



Sports
Innovation
Lab

MOST INNOVATIVE VENUES

HOW SPORTS AND ENTERTAINMENT VENUES BREAK
THE MOLD TO ATTRACT FUTURE FANS

Forward

For years, the sports industry admired how venues became “smarter” with the use of digital technology, and there are still many venues just trying to keep up with that trend. But recently, the people in charge of renovating and building the spaces where we watch live entertainment have said enough with incremental improvements; let’s do something truly innovative.

We want to celebrate those organizations. In this report, we pulled together requirements from experts in the venue space. Our Venue Innovation Council shared their experiences operating and designing the most innovative venues in the world.

We organized the requirements for innovation in this report to serve as a guide to how the industry moves forward. We also wanted to celebrate the innovation already taking place. Some of the venues in this report are taking bold steps to prepare for the future. Others are showing us what the future will look like.

Sports Innovation Lab knows that the future fans are Fluid Fans™. The live entertainment experience needs to convince consumers who are empowered to choose their entertainment options to buy tickets, travel to a venue, and spend on-site. The best venues not only create memories but establish relationships with Fluid Fans that keep the conversation going long after the event has ended. Those truly are The Most Innovative Venues.



Josh Walker
CEO
Sports Innovation Lab

Venue Innovation Is Required In The Age of The Fluid Fan

Entertainment and sports fans have more options than ever regarding where and when to attend live entertainment. New leagues have started touring different stadiums, new festivals have sprung up to support emerging artists and creators, and international sporting events have made their way into foreign lands. Fans expect a world-class experience. They know when a venue operator or event planner misses the mark, and they are more than happy to share that feedback on social media. Sadly, world events have also pressurized the need for every venue to carefully prepare and act with the utmost vigilance to ensure fan security. The pressure to build world-class venues and deliver world-class experiences safely has never been higher.

This report aims to do two things:

1. Highlight what state-of-the-art venues must do well to thrive
2. Shine a light on those venues leading the way

Our goal as experts in the area of venue operations is to guide how venue operators make strategic decisions and allocate scarce resources so our industry can continue to delight millions of fans.



Stadiums are more than just venues for sports and entertainment; they are engines for local economic growth, driving increased tourism, job creation and business opportunities. Technology plays a crucial role in amplifying this impact--enhancing the fan experience, streamlining operations, and enabling smarter, more sustainable infrastructure. By leveraging cutting-edge innovations and holistic thinking for the end-to-end experience, operators not only boost the economic footprint of these venues but also create lasting benefits for the communities they serve today and beyond.



Mariya Zorotovich
General Manager
Consumer Industries
Intel

What makes a venue innovative in 2024?

The answer isn't as complicated as you might think, given the variation in venues, sports, and entertainment options out there. There's consensus among the leaders in venue operations that the most innovative venues are:

1. **Sustainable** - they prioritize reusable materials and renewable sources of energy
2. **Efficient** - they leverage mobile technology and digital technologies to facilitate crowd flow, keep fans safe, promote entertainment options and sponsors, and maximize revenue
3. **Agile** - they include multiple entertainment options and can be adapted to accommodate various entertainment models

If that sounds easy to do, it's not. The most innovative venue operators have had to go to great lengths to make progress in these areas, and their work is never done. With each new sport, concert, or technology innovation, venue operators have had to find ways to bend physical and digital infrastructure to make way for the demands and expectations of future audiences of fans and partners.



Major sports venues are no longer simply a stage for the action. They are increasingly becoming leisure destinations. Operators must increase focus on fan-centric technology to meet fans where they are, and:

1. *Deliver frictionless and relevant digital experiences (autonomous retail, mobile ordering, smart ticketing)*
2. *Collect & activate brand-owned, fan data to accelerate intelligence across the entire ecosystem*
3. *Use fan data to support smaller venues, with broader footprints including hotels, restaurants and shopping areas*



Andy Hook
Strategy Lead
Oracle Sports
and Entertainment

Sustainable Venues

Sustainability is no longer simply a buzzword for the venue business. It's seen in practice in some of the best arenas and stadiums in the world. Sports Innovation Lab partnered with Front Office Sports to recognize some of the leading venues in this space, and we focused our evaluation on the following key areas:

Carbon & Greenhouse Gas Initiatives

Utilize Renewable Energy Sources
Ride Share Program
Environmentally Responsible Travel
Carbon & Greenhouse Reduction Program
Carbon & Greenhouse Offsetting Program
Limited Office Use
Energy Efficient HVAC Systems
Green Architectural Features

TOTAL Water Use

Water Recycling System
Water Bottle Filling Stations
Water Saving Restrooms (Automatic Faucets, High-Efficient Toilets)

TOTAL Recycled Materials

Compost
Paperless Office - Digital First Policy
Limit to Single-Use Plastics



The success of implementing sustainable infrastructure comes with the organizational support to measure and optimize these different initiatives. The best venue operators pair capital infrastructure investments with new organizational practices to quantify the impact of these investments and keep ownership aligned with the benefits of operating sustainable venues.

