CATAPULT Digital

CREATIVE DEEP TECH

Digital Catapult: Developing the UK's creative deep tech market

Tackling the barriers and meeting the early opportunities of creative deep tech

Introduction

Creative deep tech: A new frontier of creative technology innovation

> The UK's creative industries are amongst our most dynamic and high-growth sectors, contributing £125 billion in GVA, and almost 6% of the UK economy (Creative UK). It is for this reason that the UK Government have identified it as one of the eight growth driving sectors in their recently published Industrial Strategy. It is underpinned by creative technologies (or CreaTech) as a capability that has emerged over the past 10+ years – and has led to the creation of some of the UK's most exciting companies.

At the forefront of creative excellence, and emerging as a real powerhouse of opportunity for the future is creative deep tech – a term coined by Digital Catapult to describe the convergence of creative industries, creative technologies, and deep tech capabilities such as artificial intelligence (AI), extended reality (XR), advanced connectivity technologies, and digital twins. This fusion is creating new products, services and business models, unlocking significant economic value and positioning the UK to lead the next wave of global technological innovation.

In partnership with UKRI, Digital Catapult has played an important role in helping lay the foundations for this emerging opportunity. For more than a decade we have been accelerating and scaling innovation at this intersection, establishing ourselves as a critical catalyst for the growth of a creative deep tech market in the UK. Through leading facilities, such as our Advanced Media Production studios; flagship programmes like CreativeXR, Augmentor, and MyWorld; and partnerships across the country and internationally, we have supported over 400 creative companies and facilitated £263 million in early-stage investment since 2018.

This sustained commitment has nurtured high growth potential companies including Camera Intelligence, Gravity Sketch, MOONHUB, and Meaning Machine, and catalysed the scaleup of many more, demonstrating how the alignment of the creative industries with cutting edge technologies can deliver transformative commercial and societal outcomes.

This report sets out how we have helped develop the foundations of this market, the importance of commercially-focused activities to help bring products and services to market faster, and the persistent challenges and opportunities for this sector – with support for creative deep tech supply side companies, demand side adopters and customers and infrastructure that underpins and enables creative deep tech to flourish.

Digital Catapult

Supporting the development of foundations for UK creative deep tech

Over the past 11 years, Digital Catapult has identified and sought to address challenges facing UK creative deep tech market development:

Limited investment in emerging media

Through our work in CreativeXR (2017-2020), Digital Catapult supported 60 immersive prototypes with £1.2 million in R&D funding, establishing the UK as a leader in XR content creation and demonstrating viable business models for immersive experiences.

Responsible technology development

From publishing groundbreaking research on immersive ethics (2020) to developing the interactive artificial intelligence (AI) Avatar "KAI" (2024), we have proactively addressed concerns around AI, deepfakes, and digital identity, ensuring creators remain at the centre of technological innovation.

Sustainability challenges

Through initiatives such as Terra Datum and the Textile & Fashion Supply Chain Testbed, we have pioneered research into energy-efficient virtual production and circular economy models, demonstrating how creative deep tech can reduce environmental impact.

Advanced network understanding

Through projects such as the 5G Smart Tourism initiative, 5G Orchestra, and 5G Festival, we have proved the transformative potential of advanced connectivity for creative applications – from distributed live performances to immersive tourism experiences.

Human-computer interface evolution

Through Surroundscapes (2019) and haptics research (2020), we explored emerging interaction paradigms, helping the industry understand and adopt spatial audio, haptic feedback, and immersive interfaces.

Creative AI development

The BridgeAI programme and MyWorld AI accelerator with leading industry players support creative industry AI startups, addressing the critical gap in AI adoption within the creative sector while ensuring responsible development practices.

IP and ownership innovation

Early blockchain experiments (2017-18) with partners like Blokur and the UK Games Fund established foundational understanding of distributed ledger technologies (DLT) for creative rights management and new business models.

Our role in creative deep tech since 2018

400+

Creative companies supported

4

Local creative deep tech innovation clusters developed

10

Creative deep tech R&D facilities and labs developed and operated since 2018

129

Creative deep tech companies supported to raise investment

£263m

Creative deep tech early stage investment raised since 2018

Digital Catapult

11+ years developing the foundations for creative deep tech in the UK

Over more than 11 years, Digital Catapult has played an important role in developing the foundations for creative deep tech innovation in the UK. Through the design and delivery of local, national and international creative R&D programmes, facilities and innovation assets, we have nurtured the early stages of deep tech development and practical application in the creative industries, while enabling experimentation with creative deep tech solutions into other sectors of the economy.

