



FEATURE

# Redesigning stadiums for a better fan experience

Putting sports fans at the center of smart stadium transformation

Chris Arkenberg, Pete Giorgio, and Chad Deweese

In the competition for sports fans' business, stadiums face tough opponents, from parking hassles to high-definition TVs. How can teams and owners compete? With a digital transformation that offers fans a holistic experience.

## Introduction: Game day

The rumble and roar of 80,000 fans cheering on the edge of their seat as burly champions vie for victory. Team colors waving from the stands beneath floodlights hung like stars. An impossibly large ring of video screens faceted with zoomed-in views and gameplay stats broadcast out to millions more. The in-stadium fan experience is unlike any other. Done well, these smart stadiums can become the heart of a city—crucibles of identity and community.<sup>1</sup>

And yet stadium attendance has stagnated.<sup>2</sup> Ticket prices are too high for many sports fans who have built comfortable “digital nests”

at home with enormous TV screens, surround sound, and access to 24/7 games and commentary.<sup>3</sup> Many also watch on the go, getting updates from social media and livestreaming apps rather than committing three hours to watch a game in real time.<sup>4</sup> As Deloitte's 2019

*Digital media trends survey* highlights, people now have an abundance of entertainment literally at their fingertips, vying for their time and attention.<sup>5</sup>

These technological and social changes have unsettled the role of the stadium in many American lives—and are pressuring those who build and manage stadiums to further differentiate and deliver better fan experiences. As more of these experiences require digital transformation, the costs can rise and generating returns can become more challenging.

With enormous scale and reach, National Football League (NFL) stadiums can be a proving ground for fan experiences that can be applied to all large entertainment venues. Among sports in North America, the NFL is the largest in terms of visitors, revenues, and viewership.<sup>6</sup> In one year, a typical stadium will fill more than 500,000 seats just for NFL home games.<sup>7</sup> And although stadium attendance has been cooling, viewership—and revenues from broadcasting live football games—are higher than ever.<sup>8</sup> In 2018, NFL broadcast games were 46 of the top 50 most-watched American TV programs.<sup>9</sup> Indeed, TV rights generate a significant portion of NFL revenues.<sup>10</sup>

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NFL teams and stadium owners—groups that sometimes overlap—find themselves in a paradox: They need to focus on high-quality broadcast experiences while also trying to get people to the games. This begs the question: For fans at home, is seeing a raucous, packed stadium, with thousands of spectators surrounding the field, a necessary part of watching the game on TV? Arguably, it is, with the scale and physicality of the social spectacle conveying the impact of live competitive sports. As an integral component of engagement, investing in stadiums may be critical to the future of sports.

Now, many stadium CIOs and CMOs, responsible for expanding attendance and growing revenues, are moving to the center of generating fan engagement. By digitizing the customer journey from ticketing to postgame and beyond, they are getting closer to the fans and working to deliver more personalized experiences. With a better understanding of the customer, stadium CMOs and CIOs are employing next-generation marketing technologies that treat each fan individually and determine the optimal ways to engage, while gaining a greater ability to model, predict, and support their behaviors.<sup>11</sup> This is where the CIO and CMO can collaborate to sell more tickets, drive more concessions, and deliver more personalized experiences that deepen fans' relationships with their teams.

“This is really about supporting the passion that fans have for the sport and for their teams,” says Pete Giorgio, Deloitte’s US Sports leader. “Bringing a holistic approach to delivering a great stadium experience can bring teams and fans closer together, at home, on the go, and throughout the year.”

There are obvious costs to this, from hardware upgrades to integrating the many disparate data silos that sports organizations have. But by doing so, teams can develop a more detailed view of their fans that can be used to better understand and meet their needs, while laying the foundation for next-generation fan experiences.<sup>12</sup> How stadium owners minimize barriers, engage audiences, and delight fans may be critical to their venues' future.

