and using them in road-going products.

1ST YEAR ON THE LIST

SURPRISING MERGERS AND ACQUISITIONS

WHAT IT IS

A series of mergers, acquisitions, and new partnerships are having a seismic impact on the world of sports. These new institutions will have a major effect on how the business of sports is conducted in the future, how athletes are paid, and how fans access the events.

HOW IT WORKS

In June 2023, the PGA Tour and LIV Golf announced their plan to merge commercial operations under common ownership. After some confusion, PGA clarified it would be staying intact as a separate, commercial entity underneath a new structure. This new association will include the Tour's commercial assets, the European DP World Tour, LIV Golf, and other golf-related commercial businesses of the Saudi Arabian Public Investment Fund. This announcement caught the world by surprise because of the previous hostile relationship between the two leagues. A similar situation happened in women's professional hockey, where for more than four years, the Premier Hockey Federation (PHF) and the Professional Women's Hockey Players' Association (PWHPA) were unable to come to an agreement that satisfied both sides. In July 2023, Mark Walter, owner of the Los Angeles Dodgers, revealed that his company had acquired the PHF and shortly after, ceased its operations. The PWHPA has now ratified a collective bargaining agreement with Walter's group for the creation of the Professional Women's Hockey League (PWHL) consisting of six North American teams that will replace the PHF. In April 2023, World Wrestling Entertainment (WWE) and Ultimate Fighting Championship (UFC) announced their merger, creating a new publicly traded company under the control of Endeavor Group. Endeavor will own 51% of the new combat sports and entertainment company, while WWE shareholders will retain 49%.

WHY IT MATTERS

Before PGA and LIV's announcement, 11 players had filed an antitrust lawsuit against the PGA Tour alleging that it used its position as a monopoly as an advantage over the competition. This caused the PGA to countersue LIV Golf on the grounds it was interfering with player contracts. With the announcement of this partnership, members of Congress are exploring whether the merger would actually violate antitrust laws.

If the partnership does get past this obstacle, it has dissidents for other reasons: Some say this is an attempt by the Saudi regime to "sportswash" its reputation in exchange for tens of millions of dollars. Undoubtedly, the merger will result in significant monetary backing for the sport, and serves as a signal of a much larger Saudi presence in American sports in the future. As for the players themselves, this could increase their global prominence, giving them opportunities to earn more through endorsements. But, ultimately, such a merger could also enable the association to pay the players less money as it exerts more control.

Regarding the merger of UFC and the WWE, ultimately, it gives the organizations more influence and power, resulting in a new business worth a combined \$21.4 billion. Leadership from both organizations believe it will allow for better negotiated broadcast deals while keeping costs down for viewers. Combining two similar, but ultimately disparate, organizations could benefit the organizations, employees, and fans.

1ST YEAR ON THE LIST

ALTERNATIVE LEAGUES AND ASSOCIATIONS

WHAT IT IS

Investors are showing unprecedented interest in organized sports. This sometimes results in new leagues that mimic traditional associations but offer new value propositions, or in other instances a restructuring of long-standing organizations to ensure their prolonged success.

HOW IT WORKS

In a more controversial move, Australian entrepreneur Aron D'Souza is launching the Enhanced Games. It is a primarily Olympics-style competition with one major difference: Athletes are allowed and encouraged to use performance-enhancing drugs. D'Souza plans to hold the inaugural games in December 2024, featuring sports like track and field, swimming, weightlifting, gymnastics, and combat sports. In golf, Tiger Woods and Rory McIlroy are leading a new venture. The TGL is a high-tech, indoor golf league operated by TMRW Sports in collaboration with the PGA Tour. This tech-driven competition will consist of 18 PGA Tour players, forming six teams of three for 15 regular-season matches, then semifinals and finals. Each match will occur in a high-tech facility. After talking to 50 different European clubs and stakeholders and concluding that European football is under threat and in need of change, A22 Sports Management is developing an 80-team seasonal competition called the European Super League. This merit-based league comes as an alternative to a breakaway Super League that was announced in 2021 led by 12 clubs including Real Madrid, Barcelona, and Juventus.