Our programmes have been instrumental to the growth of the UK deep tech innovation landscape. We have provided access to state-of-the-art facilities, such as our Advanced Media Production studios and Immersive Labs; technical and business support for creative technology startups through programmes such as CreativeXR; investment readiness through our Black Founders programme; and convened industry stakeholders through MyWorld. Digital Catapult has played a vital role in accelerating creative industry research, development and innovation.

We are proud to have strong partnerships and collaborations with organisations across the UK creative industries and creative tech ecosystem, including the Immersive Tech Network, XR Network+, the Co-Star Foresight Lab, and international organisations including the XR Association and South by South-West (SXSW). We have also proudly worked with key innovators, including Sunderland Software City, who played an instrumental role in delivering key interventions in the North East of England, PROTO, Gateshead Council, and Gateshead College.

We have supported numerous creative technology companies in experimenting with deep tech innovations, applying their solutions in the creative industries and enabling them to explore new sectors of the economy in areas as diverse as automotive manufacturing, aerospace and defence, retail, and energy.

Supporting the UK's first generation of creative deep tech companies including:

- **Camera Intelligence** – formerly Alice Camera, Camera Intelligence aims to build the camera of the future: an AI-powered camera that is more effective at creating content than any camera.
- **Meaning Machine** – an AI gaming startup that builds generative AI systems for in-game characters and dialogue. Advocating the use of authored AI, Meaning Machine seeks to create premium, author-driven AI characters that can play meaningful roles in the stories and objectives of their human creators.
- **Extend Robotics** – founded in 2019 with the aim of building a future where humans and robots work together to enhance productivity, safety and efficiency across a number of industries.
- **Gravity Sketch** – an intuitive 3D design platform for cross-disciplinary teams to create, collaborate, and review in an entirely new way.
- **Target3D** – specialising in the integration and application of cutting-edge tracking and immersive technologies. Working across all industries, Target3D provides innovative tracking solutions for virtual production, VR and AR, robotics, biomechanics, animation, VFX, gaming, training and simulation, 3D scanning and haptics.
- **1UP Studios** – formerly known as Arcade, an award-winning game studio creating play-based digital learning experiences.

- **MOONHUB** – founded in 2016, and disrupting traditional training models by offering VR-powered, fully immersive training courses. Its aim is to simulate real-life scenarios to allow people to learn in a virtual workplace environment, anywhere, anytime.
- **M-XR** – founded in 2018 to develop 3D production technology that allows brands, studios, and creators to digitise the real world accurately and automatically, enabling them to leverage the infinite world of 3D the highest quality 3D models.

Enabled by key partners

Digital Catapult has strong relationships with stakeholders across creative industries, creative technologies, and the emerging creative deep tech market. We have fostered a collaborative and joined-up approach to innovation in creative deep tech, working with partners that include:

- Aardman Studios
- AHRC
- Arts Council England
- AWS
- Bath Spa University
- Bauer Media
- BBC
- BFI
- Burberry
- Cartoon Network
- Creative Games Fund
- Creative Industries Council
- Creative UK
- Epic Games
- Google
- LADbible
- L'Oreal
- Louis Vuitton
- Merlin Entertainments
- Meta
- Microsoft
- Munch
- Music Technology UK
- MyWorld
- Natural History Museum
- Nesta
- Niantic
- Nike
- Nvidia
- Sony Music Entertainment
- South by Southwest
- Unity
- University of Bath
- University of Bristol
- Verizon
- Warner Music

Challenge 1: Limited investment into creative content and tooling for emerging media

> Over the past decade, we have been leading and supporting a range of key creative technology programmes to help tackle the early phases of market development in extended reality.

2017-2020: CreativeXR

2017-2021: Augmentor

2023-2026: MyWorld

2017-2020: CreativeXR

> Alongside Arts Council England, we launched CreativeXR in September 2017, with the goal of enabling new formats of content innovation in extended reality and immersive technologies. CreativeXR was a 12-week acceleration programme for immersive creators in the arts, culture, and entertainment sector. It offered support for UK content creators to develop early-stage concepts in virtual reality, augmented reality, immersive audio, haptics or any XR technology experience.

CreativeXR financed and supported the development of 60 immersive prototypes by leading UK creators, with £1.2 million, and awarded production funding to 12 projects worth £850,000. Many of these completed works have featured in major film and industry festivals, cultural venues, and storefronts worldwide.

Successful releases of projects include the Dambusters VR installation by All Seeing Eye, in which users physically step into history and relive a famous WWII mission. This installation has gone on to become a popular ticketed attraction for the RAF Museum. It's still going, currently in the Midlands.

CreativeXR in numbers

800
Applicants

60
Immersive prototypes

£1.2 million
R&D funding awarded

£578 million+
Raised in investment

CreativeXR partners and supporters

CreativeXR was a key partnership between Digital Catapult and Arts Council England as part of our vision to progress content-led research and development projects in the creative industries.

