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# Surroundscapes: The power of immersive sound

Showcase guide

[#surroundscapes](#)



# THE NEXT GENERATION OF AUDIO

“Sound has a magical effect on our emotions and the way we interact with all kinds of experiences, so there’s no reason for audio to be a mere afterthought when it comes to developing ground-breaking immersive content. We’re already seeing the tangible and powerful results of sound-led VR experiences.”

**Jeremy Silver**

CEO, Digital Catapult

“Digital music gives us myriad ways to discover and enjoy new tunes and sounds, but increasing focus is coming on the richness and depth of that sonic experience. Cutting-edge new tech, such as immersive audio used in VR and other applications, give us a glimpse of how this exciting new world of consumption and entertainment will take shape, and we are delighted to be partnering with Digital Catapult on Surroundscapes to explore the expansive potential that it offers.”

**Geoff Taylor**

Chief Executive BPI & BRIT Awards



In the early days of silent film, music was performed live. There was a band or pianist that would play in front of the screen, serving as commentary for the narrative's action and flow. In 1927, music and sound were recorded and printed onto film for the first time. Slowly, as film technology became more sophisticated, it encompassed multiple channels of sound, with a number of speakers placed around the theatre. Eventually, surround sound was developed, and became a critical factor in the success of the overall cinematic experience.

Immersive content is no different. If one thinks of virtual reality as an attempt to create an alternative reality, the brain needs audio cues to match the visuals to be able to buy into the illusion. The user has to feel present in the experience, and can only feel present if all the cues received are completely natural. If the sound is flat and coming from just one place, the spell will be broken.

When delivered successfully, immersive audio creates the sensation of height around the user, transporting into a more thrilling experience.

Because the power of sound can alert users to something behind or above, it's important users realise that they are able to move around within the immersive experiences. When creating virtual reality (VR) and augmented reality (AR) experiences, for a long time, the industry has been focusing on the visuals, but that is only part of the environment.

This year, at SXSW, Tribeca and the Venice Film Festival there was a noticeable rise in sound-led immersive experiences: sound has become a powerful storytelling tool.

Last year, Bose launched BoseAR and with it three products to transform AR audio. Launched alongside these products, the software to create AR content is now available, with the world's first audio AR platform: Traverse.

At SXSW, Traverse's "From Elvis in Memphis", an AR-based piece of content allowed users to experience the music of Elvis Presley by walking through a physical space. The experience is created in such a way that it's like being in the studio with Elvis; it's possible to walk right up to him and his band members.

In the UK, Abbey Road Studios is one of the most famous recording studios in the world. It has been in use since 1931, and has famously provided recording facilities for talents such as The Beatles, Pink Floyd and Aretha Franklin. Abbey Road is the only facility in the UK to offer both scoring and film sound post-production, while the focus on immersive technology grows year on year.

Our research has identified a number of companies in the UK which are creating sound-based tools and solutions. There are even more creating sound-led immersive

experiences. Two companies from our CreativeXR programme this year are doing just that: Darkfield and Abandon Normal Devices. On last year's programme, Roomsize developed Open Space: a platform that enables the rapid construction of interactive audio experiences that occupy physical spaces. All this activity suggests that we are on the brink of a new generation of infrastructure to amplify sound in VR, AR and MR. Sound-led content will simultaneously open up new streams of possibilities for entertainment and media.

In partnership with the British Phonographic Industry (BPI) and its Innovation Hub, we are delighted to introduce **Surroundscapes: The power of immersive sound**. This is the latest Digital Catapult immersive showcase which runs from July to October 2019. We will be shining a light on UK-based startups and scaleups that are either creating the latest solutions to amplify VR, AR and MR experiences with sound, or content creators who are specifically sound-led.



