

An interview with Michael Häck, sound engineer at the Lanxess Arena, Cologne, on the new lower tier PA from TWAUDIO.

[Details about the Lanxess Arena's new lower tier PA with TW Audio components.]

I have been working here steadily as a freelance sound engineer since the year 2000.

Since 2005, I have a contract with the Lanxess Arena, so I spend a certain number of days here every month. In my opinion, one of the Arena's greatest advantages is that it's very balanced with regards to frequency response.

There are no significant differences when rehearsing with an empty venue or playing a concert with a full house. There are other venues that sound completely different – that's not as much of an issue here.

There are certainly some corners that would sound bad or worse due to insufficient coverage. So there are certainly some pitfalls. And you should have enough experience to ensure you can have a successful concert in here.

[How is the collaboration with touring technicians?]

There are certainly some differences. Some will be very happy. Some are just happy. Some will accept that I am there and will listen to what I have to tell them about what they are about to hear when they switch on the sound for the first time.

Over the years, I have learned that people will always have a sympathetic ear. Even though they do not necessarily use my service as an advocate for our delay line. But they will be happy to benefit from my experience, from what I can share, and then they'll say: "Tell me what you don't like, or where we could tweak something." So people will have sympathetic ears.

[Criteria for the selection of the new system]

There are two things that are fundamental. The most important factor is, as a lot of people know, our public address system, also serves as our alarm system. Meaning: There are norms we have to meet with regards to monitoring – SPL criteria and of course SDI criteria. So that was a prerequisite for the new system.

And then there is the second aspect, from my point of view – from a purely audiophile point of view –, which is: The system simply has to sound great. So if a new system is being installed here, it should be enjoyable and sound great to my ears and, consequently, to our audience and our production department.

So we can say to each other: Yep, this is fun – this is a fine system with a wonderful sound. So not only the (TÜV) certification and sound alarm aspect, but sound quality have been considered as well. These are the two main features.

[What predestines the components for their intended use?]

These guys came here for a test run with the previously mentioned system. And I was immediately impressed how easy it was to get good results on voice reproduction even with the complex environment.

We used this once for a production called „Lachende Kölnarena“. And everyone who knows Cologne and the surrounding area knows the kind of challenge that something like this poses for us sound engineers.

This is a very challenging production, as far as the overall result is concerned, with vocals and speech intelligibility literally taking center stage.

There is a very high ambient volume. You always have tambourines playing along somewhere. There are many singers joining in, etc. So you really have to get to the heart of the matter until you can create a nice sound. Of course, in this situation it helps to have a system that gives you a pleasant, warm vocal sound right from the start, without having to endlessly fiddle with the mixing desk until you get some results. So that was a very important feature for me, where I was able to say: I really like this. It just sounds nice, and it allows me to easily bring speech or vocals to the front.

A big advantage of the subwoofers is that they come with Cardio or End-fire presets, which is perfect for what I want sound-wise, as it allows me to distribute bass where I want it – and also remove it from where I don't want it. And so, these two essential elements were present in this test production in the most beautiful way.

[The conversion process]

In this particular case, we eventually got to that point “x” where this company was tasked with implementing all this. And TW AUDIO really put their hearts and souls into this project. Meaning: Everything related to this; the network structure, had to be rebuilt for that. We had custom fly racks built, etc. So all this was implemented between January/February and the end of August last year, which was our launch/implementation date. So during this time frame, all the details were worked out and prepared in the best way possible.

So when it came to implementation, we were able to remove the old system in two days, install the new system in four days and make all the measurements in another two days. And that was it.

So this was our reward for all the hard work, the attention to detail and months of preparation.

The real advantage, however, is that only three or four people were actually involved in planning all this. So we came from an acoustics perspective, from a coding and a structural perspective:

How can we rig all this; how do we prepare the mechanics. And by working together and sharing thoughts, we were able to have the whole new configuration ready for prime-time within less than two weeks.

[Is working with the new system easier?]

I am very fond of clear structures. So the digital signal processing is set up in a way that even a non-audiophile person can understand how signals go from A to B.