Over its three-year duration, the programme was backed by a support network of industry experts, high calibre peers and commissioning bodies, with supporters including:

- **Epic Games:** awarding the Epic MegaGrant in 2020 to develop projects built using Epic's Unreal Engine
- **StoryFutures:** bringing narrative storytelling expertise to mentor companies in story development, design and continuing narrative
- **The BFI:** seeking out and supporting the next generation of filmmakers, as distributors of National Lottery funds for film

In 2020, CreativeXR was joined by 39 community partners to promote diversity and inclusion within the industry, helping to deliver a bigger impact and build a stronger immersive community.

Enabling innovative immersive creators to develop content

> Without the CreativeXR Programme, we wouldn't have been able to make our pilot. The support, both financial and in kind, allowed us to access a professional network that not only enriched our project, but also our skills and careers as XR makers. Everyone on the programme was extremely supportive and gave us the tools to succeed. We couldn't have asked for better and highly recommend future applicants to go for it!
>
> **Gaelle Moure – (Hi)story of a Painting**

> We only truly started just before CreativeXR – having the income to work on a project was hugely beneficial. In addition, we had to talk to people and be more professional. It gave us the focus to take ourselves more seriously.
>
> **David Baxter – Boom Clap Play**

> Our voice became louder after the prototype. CreativeXR raised our profile and validated us. We now have a case study to back up our tenders and pitch work in the commercial sector. We now encourage our clients to approach projects in a structure similar to that of the CreativeXR programme.
>
> **Jamie Balliu – Up Creatives**

2017-2021: Augmentor

> Our Augmentor programme was the first B2B immersive accelerator of its kind in the UK, laying the foundations for immersive cross-sectoral applications and helping companies to pivot into new sectors. This included high growth creative technology companies such as MOONHUB, Fracture Reality, and Gravity Sketch.

Augmentor helped to promote and strengthen the capabilities of immersive technology-led startups, enabling them to disrupt current use cases, solve problems across a range of sectors, and attract the attention of investors and future customers.

We delivered the programme from 2017 to 2021, with valued specialist support from 24 investment and industry partners, 36 mentors and 19 community partners.

The 36 participating startups (in four cohorts) were given access to our Immersive Lab facilities in Belfast, Brighton, London, Salford and North East Tees Valley for the 12-week programme. These cutting-edge spaces for learning, testing and showcasing extended reality solutions are equipped with the latest immersive equipment.

Augmentor also backed cross-technology solutions to link immersive technologies with AI, the internet of things (IoT), distributed ledger technologies and 5G. Participants were encouraged to explore use cases in sectors outside their initial focus – what is now referred to as 'creative spillover'.

Supporting Gravity Sketch to expand into automotive and aerospace and defence

Augmentor played a pivotal role in helping immersive tech company Gravity Sketch to transition from concept to scalable reality. As a cohort member, Gravity Sketch benefited from expert mentorship in storytelling, pitch development, and market positioning – crucial in securing investor confidence. This support was instrumental to the success of its £1.25 million led by Forward Partners (with participation from Wacom and Super Ventures), followed by £2.9 million from Kindred Capital, Point Nine Capital, and Forward Partners. Additionally, it won a £100,000 Innovate UK Emerging & Enabling Technologies grant, enabling the hiring of a full-time developer.

Beyond funding, our work enabled Gravity Sketch to network with potential funders and client sectors, resulting in early sales and new clients – including a leading Tier 1 motor manufacturer. Following the programme, Gravity Sketch explored expansions into aerospace, alongside spatial effects and animation for media. Our support helped Gravity Sketch to broaden its reach beyond the initial focus on graphic design in the creative sector, setting the stage for making inroads into the automotive and aerospace/defence sectors.

MOONHUB: Sustained support to enable scaling

Digital Catapult supported immersive training startup MOONHUB through multiple accelerator initiatives, including the Augmentor programme in early 2021, providing it with access to investors, pitch training, and high-level introductions across government, industry, and the investor community.

As a result, MOONHUB's seed round raised £1.97 million. Further investment followed, bringing total funding to approximately £3.51 million.

Our long-term support has been a catalyst in building both its capability and credibility in immersive VR training.

> The workshops and building exercises we did with Digital Catapult were very useful. We learned how to talk to VCs and were able to expand our network. Digital Catapult were always willing to help.
>
> **Dami Hastrup, Founder and CEO, MOONHUB**

2023-2026: MyWorld

> MyWorld is a flagship programme for the UK's creative technology sector. Led by the University of Bristol, it brings together the leading universities in the region and over 30 technology, creative, and film companies to cement the West of England's position as a creative media powerhouse. Through the UK Research and Innovation (UKRI) Strength in Places fund, MyWorld builds on existing strengths in research and innovation to deliver benefits for the West of England local economy by driving regional leadership, economic growth, and inward investment. Consortium partners include BBC, Aardman, BT, and the Bristol Old Vic.

