

#### **Venues Bring People Together, Technology Makes It Easier**

If you're reading this report, you've felt it. You've walked through the gates of the cathedral. You've heard the crowd cheer and hold their breath in unison. You've seen the lights, the displays, and the raw power of the world-class athletes. With thousands of others, you've celebrated in one of the greatest live entertainment places — the sports venue.

But it is so much more than a place. I have seen fans of all creeds, nationalities, and persuasions celebrate together. I've seen parents become closer to their children, and know first-hand the impact athletes have in instilling hope and acting as role models for our societies. Quite literally, sport has the power to change the world; the venue is where we experience these moments, with thousands of our newest friends.

#### A New Challenge

However, many of these venues are increasingly empty and sport no longer holds as central a place in our lives. Cheaper and more convenient forms of entertainment are threatening our cathedrals. There is a real urgency to change how we operate live sporting events. We must all rise to the challenge of creating venues where people are willing to spend the time, money, and effort to experience the power of togetherness. Getting people to come frequently and enthusiastically gets harder every day, yet cracking this conundrum is key to the success of our industry.

#### **Designing for Ease**

We know we're entering a new age of sports where Fluid Fans™ are the path to growth. Venue operators need to approach fan engagement differently and start identifying what fan behaviors matter most to their businesses. We're not in an arms race to have the fastest Wi-Fi or the largest screens, we're in a battle with other forms of entertainment. If we make it easier for fans to enjoy live sports, we all win. There's nothing like being there.

Our Smart Venue Leadership Board is confronting this challenge directly. Over the last year, we've worked to expand the requirements for operating thriving sports venues. This report outlines some of this thought-leadership and our recommendations for how we move forward with clarity and confidence. Join us as we ensure the next generation of fans feel the power of community and live sports.



Anda Rujiero
CEO & Co-Founder
Sports Innovation Lab

# The Fluid Fan

# Is Here

#### Fluid Fans Force Venue Operators to Gather New Intelligence

Fluid Fans are the path to growth for the sports industry. They are more open to new experiences than traditional die-hard fans, and that means the sports industry must offer new ways to capture their attention and share of wallet.



Our industry has the opportunity to move beyond the identification of fans and towards a better understanding of their behavior when they feel part of a group. People are constantly moving in and out of different identities.

**Tinus Le Roux** 

Founder & CEO, Fancam

### What is a Fluid Fan?

In the new age of sport, gameday is no longer enough, and neither is engagement. The new fan is not the die-hard fan who will suffer through 4 hours of a match in a hard plastic seat. They want stories that motivate them to come to the venue. They want unique experiences that are worthy of telling others about.

The path to growth for the industry is called the Fluid Fan. Fluid Fans have more ways to spend their entertainment dollars than ever before.

## Fluid Fans are:

- Open to Change
  More willing than ever to change their minds
- Presented with more choices than ever before
- Constantly discovering new content to love

#### What is Fan Engagement?

In our report The Fluid Fan is Here, we challenged the sports industry to move beyond the poorly defined concept of "fan engagement." While everyone will tell you that "fan engagement" is important, few know exactly what it is, and fewer still can define it. It could be anything from watching sports on TV to clicking on Internet links. To adapt to the evolving demands of Fluid Fans, and to truly operate a Smart Venue, industry leaders must agree on what fan engagement means to their business.



We define "fan engagement" as: when a fan actively performs an intended behavior and moves with purpose among related activities.

To engage Fluid Fans, Smart Venue operators will need to identify what fan behaviors to optimize for and then align the partners and tech to deliver those experiences. That's smart operations. Venue operators who do this well are running a Smart Venue that has the agility to evolve with shifting Fluid Fan expectations.



Larger trends are changing the way we engage with our guests.

Digital and mobile have changed the expectations of our fans. We have to connect with them through the technology that they use every day.

Skarpi Hedinsson

CTO, LA Rams & SoFi Stadium

At the end of the day, engagement isn't measurable in a meaningful way. We just want to bring joy to our guests when they're in the venue. Our customer feedback informs our technology strategy.

