

STADIUM

TECH REPORT



Stadium Connectivity White Paper

Results & Analysis

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Presented by Stadium Tech Report & **verizon**✓

The new normal: Venues deploy more technology to meet business and operational goals

As large public venues seek to put their businesses onto a more predictable path following the turmoil of the Covid pandemic, new technologies are improving the fan experience while simultaneously driving operational efficiencies and increasing the bottom line.

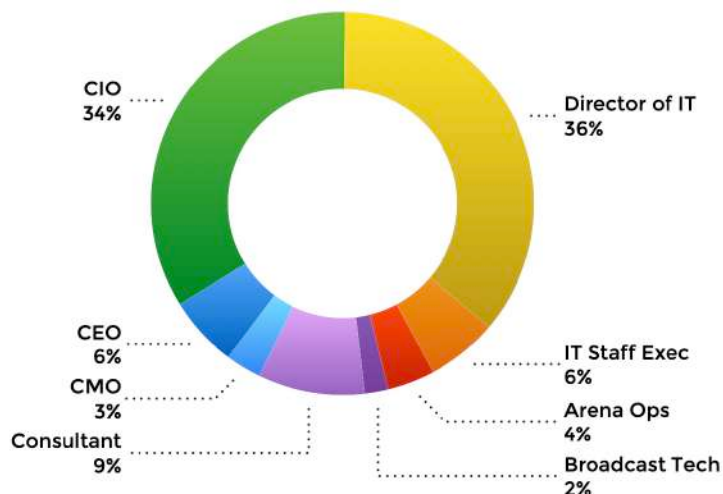
Once again, in August and September of this year we reached out to the Stadium Tech Report community and asked them to participate in our third annual Stadium Connectivity Outlook survey, which included a wide range of questions about the current state of a venue's connectivity, and where the venues, teams and schools plan to prioritize investments and strategies.

We also asked very specific questions about some of the new technologies that started emerging in 2022, like walk-through security screening systems and cashierless concessions technology, and learned that the trend of adopting both was not just underway but had moved to front-of-mind status.

To be clear, these are not our views but the insights of our audience - honest feedback that once again provides an industry-wide perspective on the common issues facing venues of all shapes and

RESPONDENT PROFILES

More than 36 percent of respondents were directors of IT; another 34 percent were CIOs



KEY TAKEAWAYS

1. Cashierless concession technology is the top initiative for venues in 2024. Staffing is still a concern, but less so than last year.
2. The two biggest challenges venue professionals face are growing top-line revenue and decreasing operational costs.
3. Venues are increasingly interested in deploying a private 5G network to support business critical operations and guest security.
4. Better wireless connectivity for fan-facing and back-of-house networks continues to be a top objective.
5. More venues believe they are ahead of the curve when it comes to their digital transformation strategy.

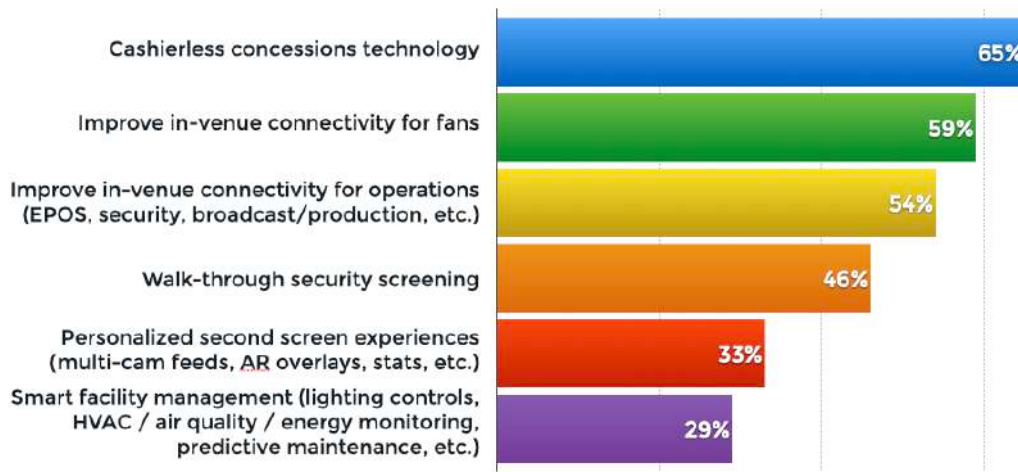
sizes, from large NFL and college football stadiums to Major League Baseball stadiums, to NBA and NHL arenas, as well as more intimate concert halls.

