

# STADIA DESIGN - THE FUTURE

**PS&AM** quizzed a panel of experts about the future of stadia design. **Tom Sheehan - ATSP, Immanuel Geis - Proprojekt, Alastair Richardson - COX Architecture, Florian Hupfer - vision4venue, Chris Lamberth TVS and James Middling - Mott MacDonald** shared their thoughts.



Tom Sheehan



Immanuel Geis



Alastair Richardson



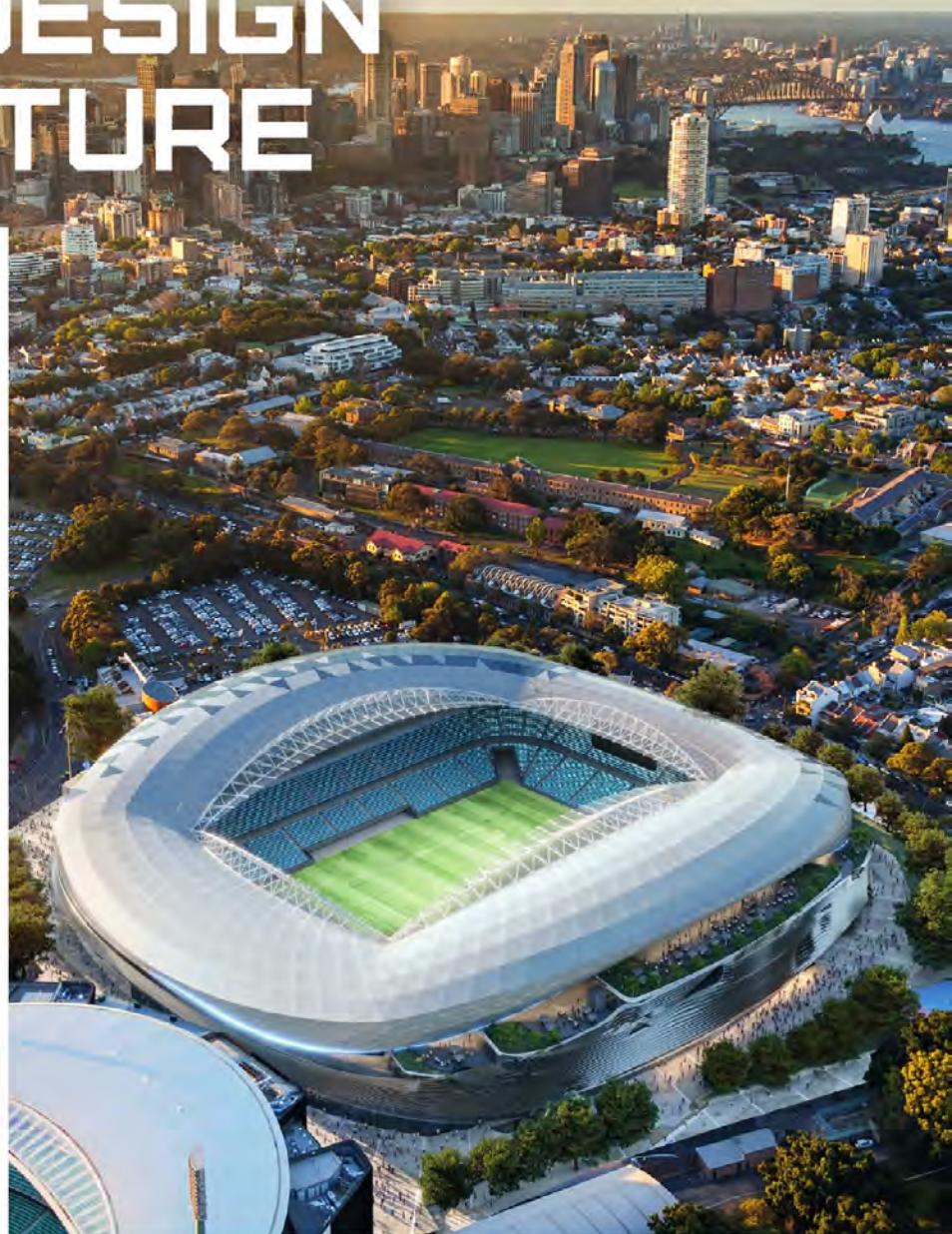
Florian Hupfer



Chris Lamberth



James Middling



**What are the major trends that you have identified in stadia design over the last five years and will these remain key drivers in future stadia design?**



