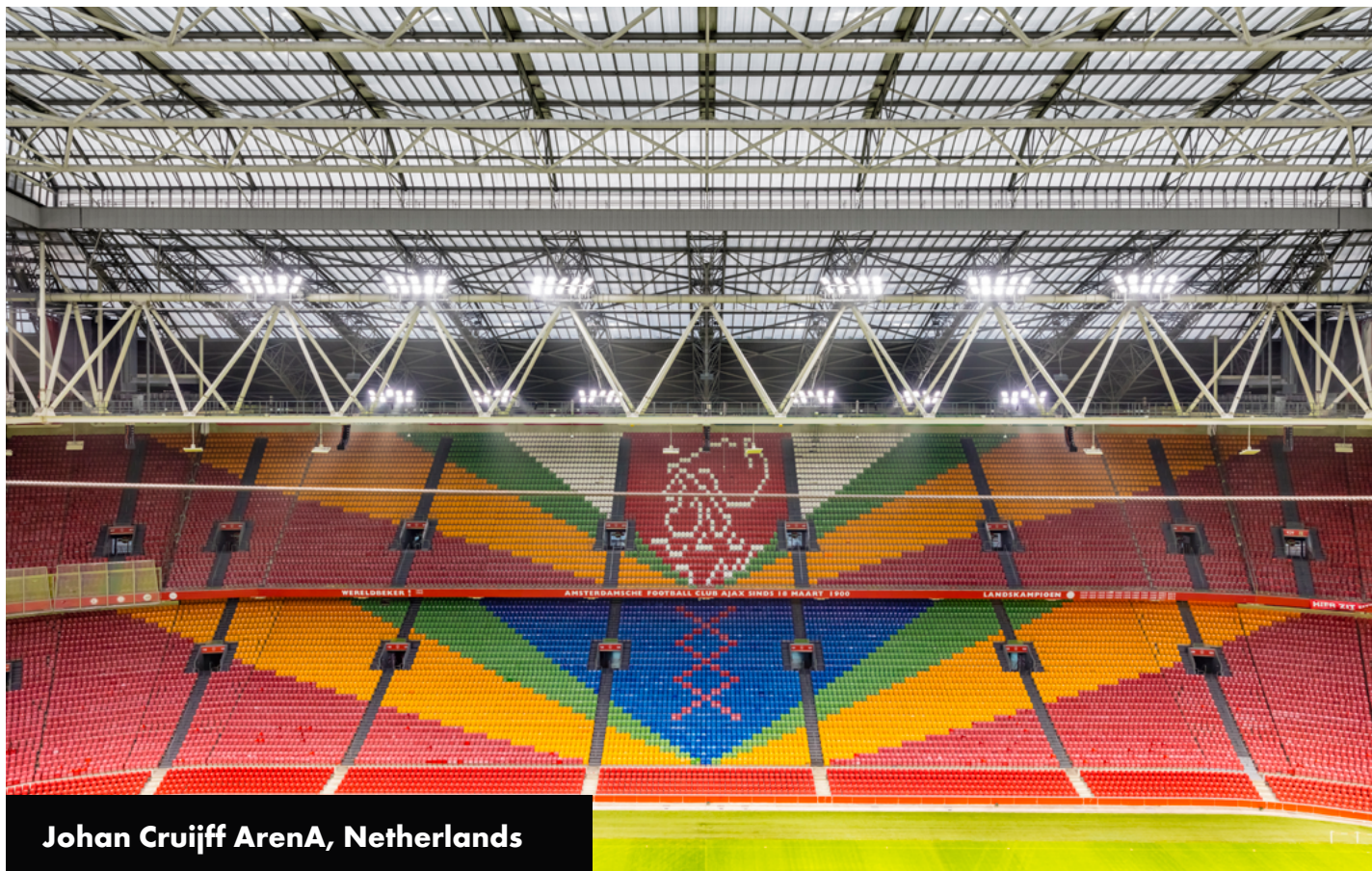


Engaging technologies deliver next level entertainment experience.