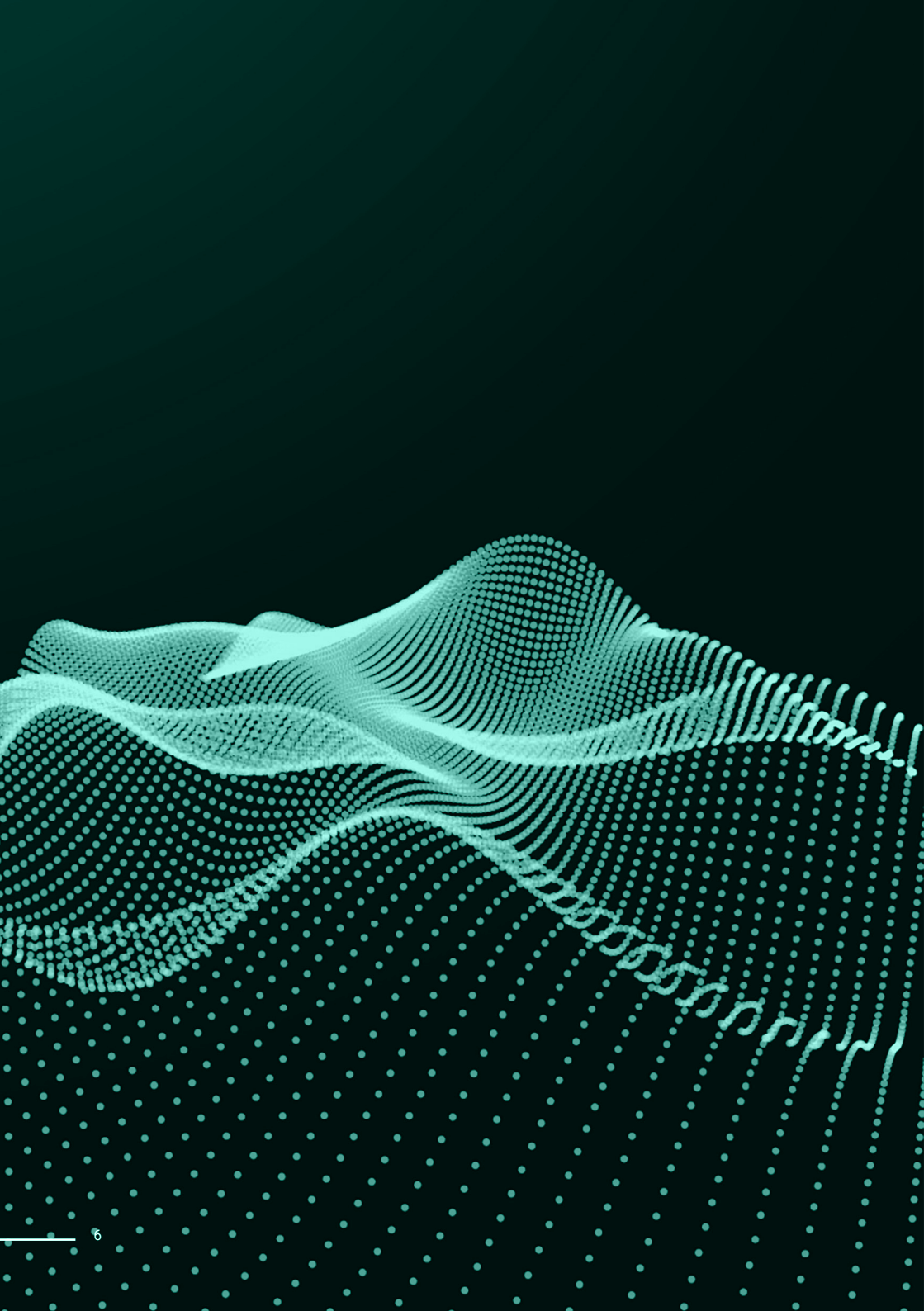
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# SURROUNDCAPES: THE POWER OF IMMERSIVE SOUND

We are delighted to present Digital Catapult's Surroundscapes showcase. This is an opportunity to explore the importance of sound within immersive experiences.

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1.618 Digital is an award-winning creative sound design studio that provides audio production and post-production services; immersive and spatial audio solutions for 360 video content; and games and interactive VR/AR media.

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## 1.618 Digital

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## MARKET POSITION

Audio is an essential part of immersion. It is almost as important as the visual element, but is often not prioritised in the same way. Part of 1.618's mission is to help brands and partners within the industry to understand how audio can be used to elevate the sense of immersion.