**Christian Lau** 

CTO, LAFC & Banc of California Stadium

# Engaging Fluid Fans Means Having Technology That Empowers Multiple Behaviors

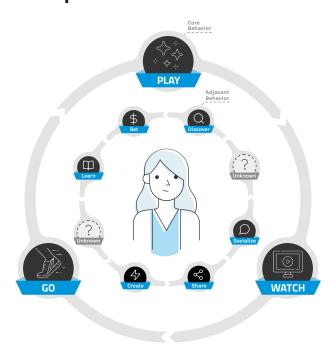


Fig. 1: We need to think of fan engagement in terms of behaviors. The three core sports industry behaviors are Go, Watch, and Play. Every business model is grounded in one of these three core behaviors. Gate revenues, merchandise, media rights, and sponsorship all depend on whether fans Go, Watch, and Play. But to grow and unlock new revenue opportunities, businesses need to understand other behaviors like "Bet," "Learn," "Create," "Share," and more.



#### Go to Play

Oct 2019: The Philadelphia Flyers and MVP Interactive created a Family Fun Zone. They also created a Gritty-inspired 'rage-room' where older fans can break things.



We are living in the experience generation. People go to live events to be a part of something larger than themselves and to help create an important part of their identity—their social currency. The more emotional the experience, the more likely it is to be shared. Content used to be about something you saw or heard, but now it is something you can touch. They're saying "I am what I watch, what I listen to, and what I support.

**Dan Griffis** 

President, Global Partnerships, OVG



hospitality.

Sports is just one of many live entertainment options. Fans now have more ways than ever to enjoy their free time.

#### We Asked the Experts

Last year, we assembled our invitation-only Smart Venue Leadership Board, a panel of executives from across the smart venue ecosystem. To produce this research, we conducted one-on-one interviews, and held group meetings with this Board to discuss the opportunities and challenges that face our industry.

Smart Venue Board Members come from the following organizations:

































#### **Fans Expect More**

Fans are no longer only local.

Global fan bases present an exciting opportunity to 'engage' fans in new ways. This means scaling merchandise and media rights in other markets and creating live experiences for out-of-market fans.

Venues host a wide variety of events.

Venues have always supported a range of events, but the variety of events and their technological specificity is increasing. Esports events, live broadcasts, and other events add new complexity for venues. The action is no longer just on gameday.

Multi-use venues with retail and entertainment increase needs and costs for security and 24-7, 365 operations.

#### There Are Other Entertainment Options

While going to a live event may offer a one-of-a-kind experience, it also takes a lot of effort. In parallel, the options for easily accessible digital entertainment are also increasing.

Netflix - 164.8 million hours watched/day (2019)<sup>2</sup>

Text messages - 23 billion sent/day3

WhatsApp - 65 million messages sent/day4

Instagram - 4.2 billion likes/day<sup>5</sup>

**TikTok** - 1.5 billion users, 29% active, average usage 52 minutes<sup>6</sup>

**YouTube** - 5 billion videos watched/day. 30 million visitors/day<sup>7</sup>

**Snapchat** - 3.5 billion snaps sent/day, 210 million active daily users<sup>8</sup>

#### Fans Enjoy Digital Togetherness

Fans can now get the feeling of togetherness (no matter how superficial) on social media, during watch parties of Netflix and Disney shows, and through social video games like NBA 2K, Fortnite, and Madden NFL. The industry fixated on ways to get fans off the couch. It is now also important to make it clear why physical togetherness is more powerful than the digital kind.

### What Our Leadership Board Said:



Accessing the event has all sorts of challenges from transportation, to rideshare and parking. Then there is the cost. Is the price of the event out of reach? Finally, this generation of fans wants to brag.

They want to put it on Instagram and say "I was there, I did that."

Jennifer Dorta-Duque

Global Director of Sales Consulting,
Oracle Food & Beverage

Outside the venue consumers are embracing technology. When you start bringing this same technology into the venue, it should improve the fan experience dramatically. For example, mobile transactions can cut down wait time and enable fans to order ahead. We're seeing all these improvements start to come together.

**Craig Duncan** 

CRO, Venuetize

We have such limited time for family and friends. Live events give you the rare opportunity to spend quality time with them, and yet still be engaged in something bigger. You're involved with other fans all around a live performance. It's a magical combination.

