

# GETTING SMARTER

Sports venues worldwide are using new technology in the post-pandemic era. Feature writer Steve Traiman gets insight from key U.S. providers Idibri, Walter P Moore & ME Engineers.

Architects and engineers are increasingly using Building Information Modeling (BIM) and Virtual Reality (VR) in the AEC process.

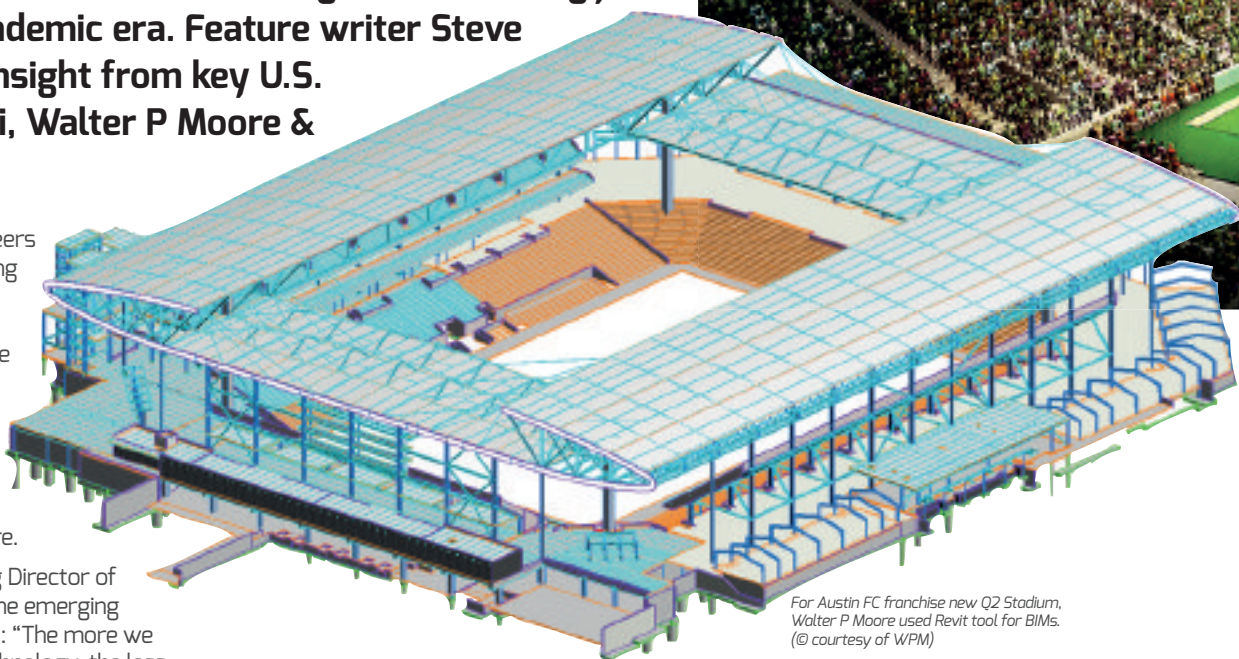
'Smarter tools for smarter stadia' is the mantra being adopted by stadium designers as they look to the future.

Craig Janssen, Managing Director of Idibri told PS&AM that the emerging culture is digital. He said: "The more we engage with current technology, the less content we are to be passive audiences. We want to be able to affect what is happening. We don't care how big a screen is. We care that we can choose what we see. We care that it responds to us.

*"This is a massive culture shift. And those who don't notice it will focus on the next shiny technology trend, rather than strategising how to give more power to the fans to shape their own experience.*

*"Engagement is moving on a clear trajectory from presentation to interaction, to users being able to define their own experience. We have had presentational technology since the first microphone. The digital world launched interactive technology. But the technology that's just on the horizon? That's about users being able to define their own experiences and create something together."*

Janssen provided some excellent examples of user-defined experience and co-creation in sport. He said: "Prior to quarantine, the MLS Los Angeles FC had sold out every home game at Banc of California Stadium since their debut in 2018, but they started building their base long before that opening via social media. For LAFC, it wasn't just about broadcasting content, they took a data-centric approach to react and