## Upgrading to a better fan experience

Getting fans into the stands can require many steps that can introduce friction and tarnish the stadium

experience. Deloitte’s 2018 [Fan Engagement survey](#) shows that a good fan experience for most people starts with four core factors.<sup>13</sup> The stadium must be safe, comfortable, and clean. The view from the seats should meet expectations. People want to see high-quality games. And they expect an exciting atmosphere within the stadium. On average, survey respondents weighted these four qualities 50 percent higher than the next closest factors.

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However, the survey also shows that the basics, such as cost and quality of concessions or navigation in the stadium, typically score low in satisfaction. Meeting the basics is necessary but hardly guarantees an experience so positive that fans won't opt to watch the game elsewhere. Increasingly, fans require better reasons to leave the comfort and convenience of their homes, and teams are looking for more sophisticated ways to encourage them to do so.

It can start by putting the fan at the center. Stadiums are mapping the customer journey as a holistic system across many touch points. In doing so, they are starting to upgrade those touch points to be more intelligent, while partnering with service providers to develop the data layer that can tie it all together.<sup>14</sup>

Let's follow the fan journey and consider how technology upgrades are helping modernize the stadium to make it easier, more exciting, and more intelligent.

## BUYING TICKETS AS THE ON-RAMP TO DATA-DRIVEN FAN ENGAGEMENT

The fan's journey begins with ticketing, where teams can onboard them to stadium services. Stadiums, like music venues and movie theaters, are increasingly requiring fans to download tickets to their smartphones' mobile wallets, then use their phones to badge through the turnstiles.<sup>15</sup> This is an opportunity to encourage fans to install the team's

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mobile app and walk them through its functionality. The app for the United Kingdom's new Tottenham Hotspur soccer stadium includes features to help fans plan their day around a visit to the stadium complex, taking advantage of dining, retail, and other entertainment.<sup>16</sup> As we will see, the mobile touch point can deliver incentives tailored to fans' individual interests and histories.

Stadiums might consider the practice of some theme parks and cruise ships of providing guests with connected bracelets that manage hotel access, park admissions, purchases, and other digital touch points without requiring guests to access their smartphones, much less their actual wallets.<sup>17</sup> Such wearables can reduce the friction for access and make it easy for guests to make purchases, earn rewards, and unlock tiered VIP experiences, while capturing customer data that can be used to better anticipate and incentivize their behaviors. Sports ticket holders might even wish to show off their status with a team-branded band they could wear year-round.

## GETTING THERE: STADIUMS SHOULD PLAY A ROLE IN TRANSIT

Getting to the stadium is perhaps the largest challenge. Car ownership and use have been dynamic

in the last decade, showing both gains and declines.<sup>18</sup> The rise of on-demand transportation services is affecting how venues optimize for mobility, especially since many stadiums are located outside of city cores. With some venues, fans can now arrange transit and parking beforehand through logistics partners.<sup>19</sup> Ticketing packages could bundle transportation through on-demand services, public transit systems, and companies

developing autonomous buses, all through the stadium app. More ambitious new developments should align real estate with rail hubs, but the takeaway is that stadiums can't assume that fans will happily battle traffic to make it to the stadium. Venues should work

to make the process less onerous.

## BEYOND TAILGATING

Increasingly, there are more pregame options than a beer in the parking lot before the game. The newest stadium developments are mixed-use destinations. The Los Angeles Stadium and Entertainment District, often referred to as Hollywood Park for the Inglewood race track that previously occupied the land, will deliver a 70,000-seat stadium for the Rams and Chargers NFL teams.<sup>20</sup> The privately funded 298-acre development is planned to include 2,500 units of housing and 620,000 square feet of retail space, along with a 300-room luxury hotel and casino.<sup>21</sup> Notably, it will also be home to the league's NFL Network cable TV channel.<sup>22</sup>

Ticket holders can be offered discounts for a pregame lunch at one of the park's restaurants, and their purchases added to a rewards program. Caesars Entertainment was an early pioneer in data-driven rewards, building a strong analytics capacity for its Caesars Palace Las Vegas casino. Caesars closely tracks customer behavior and spending, enabling more personalized interactions while promoting spenders in its Total Rewards program.<sup>23</sup> Such programs could extend to the

entire stadium complex, offering a comprehensive view of fans' interaction with the team and a chance for them to upgrade to more exclusive VIP services. A public restaurant on the stadium grounds could offer return guests the chance to "level up" and earn tickets to the game.