Venues looking to jump aboard the cashierless concessions train

In our third annual Stadium Connectivity Outlook survey, respondents pinpointed cashierless concession technology as their number one initiative for the next 12 months.

This doesn't come as a huge surprise to Stadium Tech Report, as frictionless solutions have dominated our news coverage recently. According to research we published in October 2023, almost 100 new checkout-free concession stands had been rolled out in stadiums over the past year, alongside numerous deployments of other autonomous retail solutions, including optical scanning checkout terminals, self-checkout kiosks with bar-code readers, and even systems using facial authentication for purchase and age verification.

Survey question: Which initiatives are on your roadmap for 2024? (Check all that apply)



There's a good reason cashierless concessions technology has moved to the top of the list of venues' deployment roadmaps for 2024. It offers an attractive solution to some universal problems.

Missing key moments in a game or performance while waiting to grab a snack or purchase merchandise negatively impacts the live event experience. STR's in-person reporting on cashierless concession technology has shown a high rate of fan acceptance and satisfaction, since many of the venues using these innovative solutions are able to shorten average transaction times to less than a minute.

In addition to improving the fan experience by significantly reducing queuing time, teams and venues have reported that they've been able to grow revenue by increasing transaction volume and basket size.

“New technologies supported by a unified network architecture are proving to be a cost-effective way to improve venue operations. Venues need to ensure their infrastructures are robust enough to support continued innovation.”

Scott Lawrence, SVP of Global Solutions, Verizon

Further, operational efficiencies can be achieved when replacing traditional belly-up stands with new frictionless solutions by reducing staffing requirements and reallocating existing personnel more effectively. Because of this, it's possible that the already rapid deployment of cashierless concession technology in stadiums was responsible for reducing anxiety about staffing, which dropped from being last year's top concern to fourth on this year's list.

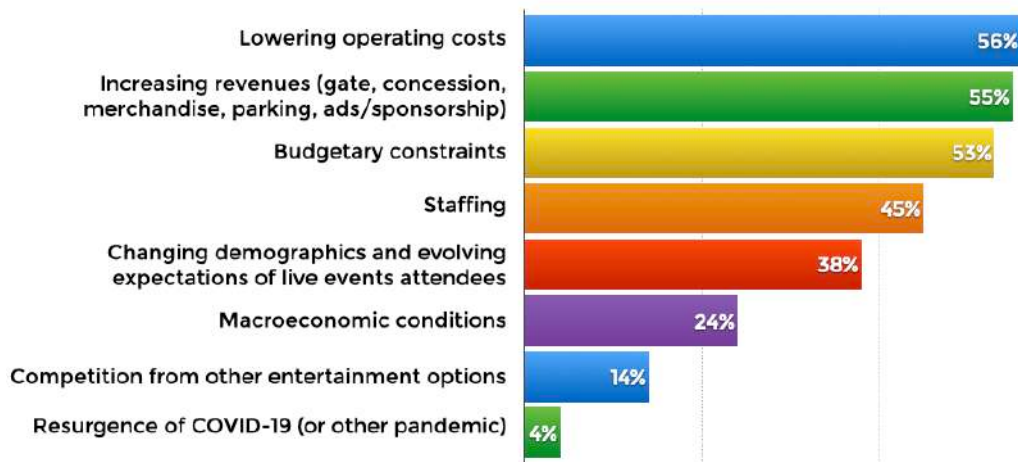
With 66 percent of respondents this year saying they already have cashierless concession stands in their venues, and 65 percent of respondents saying cashierless concessions are on their roadmap for 2024 (compared to 45 percent a year ago) we expect to see even more adoption over the next 12 months.