For Austin FC franchise new Q2 Stadium, Walter P Moore used Revit tool for BIMs. (© courtesy of WPM)

*build on what fans responded to. Even the teams' colours were chosen by the fans via a social media campaign. LAFC takes co-creation seriously.*

*"Baylor University, Waco, Texas, was using Yinzcam at McLane football stadium. This app encoded eight different camera angles and it was available to premium holders to empower them to choose their view. Baylor also allows DVR via the app (and in the suites) so that fans can scroll back and see their own replay."*

Janssen said that in the past 10 years, architects have been working with teams to create different experiences based on where you sit in the stadium to create a sense of neighbourhoods and ownership, like the 3,252-seating section at LAFC that has become more of a culture.

He added: "A more recent trend is SRO (standing room only) seats—an experience that doesn't include a seat or even necessarily a view of the field, with the NFL Dallas Cowboys one of the first sports franchises to sell SRO tickets.

*"You can hang out with your friends at a stadium but choose to stand at a drink rail rather than sitting in a seat. It's a watching party, but near the action. Q2 Stadium has two clubs that also use technology to create the watching*

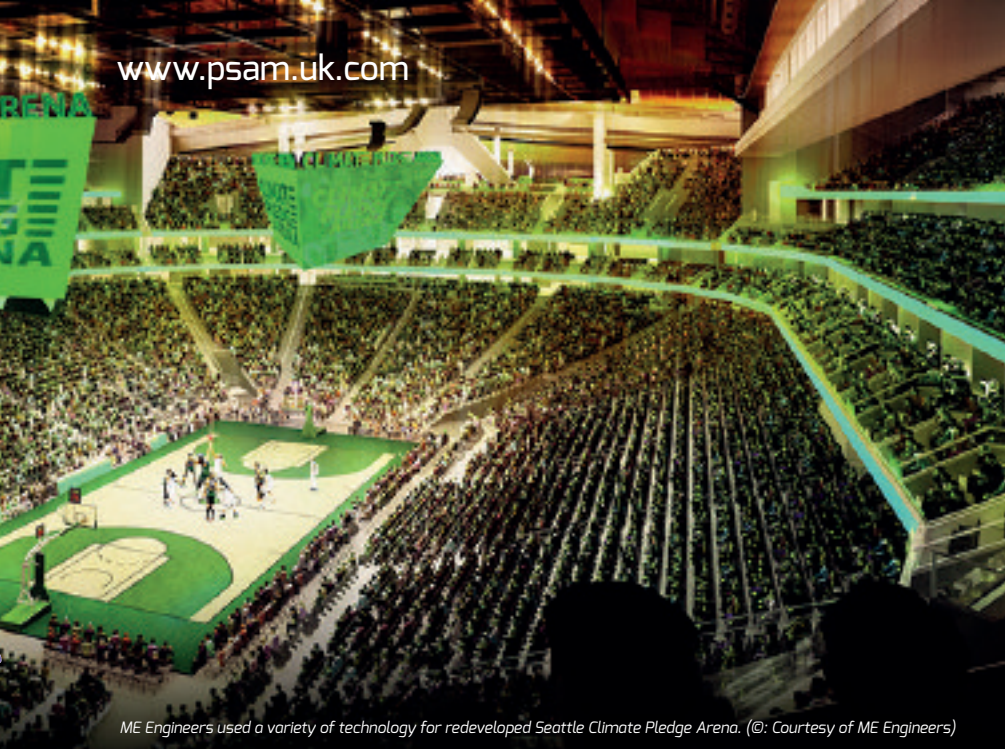
*party for Austin (Texas) FC fans; and the Buffalo Wild Wings Club at the NFL Minnesota Vikings US Bank Stadium in Minneapolis uses rear projection to create a 'digital window' with three 20ft long fixed projector views of the field.*

*"Most teams are talking about how to increase 3-D screen experiences. As emerging technology solves latency and bandwidth issues, this will expand quickly.*

*"VenueNext created the app at Levi's Stadium for the NFL San Francisco 49ers, which can guide people from the parking lot to their seats, provide replays, and allow people to order food and drink from their seats. EaseLive creates applications that puts stats and text overlays on top of 3-D screen experiences. MLB Los Angeles Dodger fans can use the Appetize integration to Postmates to order food and beverage for pickup throughout the park. Intel True View at United Center in Chicago, home of the NBA Chicago Bulls and the NHL Chicago Blackhawks, offers full DVR playback of every angle, slow motion, zoom in, change of view—all via your device."*