Quality business seats and season ticket holders drive design marketing decisions. It does not however guarantee good attendance. The 'no show' phenomenon is an increasing problem. Camera view empty seats is bad publicity and owners are looking for solutions. Another phenomenon is the parallel ticket resale market. Clubs are hard pressed to capture this lost revenue. Ticket sales strategy is where the two problems meet. A more flexible and dynamic ticketing system is needed on the one hand and on the other, tailor fitting the experience.



In North America, a recent trend in stadia design has been in the diversification of seating products and hospitality offered. This is driven not only by market demands including strength of the economy and availability of commercial partnerships, but by the need to increase revenue generating potential. The challenge facing an architect designing these environments is adding value, comfort and amenity at incremental price points. The millennial and coming centennial generation are looking for more social spaces that may not be associated with a standard box or seat. In many cases it does not include an assigned seat at all. Delivering the blend of value with amenity is something we are seeing will need to be implemented in a 6 to 8 year cycle. The focus cannot entirely dwell

on the high end of the premier spectrum and needs to address the needs of the common fan.



The stadium itself is becoming more and more multifunctional and becoming a venue which should be used 24/7 rather than just on match days. Therefore the stadia themselves will be more and more complex buildings in terms of functions and functionality and also in terms of technology and IT infrastructure.



A critical element is the rising costs of large capital scale projects and the impact of those costs on the viability of projects for both governments and private clubs.





ROUNDTABLE

WHAT NEXT FOR STADIA DESIGN?



Over the last five years we have seen an ever-evolving fan economy which has resulted in fans being provided with more choices than ever before. Choice of ticket type, ranging from seat selection, type of banqueting to even the mood and vibrancy of the actual environment. The drive towards unique live experiences has also increased with greater interest of being closer to the players and action has progressed the design of exciting new fan experience based hospitality products such as tunnel clubs, field suites, try boxes and this is a rapidly evolving space.

How will rising costs impact future stadium projects?



Large-scale projects such as stadia and arenas are often initiated without a detailed preliminary design, without any cost considerations, or simply for political reasons, although the legal requirements in the construction industry and European procurement law have become considerably more complex and restrictive in recent years. To prevent such projects from repeatedly exceeding their timeframes and budgets, the relevant structural and operational challenges of modern, flexible and sustainable sports facilities should be identified and coordinated at an early stage and even before the first line is drawn. Accordingly, the below mentioned stages will serve as a guideline for the efficient and economic development of new sports venues. Stage 1: Project objectives – Assessment of needs and

sport development strategy; Stage 2: Risk management – Test planning and potential analysis for the site; Stage 3: Cost and revenue potential – Profitability analysis; Stage 4: Models and funding - Project financing; Stage 5: Involved parties - Tendering, implementing and operating model.



The United States has seen a surge in building costs parallel with declining capacity. For new builds, moderation plays a role. However, as building technologies and systems advance, the hope is that material and labour costs using innovative design and engineering collaboration will start to stabilise and contain these costs. In renovations, there can be modest savings that are alternatives to new builds and that should start to influence decisions to renovate as a more viable option.



Increasing justification of the costs will be required. Investors will seek greater justification of the business case in the operational stages as the construction costs escalate. As stadiums become more complex, there is likely to be an increase in delays and challenges getting the stadia operational, resulting in increased construction costs, insurers being less will to underwrite and contractors unhappy to continue to assume full >>

The way that I can see this leading, and this is a very pertinent element that's been going on in Australia, is consolidation of venues resulting in multi-tenanted stadiums. The issue for multi-tenanted stadiums is being able to make sure that those venues can be clearly identified as a home ground for each of the teams that play in those grounds. This is becoming more and more pertinent both for rectangular sports and oval sports in our opinion, and for example basketball, which has shared venues for many, many years with ice hockey in the US. So we think that a major trend is greater utilisation of the asset and more use of the asset with respect to the number of sports that can actually be played within the venue.