We also expect to see more venues adopt walk-through security screening technology in the coming year, with 46 percent of venues putting that as an objective on their 2024 roadmap.

Sandwiched in between those two topics was a desire to improve in-venue connectivity for fans (59 percent of respondents) and in-venue connectivity for operations (54 percent). The first number clearly reflects concerns about the explosion of big data usage at jewel events. The second addresses the importance of having secure, reliable bandwidth for critical back-of-house ops including ticketing and point-of-sale systems.

Venues focus on budget challenges

Survey question: *What are the biggest challenges you face in the next 12 months? (Check all that apply)*

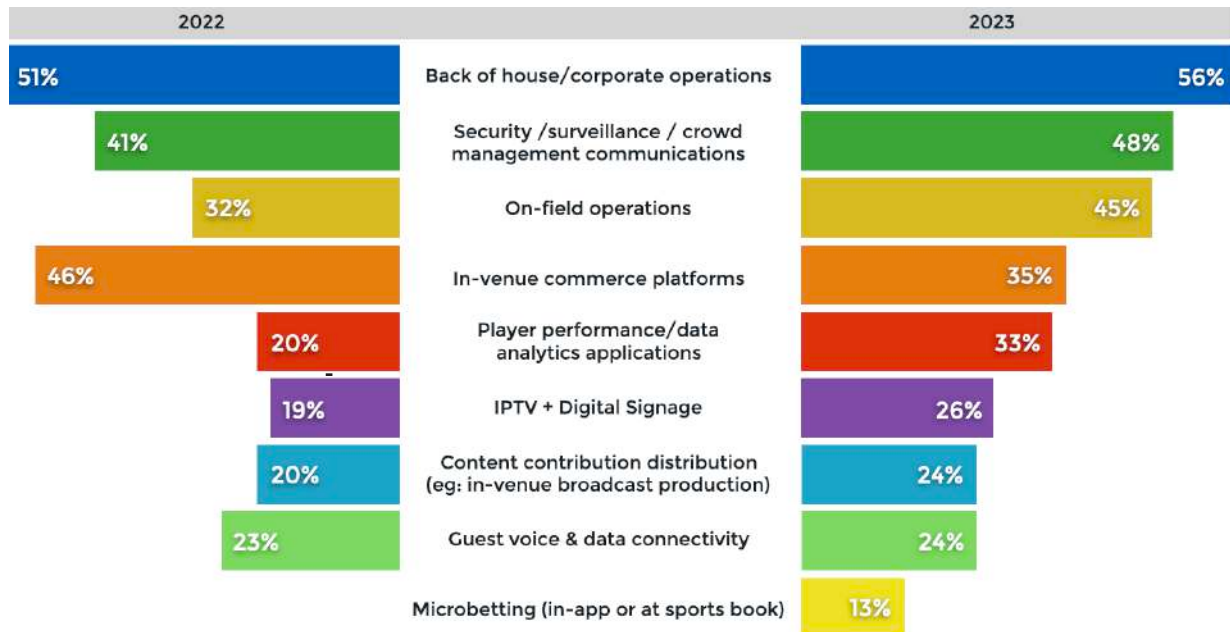


The increased interest in deploying new technologies that can directly improve revenues and lower operational costs is likely the main way venues are seeking to address their top concerns, which for this year's survey focused completely on fiscal issues.

In order, the top answers from this year's respondents are lowering operating costs (56 percent of respondents), increasing revenues (55 percent) and working within the confines of budgetary constraints (53 percent). Staffing, last year's top concern (60 percent of respondents in 2022), dropped to fourth on the list with 45 percent.

Interest grows for multiple uses of private 5G

Survey question: *With private 5G, you can isolate a portion of the bandwidth and dedicate it to a specific workflow. Which workflows would you use it for? (Check all that apply)*



From prior years' survey results, we've seen that venue professionals value a robust network infrastructure that allows them to innovate around public safety, access, concessions, crowd management, and operations.