**Matt Rossetti** 

President, Rossetti

Fans don't want to come and encounter the status quo. At the same time, when it comes to technology, we have to dissect market trends to see if we should act now or wait because the consumer might not be ready.

**Kevin Pelegrin** 

VP of Data Science, Aramark



#### Leaders in the Industry Know What's Holding Fans Back

From our interviews, it's clear the industry is aware that fans have new entertainment options and demand more.

Leaders agreed. There are three parts of the fan's value equation:

- $(\rightarrow)$ 
  - Cost

Does the ticket cost too much?

**→** Convenience

How hard will it be for me to go?

Other Entertainment Options
Is there something else I'd rather be doing?



"Fluid" is also a great way to describe the engagement of corporate fans, those who attend sporting events primarily for business purposes and may or may not have any of the allegiances you would find in the traditional fan. Sports is not their only corporate hospitality option. We also have to understand these fans, and what motivates them, because they are a significant source of venue viability.

Mike Reed

VP of Olympics and Sports Solutions,
The DOW Chemical Company

Every rational fan is making a value judgment: is it worth the time, money, and inconvenience to go to the stadium? It's not an easy decision.

# The Universal Requirement:

# **Design for Ease**

If leaders can agree on where the fan experience is broken, what is holding us back? What needs to change so that we can make it easier for fans to enjoy their experience before, during, and after a live event?

The problem is we're throwing technology at fan engagement challenges. We believe there's a better way: design for behaviors. How? Align enabling technology products and services so you can respond to market shifts.

Smart Venue operators will use integrated technology to make it easy for the Fluid Fan to experience and relive the power of togetherness.



We have the privilege of being in the memory business where we can create a setting, and where we get to host our guests. They have the opportunity to take home a memory tonight that they may never forget. That's really the business that we are in.

Bobby Goldwater

President, The Goldwater Group

The live sporting event has different phases that matter to a fan. Before the event, they want to be excited and teased. They want their anticipation to rise as gameday approaches. During gameday, they don't want anything to stand between them and their enjoyment. And after the event, they want easy ways to relive the emotions of that special experience.

The sports industry can design for ease during these periods of time, and focus on the fan behaviors that matter most.

#### **Ease Before: Building Anticipation**

From easy ticket purchasing, to travel, to gameday access, Fluid Fans expect ease before the live sporting event even begins so they can feel excited about what's about to happen. Here are some early examples of how the industry is designing for ease before the game:

Buy

**Subscription Models -** The Oakland Athletics introduced a subscription ticketing model that mirrors a gym membership. This created a flexible social space experience without alienating core fans who want a ticket and designated seat.

**Loyalty Passes -** The Washington Nationals introduced a tiered 'NatsPass' that includes standing room up to field level seats stored in Ballpark App.

**Social Spaces -** The University of North Carolina Tar Heels transformed their football weight room into a field-level club on gamedays and grew revenue \$2.1 million.



Travel

**Parking** - To reduce traffic congestion after New England Patriots games, Gillette Stadium began offering free parking for fans who are willing to stay 75 minutes after the game ends.



**Transit Apps -** To offer its fan base more cost-effective transportation, Italy's Inter FC worked with Moovit to create a mobility app to locate public transport.

Access



**Facial comparison -** Ajax FC and Mitek are fighting ticket fraud with facial recognition technology. It's an early attempt to balance fans' privacy and security concerns. Ajax fans making online purchases now submit a photo ID and take a selfie to verify ID.

**Identity verification -** Wallet integration creates opportunities for mobile wallet providers to merge identity verification with payments and loyalty solutions. Using Safetix, NFL venues and teams will be able to accept cashless payments and enhance fan analytics.

#### **Ease During: Optimizing Their Joy**

During the live sporting event, Fluid Fans will use technology to do more and move freely around the venue. Fans want to connect and stay connected so it's easy to eat, drink, and pay. Here are some early examples of how the industry is designing for ease during the game:

# Eat & Drink

**Design for Social -** MLB kicked off its season playing to the interests of social medialoving fans by hosting an Instagram-ready food festival. The Seattle Mariners kept a rotation of photo-ready items like toasted grasshoppers as part of a strategy to attract younger audiences.



**Advocate Values -** Delaware North's 'Last Straw' campaign yielded a reduction of over 8M plastic drinking straws. This matters to the eighty-one percent of millennials who expect companies to make a public commitment to good corporate citizenship.

