SMART CONNECTED STADIUMS SMART VENUES. REVOLUTIONARY EXPERIENCES.

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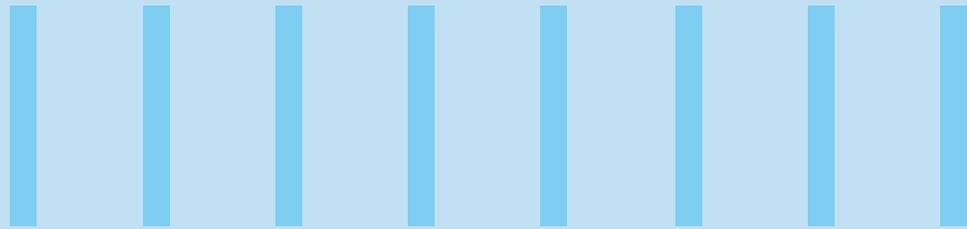
Faced with declining patronage, stadiums today are struggling to attract fans

Sports, events held in stadiums and big venues, watched with pulsating excitement by thousands, have always occupied an important part of our lives and culture. But, for the first time in history, with the onset of the TV and internet revolution, it is getting very hard for stadiums and entertainment venues to compete with the digital juggernaut and stay relevant.

Technological advances are gradually eating away into the millennial fan share, leisure time, endorsement and entertainment spend and posing a constant threat for arenas and stadiums.

While millennial fans may lean towards mobile and digital technology owing to the convenience and cost benefits, they tend to lose out on the complete experience that only stadiums can offer – being a part of action as it happens, feeling the excitement, connecting with their favorite stars and other fans, and being part of something bigger than themselves.

Stadiums and venues can leverage this pivotal advantage to excite fans into partaking first-hand in games and events. But first, they must embrace new age technologies and strategies to stay relevant and offer an unprecedented next generation tribal experience prompting millennial fans to leave the comfort of their homes and come to the stadiums.
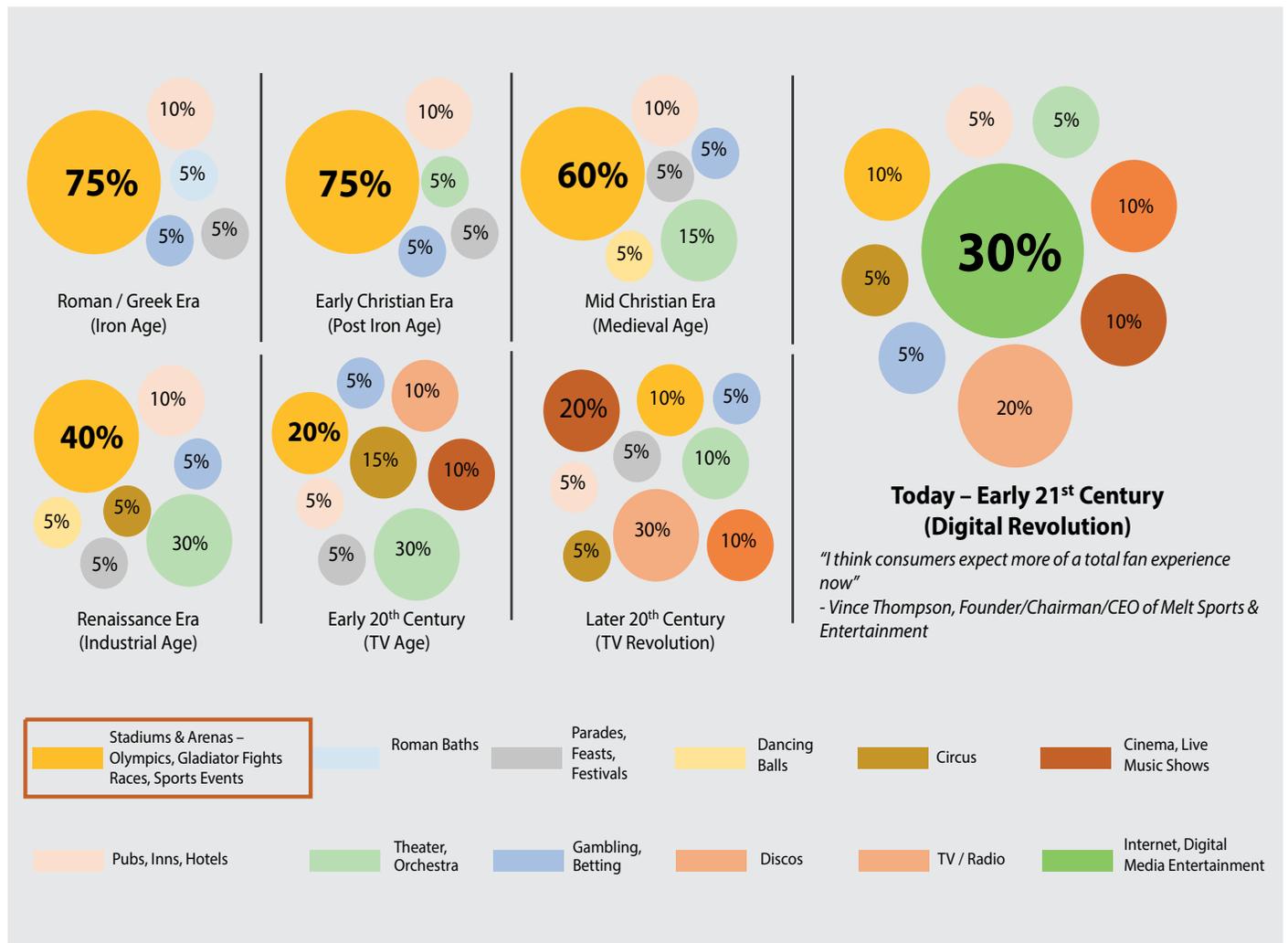