1.618 Digital applies a simple philosophy across all projects: how can they enhance the audio experience? This could mean capturing authentic audio on set and at original locations, working on each iteration to finesse the interactivity, or using high spatial audio resolution. For example, 1.618 typically delivers content in high order ambisonics. Whether they are working with 360-degree cinematic film experiences or an interactive mixed reality project, having an open mind and stepping outside conventional realms is key to breaking boundaries.

## PRODUCT

As part of this showcase, 1.618 Digital is proud to present three projects that are on the cutting edge of digital technology for modern education and storytelling and illustrate the innovative applications of immersive audio.

- **Common Ground** (East City Films)
- **Rise of Animals** with David Attenborough (Atlantic Productions)
- **Journeys into No-Man's Land** (Royal Holloway University of London, Durham University, Foxep)

We're innovating the methods through which we deliver educational and entertainment content. Currently, the digital content sector is striving to modernise to meet demand from younger tech-driven audiences for immersive and interactive programming.

Immersive environments allow interactions and user manipulation of objects and sounds, which has been proven to provide 40% more brain activity relating to storage and recall of information. The use of high spatial resolution audio and interactivity along with volumetric audio and 6DOF enables users to engage with stories and other content on a deeper level.

# DARKFIELD

DARKFIELD specialises in creating communal location-based immersive experiences inside shipping containers. These experiences place the audience in complete darkness and then deliver binaural 3D audio and other sensory elements, using the darkness to create a canvas for the imagination.

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## DARKFIELD

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## MARKET POSITION

DARKFIELD has tapped into an exciting commercial opportunity to provide affordable, innovative and intelligent location-based experiences. DARKFIELD has already engaged a range of customers including theatre audiences, festival programmers, UK and international producers, and experiential marketing agencies.

In recent years, immersive events have grown exponentially, but there remain issues around prohibitive up-front costs, high risk and high ticket prices, and they tend to take place only in major cities. High rent for commercial space puts further strain on the commercial model for location-based experiences in buildings. Despite the exciting advances in VR and AR technologies, content creators often don't exploit the most important feature of immersion, the imagination of the audience.

## PRODUCT

DARKFIELD has developed experiences that are deeply immersive, simple to scale, yet mobile and relatively low cost to build and present. The company has a unique offer grown from over twenty years working in the immersive theatre industry, and over six years creating shows and experiences in complete darkness that use binaural audio, multi-sensory effects and content to place the audience in the centre of evolving narratives. The experiences' greatest asset is the invitation to walk the line between what seems to be happening and what imaginations can conjure up.

Since its start in 2016 DARKFIELD's work has been seen by over 85,000 people, with very positive responses and reviews. Each show is built into a shipping container and can easily be taken on tour. Technology does not act as a distraction from the experience. The audience only uses headphones, everything else is hidden. The experience is simple: enter a container, put on headphones, the lights go out and the experience begins.



**MAGICBEANS**

MagicBeans is a spatial audio company creating a new kind of AR audio. The company maps highly realistic audio 'holograms' to real-world locations, visual displays and moving objects, creating a new and emotive presence for experiential businesses and visitor attractions.

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## **MagicBeans**

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## MARKET POSITION

MagicBeans' mission is to create virtual audio that is indistinguishable from sound in the real world.

The company bridges the 'listening gap' between the physical and digital worlds, and enables new kinds of immersive audio experience based on acoustic innovations.

Current spatial audio systems have been designed for traditional gaming and VR needs. When sounds are put into real world environments, however, the threshold for the suspension of disbelief is much higher than with these original applications.

MagicBeans aims to get audio out of the uncanny valley and enable new kinds of real-world audio-led information and entertainment applications.

## PRODUCT

The project offers a whirlwind tour of the possibilities enabled by MagicBeans' mapping technology.

The experiences demonstrate how sound can be mapped to visual displays, to individual objects that can be picked up and interacted with, and to a full room-scale audio experience.

Experience MagicBeans technology embedded in a next-generation silent disco, an immersive theatre production and a new kind of audio-visual display.