**Cut Prices -** For some fans, a game out is a chance to indulge so prices need to make that possible. The fan-friendly pricing debuted by Mercedes-Benz Stadium has become a new tool in fan engagement. For example, Louisiana Lafayette offers items at \$1 and \$2 price points.

Pay

**Go Contactless -** Contactless payments make it easier for fans to move quickly from one point of sale to another. Wembley Stadium, CenturyLink Field and FC Bayern's Allianz Arena are among many that have rolled out cashless payment solutions.

**Direct CRM Integration -** RSCA Anderlecht integrated their PlayPass payment solution with their CRM and as a result could connect in-stadium purchases with online ones. The team saw sales jump by 35% and generated new meaningful fan data.



**Create Faster Checkout -** The New York Mets and Aramark partnered with biometrics company CLEAR and manufacturer, Mashgin, to pilot a self-checkout kiosk. Mets fans could verify their age and purchase food and drinks with a single touch.

#### Connect

**Trial New Tech -** Each venue has unique features and construction. Testing new tech will help optimize for a fan's mobile experience. For example, the Melbourne Cricket Ground, Telstra, and Ericsson recently tested 5G with 100,000 fans at the Australian Football League Grand Final.

Access Data-rich Content - Barcelona's Camp Nou worked with Telefonica and GSMA to provide 5G connectivity inside and around the venue. The high-speed network allows fans to access new immersive camera angles, which require large amounts of data.



**Explore the Future -** The NFL and Verizon formed a 5G Innovation Partnership. The NFL will use the new 5G network to test everything from the stadium experience, to gaming, to content distribution.

#### **Ease After: Capturing Their Memories**

Fans have a powerful desire to capture, own, and relive their favorite moments. Here are some recent examples of how the industry is designing for ease after the game:

#### Watch

**Personalized Highlights -** Many media companies and publishers are now using technology vendors like WSC Technologies, REELY AI, and PlaySight to create libraries of sports moments. These tech companies scale beyond traditional media production because they use artificial intelligence to automate the creation and distribution of real-time highlights for individual players and plays.

**Part of the Action -** The Sacramento Kings, MGM, and Xperiel's "Call the Shot" lets fans guess the outcome of quarters and player performances. Fans earn extra points by finding and scanning MGM logos inside the venue.



**Brand Digital Presentation -** The Tampa Bay Lightning and Monumental Sports & Entertainment are building out their in-house digital production teams, then sharing this content via their media channels.

#### Share

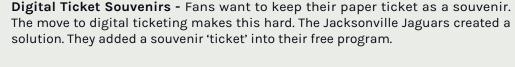
**Social AR** - At the SK Wyverns baseball opening, SK Telekom designed an augmented reality dragon that flew around the park. Fans at the venue with a special app boosted the dragon's energy to keep flying. Fans outside the stadium could use the augmented reality companion to share in the live experience.



**Fan Collage -** Santander Bank sponsored an event where fans took a branded picture which was integrated into an existing mosaic. Fans then shared the photo via social media with the hashtag, where the brand printed the pictures and posted on the mosaic wall.

#### Remember

**Augmented Reality Memento -** The Minnesota Vikings, Pepsi, Zappar and Yinzcam created an in-venue AR game that also drove downloads of the team's app.





**Crypto Collectibles -** MLB Champions' crypto blockchain-based collectible game allows fans to purchase and trade their favorite players' digital bobbleheads. Fans can show off their players through social media.

## Where to Look

# For Lessons Learned

Over the past year, we tracked which venues were making moves in areas that are important to Fluid Fans. As venue operators design for ease, they can look to these venues to learn what works and what doesn't when innovating in mixed reality, 5G trials, concessions technology, and cashless payments:

#### **Leading Venues for Mixed Reality**



#### **Leading Venues for 5G Trials**



#### **Leading Venues for Concessions Tech**



#### **Leading Venues for Cashless Payments**





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Today, the live experience expectations of fans are much more determined by their fluid motivations than static demographics. For example, a venue visitor may be there to try out a new beverage, take an AR selfie or go out with business colleagues. The venues that are truly prepared to win in the age of the Fluid Fan are also reorganizing and rethinking their internal operations to keep up with the pace of change.