Mercedes Benz Stadium which hosts NFL and MLS clubs features a wide variety of seating products and hospitality

Image credit: Revel Pix LLC / Shutterstock.com





Fans are taking pictures in front of the Wanda Metropolitano stadium the UEFA Champions League final

Image credit: Vivvi Smak / Shutterstock.com



◀ risks. Costs only rise as owners become more obsessed with delivering the "best Stadium"; investment needs to be focused in areas that will deliver appropriate returns to stadia, not only delivering great fan experience to make fans want to come but also delivering margin that can be reinvested in the team to deliver on field success.



This demand on complexity, functionality and new technologies are key aspects on rising stadium costs. We as architects should focus on the demand and the needs of the clients first, rather than thinking about creating an architectural icon which might be expensive to build.



The reality of professional sport is that costs are getting higher and higher and the number of clubs that actually have financial stability is certainly large but not across the whole of the league and therefore the notion of how you can drive revenue out of venues is increasingly important.

**How can the economic sustainability of stadium and arena projects be ensured for owners and users?**



We as vision4venue are always keen to focus on the functionality and cost factors, discussing the demand and revenue generation with our clients and providing a long term strategy with business and revenue

models with our clients to ensure a long term economic sustainability. One of our key focuses during the design process is to think out of the box. What will happen with the stadium in the next 10/20/30 years and how can changing demands and new technologies be incorporated into our projects in the future?



Owners diversify more and more. Stadium revenues are risky and irregular. Clubs need academies, hotels, retail merchandise, social media, additional sports including e-sports etc. Stadiums need additional dates to maintain their infrastructures, concerts, forums and events. New venues must continue to anticipate and offer flexibility to assure sustainable revenue streams.



It's beyond the diversity of events or venue tenants. Partnerships with public and commercial partners need to continue to evolve so that the investments made with private sports clubs or tenants are regenerative in nature. Dollars need to be dedicated to venue maintenance and operations that favour efficient and sustainable practices alongside those for revenue generation and profit. This impacts terms, leases and financing for pending deals and renewals clubs or major sports facility tenants negotiate in the future. Wasteful practices that allow facilities and system to remain neglected over time must be eliminated.



With the increasing demands for ever evolving fan experiences, the need for more event diversity on the field of play and the increasing numbers of events held, the complexity of a modern stadium has increased greatly and its cost too. More than ever before it's necessary to make informed decisions, using a business case approach to evaluating the many options that could be included in your stadium, against the returns that they may provide. At Mott MacDonald we always look to understand the core drivers and requirements of the stadium, then shrink the project brief down to deliver these core requirements only. Then through a process of revenue testing we create a shopping list of value adding and revenue generating features that can be added. For each item we examine the impact to the business case and carefully test these benefits against likely risks.

**What are the primary factors that you see contributing to the 'fan experience' and how will these evolve in the next decade?**



I think fan experience is all about real experiences, so in other words the physical not merely the virtual. I think what we're going to see in all forms of entertainment, and sport being a part of the entertainment market, is the increasing desirability to be there live. We can all get snippets on the mobile but if we don't get there live, >>>





« we're missing something. The corollary of this though I believe is that we're going to potentially see smaller venues coming in to create the notion of a full house giving a good atmosphere all the time. Within each venue then the notion of graduated experiences, based on what you can pay at the end of the day from all sections of general admission through all sections of corporate, will become a growing component and traditional revenue streams of how we might have enjoyed a game or live experience will change. A lot of these elements in terms of how you gain better outcomes from your venue is going to be driven by the fact that TV rights are going to change dramatically over the next 10 years. The professional leagues and the teams associated with those leagues will see a distinct change of criteria around the revenues that they used to get from TV.

 On the one hand the digital infrastructure and related services of stadia are becoming more and more important. To keep attracting spectators, especially the younger generations, the offer of digital services and technology must be expanded and enhanced. Choosing the entrance and beverage stand according to live heat mapping in order to reduce waiting time – or even ordering your food and drinks from your seat via an app are indications for these further developments to come. On the other hand, these new and enhanced services should be offered in addition to the traditional sports experience with all the related emotionality and the sensation of sharing the live moment with thousands of other fans, which in our opinion will always be at the centre of the fan experience and the main reason for people to go to the stadia.