Figure 1: The historical evolution of large crowd-based entertainment preferences

"The key to transformation is merging advanced digital connectivity at the venues with unprecedented contextual services and experiences from an ecosystem of partners."

Challenges of shifting to a digitally smart and connected

To enable digitization and connectedness, global sport venues must create an environment where the stadium comes alive – both physically and digitally – to engage fans, patrons, teams, sponsors, and players. This requires innovative digital engagement and monetization strategies that align with in-venue assets and cater to customers, fans, service partners, sponsors, and teams. However, the journey to build such a self-sustaining ecosystem is fraught with several challenges.

MAXIMIZE MONETIZATION
How to optimize maintenance & deployment costs, lure sponsors & patrons via improved targeting, connecting with the ecosystem for enhanced service delivery and greater revenues.

MONETIZE

FAST CHANGING DEMOGRAPHIC
Networks are growing stronger but costs for deployment at a venue remain very high. Limited towers cause traffic congestion, reduced bandwidth and poor experience.

FAN RETENTION

CARRIER

WiFi PREFERRED OVER CARRIER
Many carrier led Wi-Fi solutions are not designed to support the anticipated growth and capacity demands of tens of thousands of current users simultaneously transmitting data, resulting in poor service.

AVAILABILITY

HIGH AVAILABILITY A MUST
Stadiums and venues can host very large crowds during events. While offering connectivity, there is an imperative need to ensure continuous availability of all services and networks during the event

BIG SCREEN

COMPETE TO STAY RELEVANT
It's lot cheaper and easier for fans to watch the game at home. HD television, high speed internet, live streaming, and social media are gradually eating away into the fan share, endorsement and entertainment spend.

SECURITY

GROWING NEED AT VENUE
The threat of terrorism has already ramped up spending on sports security to $2 billion per year worldwide and growing. The overall experience becomes uncomfortable for fans and dissuade them from going to the games.

Figure 2: Challenges to stadium digitization transformation

1.Stadiums must compete with television as a preferred channel

A recent study by Cisco reveals that 57% of fans prefer to watch sporting events at home. To attract these fans to the venue, stadiums need to create extremely appealing events and promotions. Attractive campaigns also encourage value-driven partnerships with sponsors and service providers. To stay relevant, stadiums must focus on engaging fans before, during and after the event through relevant content, promotions, offers, advertisements, and reminders.

2.Growing need for non-intrvusive venue security

Typically, entering a venue to watch a show or a game begins with waiting in long queues followed by rigorous security procedures. Most fans can relate to the unpleasant experience of dealing with traffic barricades, being searched by guards and being watched through cameras.

While all these measures ensure safety, it may dissuade fans from frequently visiting stadiums. However, security is a mandatory and expensive affair. The key challenge here is finding ways to leverage technology for cost-effective and non-intrusive security solutions that can ensure an enjoyable and memorable experience for everyone.

3.Customers and management teams want smooth and uninterrupted connectivity

Stadiums and venues can host large crowds as well as several service partners, teams, and sponsors during events. Considering the sheer volume of this user base, stadiums that want to offer online connectivity face significant challenges to ensure that all services and networks are continuous available during an event.