WHY IT MATTERS

It is no small endeavor to develop a new sports league. However, with a distinct and different value proposition, a startup league could offer something new. The TGL offers a unique alternative to traditional golf leagues and has outlined its distinctive approach in its business strategy, which includes creating franchises centered around cities and involving prominent individuals as stakeholders. Despite hosting its events exclusively in a new arena in Palm Beach, Florida, the TGL is making a deliberate effort to establish strong connections with specific cities, setting it apart from its competing golf leagues, but taking a page more directly from traditional sports franchises.

The controversial Enhanced Games probably will not rival the Olympic Games anytime soon, but D'Souza justifies it with the ulterior goals he hopes to achieve through the institution. He has expressed strong interest in exploring the boundaries of human achievements, ultimately envisioning individuals in their 40s, 50s, and 60s breaking world records. D'Souza sees performance medicine as a pathway to optimizing anti-aging technologies for general use.

The proposed European Super League is a bit more complicated. Through the original 12 team proposal, smaller teams would be at a severe disadvantage. However, the 80 team version could provide the foundation for the financial support the entire football ecosystem needs in order to survive and succeed.

1ST YEAR ON THE LIST

ADVANCED ANALYTICS FOR SCOUTING TALENT

WHAT IT IS

Advanced analytics have increasingly been used over the years to inform coaching decisions. But now, artificial intelligence is generating new insights and analysis for scouting potential and established talent at a level that was previously unimaginable.

HOW IT WORKS

Plaiier aims to revolutionize player scouting by using AI to conduct real-time analysis of soccer team playing styles and rosters. The outcomes are correlated with data on over 100,000 players stored in the system, with their abilities weighted in relation to the specific needs of the club seeking new talent. Through this systematic approach, the AI system leverages historical data to make predictions. The Chicago Blackhawks are undergoing a significant internal overhaul of their franchise, starting with the development of an app called Madhouse. This app operates as a central nervous system providing comprehensive insights into hockey players, including their playing history, statistics, scouting reports, interviews, and personality traits. Major League Soccer (MLS) has partnered with London-based startup Ai.io to deploy AI-powered tools for player recruitment, allowing aspiring players to be scouted for free. Players can download Ai.io's AiScout app and complete assessments and drills on their mobile phones. The app will analyze their skills, and the MLS will evaluate the players through the generated data. Those with high scores will have the opportunity to train with MLS teams in the US and Canada. Startup Sports-Visio uses computer vision and deep learning applications to capture footage and action from basketball players and automatically generate statistics and highlights.

WHY IT MATTERS

Using a constellation of technologies such as computer vision, deep learning, and other AI applications, coaching staff can greatly benefit by making more informed decisions about their players and personnel. These network technologies are merely tools and will not immediately replace decades of institutional knowledge or experience from tenured coaches, but they can add supplemental insights and analysis, and help coaches make personnel decisions more quickly and efficiently. There is the threat that such systems will not provide reliable information and coaches could be hesitant to adopt these new technologies, but as the Moneyball phenomenon has indicated, those who first master new forms of analytics will have distinct competitive advantages. Ultimately, though, the use of AI in sports and scouting will require substantial investment and careful integration.

Such technologies could help reduce biases that naturally creep into decision-making, which is what the Blackhawks hope will happen with the implementation of Madhouse. This benefits the organization, but it also benefits the players. With the use of Ai.io, MLS decision-makers can choose to scout players based on objective data, rather than just opinion. This could potentially serve as a democratizer, giving disadvantaged players a chance to have their talents and skills considered, ultimately evening the playing field.