 I am intrigued by the sprouting 'unplugged generation'. I would not underestimate their influence as they are fervent supporters of the 'live' and 'real' fan experience. Everything about the event experience counts. From acquiring the ticket to sitting in your seat, and from the kick-off until home asleep, an experience should be designed. Event venues, like media, are becoming smarter and smarter and learn what their users want, they anticipate, reward and gain the fidelity of their fans. Adaptable design that fits the fan from event to event is an interesting vector to be explored.


 In-venue technology and the tiered hospitality offerings will contribute to the evolving fan experience. Whether that be in the offerings and operations of the facility for security, food service, ticketing, access, monitoring or communications. Some of these will be realised in less visible ways such as electronic systems and networks, but are important nonetheless.

 Across the globe there are numerous examples of highly successful clubs with a fervent fan base that have very modest stadium hospitality facilities and limited disposable income to invest in significant upgrades. How can a club in this situation attract the necessary investment and plan for redevelopment of its stadium to deliver the transformation that will maximise revenue and profit? To persuade fans to change their behaviours and instead arrive early to enjoy the hospitality on offer, and continue to do so long after the game has finished, we need to influence how fans interact with the stadium and view the facilities offered to them. The fan experience economy is driven through personal choice, and what fans would like to experience on the day. This means the stadium's hospitality zones must deliver a matchday experience that is simply better than the alternative choices.

 The "digital fan" will soon become reality and state of the art. Which means digital data

during payment processes, ticketing, stadium App etc. can be used as marketing tools, ways to enhance the fan experience pre/during/ and post event. This will lead to higher direct and indirect revenues for stadium operators and clubs.

**A live event is increasingly a convergence of physical and digital experiences driven by the demands of the younger generation. How do you see live content continuing to evolve and how well equipped are sports architectural practices to meet these needs?**

 Public venues are more and more connected with high density Wi-Fi so that moments can be replayed, selfied, tweeted, re-tweeted and liked. It is not enough to 'be there' it has to be instantaneously recorded (never to be seen again). The virtual vs the real experience is what has driven stadium and arena design for the past decade. The Net Generation, AKA Millennials, Generation Y or Digital Natives are the young people roughly born between 1980 and 2000 are getting older and out of fashion. In Gil Scott Harron's words, 'The revolution will not be televised, it will be live'. There is a growing minority of youth that are not interested in social media nor virtual reality. They are after the REAL. Real experiences, real people, real food and real beliefs. They have a genuine distrust in social conformism and spoon fed media. The challenges we faced with the Born Digital generation was getting people off their sofas to go »





« to stadiums and arenas, this generation wants to be immersed in the event. Look at E-sports. Real sports were first replaced by virtual competitions played by distant anonymous pseudonyms. Now we bring everyone back into dark auditoriums to be together to do the same thing. It is a virtuous or vicious cycle.



My belief is the jury is still out. Even though there's no doubt that E-sports is growing. Certainly, if I look at my own children their involvement in these sports is growing but my view of E-sports is it really is a virtual experience. Yes, venues are beginning to host these events. Yes, they are in existing venues. Yes, people are beginning to think about a purpose-built venue, but a part of what I've observed of E-sports is the intimacy of seeing it on your own screen and being in essentially a connected network that allows you to interact directly with the people that you are either gaming with or the lead gamers. So to my mind I think it's still got a long way to go before it becomes mass entertainment. There's a physicality about live sport that you cannot get in virtual sport. So it's a growing influence. Will it be to the scale and size of professional sport? Unlikely. Will it have a unique following. Absolutely. But my view is the jury is still out as to whether that is venues that happen to host it, a theatre or a cinema or an arena, or dedicated venues or whether

it's actually more geared and tailored, which is the origins of the game at the end of the day from your in-home experience of being into it being able to directly interact with your heroes who are digital.