## TECHNOLOGY ADOPTION

Aaron White, Senior Principal and Director of Digital Practice at engineering firm Walter P Moore, said that technology adoption is still accelerating



ME Engineers used a variety of technology for redeveloped Seattle Climate Pledge Arena. (©: Courtesy of ME Engineers)



LAFC SRO supporters section (foreground) at Banc of California Stadium. (©: Courtesy of Idibri)

FEATURE

SMARTER TOOLS FOR SMARTER STADIA

customer experience through current and evolving technologies.

He said: *"In most cases, user technology implementation should be operationally relevant and seamless but visually concealed to the surrounding."*

*"The pandemic itself elevated certain existing technologies and operation into ordinary life. One major, yet simple, example is ordering food on your mobile device and takeout. During the pandemic this was almost the only way to get food from restaurants. It forced us to function differently if we wanted something and immediate. Convenience resulted. We're starting to see this principal planned into modern stadium design where spectators order food on their mobile device and pick up from a concession stand."*

*"Going to the other extreme, it's highly expected with augmented and mixed reality (AR/MR) technologies that overlay graphical information and content into the consumers field of view will evolve from the mobile phone to various forms of interactive eyewear."*

Jones said it will take leading mobile device platform manufactures, including Apple and Android, along with next generation super-bandwidth wireless such as mmWave 5G Cellular and Wi-Fi and all the various analytical and data sensors throughout the venue per application.

Jones added: *"When considering and developing Smart Stadia and with all these considerations, it's vital to not overlook the underlying technology infrastructure and early planning itself that's absolutely necessary to support the 'now' but high confidence to connect the 'tomorrow.'"*

*"We spend a tremendous amount of time with owners, operators, and architects planning the technology foundation including equipment rooms, distribution rooms, backbone raceways, and optical fibre backbone along with the support systems and various redundancies to ensure system operation and uptime."*

*"Further, planning wireless systems -- and particularly raceways within seating bowls -- to support cellular and wi-fi early in the design process along with construction cost planning is key. That's because it's the most complicated and important single point within the venue due to the high occupancy density and most open space within the venue where consumers obviously spend the most time."* ■

and that is readily apparent in the design and construction of stadia.

He said: *"Teams are pushing technology to realise improved designs, faster, and with less risk. In turn, this leads to more efficient facility operations and better fan experiences."*

*"From day one, designers are using data-rich BIMs hosted on cloud-based portals to share information and communication visually in response to this technology growth. Teams are integrating those systems into the overall design earlier in the process. Technology hardware is located intentionally with the deliberate routing and is coordinated fully with structural detailing to not impact the architectural design or fan experience."*

White said VR is commonplace as hardware costs have dropped dramatically and software is faster and more functional.

He said: *"For the new Nashville Fairgrounds Stadium, opening next year for the MLS Nashville FC, designers accelerated decision-making and coordination through regular VR-enabled meetings."*

*"Project teams are also knocking down traditional silos to accelerate start of*

*construction. On the 20,000-seat Q2 Stadium that opened in July for the MLS Austin (Texas) FC team, Walter P Moore used an innovative technology-enabled process developed in-house to rapidly deliver the structural contract drawings and the fabrication-ready Tekla model for structural steel in parallel. This saved roughly 12 weeks from the schedule and eliminated preconstruction Requests For Information (RFIs).*

*"In the field, contractors are intelligently tracking construction progress. Combined with inexpensive 360-degree cameras, maturing AI-equipped solutions such as OpenSpace or Reconstruct can create digital timelines of construction. The timelines are helpful for construction activities and facilities management. The technology can help create compelling assets for use on social media, giving fans behind the scenes previews of the finished product. In short, technology is now a driver for nearly all design and construction activities from the very beginning through Opening Day."*

**CONNECTING TO TOMORROW**

Chris Jones, Managing Director and Senior Principal, **ME Engineers**, said there is an opportunity to enhance