1ST YEAR ON THE LIST

UNIQUE AND INNOVATIVE PARTNERSHIPS

WHAT IT IS

While sports sponsorships and partnerships have essentially existed since ancient times, a series of unique and innovative collaborations are creating synergies and resulting in increased exposure through the unlikely pairing of brands and sports teams.

HOW IT WORKS

In 2023, e-commerce company Zappos.com partnered with the exhibition baseball team the Savannah Bananas to become the official title partner and exclusive footwear partner for their Banana Ball World Tour. The Bananas have traditionally had an ad-free experience, and this partnership evolved due to Zappos' strong customer-centric sensibilities. The partnership aims to merge fashion and sports, promising an exciting and unexpected experience for fans through a series of pop-up activations during the 33-city tour. Similarly, Spotify and FC Barcelona announced a long-term partnership during the 2022-2023 season. Under the agreement, Spotify is both the main partner of the club and its official audio streaming partner. FC Barcelona updated its team shirts with the Spotify brand and rebranded its stadium as Spotify Camp Nou. This unique partnership attempts to connect music and football with the goal of creating a global community of fans and artists. Spotify uses this partnership to spotlight artists and creators, including in-stadium elements to showcase artists to the global TV audience during matches, using geo-targeting to highlight different artists in different markets. In this effort to showcase artists, FC Barcelona honored Canadian performer Drake's achievement of reaching 50 billion streams on Spotify by featuring his logo during a match against Real Madrid.

WHY IT MATTERS

Sports sponsorships and partnerships are as old as time. They can be traced back to ancient Rome, when gladiators relied on the patronage of wealthy individuals to support their training. The first recorded sports sponsorships took place during the 1896 Olympic Games. Since then, these types of partnerships have evolved drastically and dynamically to influence marketing strategies. In that time, these strategies have become more formulaic, but brands are exploring new ways to leverage the model.

The partnership between Zappos and the Savannah Bananas aims to redefine brand culture and provide exciting experiences for fans of both brands, even those disillusioned by traditional advertising models. In a different fashion, the partnership between Spotify and FC Barcelona, with the inclusion of Drake, presents a refreshed method for catering to younger audiences and leverages three major platforms for cross-promotion. FC Barcelona has repeated this initiative with Spanish singer and songwriter Rosalía. The brands have reported that this strategy has helped both the club and the artist reach new audiences. Searches for Rosalía on Spotify were reportedly up a few hundred percent, and the club received half a billion impressions from Rosalía being broadcasted across their channels.

1ST YEAR ON THE LIST

GEOPOLITICS OF SPORTS

WHAT IT IS

In sports journalism, there has been the common refrain to “stick to sports” rather than using platforms to provide political or cultural commentary. However, it is important to recognize that sports and politics have always intersected, and this complex relationship can have significant geopolitical ramifications.

HOW IT WORKS

While the World Athletics Council has loosened previous restrictions levied on Russian and Belarusian athletes based on doping allegations, the Council has now excluded the athletes from its events indefinitely based solely on Russia's invasion of Ukraine. In contrast, while the International Olympic Committee (IOC) will not formally invite Russia or Belarus to the 2024 Olympic Games, they may permit Russian and Belarusian athletes to participate as “individual neutral athletes,” but not as representatives of their respective countries. If the IOC allows this, backlash could come from Ukrainian athletes in the form of boycotting the games.

In April 2023, Venezuela hosted the Alliance for the Americas Games after a 12-year hiatus. Eleven countries participated in the event, including competitions such as boxing, gymnastics, bodybuilding, swimming, chess, and dominoes. Participating countries consisted mainly of Latin America and Caribbean nations; however, Russian athletes were invited and allowed to compete under their nation's flag. For Russia, this could represent a symbolic victory over the perceived aggressive Western campaign to cancel Russian sports, and a means to strengthen their international ties.