The next decade will see the rise in connected experiences through virtual and immersive environments linking the in-stadium and home viewing experiences. This will allow fans to share the live experience with their friends, family or the wider fan base whether they are in the actual stadium or viewing at home. Immersive technologies will also allow for augmented viewing of the live event. In the stadium, the game viewed through immersive vision technologies will allow for digital augmentation with match statistics, instant zoom replays on demand for the super fan and even the insertion of family friendly animated characters for the younger fans. There is already a drive towards E-sports and the evolution of gaming towards live sport events will continue to develop, creating new demands for different stadium environments and technologies, again creating a far wider live shared experience.



We see the "digital fan" as a win-win situation for fans and the venues. Especially when we see the up-coming new generation as digital natives with E-sports events, digital marketing during events, etc... the next

generation of venues might become technology driven buildings. We as architects and designers following the latest technical developments and are in opinion exchange with the ticketing and E-sports industry to follow the latest trends and developments.

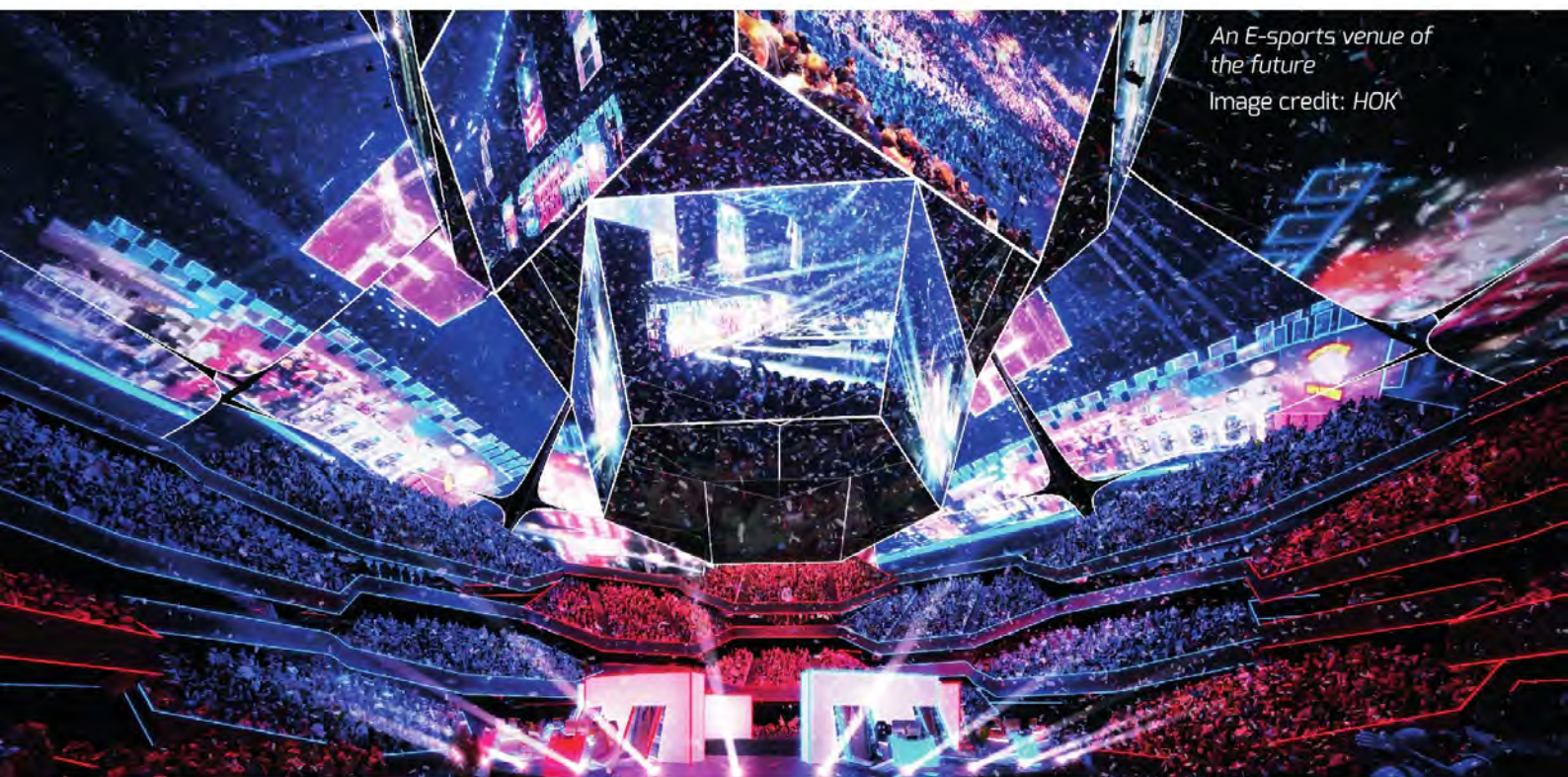


These technology movements require partners at many levels – phone companies, wireless brands, systems engineers – it's about having a good team and not just the architect.

**In your opinion, how will a new stadium opening in 2025 differ from ones that have opened in recent years and what innovative features will it include?**



The next generation of stadia is likely to be smart infrastructure with digital and immersive technologies at their forefront to augment and enhance the live viewing experience, but also to connect you with other groups of fans and friends who are not in the stadium environment. The rise of E-sports and gaming will continue and will start to shape the form of future stadia, with a solution that is still emerging, this is likely to become a major change to the shape of a modern stadium. The choice and range of hospitality products is likely to continue to grow and will be highly responsive in its ticketing packages to suit the lifestyle choices of the fans and their »



An E-sports venue of the future  
Image credit: HOK





Augmented reality experience with interactive 3d virtual maquette of stadium Luzhniki  
Image credit: Zyabich / Shutterstock.com

« specific needs from game to game. A flexible package with a range of basic to VIP experiences available on demand.



In my opinion a stadium in 2025 will be more complex, more digital and more comfortable than venues opened in 2018. This will also affect the mid-size, and small stadiums of the new generation.