Fluid Fan expectations are forcing venue operators to:

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- 1. Use crowd intelligence to understand Fluid Fan behavior
- 2. Develop a partner ecosystem
- 3. Build venues that are attractions beyond gameday
- 4. Organize internally for agility

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### 1. Use Crowd Intelligence to Understand Fluid Fan Behavior

As venue operators design for ease, it will be important to get smarter about what Fluid Fans do in the venue. Many teams and venues have pursued technology strategies that allow them to identify who fans are, yet what they actually do remains elusive. For example, a venue may know the identity of a fan, but the profile doesn't tell you if he or she is there with small children, taking a client out, or with college friends.

Context matters. Each of these scenarios impacts the type of concessions a fan will purchase, how and when they arrive, and their interest in live entertainment options. Leaders recommend that venue operators move beyond demographic segmentation and traditional CRM profiles to collect data that provides a better sense of fan behavior and crowd intelligence.



Demographic analysis is flat out wrong. What people actually do is wildly different than their demographic profiles suggest. You can get better segmentation data not by looking at gender, racial or socioeconomic profiles, but the types of questions people ask and the information they search for.

**Don White** 

CEO, Satisfi Labs

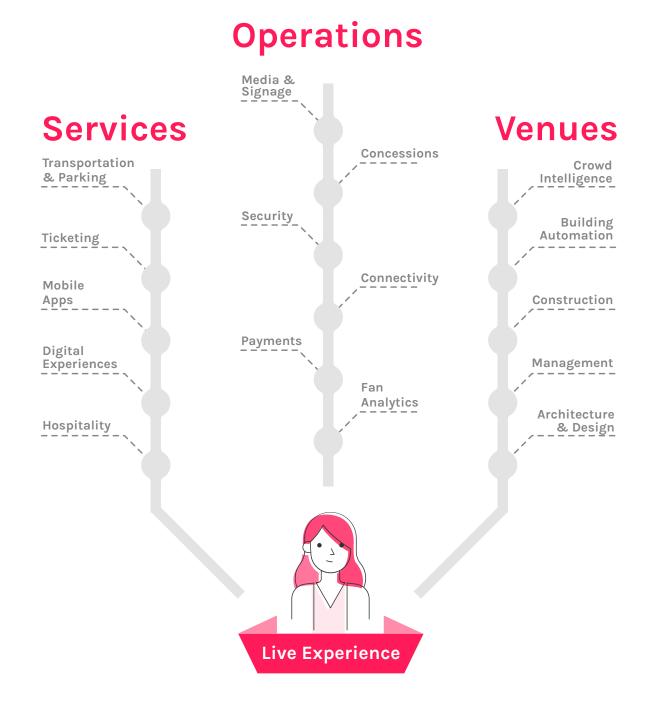
The opportunity for understanding crowd flow is massive. Our focus lets us quickly identify where there are hotspots, and bottlenecks that impact the behavior of the fan. Ironically, the same things that put them at risk influences their experience. We love helping teams see the data that shows security is a customer experience and revenue opportunity.

Julie Johnson

**CEO & Co-Founder, Armored Things** 

### 2. Develop a Partner Ecosystem

In the Age of the Fluid Fan, no one innovates alone. Behind the curtain of mobile ordering, tap and go turnstiles, and interactive scoreboards, lies a complex network of integrated partnerships. Each of these complementary partners has a role to play in a venue's ability to make the experience easy. Venue operators need to review and analyze their current partnership ecosystem to identify the high value and complementary services they should invest in, and find gaps where new partners are required.



## **Services**

(representative sample)











































## **Operations**

(representative sample)











































### **Venues**

(representative sample)













































Venues are able to elevate the digital fan interaction and services thanks to new and diverse connectivity choices enabled by the evolution to 5G, virtualization, increased spectrum and the advent of private networks. This new level of connectivity for sports venues is breaking down the barriers and constraints of the past, providing venue owners a new level of control, security, reliability and flexibility to mobilize operations and provide powerful and fluid fan experiences like we have never seen.