Sustainability operations benefit specifically from:

1. Hiring a discrete owner of sustainability efforts within the organization (e.g., a sustainability officer)
2. Empowering this leader to implement and enforce new practices and protocols
3. Evangelizing sustainability initiatives to encourage and motivate venue employees to engage in sustainable practices. For example, operating dedicated employee engagement programs
4. Describing clearly how sustainability goals align with the business' mission and operations
5. Outlining specific KPI(s)
6. Participating in associations or organizations devoted to sustainability (e.g. Green Sports Alliance, Sport and Sustainability International, etc).

SUSTAINABLE VENUE SHOWCASE:



Portland Trailblazers

Located in Portland, Oregon, the Moda Center takes its role as a leader in sustainability seriously. It proactively enrolled in Pacific Power's Blue Sky Renewable Energy program from 2008 to 2017. Through this program, Moda Center purchased Renewable Energy Certificates matching 100% of its annual electricity usage, ensuring renewable energy generation on the grid throughout the Northwest. In 2018, Moda Center increased its commitment by being the first customer to enroll in Pacific Power's new Blue Sky Select program. They matched 100% of Moda Center's electricity usage and went further to select wind energy generated from Chopin Wind Farm in Umatilla County, OR. This ensured that the environmental and economic benefits were felt in the communities where Trailblazer fans live, learn, and play. There are 28 EV charging stations on Moda Center's campus. In 2022, the Trailblazers made charging sessions fully complimentary to guests that have paid for parking.

To promote their mission, the Trailblazers encourage fans to take alternative modes of transportation with dedicated marketing efforts in their Know Before You Go newsletter for events. Travel data collected by the team shows that 39% of fans utilize alternative transportation (lightrail, bus, walk/bike) and 50% of fans carpool. The team also tracks all Scope 1 and 2 emissions related to building operations. The team sets ambitious SMART emission reduction goals. For example, the team has a goal of 50% reduction in total Scope 1 & 2 Greenhouse Gas Emissions, campus wide, from their 2018/19 baseline by 2030. Since 2020, the Trailblazers have completed over 42 energy-related projects with Energy Trust of Oregon's Strategic Energy Management Program.



The World Surf League

When the ocean is the arena, sustainability takes on a different kind of urgency. Since 2016, the WSL has remained steadfast in its focus on protecting the global ocean and driving impact through a series of sustainability commitments that have set the standard for global professional sports. Working side-by-side with grassroots organizations worldwide, the WSL has inspired fans to take action to protect and conserve oceanic resources. The past two years have contributed to a number of significant achievements.

For example, WSL has worked to:

- Reduce emissions by 49% from the 2018 baseline year
- Reduce waste by 70% from the 2018 baseline year
- Educate over 35,000 youth around the world on cultural and environmental stewardship
- Collect more than 100 tons of plastic from Indonesia's rivers
- Conserve 347,291 hectares of land, including long term protection for iconic waves and surf ecosystems at Playa Hermosa, Costa Rica and Grajagan Bay, Java, Indonesia
- Fund 16 critical local impact projects
- Lead efforts to plant 100,000 corals
- Plant 363,821 trees

For events, when possible, the WSL utilizes renewable energy sources, offers shuttle services for fans, promotes environmentally responsible travel leading up to the event windows, and implements green office solutions such as limited use, energy efficiency, and composting.

Efficient Venues

Most venues now can host a basketball game, a hockey game, and a concert in the same week. That incredible feat has somehow become almost commonplace in the entertainment industry. But how a venue morphs from one format to another is the detail that makes all the difference to fans and sponsors. How a venue leverages mobile technology in creative ways can make all the difference. The most efficient venues:

Focus on Safety

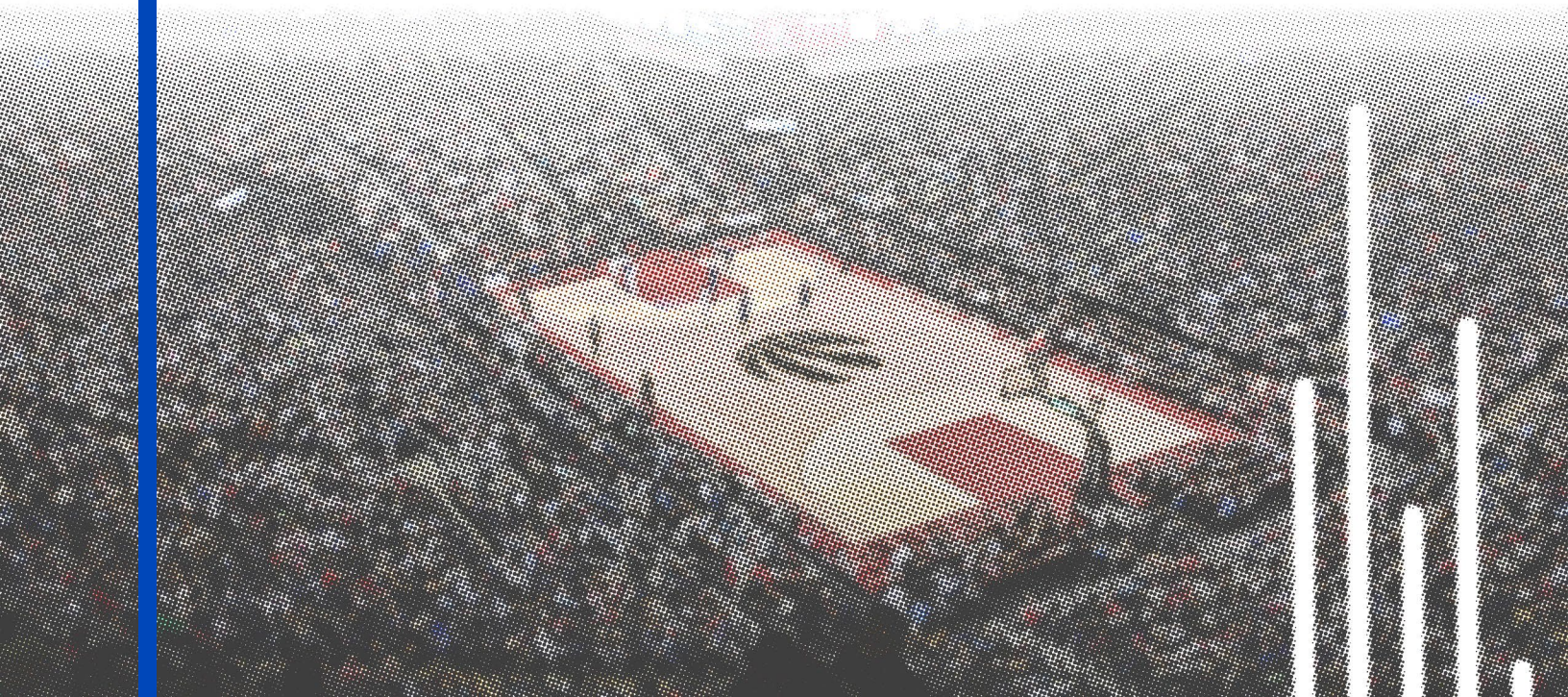
Pre-registration systems and facial recognition
Incident response lighting and protocols
Command and control centers
Safety Act Certification
Canine and explosive detection
Physical barriers
Wayfinding
Spatial Intelligence: AKA Crowd-flow and Line Queuing monitoring

Digital and Mobile

Virtual games and contesting
Mobile loyalty and engagement
Content syndication
Suite screen personalization
Cashless payments
WiFi
Autonomous Retail (companies like AiFi)

Venue Design

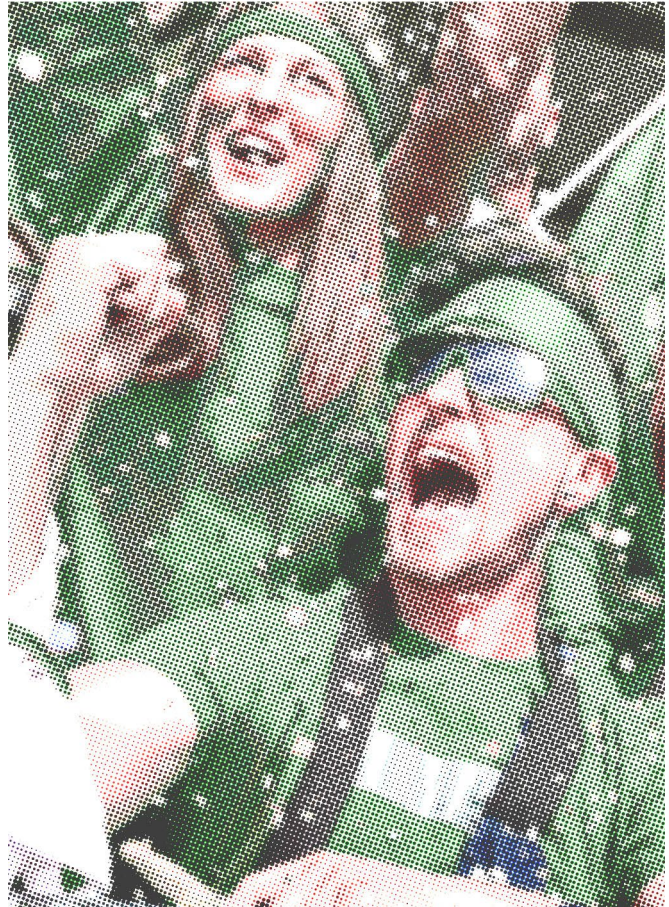
Designated tailgating areas
Mobile ordering - Grab and Go Options
Sportsbook
Kids section, Social spaces
Accessibility features (hearing loops, closed captioning options)



The most efficient venues aren't just those venues that have invested in new digital technologies. While these innovations help delight fans, they can sometimes go too far in distracting the fans from what venue operators want the fan journey to be. There's an art and science behind efficient planning and execution.