"Rising ticket prices challenge the value of live events as well as fans' ability to attend," observes Zack Sugarman, senior vice president at Wasserman, a sports marketing and talent management company. "Our findings have shown us that price is a priority in getting fans to an event, but it is quickly forgotten upon attending." The value of the in-stadium experience is clear, but it gets muddled between high ticket prices and the ease of staying home. To better customize value for more fans, leading stadiums are evaluating the customer journey with a more granular, data-driven approach.

## Welcome to your personalized smart stadium experience

After lunch at the park, fans might use the tickets stored in their mobile wallets to pass through the turnstile into the stadium—a touch point initiating a broader response from the stadium's experience and marketing layers, such as a personal greeting and mobile push notification offering a deal on favorite concessions. While this is a simple example, its simplicity rests on considerable transformation.

Retail marketing technology focuses on generating demand by targeting customers based on their profiles. Success depends on the amount of customer data a business has collected and analyzed, typically requiring centralization and integration of many preexisting data silos. The business can then add customer data management platforms to

derive more accurate customer personas. These data-driven personas—for example, males age 18 to 24 who attend 35 percent of games and have bought merchandise representing a certain player—can be used to build incentives and rewards that convert them to sales. Machine learning can further subdivide these groups for greater personalization, and update personas based on conversions. Ultimately, the goal is to move from models of groups to those of individuals.

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Marketers sometimes refer to these services as offering a 360-degree view of the customer that can be leveraged with cognitive technologies and recommendation engines. For example, they can identify a persona willing to pay extra for a package that includes transport to and from the game, with in-stadium access to exclusive player content on the team's mobile app. They can further incentivize these personas with special merchandise and discounts, adding the purchases to their rewards program. The conversion rate—the likelihood that a fan will buy and attend based on the promotion—is optimized using data and predictive profiling. Personas can then be updated based on who acts on the promotion and who doesn't.

These capabilities also enable teams to improve their value proposition to sponsors, offering more granularity. For example, a fan persona could include a fondness for a certain concession. In our fan journey, badging through the turnstile might invoke a push notification for discounts sponsored by a brand. The ticket holder could purchase the concession through the team's mobile app and be notified when it's ready for pickup. The conversion could then grant the fan access to additional content on the app. This example underscores the



## THE DATA DEAL: TRADING PRIVACY FOR VALUE

Stadiums have historically gathered data to optimize entrance, flow, and concession lines. Security concerns have driven more data gathering to protect fans from threats;<sup>24</sup> some stadiums now use facial recognition technology to identify attendees and to understand their characteristics.<sup>25</sup> Most fans tacitly understand that they relinquish many privacy protections upon entering a stadium, where at any moment roving cameras might put their photo on a Jumbotron. But advances in data collection that shift the proposal from aggregate, nonpersonal information to very specific user data—from posting pictures of cheering crowds to monitoring individuals' movements and purchases—may invoke challenges to this new world of marketing technology.

Privacy is often a dialogue about the tradeoffs between security and value. Amid the current uproar over data privacy, it's worth remembering that many customers want the personalized experiences that data analytics enable, even at the cost of their anonymity. If stadiums and brands can deliver value quickly, fans may be more likely to share their personal information. Conversely, failures to secure this data from misuse, reselling, or overusing the data in ways that are perceived as intrusive can quickly escalate into the national dialogue. Teams should be thoughtful about delivering clear value to fans while protecting their personal information.

capabilities and revenue growth opportunities that emerge from a holistic view of the fan experience that is coupled with a strong data strategy.<sup>26</sup>