4.Stadiums and service providers compete for ownership of telecom bandwidth

Previously, stadiums used distributed antenna systems (DAS) that were designed and delivered by carriers to provide in-venue Wi-Fi solutions. DAS helped reduce congestion in cellular bandwidth at venues and ensure online availability and performance. However, this solution is no longer viable for venue operators and owners because they have little or no control over the carrier's Wi-Fi service. Now, venues want to own and provide Wi-Fi as an in-house service to analyze mobile engagement patterns and use these insights to increase return on investment (ROI).

5.Changing fan demographics makes retention a challenge

The Cisco study states that by 2016 there will be more than 10 billion handheld or personal mobile-ready devices. Despite the rapid increase in online channels and mobile networks, venues incur high cost to enable strong mobile connectivity. The shortage of adequate mobile network towers around a venue places additional

pressure on towers nearby, resulting in mobile congestion, low quality, reduced bandwidth, and a poor overall experience.

Digitally empowered and passionate fans want to be connected during an event and enjoy media-rich experiences as well as social and contextual services delivered through their smart devices. Without smart solutions and pervasive connectivity, stadiums risk losing a sizeable portion of their fan-base.

6.High investment cost for digitization initiatives

Digitizing stadiums and venues is a significant investment. As live events are held at a venue only once or twice a month, stadiums and venues must find innovative ways to create and monetize opportunities for better returns from their digital investments.

During a sporting event, most stadiums can host 10,000 people at a minimum. This presents a tremendous business opportunity for neighboring establishments such as F&B outlets, hotels, cinemas, merchandise shops, etc. By partnering with these businesses and offering a flexible in-venue solution that connects fans to these stadium partners, venues can create new monetization opportunities within the local business community.

Thus the key question is: How do stadiums leverage technology to attract fans and sponsors, deliver a seamless user experience and connect with the surrounding business ecosystem for better service delivery and greater revenue?

"The stadium must come alive both physically and digitally to personally engage its key players in a self-functioning microcosm."

Many key players come together to create the total fan experience

The onset of a smarter and connected world influences the way communities and businesses interact with each other. For instance, the digital revolution is accelerating new services in food, travel, hospitality, catering, etc., enabling faster discovery, instant reach and quick popularity.

To gain a competitive edge in this environment, stadiums must find ways to on-board and integrate new services, forge dynamic partnerships and create innovative experiences for customers.

Figure 3: Key players in a smart connected stadium ecosystem

Let us consider the example of a user journey involving three individuals – John who is a fan, the stadium/event owner David and a team owner Eva.

John is attending a Women's Tennis Association (WTA) match featuring his favorite tennis star at a local stadium. As an avid tennis fan, John wants instant online access to information and services. Eva is the player's brand manager and an experienced sport and brand consultant. The stadium is owned and managed by David, who wants to monetize on the euphoria surrounding the match. David collaborates with Eva to create a unique experience for the star's fans at the venue. By using a single platform, these three parties can connect with each other, offer and consume services and have meaningful interactions.
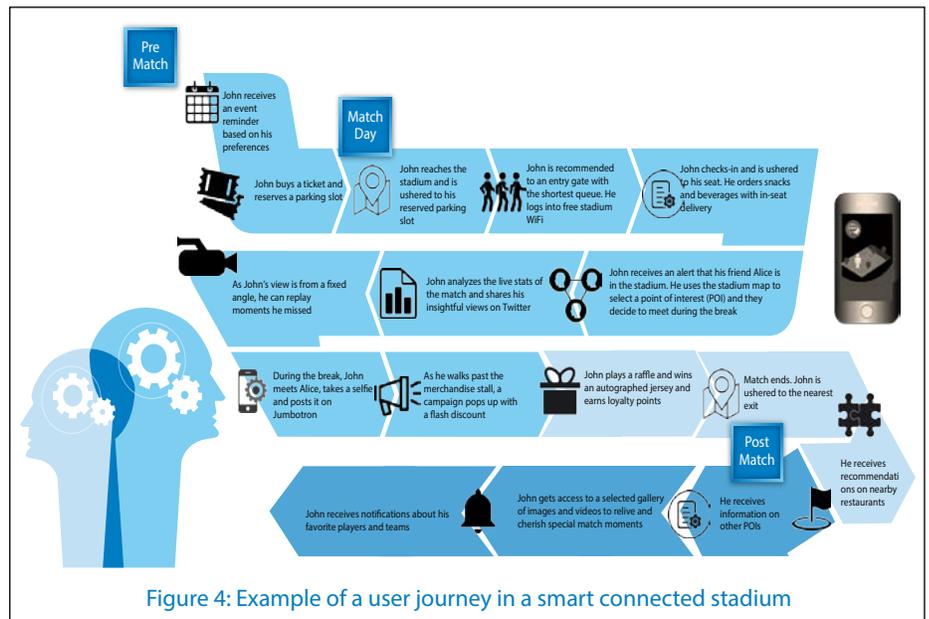

Figure 4: Example of a user journey in a smart connected stadium

> "The core of a smart and connected stadium is the ability to unite key players with similar needs on a common platform in real-time, thereby creating meaningful interactions with tangible business outcomes."