Organizations that have prioritized efficiency tend to:

- 1. Hone fan journey design by using advanced analytics.** Analytics departments study fan segments using mobile, location, and purchasing data to truly understand who is in their building at any given time.
- 2. Develop strong content production and distribution centers of excellence.** The content fans see on screens or the notifications fans get before, during, and after an event have to be thoughtfully created to have fans opt-in to future communications.
- 3. Reward fans for their participation.** Loyalty programs are at the heart of every venue's fan engagement strategy. Fans who level up or gain access and discounts tend to stay engaged with properties long after an event has ended. These programs serve to optimize revenue and develop more consistent upsell opportunities for future entertainment options.
- 4. Seamlessly align with event staff operations.** New technologies can often create new problems for a live event team if they haven't been properly socialized and implemented on the ground. The best venue operators stage the introduction of new technologies so fans and event staff have time to adjust to new practices and procedures.



In today's world, creating a memorable venue experience requires more than cutting-edge technology—it demands intentionality. An exceptional venue isn't just built; it's crafted to engage fans in every moment, from the second they arrive to long after they've left. True innovation lives in the details, weaving together seamless, adaptive interactions that connect people, spark emotion, and make every second feel as dynamic as the action itself. By designing with purpose, we create spaces that do more than entertain—they resonate, inspire, and keep fans coming back for more.



Josh Barney
CEO of SEAT and Founder of
The Joshua Tree Project

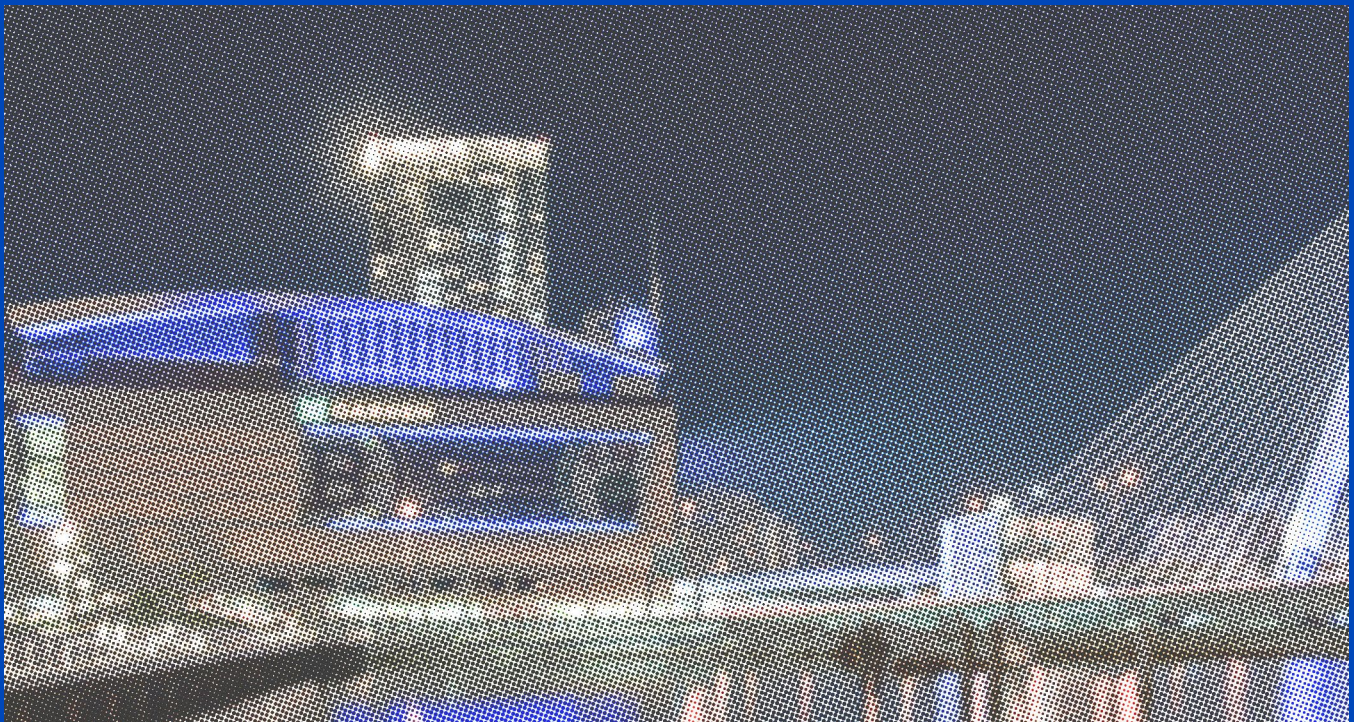
EFFICIENT VENUE SHOWCASE:

TD GARDEN

TD Garden is a world-renowned sports and concert venue and home to two of Boston's winningest professional teams: the Bruins (NHL) and the Celtics (NBA). The rafters of TD Garden hold more championship banners than any other professional sports arena in the United States. In 2023, TD Garden was named the sixth highest-grossing concert venue in the world by Billboard & Pollstar. That same year, the venue hosted more than 200 events, more than 50 concerts, and 80 home games for the Bruins and the Celtics – in total, TD Garden welcomed more than 3.5 million guests in 2023.