This can then be packaged into so-called presets that will allow me to say: This is the “Guest/End Stage position”. And then I’ll know: If I’m feeding that input over there, it will automatically go to that speaker, which is already set to a specific delay and a particular level, and then I’ll have to readjust it for a given production.

And then of course we have our center presets. And that means that if we’re doing the sound for KEC (Köln Haie – Cologne ice hockey club) or handball ourselves, then there is this preset that will delay and set everything properly for the center position.

And so there are multiple presets that you can recall, and there will be two or three other people who know their way around the system, so it’s essentially; “Launch – works – done.”

Currently, our mixing setup is still analog. Downstream, it’s digital. So this is all AVB-based. So starting from our sound control room (or from the point where we integrate a third-party production into our system), it’s all distributed digitally via AVB, over our catwalk and distributed to the various satellites we have there. This has been completely redone.

And for almost exactly a year, we have seen under real-world conditions which benefits this new approach has brought to our daily work. By harnessing the new DSP structure, we now have options we never had before; which weren’t even possible a few years ago.

This means for example that we now have multiple matrix capabilities, or multiple delayed matrix capabilities. I can now incorporate something into the system from several points in the hall at the same time, but it will still be represented differently for different spatial positions.

What we always have to consider here is that if there is an emergency, the alarm has to go out with the same level everywhere. But I can now work with an input from our sound control room, or an input at the Stage / North End position. Or there may be an input from “guest production” south or from the mixing desk. And I can merge these at the same time and distribute them to different systems with different delay times, always confident that the alarm system will work. Meaning: It will always go through, one to one.

So as a practical example, we had this Philipp Poisel concert. So we got to work with two signal lanes there. One came from the End Stage position. Then he had a B stage, which had its own, separate sound system – inside or below the (video) cube, and so we had two different locate points. And then we used our upper row as a delay line – both for the end stage and as a delay line for the center stage.

So depending on where the artist played or sang, we could send a signal either from Master A or Master B to the locate point.

With the earlier system, that was unthinkable.

Or I could drive our system (which is designed for the lower levels), individually in separate layers and use these as a separate delay line for the level 4 and 5 box seats. Or if we have a theatrical performance, and they didn’t bring enough speakers, I can extend what they have to the top, i.e., their speakers’ directivity. I can extend that to the top, by simply using just the top four or the top two speakers – and I’ll still be safe knowing: If we have to send an alert, it will go out over the whole system.

That was unthinkable before we had this.

And of course, it’s great to have these capabilities, so you can approach someone and tell them: “Hi, I’m Michael from the Lanxess Arena team. I might be able to help you, maybe in this or that function. Are you interested, should we work together?” And then we get to exchange ideas.

By now, we often have scenarios where we can add our delay speakers to the delay speakers an artist brought, for example: When you’re sitting in the East or West wing, only one of your ears will get the direct signal from one speaker – which in this

case is usually the outfit, while the other ear has a 45 degree angle towards the stage and accordingly gets more of the room/ambient signal. So when I can send some direct sound from one of our "misaligned" delay speakers at that position, the result will be that both two ears get direct sound.

And the resulting acoustic experience is so much more defining, powerful and beautiful, as I will perceive the singer quite differently from what it would be like if I only heard her with one ear.

So I will perceive with both ears that the impulse response is correct, it's aligned. And that's a joy to hear with both ears. With regards to loudness... This isn't really about loudness, but rather about the psycho-acoustic effect: "Yes, there are two sources playing for me." And the resulting acoustic experience will be quite different, even though the signal source is 80, 90, or 100 meters away. But the perception is simply quite different.

So we get more and more productions where I can simply say: This is something I'd like to show to you. And of course, you are free to say: "No, I don't want that; I only want to hear my own system."

No problem there. I'll be offering it, and some will say: "Yes, you are absolutely right. Leave it on – with so and so many extra dB." And then we can work out the details together.

Direct link to the interview video:



(<https://vimeo.com/283038176>)

Direct link to the installation report:



(<https://www.twaudio.de/en/news-en/lanxess-arena/>)

Direct link to the Production Partner article (German):



(<https://www.production-partner.de/story/tw-audio-installation-in-der-lanxess-arena/>)

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