Enabling a smart and connected stadium

Despite the evident benefits of employing technology to create smart and connected venues, stadium owners struggle to find the right approach. Should they adopt a user-centric and mobile-enabled product? Or should they leverage a progressive platform that unites all stakeholders?

The success of any customer engagement and activation strategy lies in its ability to offer a delightful and unique end-user experience. With this in mind, let us explore two approaches.

Product-driven approach: By evaluating the user journey, stadiums can use a top-down approach to create a product with immersive, competent and mobile-driven engagement. However, this approach can be limiting. Products aim to solve specific problems or deliver a specific type of experience for a defined user-base. In sports and event management, there are several users such as sponsors, players, teams, fans, etc., and the engagement/ partnerships between these users evolve rapidly. Thus, as expectations change across these demographics, so will the user experiences. To stay relevant, the product has to evolve with the changing landscape, which requires ongoing investment and continuous delivery of new capabilities.

A product-driven approach to smart and connected stadiums can offer an advanced user experience. However, these stadiums must be agile enough to dynamically adapt and deliver experiences tailored around the event being hosted. This requires extreme flexibility in meeting expectations of various stakeholders, which can be an overwhelming challenge for stadiums.

Platform-driven approach: There are innumerable user journeys that manifest themselves when several businesses collaborate for an event. To truly leverage the business potential of an event, stadiums and venues need to flexibly configure user journeys based on the types of users (such as service partners for an event), changing business partnerships, ticketing rules, campaigns, offers, and promotions. Owning a platform will give stadium owners ample flexibility, agility and stability to scale and cater to the needs of these various users. Platforms enable different service providers to plug into core services offered by stadiums, leverage these capabilities and complement and enhance the services. Stadiums can also leverage external services from service providers such as parking, taxis (from a taxi aggregator), social connectivity from social networks, etc., enabling them to offer new capabilities. These capabilities can be scripted at runtime with complete control by the owners, thereby enhancing the user experience.

A reliable way to design relevant user journeys is to shift from a product-based approach to a platform-driven one. This creates sustainable competitive advantage in the connected venue business with significant cost savings.

> "You build an ecosystem around your core offering, create your own marketplace at your venue and extend benefits to your partners and users."
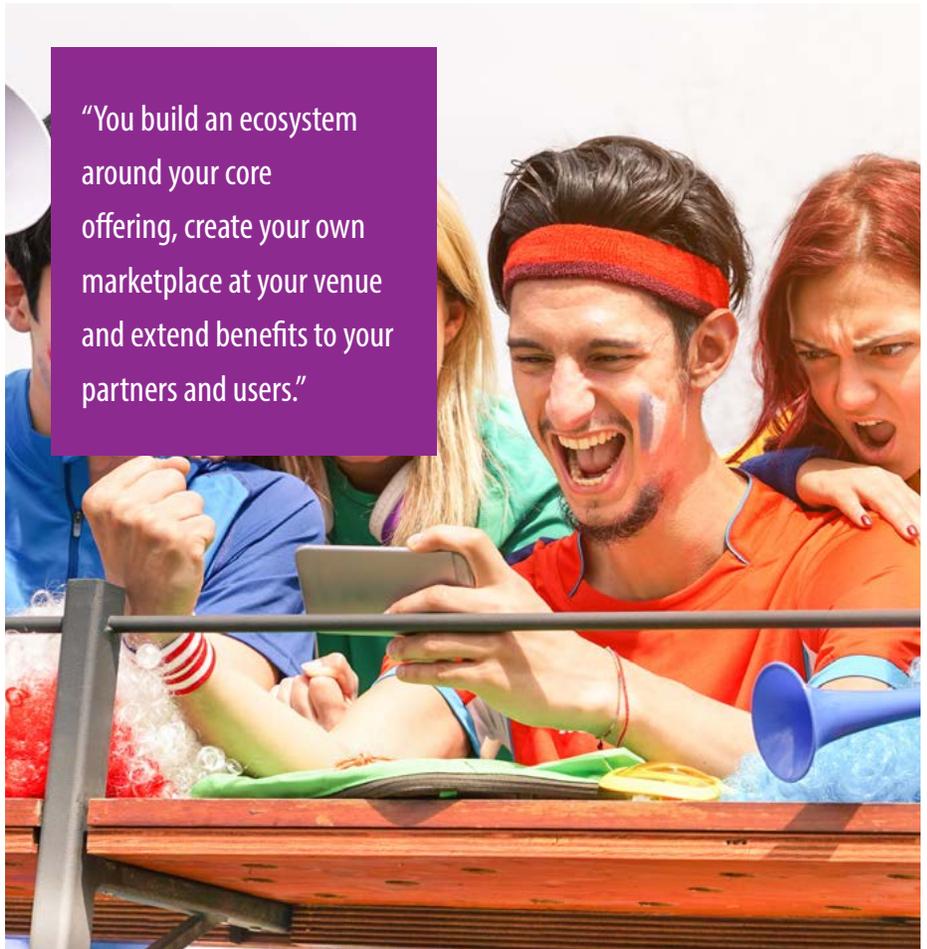
The smart connected stadium playbook

