

Royal Albert Hall, UK installs the world's largest single room audio system.

d&b Soundscape.



“This is the biggest improvement to what our audiences hear since the mushrooms went in in the 1960s.”

Ollie Jefferys, Head of Production and Technical, Royal Albert Hall

The Royal Albert Hall is an iconic venue, renowned for staging an eclectic variety of live entertainment, and for having one of the world's busiest program of events.

The Hall's reputation for diversity is historic. It's doors have welcomed everyone from Winston Churchill to Albert Einstein and Edward Elgar, to The Beatles, Ella Fitzgerald and Adele. For fans of culture, sports and politics - and everything in between.

With new audio on the agenda, the issue of getting a sound system to deliver for everyone would not be without its challenges. Built in an era of unamplified sound, the building is classified Grade I listed. Any design proposal for a new system would require special building consent, and need to integrate seamlessly with the internal fabric of the space. Care and respect would be paramount.

As such the project would draw on the most detailed acoustic surveys and modelling ever

undertaken in the Hall, ground-breaking installation methods, and a wide pool of industry leading expertise. All planned and delivered by a multidisciplinary team during the Hall's busiest ever year.

Ollie Jeffereys is Head of Production and Technical at the RAH. “Previously our control over the audio experience was limited and often didn't meet our high standards. What we wanted was to bring sound inhouse with a properly implemented system and make it so good that the majority of productions would feel comfortable using it.

Naturally everyone who has ever played here wants to get it right; some audio teams would spend five or six hours on the day taking speakers up and down, up and down, trying to achieve that end, but it was always a compromise.

It wasn't that our service providers were doing anything wrong, but we felt the difficult

challenge of delivering world class audio within the extremely demanding geometry of the room, could only be met with a different approach to the goal."

The basic premise is that the room and the system is split vertically into three levels. Through rigorous modelling and many rounds of finding out what was physically possible, the team managed to secure the loudspeaker locations for all three zones; that allowed for coverage, imaging, level and control - to find a balance in the midst of what is an intricate sound system.

Steve Jones is Head of Application Support for d&b GB. "RAH presents a sound system designer with some of the most unique geometry in the world. Using the latest 3D modelling and simulation techniques from leading acousticians Sandy Brown, we were able to pinpoint exactly

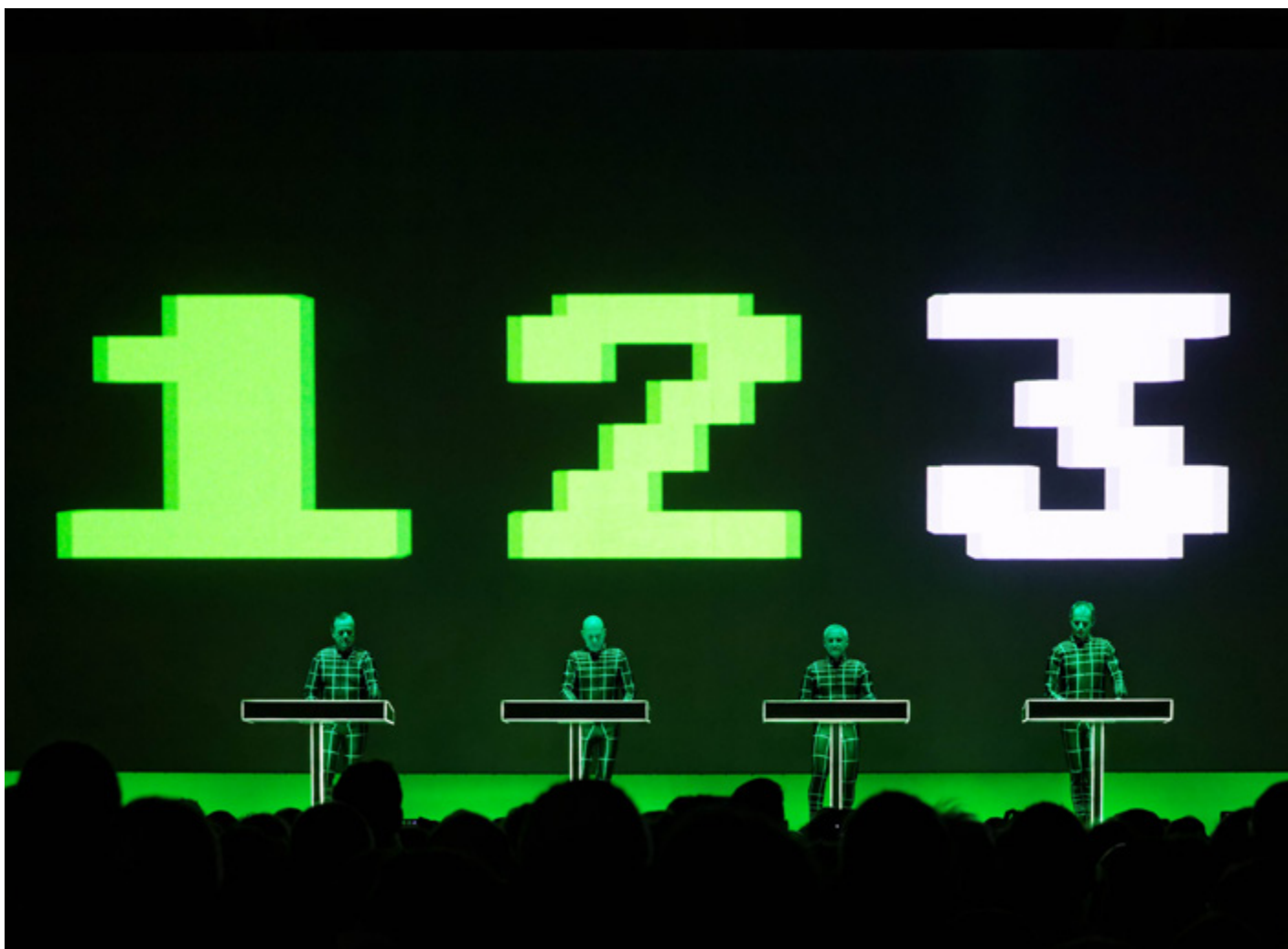
"This investment is about more than up-dating the sound system. It's about future proofing the building as we approach our 150th anniversary in 2021, so that it's fit for another 150 years."