WHY IT MATTERS

Sports and politics have a long-standing relationship that cannot be ignored. Governments often use sports as a tool to address various challenges such as economic growth, diplomacy, and natural resource management. However, recent events have highlighted how sports can also be utilized for geopolitical posturing. The controversy between Russia and Ukraine is a prime example of how sports can affect many stakeholders, including organizing bodies, media outlets, businesses, and nongovernmental organizations. Decisions regarding this conflict and how they impact sports have been complicated. Critics argue that athletes should still be allowed to gain experience, showcase their skills, and compete on a global scale. Additionally, it can be argued that restricting participation in these international events impacts the integrity of the competition, as this limits best-on-best competition. However, blindly allowing such participation is at best a tone-deaf response to the severity of the actions happening in Ukraine, and at worst, a flat-out insult to Ukrainians. While some athletes may want to focus solely on the athletic aspects of these competitions, sports inevitably continues to be a platform for political strategy.

1ST YEAR ON THE LIST

MORE INCLUSIVE AND ACCESSIBLE SPORTS

WHAT IT IS

Sports have not always been the most consistent drivers of social and cultural change, but the industry is now transitioning to address inclusion and accessibility at all levels, using technology and systemic change to usher in new experiences for fans, athletes, and personnel in sports management.

HOW IT WORKS

Sports management teams and organizations are working toward inclusivity and accessibility for players and fans. In partnership with Special Olympics Australia and Playbk Sports, Gymnastics Victoria has created an online course called “Creating a Positive Experience for Athletes with Autism in Gymnastics.” The course equips gymnastics coaches with evidence-based techniques to enhance the participation experience for athletes with autism, and is widely accessible through Special Olympics Australia’s online learning platform. The Escoita App, created by AR-MIS Digital Sport in collaboration with Jesus Suarez Lopez, provides a complete sports event experience to users with partial or complete vision loss, regardless of the sport. The app offers real-time audio description, reducing the delay between the event and the narration. The goal of Escoita is to improve user experience, encourage inclusivity in sports, and foster a sense of community among fans. But to achieve true inclusivity in sports, diversity and inclusion must also happen within management and internal hiring. The WNBA is recognized as a leader in promoting diversity and inclusion, with diverse representation from ownership to coaches. The league consistently earns top scores for its racial and gender hiring practices among professional sports leagues. Among men’s leagues, both NBA and MLS have improved their racial and gender hiring practices. However, the NBA leads with more people of color in general manager and coaching positions, as well as more women in senior management roles.

WHY IT MATTERS

Sports organizations have a unique opportunity to advance inclusivity and accessibility through their platforms. By dismantling cultural and social barriers, they can serve as catalysts for social change. However, it is incumbent upon these institutions to ensure that their efforts toward inclusion encompass all forms of diversity, including race, culture, gender, religion, and disability. This is vital to promote acceptance and human rights, and eradicate discrimination in sports. While technology may alleviate some inclusion challenges, it can also lead to unintended consequences. FIFA, for example, faced backlash for its tech-driven accessibility ticketing allocations, which ironically left some fans feeling ostracized and marginalized. To prevent similar missteps and foster inclusivity, sports organizations need proper implementation and execution. However, genuine progress can only happen if there is a systemic dedication to initiatives that yield results, starting at the leadership level. Such leadership can transform sports into a more inclusive and empowering field for all, impacting the fan, athlete, and employee experiences.

SCENARIOS

SCENARIO YEAR 2040

What if consolidation was inevitable?

It was a seemingly normal Wednesday afternoon when Major League Baseball and Major League Cricket (MLC) shocked the world by announcing they would join a collaborative venture called Major League Entertainment. The properties will still maintain their names underneath the new umbrella company, and the leagues will not compete against each other during their respective regular seasons. However, they will host two interleague exhibition games a year featuring all-stars from each league. This cricket match and baseball game will be hosted in neutral international sites in iconic locations in an attempt to build and grow international audiences. The joint venture was precipitated when MLB's position was no longer tenable. Over the years, it has lost too many fans to remain a sustainable entity. However, the league still had its brand reputation and legacy to give it credence, something that MLC had not yet established. MLC, however, was better positioned as it continued gaining national and international interest. After considerable deliberation, both leagues agreed to the deal in principle. More details should shed new light on this astonishing joint venture in the coming weeks and months ahead.