"It's important to bring new technology, show our fans that we are keeping up with all the other stadiums, and give them an experience they don't have at another facility," - Katie Pandolfo, GM, StubHub Center (where LA Galaxy play).

The following example illustrates how a smart and connected stadium can enhance the fan experience. Let us take the case of a fan who walks into a stadium. As soon as he enters, his smart phone notifies him that a US $50 premium seat upgrade is available. He purchases the upgrade on his mobile and settles in to enjoy the game. He then uses his smart phone to order refreshments that are delivered to his seat. When his favorite player scores a goal, he accesses the team's mobile app to watch an instant replay from multiple angles as well as a stadium-exclusive video feed of the players on the sidelines. Later, when his friends arrive, the stadium app locates him on an arena map, allowing his friends to find him easily.

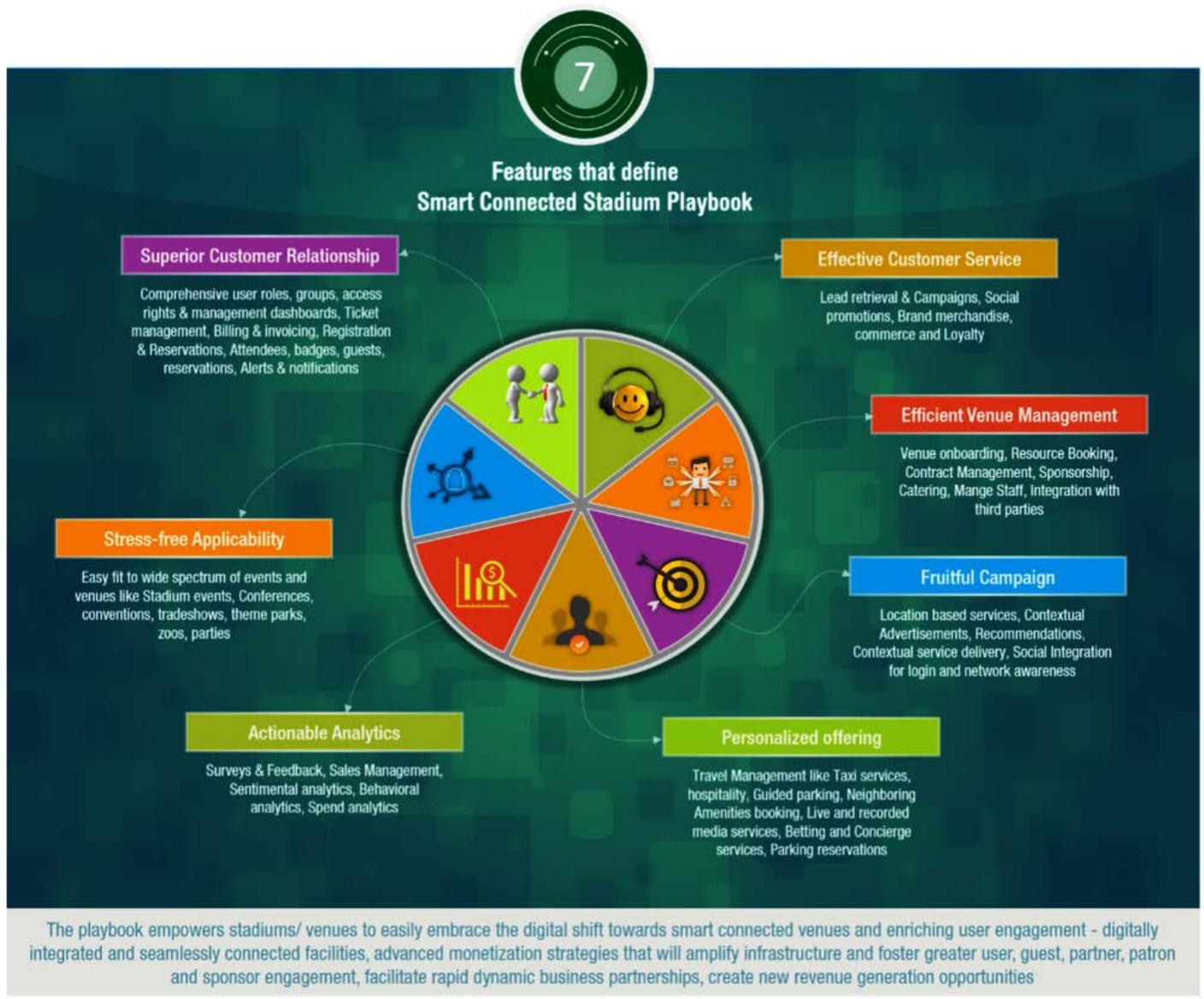Real-life instances such as the above can become a reality today.