Johan Cruijff ArenA, Netherlands

"The quality of the d&b system was not just a few steps up in terms of sonic delivery, there are other benefits, not least massive savings in power consumption."

Tim Oosterop, Production Manager, Johan Cruijff ArenA

Setting the scene

Opened in 1996, the Johan Cruijff ArenA is a world class stadium and home to AFC Ajax, one of Europe's leading soccer clubs. With features such as award winning turf and retractable roof, together with its central location and easy access via public transport, the arena has become the preferred venue for the Dutch National football team's international fixtures.

Production Manager at Johan Cruijff ArenA, Tim Oosterop: "All the money Johan Cruijff ArenA makes goes back into the building; as much as 90% is reinvested and has been for the past 10-15 years.

"Like our LED screens, or escalators up to the second tier, investment in audio is not something you can charge for, it doesn't translate directly into revenue, but it does see the audience come earlier and stay longer. If they're here that's good for revenue, and makes best use of the facilities.

"Ajax already has its own video production department and puts a lot of work into the pre-show environment. Entertainment is the key component for them and quality audio is a big part of delivering that experience.

"Our customers are already very happy, and AJAX and the Dutch FA are very pleased with the new system. The aim has always been to be the best football stadium in the Netherlands, if not Europe. Part of that aim is to make the venue attractive to event organisers, not just for sporting, but also concert shows and events."

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"It's no longer the case that shows of stadium stature just turn up, bring in their systems, then leave. They now find that if they take the time they can achieve unheard of levels of quality and listening experience for all their concert goers."

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Establishing objectives

When Oosterop and Head of Technology Martin Wielaart began investigating the potential benefits of installing a new audio system they defined three main objectives:

- Compliance with multiple regulations
Specifically, UEFA/FIFA regulations for performance and intelligibility, and adherence to national and international safety standards for evacuation systems.
- Address the issue of atypical stadium acoustics
Venues of this dimension present well documented acoustic difficulties, a problem that is currently not realistically affordable to solve through sophisticated construction techniques.
- Enhance the arena's reputation
As a host of other entertainment events - especially concerts - with an acknowledged leading audio brand.

To address the requirements of safety and conformity the arena engaged the services of RH Consulting, a specialist practice that advised LOCOG for the London Olympics in 2012.

"We were brought in to provide advice on two issues," explained Roland Hemming of RH. "The arena's management were understandably unsure about compliance; the EN54 standard is a confusing subject at best." Hemming has sat on the EN54 committee for three years, and is the only independent committee member.

"So initially we created a specification document to cover both performance of the system, and compliance with the regulations, including Dutch national regulations. The document was written in a manner suitable to a project as large and complex as this venue. We created three versions, one for the local

safety authority, a second for the bidders so they knew how to comply, and a third for FIFA and UEFA.

"FIFA and UEFA have defined performance standards. Unfortunately, both are unrealistic. So we interpreted these regulations in a way that any bidder could reasonably aim for."

Oosterop: "Having RH Consulting in this role, especially through the regulatory process, was very reassuring. "Achieving that, and so easily and smoothly, was significant. It was also important for all the various bidders, so they could all aim to a common standard, rather than their own interpretation of the regulations. Frankly, interpretation of regulations can lead to wild variations in bid content; RH brought uniformity to the process.

"As far as the challenging acoustics of stadium venues are concerned, we wanted a system in place that allowed us to clearly show concert organizers, band managers and event promoters, that we had invested in, and made serious inroads to, making it possible to achieve the highest quality sound. We have had two loudspeaker systems in here since we first opened, first a rental, then an installed system from 2006 but they were already out of date.

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"For us that meant it was important to have an installed audio system from a brand name that is recognized as superior by the touring industry. Through our research we observed that for a significant number of years d&b

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audiotechnik has been identified as number one in the industry, with three other close contenders, all of whom were invited to tender."