Long-awaited upgrade: In 2020, Delaware North CEO Charlie Jacobs invested more than \$100 million into TD Garden as part of a project called the "Legendary Transformation." In addition to adding 50,000 square feet to the venue, the renovation transformed both guest-facing and team-facing spaces – and established TD Garden as an industry leader for a number of its new technology deployments.

Each year since, Delaware North has invested new capital into the guest experience. For instance, in 2021, TD Garden unveiled a scoreboard called Hub Vision. Powered by Daktronics, the high-tech scoreboard provides 4K+ in-game experience for fans to enjoy. To extend the fan experience beyond TD Garden and make the West End neighborhood a tourist attraction, mixed-use retail and entertainment was added to form a district called The Hub on Causeway. The Hub includes a 1.5-million-square-foot district of retail, residential, commercial, and entertainment space. The Hub contributes significantly to the vitality and economic strength of the community and serves as a connection between the North End and the West End neighborhoods.



EFFICIENT VENUE SHOWCASE:

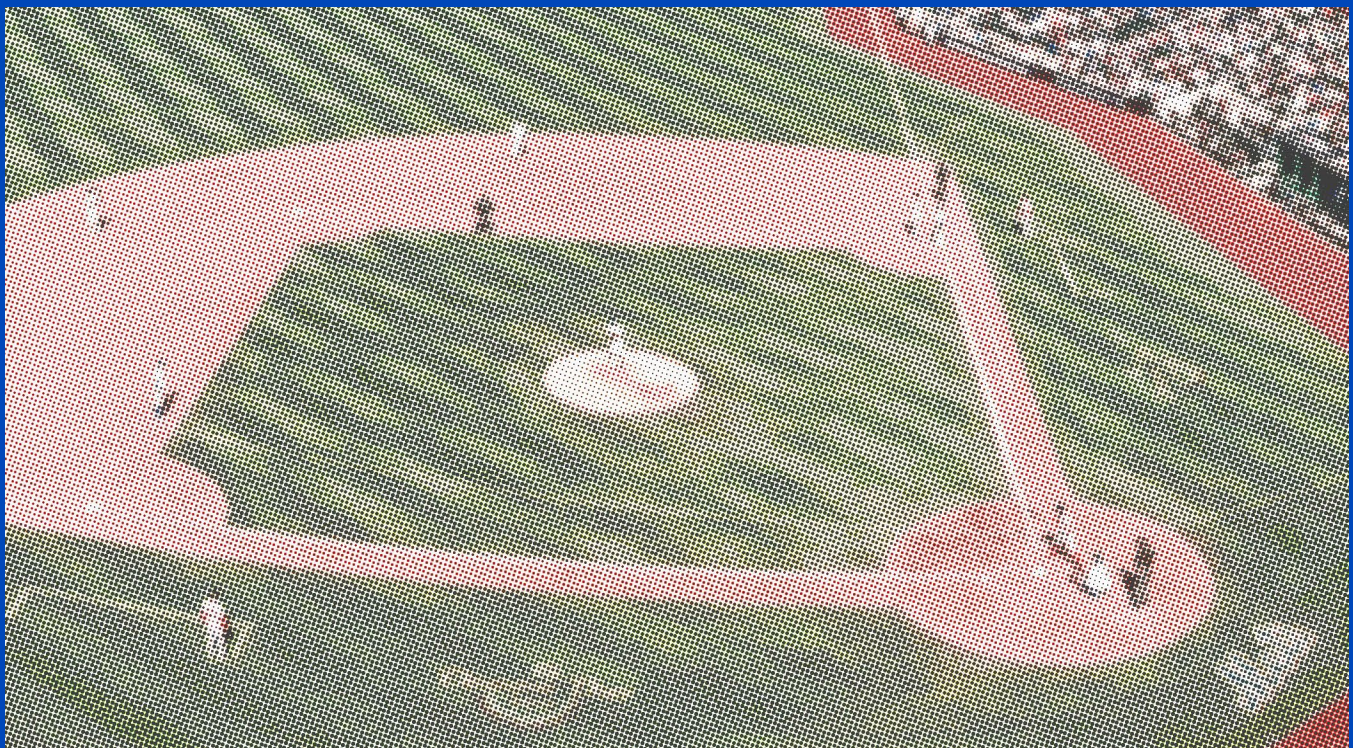
CITI FIELD

The New York Mets' recent launch of **Mets Connect** loyalty/wallet demonstrates how mobile platforms can be used to extend touchpoints with fans both in and outside of the venue. The deployment requires a complex integrated technology solution, leveraging mobile applications that only allow fans to earn loyalty benefits, as well as pay and redeem in the venue. The data collected from these purchases make The Mets smarter about who their fans are and give them a better understanding of what they care about.