Figure 5: The smart connected stadium playbook

"These strategies create an unforgettable game day experience for fans and partners and a smart monetization strategy for stadiums."

Introducing Infosys Entertainment Experience Platform (IEEP)

IEEP is a next-gen smart connected stadium platform from Infosys that leverages stadium infrastructure powered by a hi-density Wi-Fi solution and beacons.

IEEP comprises of a suite of superior services that empower stadiums/venues to easily embrace the digital shift towards smart connected venues. The solution enriches user engagement by providing digital integration and connected facilities. It also offers advanced monetization strategies for stadiums to amplify their infrastructure and drive greater user, guest, partner, patron, and sponsor engagement. By facilitating rapid and dynamic business partnerships, IEEP helps stadiums create new revenue streams and increase fan demand for their facilities.

Figure 6: Infosys Entertainment Experience Platform

IEEP offers venues a highly competent, nimble and cost-effective platform that builds sustainable competitive advantage in the connected venue business. The platform provides strategic capabilities in a connected venue ecosystem such as:

- **Rapid on-boarding of new players** – It can easily adapt and scale to accommodate a dynamic list of players that venues collaborate with, and manage numerous user journeys.

- **Deliver a range of services** – Stadiums can leverage specific capabilities from third-parties such as parking services, taxi services from a taxi aggregator, social connectivity from social networks, etc., thereby complementing the core offering.

The platform is built on open standards and offers:

- **Robust core offering** – The core asset of the IEEP platform is its ability to offer key capabilities in a smart and connected venue such as customer relationships, customer service, venue management, campaigns, personalization, commerce, social, and analytics.

- **Flexibility to on-board new capabilities** – The platform architecture can scale easily to handle increased scope and capabilities. This helps stadiums keep pace with emerging trends across all stakeholders. Further, stadium partners can easily on-board new services for platform users.