This year, respondents said they are looking for more ways to use private 5G networks in their venues. Verizon's deployment of a managed private wireless solution for coach-to-coach communications in every NFL stadium for this football season is just one possible reason why there was an increased interest from last year for applications like on-field operations.

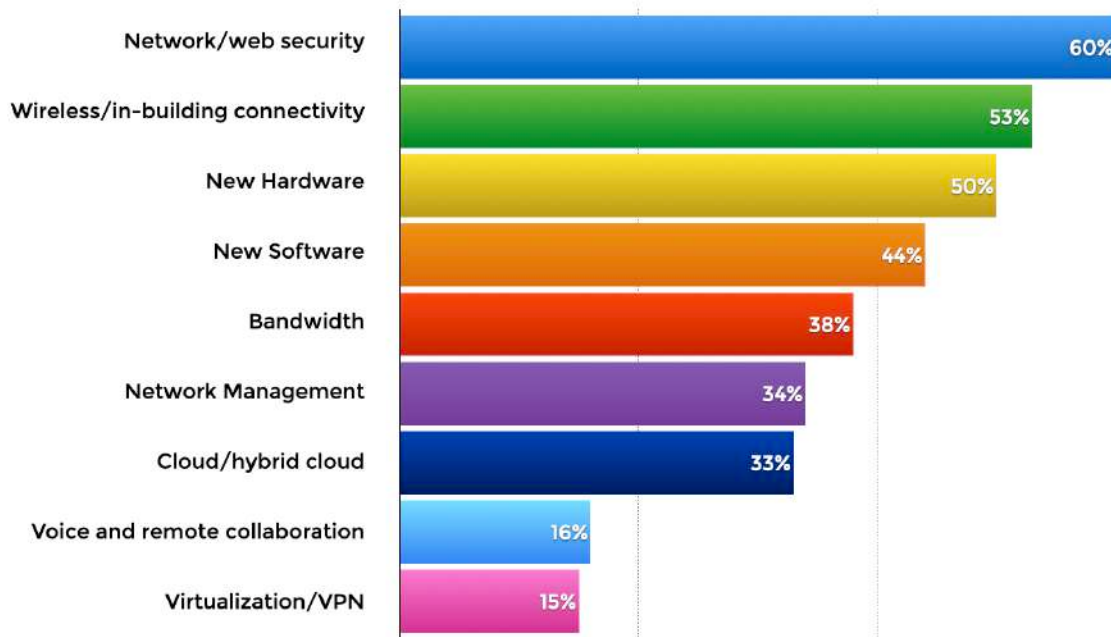
By keeping most of our survey questions the same as last year, we were able to come up with some interesting comparisons across the entire survey. One of the more compelling ones came in our question about how venues might utilize private 5G.

While using private 5G for back-of-house operations was still the top selection, even that category grew in interest, from 51 percent of respondents in 2022 to 56 percent in 2023. Using private 5G for security and surveillance communications moved up a notch from the third-most mentioned choice to second this year, with percentages growing from 41 percent of respondents to 48 percent.

The categories for on-field operations and player-performance analytics both increased by 13 percent each among respondents, with those numbers now at 45 percent for on-field operations and 33 percent for player-performance analytics. With respondents being able to check "all that apply" to the question about private 5G, the interesting factor was that almost every category showed more interest than in 2022. Even one new category we added for this year, Microbetting (in-app or at sportsbook), was selected by 13 percent of respondents.

Wireless demand continues to grow

Survey question: Which areas will you be making changes in your IT infrastructure to support growth or reduce operating costs over the next 12-18 months: (Check all that apply)



With mega-events like the Super Bowl and the recent Taylor Swift concert tour continuing to break single-day stadium wireless consumption records, it's no surprise that improving in-venue connectivity remains a big concern and core objective.

“The ‘Taylor Swift’ effect is very real. With bandwidth needs continuing to increase, venues need to make sure their network infrastructure keeps pace with demand.”