Most importantly, The Mets, like many organizations across sports, now see mobile technology as extending to personalization efforts outside of the venue and fans that may not ever attend a home game. "...Mets Connect provides a unique opportunity to engage with our fans, both in ballpark and at home, in a more personalized manner than we have in the past. We wanted to create something that was easily accessible to our fan base across the country and not only those that join us at the ballpark" -- Andy Goldberg, Chief Marketing Officer of the New York Mets*.

Reaching fans outside of the park is the ultimate goal, but early rewards focused on things related to Citi Field. For example, Mets fans could earn points through ticket purchases, scanning tickets for entry to games, concession purchases. Future success will be measured by how many fans choose to play interactive games on the Ballpark app. This gamification should drive fans to play more to earn and redeem points for **VIP ballpark experiences**.

* Source: <https://www.mlb.com/press-release/release-new-york-mets-introduce-mets-connect-8-12-24#:~:text=FLUSHING%2C%20N.Y.%2C%20August%2012%2C,the%20team%20that%20they%20love>



Agile Venues

Agility in venue design aims to do the impossible: anticipate future requirements. Few venue architects and designers have the luxury of starting from scratch. Tremendous thought must be applied to anticipate how a twenty year-old building stays relevant and current as fan requirements shift with modern technology enhancements. The most agile venues:

Focus on Design Flexibility
Turf, flooring, and lighting configurations
Concession and food options
Merchandise and retail capabilities
Alternative entertainment (movie, bowling, etc.)
Support for novelty events (cricket, rugby, etc.)
Fan Feedback Mechanisms: surveys and analytics to drive continuous improvement

Scalability
Standing room only
Adaptive seating
Viewing areas
Outdoor viewing spaces
Transportation
WiFi and Network throttling

Immersive Media
Screening
Mobile app partnerships
AR/VR fan facing technology
AR/VR training software to keep staff abreast of new crowd services

A frequently used buzzword in the venue operations space is “future proof”. It’s well understood that this goal means making any new facility construction or upgrades lead to amenities and services that can continue to evolve as fan behavior changes over time. Organizations that have prioritized agility recognize that fan behavior is fluid. The venue must be prepared to evolve and accommodate future requirements without costly renovations. The most agile venues:

- 1. Anticipate that entertainment options will change.** Concerts, esports, international competitions, and format changes to traditional sporting events require the venue’s ability to reconfigure seating, media displays, signage, and camera positions.
- 2. Serve the latest production requirements.** Drones, aerial cameras, 360 and immersive camera arrays, and other production services provide venue operators with the opportunity to bid for new events that seek transformative fan experiences.
- 3. Enable flexible retail spaces.** This focus allows for multi-use fan experiences that can extend the game-time window. Event operators can bring in their own retail experiences, culinary options, and participatory games. Festivals that span multiple days make it easy to have fans leave and re-enter the venue with secure access control and digital credentials.
- 4. Make it easy for lighting, networking, and sound systems to adjust for immersive fan experiences.** This may require multiple competitions to occur simultaneously, bringing fans into the action with world-class networking and mobile solutions.



AGILE VENUE SHOWCASE:

ORACLE PARK

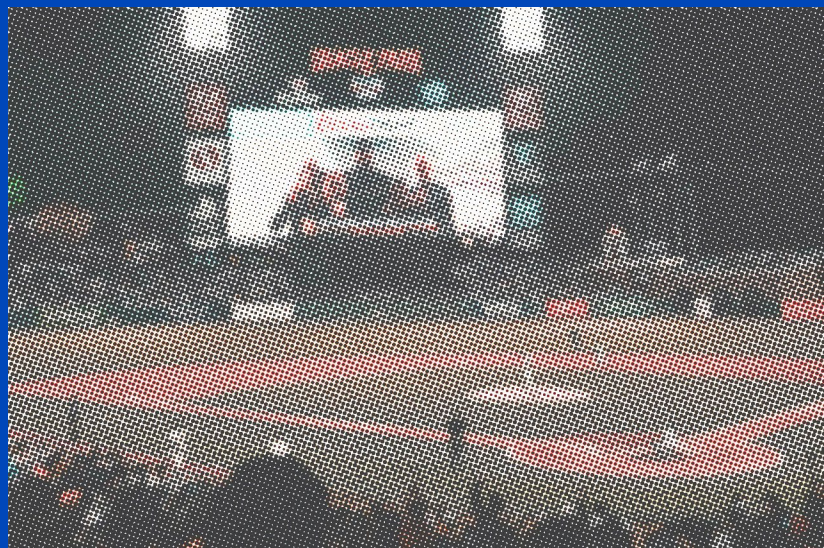
Oracle Park, home of the San Francisco Giants, recently completed a major network upgrade—a fully Wi-Fi 6E-ready network—to enhance the fan experience and optimize operational efficiencies for the club. Oracle Park was one of the first MLB parks to install Wi-Fi for fans. Today, it's extended its network by deploying a Wi-Fi 6E-ready network. It's the first MLB park to do so.