## In the seats: Keeping fans happy and engaged

The rumble and roar grow louder as the ball is snapped and thrown. The team bracelet on your wrist pulses faster, in sync with the heartbeat of the running back dashing to the end zone. Your glasses render numbers hovering over the player showing his speed and distance covered as he scores for the home team, while chats from stadium friends scroll down the side of your view. You stomp your feet in rhythm with 80,000 fans, inflating a giant balloon on the Jumbotron until it finally bursts. From the end zone, the running back opens a camera stream that broadcasts a personal message out to VIP ticket holders. Your smartphone lights up: The bet you placed on the play earns a free sponsored concession. Across the stadium, fan jerseys glow with LEDs blazing the teams' colors as machine algorithms review the play and stitch together a highlight reel for distribution to networks, social

media, virtual reality (VR), and augmented reality (AR).

This future vignette is mostly powered by technology that's available today, but it relies on a more integrated and strategic approach to sensing, data analytics, and networks that sees the stadium as a platform for integrating value.<sup>27</sup> In this scenario, IT strategy is not a tertiary role. It is central to the future of stadium entertainment.

Fans spend the bulk of time in their seats. To get them closer to the game, many stadiums are suspending gigantic display boards above the field, amplifying the spectacle. The stadium at Hollywood Park will feature a 70,000-square-foot double-sided ring display ensuring views of the field from every seat—and opening more programming opportunities.<sup>28</sup> The boards can help fans feel more connected to the larger-than-life champions on the field than they might watching games at home. When game play is slow, the stadium can still capture fans' attention by engaging and gamifying them. Increasingly, stadiums are leveraging smartphones to vie for the fans' attention. Deloitte's Pete Giorgio notes that "teams shouldn't

worry about fans looking at their phones as long as they're still engaging with the team.”

Successful in-stadium mobile apps require reliable connectivity, but 80,000 people in one place—most of them actively online—can quickly overload networks and degrade service. This is a growing pain point for both fans and service providers. The Atlanta Braves worked with Cisco to deliver comprehensive Wi-Fi coverage for fans at SunTrust Park, cohering a bevy of third-party vendor networks into one integrated network.<sup>29</sup> The system also supports the ad network the team runs across 1,350 screens throughout the stadium.<sup>30</sup> In the United Kingdom, the new Tottenham Hotspur soccer stadium worked with Hewlett Packard Enterprise to develop a network that supports both fans and stadium operations. The network has

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been designed with Wi-Fi and beacon technology that can deliver real-time push notifications to direct fans to specific food and beverage outlets and restroom facilities.<sup>31</sup> It also helps stadium operators redeploy staffing to support areas of congestion while predicting future demand.

In-stadium mobile apps should also quickly prove their value to users. To date, few teams have effectively delivered this value. All of them should consider upgrades that are attentive to ease of use, with utilities such as wayfinding and concession that encourage fans to launch—and keep using—the stadium app instead of their established favorites. Once the app is active, additional

features can reinforce engagement. In a sense, modern stadiums are media houses that can deploy content delivery networks (CDNs), offering specialized programming unavailable outside the venue. With a strong stadium CDN and dynamic mobile apps, fans can have more personalized content delivered to their devices, based on their data profiles. For instance, at halftime, the app could automatically send a sponsored player interview to fans who took advantage of a brand promotion.

With regulatory changes in betting, stadium apps could include support for wagering. Deloitte's [2018 survey](#) of TV sports audiences found that more than half of US respondents are much more likely to watch a game on which they have placed a bet.<sup>32</sup> This same correlation can draw fans to stadiums while encouraging them to stay focused on