Chris Hassall, Chief Executive Officer, Royal Albert Hall

how, where and what speakers we needed to install, maximizing the clarity, intelligibility and musicality that the audience expect from a world class venue."

Resident Audio Manager, Borneo Brown, confirms the benefits of the new installation. "The multiple aspects of the final design solution, the way the vertical separation of the audience areas are properly addressed, and the way all the boxes have been included in that plan, means that since the system has been commissioned, and whatever the demand of program material placed upon it, we have been able to tailor to every differing need. The DS100 matrix is a critical tool and the multiple scenarios Steve Jones has anticipated and programmed into it is a key factor."

The Hall uses the DS100 as a matrix in standard configuration to distribute signals to the different loudspeaker groups, allowing for multiple different system configurations at the touch of a button.





To ensure all listeners experience a similar acoustic environment, each of the 140 private boxes is equipped with a small loudspeaker system comprising tiny specially colored cabinets. Using Soundscape's En-Space software an appropriate reverberant field is created within each box, emulating the performance within the main auditorium.

With the DS100 already in place, the Hall has the option to switch to a full Soundscape system as and when required, by deploying two additional main arrays and processing with En-Scene, and En-Space.

Following the new audio installation, one of the first shows to employ Soundscape in full was E. T. A. Hoffman's *The Nutcracker*, with sound design by Bobby Aitken. "Having eventually decided upon d&b as the primary sound system, one of the most significant

decisions they took was to ensure the system was Soundscape ready," says Aitken.

For Aitken, Soundscape's creative potential was there to envision. "For the sixty minutes before the show there was lots of corporate entertaining going on in and around the auditorium," he explains. "So we introduced sound effects, little motifs with a touch of reverb' that evoked noises of toys being crafted from within Drosselmeyer's workshop, or the sounds of reindeer sleigh bells travelling around the room.

"Yes, you could do something comparable with a more conventional surround system, but the key was to be unobtrusive; like hearing birdsong on a walk through the woods, it needed to be delightful, directional, but incidental.

"With surround sound we could have done that in the main auditorium, but not into all the individual boxes. But with loudspeakers in every box it could be done there and with subtlety.

"For me, the show sounded noticeably different from anything I've ever done in there before," concludes Aitken. "I know it's a cliché, but it didn't sound amplified... I was super happy with the results, it was a great sounding orchestral show... every member of the various music departments loved it."

For touring production managers and sound crews, the logistical headache of reconfiguring touring audio systems for the idiosyncrasies of the Hall is a thing of the past. "Everyone is using it," confirms Jefferys, "orchestral, pop, rock and roll. And we expect that uptake to increase; we already have things in place to carry this system into the future as that demand and expectation arises."

"The flexibility of the inhouse system has far exceeded our initial brief. The DS100 handles all possible inputs to the system from house shows to visiting promotions so efficiently and reliably. And then we have the ability to enable a full Soundscape performance with a few tweaks, to add that extra level of emotional connection."

Ollie Jefferys, Head of Production and Technical, Royal Albert Hall

> System: 16C, 24C, E4, E6, E8 M4, SL-SUB, T10, V8, V12, Y8, Y10P and 10D, 30D, D20, DS10, DS100