The decision to upgrade to Wi-Fi 6E was an easy one for Giants CIO Bill Schlough. "It's always been about providing a fully connected experience when fans are here, so they do not need to worry about the ability to stay connected. You have to think about from the moment a fan starts thinking about coming to a game to when they get in their car or transit, to when they get here, to when they get home. All of that is going to be part of their memory of the experience."

Oracle Park can now deliver faster, more reliable connections for devices throughout the ballpark. Though 6GHz is not yet approved for outdoor use, the new network is fully 6E-ready and is future-proofed, so the Giants can turn on the new generation of Wi-Fi with the flip of a switch once FCC approval is granted. With its upgraded network, the Giants can improve the fan experience inside the park to include benefits such as mobile ticket entry and mobile concessions, while considering future innovations like AR/VR experiences and biometrics-based park entry. Connectivity is critical to future proof the venue. Fans can stay connected by streaming videos and [in the future] gambling, which requires low latency.

The new network installation includes approximately 900 of Extreme's cloud-managed Wi-Fi 6E access points throughout the venue. With ubiquitous Wi-Fi coverage, security cameras, digital signage, lights, and the updated Giants app are all connected to the new network. Fans can see, hear, and experience the new network through any of the 11 new video boards recently added, the new sound system, and new lights—all operating on the network. There is even a network-connected video board on the outside of the ballpark to engage fans who aren't in the stadium.

The new network gives the Giants the agility to transition to autonomous concessions, including self-checkout at the new Diamond 58 concessions. The Giants will also be able to provide facial recognition for access into the ballpark. Soon, at Oracle Park, the days of keeping track of a ticket or having to pull out a smartphone to get into the game will be gone.



COSM Brings Shared Reality To Life

As the entire industry contemplates what to do with existing large-scale sports venues, a new kid on the block is taking planetarium technology onto the field. COSM first struck Sports Innovation Lab as a way to build amazing stadium-like experiences with immersive large screens in areas of the country that were stadium-starved. What's emerged from COSM is entirely different and worth paying attention to.

COSM's first shared reality venues cater to a stadium adjacent and metro entertainment audience. CEO Jeb Terry calls the viewing experience "complementary to the stadium experience." The venue is designed to be exactly that. The large LED screens mirror courtside or field-level views. Roughly 300-400 seats of the venue's 1,500-person capacity are reserved for that premium experience.

While COSM has lots of different programming and content, live sports have become the anchor for driving fans into the venues. A full day of programming is split into four parts – during the same day, the Premier League, NCAA football, and a feature film could be playing. This makes for really interesting test-and-learn opportunities for scripted and unscripted sports content. Imagine an episode of Quarterbacks playing before a Chiefs game, followed by a large Texas high school football rivalry.

COSM's innovative design allows for new approaches to fan engagement. Because "signage" is digital, the COSM venues offer full takeovers. The company has stunning examples of Man United or Arsenal themed events down to the food and beverage options. Perhaps what's most exciting about this concept of shared reality is that the fans in the COSM behave like they're in the venue. They wave towels, they hush during the US Open serve, and they'll sing the USC fight song.

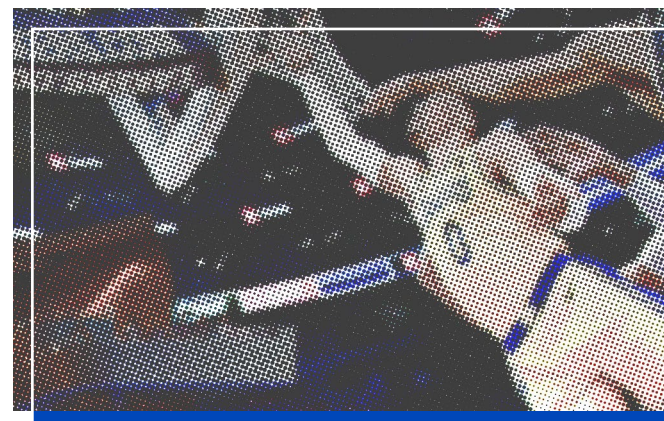
The next COSM continues on the stadium-adjacent theme, opening in Atlanta in the entertainment district adjacent to State Farm Arena and Mercedes-Benz Stadium.



I think what you're seeing now is a much broader diversity in amenities and what I'll call "properties" within a venue. Take seating types. In the good old days 20 years ago, you would have a lower bowl, you would have clubs, you would have suites and then you'd have upper seating in the nosebleed sections. I think there's going to be a trend. What you're going to see is a reduction in seat quantity in order to provide different types of seating. So owners will voluntarily reduce the number of seats that their facility can hold in order to increase the revenue stream by offering more amenities and a broader diversity of experiences.