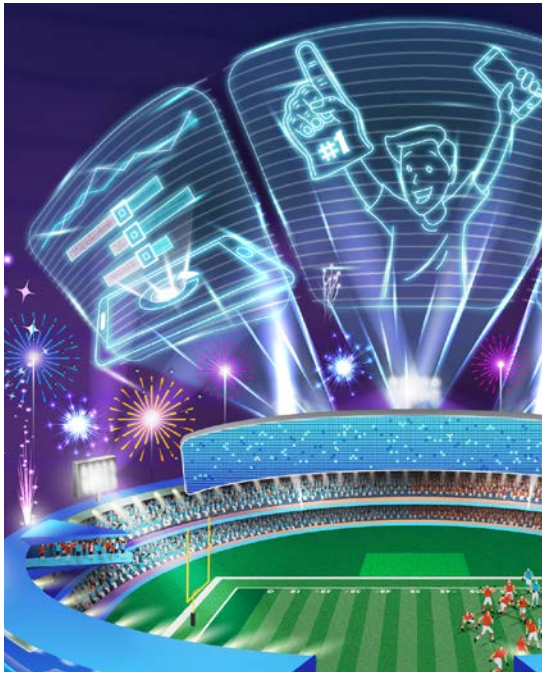
game play. Savvy team apps could integrate these features, possibly tying them into fantasy football leagues and highlighting stats of a fan's fantasy players.

Done well, a mobile app can enable a team to develop a social network, channels for social streaming from athletes, a way to deliver special views and stats of the game play, direct purchasing and ordering, and a platform to stay

engaged with fans throughout the year. Just as the stadium should be a compelling physical destination, many teams are working to make their apps a regular destination as well. By developing a strong technology layer, stadiums can support mobile engagement while laying the foundation for compelling next-generation experiences.<sup>33</sup>

### DELIGHTING THE FANS WITH MIXED REALITY

There is growing interest in the role that AR and VR might play in the fan experience. Adoption of each depends on advances in hardware capabilities, cost, and ergonomics that are yet to be fully



realized. However, both are near enough to practical usability that the future of media and entertainment should consider their implications. AR can offer wayfinding and identification of other fans, like your friends in the seats across the field, and enable social sharing of fan-generated markups, such as graffitied cheers and taunts. New or distracted fans could use AR as an intelligent lens that displays information about what is happening on the field at any moment. With sensors working their way into uniforms, teams are getting more real-time data about their players. Acknowledging data sensitivities, some of this data could be offered to fans as special annotations rendered in

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AR. This is common in video games, and with the rise of esports, such interactions may inform more of the experience of live sports.

VR is now being used to offer preconstruction views of proposed stadiums.<sup>34</sup> This allows stakeholders to test for impact, flows, view occlusion, and other characteristics that can hinder a good fan experience. For fans, the National Basketball Association has developed a courtside view from a 360-degree camera that can be accessed through VR headsets.<sup>35</sup> This offers the immersion of the live event without being there physically, perhaps tugging at the paradox mentioned earlier of investing in stadiums while enabling fans to have better remote experiences. A VIP pass could reframe this in terms of exclusivity, offering a VR postgame locker-room experience or a 360-degree helmet cam. In the near term, stadiums can experiment with theme-park features that offer VR immersion on the bench or at the edge of the end zone.

#### STAYING CONNECTED WITH FANS AFTER THE GAME

When fans head for the nearest exit, engagement need not end. Mobile apps can deliver machine-generated highlights and stats, based on the fan's interests, and can offer sponsored incentives to visit stores, bars, and restaurants in the mixed-use complex. When done right, the mobile app can offer reasons for fans to continue using it even in the off-season—to stay engaged with the team and players, manage their fantasy leagues, engage with other sports and events sponsored by the team

brand, connect with fans, and to find rewards and incentives for year-round experiences at the stadium complex.

Interactions and conversions on each of these add more information to the fan profile that can then inform more personalized experiences and incentives. All can be ways to make the relationship more personal, deliver better experiences, and uncover ways to delight fans and make them feel special.



## The final quarter

Times of change require investments in the future. Stadiums are chasing fans amid a sea of cheaper entertainment alternatives and increasingly lavish home viewing environments. And yet the stadium experience remains exceptional for its scale, its grandeur, and the live community that fans can't find anywhere else. To successfully navigate the currents of change, teams and stadium owners should invest in a holistic approach to optimizing the stadium experience around the fans.

First, stadiums should upgrade their networks to guarantee fans the same service they're used to everywhere else. They can develop networks that deliver location awareness through beacon technologies—and content delivery systems that can be optimized for in-stadium programming to Jumbotrons, screens, and mobile devices.