Because of its effect on the emotions and mood of audiences, audio is a powerful tool for conveying information. The Digital Catapult showcase demonstration enables users to experience the powerful effect of being surrounded by highly realistic audio, and being able to explore and interact with it first-hand.



**P L A Y L I N E S**

Playlines is an immersive AR studio that specialises in creating narrative-led immersive AR experiences in iconic venues. Its productions combine cutting-edge location-based AR technology with game design and immersive theatre techniques. The team’s work has been described as “Punchdrunk Theatre meets Pokemon Go”.

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## **Playlines**

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## MARKET POSITION

AR is creating the ability to tag and enrich real locations with digital content, anticipating a consumer demand for context-sensitive digital utilities and new experiences. Within this wider medium, the concept of immersive AR represents the ability to create layers of content which informs, enhances or recontextualises users' experience of public places and iconic venues.

Experiences like Pokemon Go show that AR can create new and unprecedented expressions of play in the real world, with significant market and cultural impact. However, creating and iterating AR experiences is still slow and painstaking, coupled with unpredictable quality. Due to audio's immersive power and low running costs, Playlines currently focuses on audio-led AR. This allows the company to prove the consumer and B2B potential of context-sensitive AR layers, and to explore and establish best practices in this new design frontier without massive engineering overheads or commissioning burdens.

## PRODUCT

CONSEQUENCES is a groundbreaking immersive interactive audio-AR grime rap opera, created in collaboration with multi-award-winning MC Harry Shotta. Explore the AR Grime Club, follow the rhymes, and choose the ending.

CONSEQUENCES gives audiences a brand new kind of night out that combines Secret Cinema, silent disco and 'Sleep No More'.

The sold-out invitation-only preview of CONSEQUENCES at Club Fire earlier this year demonstrates that high-quality, full-length immersive AR experiences created by small teams can answer a growing sector-wide demand for innovative cultural out-of-home experiences with low running costs, unlimited simultaneous users, and without monopolising venue space.



Volta is a new way to produce music and audio, using space and movement as both a medium and an output. It is a VR application that makes spatial audio production not just easy but expressive, like a musical instrument, and easily integrates with audio production software.

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## Volta

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## MARKET POSITION

The future of entertainment is in immersive experiences, which will increasingly use spatial audio. In the same way that stereo dramatically expanded the capacity of audio recording from mono, many in the music industry believe that spatial audio is the next step on the trajectory of audio experiences. Volta's main feature – and the reason for it being built into a VR environment – is to be a physically interactive, far more intuitive method for editing and mixing spatial audio.

Digital audio workstations (DAWs) are the primary audio production tool for everyone from classical composers to bedroom producers. Volta is not a new DAW, it's a highly innovative user interface that translates the utility and functionality of a DAW into a three dimensional environment in VR – with a completely new set of interactions.

## PRODUCT

There are many audio creation tools for VR and AR but these tend to be novelty applications, not practical production tools. Only two or three currently integrate into digital audio workstations and into a producer's or front of house engineer's workflow.

Volta achieves integration by retaining the visual and interactive elements of producing spatial audio within the platform, while keeping all audio signal processing in the producer's or engineer's audio production application of choice. It uses a robust communication channel that allows the user to physically grab objects, move them in space, and record and automate that motion.



ZONEME's TRUE2LIFE™ object-based sound system provides a new way to control how audiences hear things by placing the sound at the point of origination. For example, words can appear to come from an actor's mouth, not the speakers, or a gunshot can be made to sound as if it takes place outside the room.

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## MARKET POSITION

ZONEME recognises that the market does not currently have a sound system that replicates real life. Audiences are surrounded by speakers which envelop them in sound, rather than being able to actually recognise the sound as emanating from its source location. This is exacerbated in virtual environments and emerging immersive experiences.

Object-based audio sources provide greater control of the apparent sound source and the ZONEME TRUE2LIFE™ technology provides exact placement of a sound relative to its original source location and the listener.