Mike Ruhnke, VP Enterprise Sales, Verizon

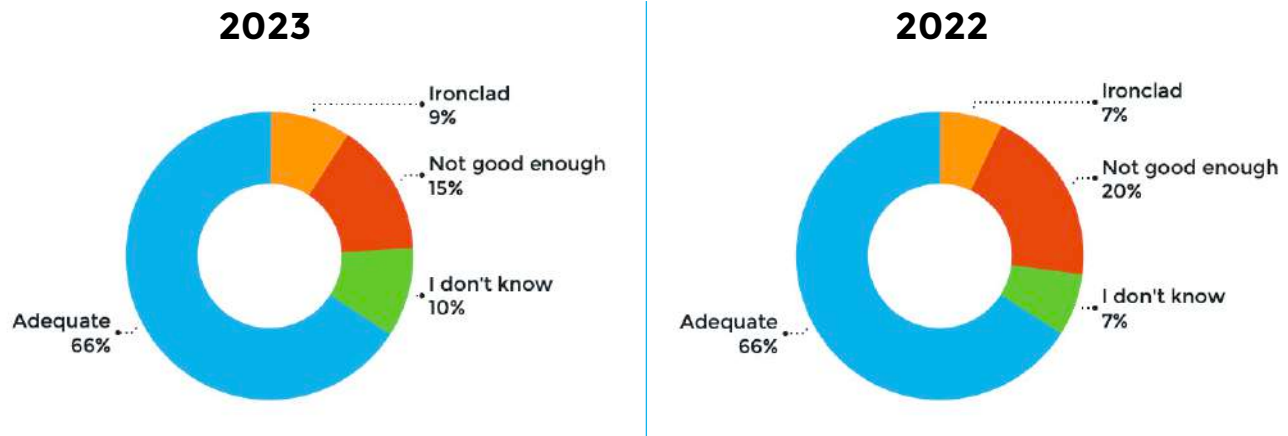
The good news is, even as demand continues to increase, new technology and new spectrum chunks for services like 5G cellular networks and Wi-Fi 6 and Wi-Fi 6E deployments are showing the ability to provide much faster communication and wider channels of bandwidth than previous deployments.

Now if Taylor Swift decides to attend a Super Bowl as a fan, all bets on having enough

bandwidth may be off. But at least venues are showing their intentions to invest in wireless well before any such data-consumption Armageddon.

Cybersecurity failures can bring significant consequences for teams and venues, including financial, reputational and legal harm. So perhaps it's no surprise that on our IT infrastructure spending question network/web security moved into the top spot—posting a slight gain from the previous year's survey, increasing from 56 percent of respondents to 60 percent this year.

Survey question: *My existing security posture / strategy is*



The increased attention to security might be the reason why a greater number of respondents feel more confident this year about their existing security posture and strategy. On that question, respondents who felt their position was “not good enough” dropped from 20 percent in 2022 to 15 percent in 2023, while those who felt their security was “ironclad” rose from 7 percent a year ago to 9 percent in this year’s survey. At the other end, however, some more concern may be necessary as the number of venues who responded “I don’t know” what their existing security posture is grew from 7 percent in 2022 to 10 percent in 2023.

Overall conclusions: The drive toward more technology use in venues means that faster, more secure connectivity continues to be a priority

As technology is deployed to solve more of the pain points of both attending events as well as running in-stadium businesses, the need for faster, more secure methods of connectivity remains at a premium. Our respondents’ replies show both a willingness to try new things to solve old problems, especially in areas like concessions and security, which had been without major changes for many years, as well as the sensibility to know that expanding technology usage comes with a parallel need for the infrastructure to support it.

The responses to our survey questions show venues know about the needs to control costs and to find new ways to raise revenues, as well as the knowledge to keep investing in good, reliable, protected network infrastructure, the lifeblood of many of the other functions that are becoming the “new normal” in stadium operations. The good news is, advanced new technologies paired with expanded wireless spectrum resources are giving experienced partners even more ways to help venues find the best path along their digital transformation journey.