Second, they should integrate all touch points on the customer journey by upgrading interfaces such as ticketing and point-of-sale to be digital and connected, and by developing a comprehensive data strategy that centralizes all the data from those touch points. Effectively integrating data from across the enterprise can be key to unlocking its potential. Once this customer data platform is developed, it can be further integrated with customer relationship management (CRM) and enterprise resource planning (ERP) systems.

Third, stadiums should unlock monetization opportunities from their customer data by developing rich personas and user profiles. With machine intelligence, these profiles can be automatically evaluated for incentives, churn, discounts, and

rewards. This level of fan intelligence can enable better delivery of customized and personalized content, while supporting incentive modeling that generates revenue and attendance. As with churn modeling in CRM, such systems can suggest which incentive packages are most likely to convert a specific fan or persona to a purchase.

Fourth, successful mobile applications may be critical to staying engaged with fans. Fans will likely

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expect immediate and enduring value to keep them on the team's platform instead of just opening their favorite social network. Value can be based on utilities, but it should also be delivered through discounts and rewards, as well as the opportunity for a regular fan to access a VIP experience that makes them feel special.

The fundamental challenge for teams lies in delivering truly exceptional stadium experiences that are beyond anything possible elsewhere. As stadiums become more computational, connected, sensing, and data-driven, our need to be entertained, to share, and to express ourselves will likely be met by novel technologies that surprise and fascinate. And yet the age-old excitement of physical competition continues to thrive and express itself in both old and new ways. With the help of sensing, data analytics, and next-generation digital experiences, sports teams have tremendous opportunities to support their fans' passion and loyalty.

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## About the authors

**Chris Arkenberg** | [carkenberg@deloitte.com](mailto:carkenberg@deloitte.com)

Chris Arkenberg is a research manager with Deloitte's Center for Technology, Media & Telecommunications. He has 20 years of experience focusing on how people and organizations interact with transformational technologies. Arkenberg is based in San Jose, California. Connect with him on LinkedIn at [www.linkedin.com/in/chrisarkenberg/](https://www.linkedin.com/in/chrisarkenberg/).

**Pete Giorgio** | [usoflhsi@deloitte.com](mailto:usoflhsi@deloitte.com)

Pete Giorgio is a principal with Deloitte Consulting LLP. He leads Deloitte's US Sports practice, serving multiple sports clients including the US Golf Association, NBA, US Tennis Association, and US Olympic Committee. Giorgio's main areas of focus are strategic growth, customer acquisition, digital transformation, innovation, organization transformation, new business operations and implementation, and cross-unit integration. He is based in Belmont, Massachusetts. Connect with him on Twitter @petegiorgio and on LinkedIn at [www.linkedin.com/in/petegiorgio/](https://www.linkedin.com/in/petegiorgio/).

**Chad Deweese** | [cdeweese@deloitte.com](mailto:cdeweese@deloitte.com)

Chad Deweese is a manager in Deloitte's US Sports practice. His primary focus is on helping teams, leagues, and associations develop sustainable growth strategies and build the capabilities needed to effectively execute ahead of disruption. Deweese is based in Atlanta. Connect with him on LinkedIn at [www.linkedin.com/in/chaddeweese/](https://www.linkedin.com/in/chaddeweese/).

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### Industry leadership

#### **Pete Giorgio**

US Sports leader | Deloitte Consulting LLP  
+1 617 437 3097 | [pgiorgio@deloitte.com](mailto:pgiorgio@deloitte.com)

Pete Giorgio is a principal with Deloitte Consulting LLP. He leads Deloitte's US Sports practice, serving multiple sports clients including the US Golf Association, NBA, US Tennis Association, and US Olympic Committee.

#### **Chad Deweese**

Consulting manager | Deloitte Consulting LLP  
[cdeweese@deloitte.com](mailto:cdeweese@deloitte.com)

Chad Deweese is a manager in Deloitte's US Sports practice.



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