#### **Kurt Jacobs**

#### **Director Markets and Solutions, JMA Wireless**

Ideas for innovation are often hidden in the long tail of existing product offerings. We are constantly looking at that tail to uncover fan behavior and understand why they made or didn't make a purchasing decision. We're very disciplined about running solution pilots with new vendors and A/B testing across multiple venues to make sure we are delivering the products our industry needs.

# Mike Morris CIO, Legends

A lot of industry partnerships don't go very deep. We need to do better to come together as an ecosystem and really define what that fan journey is, and then make a cohesive plan to enhance these partnerships. I hope we see one venue take the lead to really show what the fan of the future experience could be like and bring it to life as a proof of concept.

#### **Andres Polo**

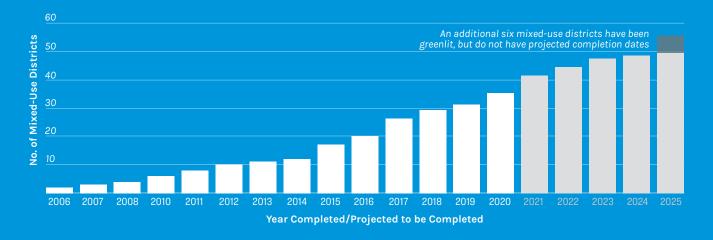
Global Head of Innovation & Partnership Marketing, Visa

#### 3. Build Venues That Are Attractions Beyond Gameday

In response to shifting fan interests, more venues have expanded their design to become part of multi-use districts with various entertainment options and year-round operations. People are not just going for the game, but also everything around the game. New districts such as the recently opened Hub on Causeway to the much anticipated Los Angeles Sports & Entertainment District made some important design decisions and trade-offs. The industry should learn from how these operators manage complexity and optimize revenue.

# The Stage Gets Bigger: Sports & Entertainment Districts are Growing Rapidly<sup>7</sup>

Professional sports organizations are designing mixed-use districts that create a destination beyond gameday. The number of estimated districts housing professional sports teams will double between 2018 and 2024



The venue and the game might be the epicenter, at least on game days, but there are always bars, restaurants, and retail locations that are drawing people into that area. Understanding the motivations behind why these people come to a district poses a whole new challenge for teams.

Ed O'Brien

**VP/GM Sports, CLEAR** 



The private ownership of these spaces makes it easier for them to have a unifying vision. Operating a mixed-used environment without that oversight makes the experience difficult to control, and success, hard to measure. If we're designing for behaviors, we have to look at the venue as the anchor tenant that drives people to the space.

#### **Judith Grant Long**

Associate Professor of Sport Management & Real Estate, University of Michigan

To measure engagement in our district, we took a hard look at the foot traffic data and analyzed the buzz around the district. We want to see people on social media saying "you have got to get down there." We also monitor the traction of our TD Garden and Hub on Causeway app. We can observe traffic patterns and determine how many people are using the grocery store, going to the movies, the hotel, or the restaurants. Next year, we will measure how many first-time visitors are returning.

#### Jen Compton

#### VP of Innovation & Brand, TD Garden

What is the foundation of your data, what are you asking it, how are you going to use it? When you ask these questions, you arrive at the bigger more important questions around what you are measuring and what you are trying to achieve. You don't necessarily need to know the specific individual to take advantage of data; not all data leads to finding more like-individuals. So stop it. Look at the larger trends. Look at what's happening in your building and respond to that, Most of our industry isn't operating yet at the base level.

Courtney Jeffries
COO, Satisfi Labs



### 4. Organize Internally for Agility

Sports organizations are changing their staffing structures and job titles to be more fan focused. Cross-functional fan experience teams and Innovation officers are popping up across the industry. This allows venues and teams to start analyzing fan behavior and put specific strategies into practice. People who work in this industry know that partnership conversations usually start with sponsorship sales and quickly morph into technology projects that have nothing to do with fan behavior or expectations. It's not a secret that sponsorship drives a lot of technology exploration. The best organizations are moving beyond that practice and creating new and more agile organizational structures.