Michael Hessert
Senior Principal
PBK*



* <https://www.constructiondive.com/news/stadium-construction-evolution-design-college/718923/>

INTUIT DOME

Raises The Bar

Plenty of digital ink has been spilled profiling the \$2B construction of The Clipper's home court: The Intuit Dome. Clippers' owner Steve Ballmer brought his passion for the fan experience and his deep understanding of technology to the forefront. His design emphasizes home team fandom with special seating sections and the newly-designed concept of "The Wall" – aptly named due to the steep angle of the seats, filled only by Clippers fans, that create a home-team advantage unlike any other. His digital signage brings NFL-size pixels and novel t-shirt cannons to the NBA.

But as the first stadium to use checkout-free technology for basically every concession stand in the building, Intuit Dome is a new operating model experiment that takes

autonomous check out to the next level. Sportico and technology provider AiFi projected that there would be "40+" autonomous concession stands, "4+" merchandise stores, and "1 VIP space" using AiFi technology, which would include "4,000+ cameras."

Venues have been moving in this direction for years. Cashless payments, mobile checkout, biometric age verification for beer sales, and grab-and-go concession stands laid the groundwork for Intuit Dome's aggressive strategy to go "checkout-free". If this experiment works, it will let innovation ownership groups repurpose event staff for other fan services and potentially change the fan experience significantly.



INTUIT DOME

Raises the Wall



Picture source: Front Office Sports

European Football and even American Soccer stadiums are known for their supporter sections. They are the areas where fans, dressed in the team colors, bang on drums, sing songs, and set the energy for the entire venue. Picture the student section in a college sports event. These areas are certainly not seating areas welcoming for a fan from the opposing team. That dedicated supporter section doesn't really exist at indoor professional sports arenas in the U.S., until now.

The NBA Clippers owner Steve Ballmer is fanatical about his team and wanted to make sure his new Intuit Dome reflected his our-house concept. He designed The Wall for his most loyal fans. It's a standing-room only section

that Ballmer makes sure to amp up at the beginning of every home game as he screams: "Welcome home, Clippers Nation" in the booming sound system.

The Intuit Dome is unique in that the physical design of this dedicated fan section is optimized for a frenzied experience. It's located right near the visiting team's bench and stretches a full 144 stairs - from the floor of the court up to the top level of the arena. There are rules. No opposing team jerseys are to be worn. There are perks too. Ultimate Wall Passes can be purchased by fans who know this is the live experience they want, and they qualify for all kinds of perks to reward them for going nuts.

Conclusion:

What to expect in 2025

1. Big projects in the works.

Private-equity firms have poured \$54.6 billion into sports since 2019, according to PitchBook data, and PitchBook's data shows more than two-thirds of the MLB and NBA teams now have private-equity backing. To boost valuations, expect a majority of this capital to be used to enhance real estate and stadium assets. As New York Islanders owner Jon Ledecky told CNBC, live sports are "competing against the 80-inch television in your living room." Estimates are that more than \$10 billion will be applied to new and upgraded stadium experiences between now and 2030.* Normally, these upgrades require protracted negotiations with taxpayers. The presence of institutional investors may accelerate the timeline of stadium construction and renovations.

2. New technologies impacting fan experience.

The role of mobile will shift over the next few years, but certainly we will see signs of this in 2025 as mobile entry, autonomous checkout, and more age-verifying biometrics take hold to support new venue services. For example, expedited entry with MLB's Go Ahead



There have never been more ways for fans to watch their favorite players, teams, or events out-of-venue: from variety of devices, quality of picture, or size of the screen. Today's venues are often competing against this reality, and it emphasizes the importance of providing fans with an exceptional and differentiated experience in-person. Innovation at the venue comes in many forms, with new technology often being a primary driver, but it requires intricate coordination and integration to ensure all parts of a fan's "journey" remain seamless before, during, and after attending an event.



Sam Yarin
VP Product & Sales Strategy,
Sports and Entertainment
Everi/Venuetize

Entry Program and the Cleveland Browns Express Access will put phones in the hands of customers for new use cases and prompt more direct messaging and personalization opportunities.

3. Novel approaches to venue design.

Venues are increasingly pursuing fewer general seating options in exchange for more personalized, higher price Premium seating options. Teams must continue to provide an elevated experience worthy of a premium price tag. Currently, across all Tier 1 Domestic Stadiums (NFL, NHL, NBA, MLB), there is average of eighty suites per venue. Yet, new projects such as SoFi Stadium are designed to accommodate 250-275 luxury suites. We expect this trend to continue in larger stadiums and even as owners experiment with smaller footprints. For example, the new Tennessee Titans Stadium will have the smallest General Admission seating capacity of all NFL Stadiums. Instead they emphasized a higher number of more expensive premium seating options.

* <https://www.xp.land/latest/the-best-new-experiential-stadiums-in-the-world/>



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