Ampco/Flashlight, the audio service provider at the arena since it opened, arranged for d&b to make three presentations onsite as part of the bid process. Later Wielaart, Oosterop and Hemming, were invited to the Lanxess Arena in Cologne to hear a full d&b system in situ.

"By that time we had already identified d&b as a leading brand, and their in-arena demonstrations had been compelling," said Wielaart. "What we heard settled the debate. I remember talking to Rolf Dijkstra, Flashlight's representative, in the back of his car on our way home to Amsterdam, saying that what we heard was the key moment in confirming our decision."



The system demonstrated at Lanxess was optimized with the d&b software tool, ArrayProcessing. Hemming defines its function in simple terms: "Frankly at the proposal stage you can use computers to model audio systems to death all you want, but when you finally get them in the building and test the real world experience you cannot anticipate every detail of how the building will respond. ArrayProcessing gives you more choice in that you can change and adapt system performance post installation."

In short, ArrayProcessing would:

- Enhance the systems' ability to meet intelligibility and sound quality expectations across the entire listening area
- Allow for adjustment post installation, supporting/expanding long term utility prospects
- Fully integrate into the pre-existing Peavey MediaMatrix system provided by Ampco/Flashlight enabling any event format to be reasonably considered

"In terms of intelligibility, UEFA for 2020 set an STI of 0.7 in every seat. Essentially STI is an internationally recognised empirical measurement of what is intelligible. They also want 105dB in every seat. We advised 95% of the seating as a realistic target... We saw those standards being measured and achieved during the commissioning process of the new d&b system."

Roland Hemming, RH Consulting

The solution

By June 2016 the agreement with Ampco/Flashlight followed almost two years of research, bidding, proposals and presentations. Coincidentally, the deal was signed on a day that saw Coldplay at the arena as part of their 'Head Full of Dreams' tour; with them a mobile loudspeaker system by d&b – further testament to the brand's reputation in the concert world.

The event also saw the arena deploy its Flex Acoustics aQtube inflatable baffles to reduce reverberation - another investment towards listening quality. As Coldplay's chief audio technician, Tony Smith, commented at the time: "The Dutch press made a point of saying how good it sounded; 'the best they'd heard at Johan Cruijff ArenA in years' said one. Personally, I think d&b should be very proud of that."

Oosterop: "The fact d&b's ArrayProcessing software interfaces invisibly with our existing MediaMatrix management system facilitates a simple and easily executed route to accommodating a variety of event formats. And without compromise to safety standards. "With what we have now, we can present acoustic models and predictive scenarios to provide those planning to bring their shows here. We have an audio infrastructure that allows them to plan for best sound. By having all the modelling software and associated data, we enable them the time and space to plan accordingly."

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"The quality of the d&b system was not just a few steps up in terms of sonic delivery, there are other benefits, not least massive savings

in power consumption," continued Oosterop. "The old system, in order to comply with evacuation regulations, had to be on 24/7 so that if you hit the evacuation button the response of the system was immediate."

"With the new d&b solution it can be off when not in use. At any time, 24 hours a day, 365 days a year, if you hit the evacuation button the system responds in half a second. Not only that, for smaller events where perhaps just part of the stadium is in use, the system is zoned, so we have default programmes within the evacuation control customized for us by Flashlight, that trigger the evacuation system to move people out zone by zone."

"Obviously the big saving for us is in not having the system on all the time, but we also find that not only is sound improved throughout the venue, but power consumed during non-events is lessened. Audio power consumption has been reduced by minus 85%. Not only is that a huge financial impact, it's also a great ecological result. One of the arena's aims is to be carbon neutral; we already have solar panels and wind turbines in place. Now we are one step closer."

"Our customers are already very happy, and AJAX and the Dutch FA are very pleased with the new system. The aim has always been to be the best football stadium in the Netherlands, if not Europe. Part of that aim is to make the venue attractive to event organizers, not just for sporting, but also concert shows and events. This has now been achieved - U2 just confirmed they will perform their 30th anniversary 'Joshua Tree' concert at the arena summer 2017."

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