To follow their lead, create an organization that is ready to move at the speed of Fluid Fans. Successful organizations will cultivate the following roles, teams, and responsibilities:

#### Develop new modes for soliciting fan feedback.

Nobody knows the evolving expectations of your fan base better than the fans themselves. Smart Venue operators need to find new ways to find out what their fans want. For example, LAFC runs design-thinking workshops with their fans to better incorporate their feedback into the gameday experience. Capital One Arena runs secret shopper programs to help identify areas for improvement. The Atlanta Falcons have a crossfunctional fan experience group to represent the voice of the fan in their organization. Examples like these show the creative ways Smart Venue operators are organizing to solicit fan feedback.

#### Invest in a data baseline.

Data in the sports industry can sometimes be a four-letter word. Data is only useful if your organization has the ability to analyze it meaningfully. You need to invest in intelligence teams and support them with professional development opportunities that help them learn from other industries. As your teams get smarter, they may decide to collect less data because they know what they're looking for and they know how to communicate why the data matters to the business.

#### Empower your people through professional development.

A major challenge to innovation in the sports industry is the rampant pace of change and perception that there is not enough time for proactive development. But as fans continue to change their expectations, you need your team to grow and develop new ideas to address those needs. Find professional development opportunities that will help your teams to innovate and break free from the complacency of the status quo.

#### **About this Report**

To develop this research, Sports Innovation Lab and its Smart Venue Leadership Board spent 2019 reviewing market behavior, evaluating vendors, and conducting interviews with market experts.

The Board met every three months to review market analysis created by Sports Innovation Lab's proprietary data, discuss and identify trends, and to share best practices.

In addition to the work of the Leadership Board, Sports Innovation Lab also conducted interviews with experts from across the sports industry.

This report represents the knowledge collected and shared by the board members, and the responses from additional interviews in conjunction with extant research into the field of athlete data conducted by the Sports Innovation Lab.

#### 2019 Smart Venue Leadership Board Members:

**The Goldwater Group -** Bobby Goldwater, President & Adjunct Professor, Sports Industry Management, Georgetown University (Co-Chair)

**University of Michigan -** Dr. Judith Grant Long, Associate Professor of Sport Management and Real Estate (Co-Chair)

Aramark - Kevin Pelegrin, VP of Data Science

Armored Things - Julie Johnson, CEO and Co-Founder

CLEAR - Ed O'Brien, VP/GM Sports

**The Dow Chemical Company** - Mike Reed, VP of Olympics and Sports Solutions **Fancam** - Tinus Le Roux, Founder & CEO

International Olympic Committee - Xavier Becker, Head of Venues,

Infrastructures & Services

JMA Wireless - Kurt Jacobs, Director, Markets and Solutions

Legends - Mike Morris, CIO

Oak View Group - Dan Griffis, President, Global Partnerships

Oracle Food & Beverage - Jennifer Dorta-Duque, Global Director of Sales

Consulting

ROSSETTI - Matt Rossetti, President

Satisfi Labs - Courtney Jeffries, COO

TD Garden - Jen Compton, VP of Innovation & Brand

Venuetize - Craig Duncan, Chief Revenue Officer

Visa - Andres Polo, Global Head of Innovation and Partnership Marketing

#### **Additional Interviews:**

LAFC & Banc of California Stadium- Christian Lau, CTO Los Angeles Rams & SoFi Stadium - Skarpi Hedinsson, CTO Satisfi Labs - Don White, CEO

<sup>&</sup>lt;sup>1</sup> Digital Information World (2019) www.digitalinformationworld.com/2019/05/youtube-2-billion-monthly-viewers-250-million-hours-tv-screen-watch-time-hours.html

<sup>&</sup>lt;sup>2</sup> Streaming Observer (2019) www.streamingobserver.com/netflix-users-stream-164-million-hours-

<sup>&</sup>lt;sup>3</sup> Statista (2019) https://www.statista.com/statistics/730306/whatsapp-status-dau/

<sup>&</sup>lt;sup>4</sup> We Are Social & Hootsuite. "Digital 2020: Global Digital Overview." January, 2020.

<sup>5</sup> Ibid

<sup>&</sup>lt;sup>6</sup>SnapChat 2019. https://investor.snap.com/news-releases/2019/07-23-2019-211107490

<sup>&</sup>lt;sup>7</sup> Tencent 2020 http://www.chinadaily.com.cn/business/tech/2017-04/26/content\_29085510.htm

<sup>8</sup> Facebook 2020 https://investor.fb.com/financials/