- **User responsiveness** – The capabilities interact with each other in innumerable ways and can be scripted at runtime with complete control by owners to provide a responsive and dynamic user experience.
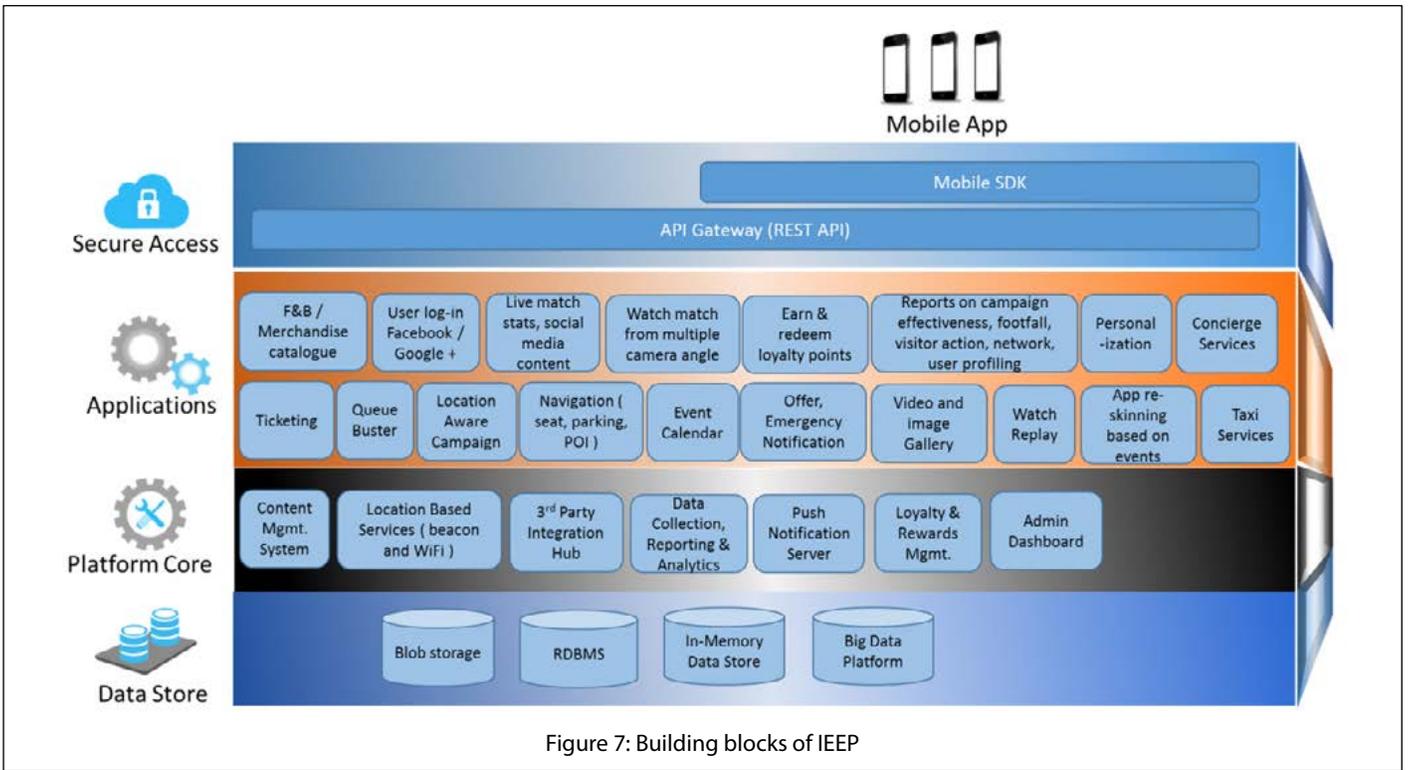
Figure 7: Building blocks of IEEP

The platform is highly scalable and can host multiple stadiums, malls and retail stores from various tenants/owners. Additionally, a single owner can host multiple venues and provide location-based services.

IEEP is based on service oriented architecture (SOA) making it easily extensible. It can be deployed on premises or on cloud. By leveraging open source software, the platform reduces turnaround time to fix bugs and offers enhanced features compared to proprietary/licensed software.

Some of the key features of IEEP are described below:

Content management system maintains and manages content for different devices (stadium TV, user smartphones, etc.) including video management capabilities for metadata.

Live and recorded content streaming integrates with cameras at the venue and facilitates streaming of live and recorded game highlights from different angles.

User registration and authorization allows fans to register on the platform using smart phone apps. Once they are authorized, fans can access all the services and content hosted on the platform.

Advanced personalization facilitates user profiling and personalization using a variety of factors such as consumer preferences, user history and location context.

Client configurator and skins personalize the experience by providing options to configure user interface (UI) skins to suit client needs and expectations.

Proximity service (for services and ecosystems) allows stadiums to enhance their offerings by enabling proximity detection for location-based service delivery and discovery of nearby amenities.

Campaigns target and deliver personalized campaigns in real-time based on user location within the venue, consumer preferences, user history, etc. The platform can also help stadiums identify potential leads and create targeted campaigns.

Advertising offers advertising services that integrate with preferred ad partners. The platform inserts banner and video ads into

the service, measures delivered ads and generates reports on revenue generated from advertising.

Services enable rapid partner on-boarding, integration and delivery for a wide range of ecosystem services such as in-venue F&B ordering through F&B partner integration, parking services, taxi services, discovery and access to neighboring businesses, etc.

Commerce facilitates discovery and in-venue purchase of relevant and recommended merchandise from partners and sponsors through the platform.

Ticketing services support integration with preferred ticketing partners and facilitate workflows and fulfillment for ticketing, presentment and seat upgrades.

Social offers in-venue social collaboration and sharing.

Supporting analytics provide real-time and offline analytics on service consumption and commerce. Spend and behavioral analytics are used to track user mood and buying patterns. Tracking user presence is enabled through heat maps and network performance while user behavior analysis enables targeted campaigns.