## PRODUCT

ZONEME aims to put the 'reality' into VR/AR/MR experiences by providing TRUE2LIFE™ sound. These experiences can be up to seven times more stimulating than visuals. Yet visuals have seen huge technological advances over the last 30 years that have not been matched by similar developments in audio.

ZONEME's customers will be both content creators and audiences, as the company provide tools that enable greater production control and systems that deliver a real-world experience, whether in music, storytelling, games or visitor attractions.



Digital Catapult creates world-leading programmes and facilities to help companies develop new products and services and get them to market faster.

We identify common challenges to help define new business models, and create facilities that address these challenges. Our facilities and programmes help to remove barriers to market for smaller companies, and become hubs of collaboration that bring academics, corporates, investors and small businesses together.

[www.digicatapult.org.uk/technologies/immersive](http://www.digicatapult.org.uk/technologies/immersive)

## AUGMENTOR

Providing participating organisations with technical and business mentorship, Augmentor gives access to state-of-the-art facilities and the support needed to confidently pitch ideas directly to investors at an exclusive showcase.

## CREATIVEXR

Focused on the creative industries, particularly the arts and culture sector, CreativeXR provides the opportunity to develop immersive content, concepts and prototypes. The programme has been developed by Digital Catapult and Arts Council England, with support from Innovate UK.

## DIMENSION

A world-leading volumetric and 3D capture studio that provides a step change in the realism of immersive content. A joint venture between Digital Catapult, Microsoft and Hammerhead, Dimension provides a world-class facility for use by startups, scaleups and corporates that form part of the UK's rapidly growing immersive technology and content sector.

## IMAGINARIUM STUDIOS

Offering a complete range of performance capture solutions, the studio services pre-production, production and post-production needs.

## IMMERSIVE LABS

Our nationwide network of Immersive Labs provides facilities for innovation. Each space is equipped with a range of the latest augmented and virtual reality equipment and can be booked by organisations working with immersive technologies to use for demonstrations, specialist development and showcases.

# WITH THANKS TO OUR SHOWCASE PARTNER



## The BPI

The BPI is a record labels' association that promotes British music and champions the UK's recorded music industry – the world's third largest. The BPI helps safeguard the rights of its members and of all the artists, performers and record label members of collecting body PPL – who collectively create around 99% of all legitimate sales and streams of music in the UK. The BPI's membership consists of over 400 independent labels and the UK's three 'major' companies, which together account for up to 85% of legitimate domestic music consumption.

In 2016, UK artists were responsible for one in eight artist albums sold worldwide. The BPI helps to promote British music overseas through numerous trade missions as well as

through the Music Exports Growth Scheme (MEGS). Since 2014 MEGS has awarded in excess of £2 million in government funding to over 150 mainly independently-signed artists. The BPI provides valuable insights, training and networking with its free masterclasses and presentations and through its Innovation Hub, Insight Sessions and authoritative yearbook and reports.

The BPI certifies the iconic Platinum, Gold and Silver Awards Programme, co-owns the Official Charts, and owns and organises The BRIT Awards – which, through the BPI's charitable arm, The BRIT Trust, has raised more than £18 million for music education and wellbeing charities to date, including the BRIT School. The BPI is also home to the Mercury Prize.

[www.bpi.co.uk](http://www.bpi.co.uk)



### **Digital Catapult**

Digital Catapult is the UK's leading advanced digital technology innovation centre, driving early adoption of technologies to make UK businesses more competitive and productive to grow the country's economy.

We connect large established companies, startup and scaleup businesses and researchers to discover new ways to address big challenges in the manufacturing and creative industries. Through this collaboration businesses are supported to develop the right technologies to solve problems, increase productivity and open up new markets faster.

Digital Catapult provides physical and digital facilities for experimentation and testing that would otherwise not be accessible for smaller companies.

As well as breaking down barriers to technology adoption for startups and scaleups, our work de-risks innovation for large enterprises and uncovers new commercial applications in immersive, future networks, and artificial intelligence technologies.

For more info please visit [www.digicatapult.org.uk](http://www.digicatapult.org.uk)

**CATAPULT**  
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Accelerating early adoption of  
advanced digital technologies

Working with  
**Innovate UK**