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Nick Bartlett is a Director at the Future Today Institute and leads our Insurance practice area.

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ABOUT FUTURE TODAY INSTITUTE

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Founded in 2006, Future Today Institute is an advisory firm specializing in strategic foresight, driving corporate strategies that lead to long-term success and resilience.

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METHODOLOGY

Future Today Institute conducts in-depth qualitative and quantitative research throughout the year to identify emerging trends. We review patent and trademark filings, pre-print and published scientific papers, investment rounds, online search trends, macroeconomic data, publications from governments worldwide, news mentions, influencer posts and other sources, and we use a proprietary system to identify patterns, which are then grouped into nodes and evaluated using a set of standardized indicators. Qualified trends are further scored for their trajectory, momentum and timing. Additionally, we harness the deep subject matter expertise of our Future Today Institute network, leading to valuable insights about the topics we cover.

In continuous publication since 2007, Future Today Institute's annual report includes maturing and emerging trends grouped into two categories: industry and technology. Industry trends reflect the ways in which technology is shaping the future of an entire industry. Technology trends are specific developments within one arena, such as artificial intelligence. Covering a wide range of technologies across industry sectors creates a holistic view of change and provides leaders with a clear understanding of their potential impact. Trends are published as individual Industry and Technology reports, as well as in one combined report with all of our research.

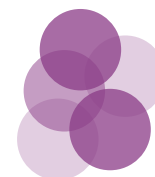
Monitored regularly, trends help executives recognize emerging threats and opportunities in the near-term and enable them to develop perspectives, strategies and plans for the future.

Future Today Institute's Strategic Foresight Methodology



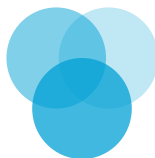
SIGNALS & LONG-TERM TRENDS

**What is
INFLUENCING
the future?**



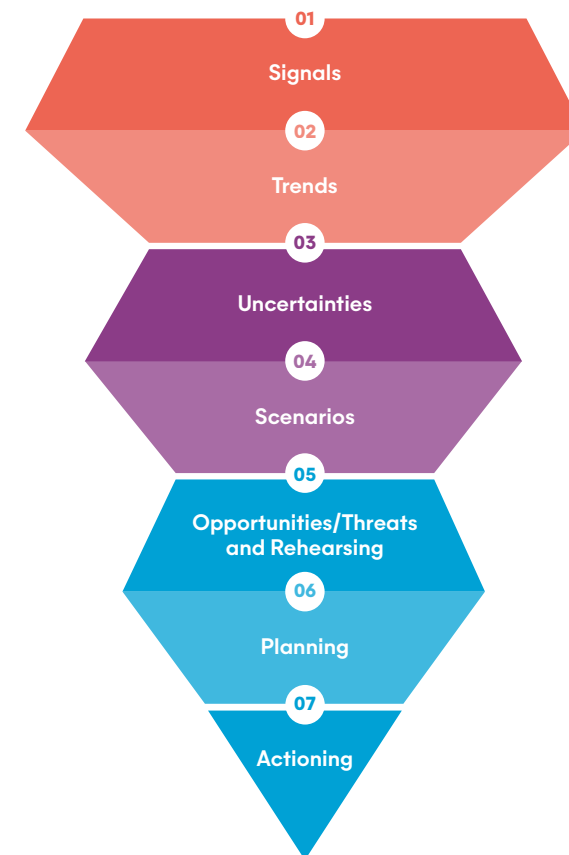
GLOBAL MACRO SCENARIOS

**What is
THE future?**



STRATEGIC

**What is
YOUR ORG'S
future?**



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