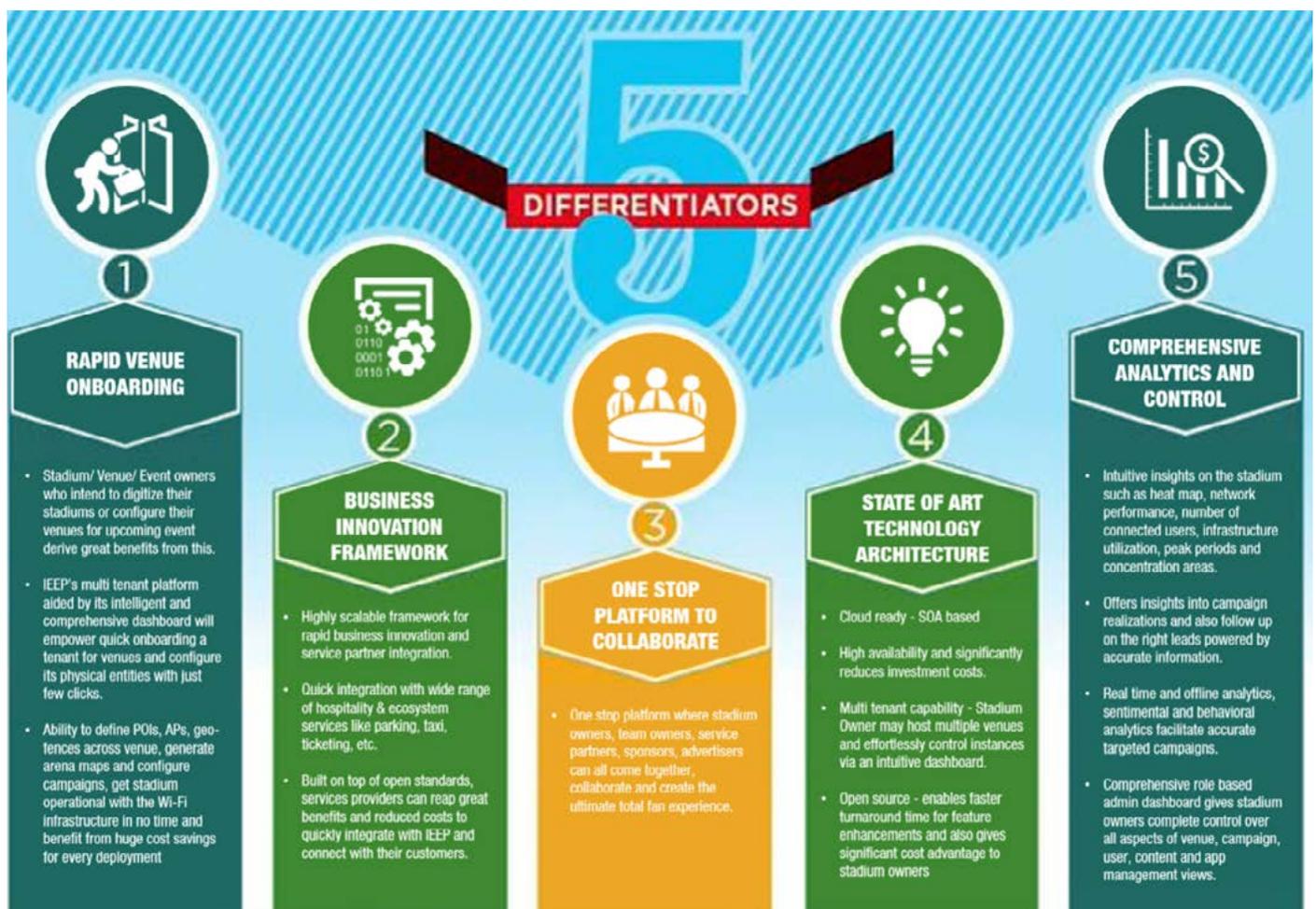## Value chain – What are the key differentiators?

Figure 8: IEEP value addition

IEEP provides a comprehensive one-stop digital platform to complement a venue's physical assets. The key differentiator is the ability to rapidly on-board new partners and vendors and offer comprehensive analytics and customized services to meet the needs of each player in the ecosystem. The multi-tenant platform allows clients to lease a platform instance for their venue instead of buying and installing it for their requirements. IEEP can also be easily configured to suit business climate, revenue sharing partnerships, ticketing rules, events, campaigns, etc. Besides creating a self-functioning microcosm, these advanced capabilities help clients save costs and gain a sustainable competitive advantage in the connected venue business.

Fans, teams, players, sponsors, and businesses will always want to connect with the action on the field or stage. But how they are connecting is rapidly changing. The industry-focused IEEP platform leverages engineering, solution and service teams to understand market trends, helping stadiums create and maximize monetization opportunities. Infosys experts support clients in planning and executing complex environments, thereby enabling them to take advantage of customized solutions and drive business growth.

"No matter how basic or sophisticated the venue is technologically, IEEP can transform the business"

For more information, contact askus@infosys.com

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