Stadiums will be real destinations that offer something unique. They shouldn't copy or repeat, but be ultra-flexible and diversified. Intimate and personal, patinaed and genuine. This applies to renovated venues that have history to offer their public. I would like to answer this question further but is it the theme of several ongoing projects that have yet to see the public light so I will remain discrete.



The technical as well as ecological and economic requirements for sport venues have been changing and increasing significantly during the last five decades. Stadia are getting safer, more comfortable, more flexible and more ecological. Looking ahead,

digitalisation will be the next key driver for competitive stadia design. To attract future visitors and especially the younger generations of digital natives, a new stadium must include a powerful digital infrastructure to facilitate the following technologies: Augmented reality, tracking, statistics and data intelligence; second screen opportunities for additional live data and replays regarding an enhanced fan engagement and involvement; live heat mapping for reduction of waiting times, digital ordering and payment services, etc. Thus the concrete construction of a stadium opening in 2025 will be based on the same specifications as a recent stadium, but the digital technology, like the local network and the associated server technology, the capability and capacities of wireless data transfer, the integration of high-resolution cameras, hologram technology and 3D projections as well as digital apps for an enhanced fan engagement will be way more sophisticated and on a very different level.



Let's see how new venues can continue to be additive features in mixed-use developments with commercial and residential components. Strive to embrace multiple

forms of transit with an eye of getting people to either use mass transit, shared rides or leave the car behind altogether. But as for features, with the push of the younger generations supported by portable technology (smart devices and networks) venues will decrease in capacity and continue to look beyond offering a fixed seat as we know it today.



Stadiums that will open in 2025 are being designed right now. Looking ahead then, to 2025 and 2050, the focus will be on a truly sustainable economy. We've got to be far more diligent about the repurposing of existing buildings into the facilities that can host live sport. I think the notion of continuing to replace assets on a 20-25 year cycle with a \$1-2 billion dollar price tag now is just unsustainable. You just can't keep on using the resources like that. So to my mind in 2025 we're going to be looking a lot more carefully at sustainability. Sustainability means size as well. Why build a 40,000 seat stadium when your average crowd is only 20,000. Do You need it? It's going to look at issues of the materials that we use from every element of the true lifecycle the material from cradle to grave. ■