Through MyWorld, we have delivered a series of challenge-led accelerators and CR&D calls designed to fast-track the development of transformative creative technologies. By combining targeted funding with hands-on technical and business support, these programmes have supported innovators in turning research into real-world applications, while positioning the UK at the forefront of creative deep tech.

MyWorld Challenge Calls

The MyWorld Challenge Calls, designed and delivered by Digital Catapult, funded 18 businesses tackling industry-defined problems in collaboration with leading global partners, including NVIDIA, AWS, and BBC R&D. *Catalysts and Connectors* developed new tools to catalyse production processes and *Amplifying Imagination* developed projects aimed at the adoption of AI in creative processes. The calls provided up to £50,000 in funding alongside acceleration programmes offering expert mentoring, technical, and business support – as well as opportunities to showcase work internationally. This enabled teams to build demonstrators and minimum viable products. These projects showcased how emerging technologies can address immediate creative sector needs and laid the groundwork for scalable, market-ready solutions with the potential to shape future industry practices.

Collaborative Research and Development (CR&D) open calls

MyWorld's CR&D programme, designed and delivered by Digital Catapult, funded 11 projects up to £200,000 to enable ambitious, industry-led collaborations tackling challenges across the creative continuum; from content creation and production to distribution and audience experience. Partnerships between pioneering companies such as Condense Reality, Marshmallow Laser Feast, and Meaning Machine, with leading universities including the University of Bristol, the University of Bath, UWE, and Bath Spa University, accelerated the adoption of cutting-edge research into commercial innovation. Through these projects we are driving breakthrough advances in media production, strengthening the UK's reputation as a global leader in creative technology.

Measurable impact

We have delivered £2.9 million in funding across 29 projects delivered by SMEs in the West of England. So far, this has resulted in £2.2 million in follow-on funding, over £800,000 of investment, £650,000 in match funding, and the creation of 30 new jobs. This is in addition to international recognition at events that include SXSW Texas and London, GamesCon, Siggraph, and NVIDIA GTC.

Case Study: Meaning Machine – pioneering AI for creative storytelling

In 2023, Meaning Machine received £50,000 through a MyWorld Challenge Call – led by Digital Catapult with direct support from NVIDIA – to explore how AI and large language models (LLMs) could enable real-time dialogue between non-playable characters (NPCs) and players.

The cumulative impact of this support was clear: in July 2024, Meaning Machine secured £250,000 pre-seed investment from angel investors, in part through the credibility and visibility gained through MyWorld funding. Partnerships also deepened, with NVIDIA Ace integrated into its software to showcase on-device LLM processing.

Meaning Machine showcased its work to Baroness Jones, former Parliamentary Under Secretary of State for DSIT, won the People's Choice Award at the Develop Conference, and was cited in the BFI's 'AI in the Screen Sector' report as a prime example of how AI is driving creativity and storytelling innovation.

Its technology has already been adopted in high-profile creative projects, powering Punchdrunk's groundbreaking Lander 23, a live-action multiplayer stealth game that blends AAA gaming with immersive theatre, to create a new format: Playable Theatre.

Through Digital Catapult's tailored support, funding, and industry connections, Meaning Machine has accelerated from prototype to recognised industry innovator, contributing towards the UK's leading position at the cutting edge of creative AI.

> MyWorld is very fortunate to include Digital Catapult as a core partner. Their success and professionalism in running its Challenge and CR&D award processes, builds on a long and distinguished track record of partnership formation and call management at national level.
>
> **Dave Bull, Director, MyWorld**

Digital Catapult's Immersive Labs and Advanced Media Production studios and services

Originally built as demo labs, our Advanced Media Production studios encourage and support the UK's growing immersive and media production community in developing commercially viable XR content and applications. Our R&D and VR/AR facilities and services have provided this growing tech market with the ideal place to test and demonstrate immersive experiences and showcase their ideas to prospective clients, investors, and customers.

Each studio space is equipped with the latest augmented and virtual reality equipment and is available for hire by businesses of all sizes, academia and researchers.

2017 to date:
Immersive Lab demo spaces

2017-2020:
Dimension Studio

2023 to date:
Advanced Media Production studios and services

2017 to date: Immersive Lab demo spaces

> Our Immersive Labs were set up to give creative innovators and production companies access to professional demonstration spaces for their immersive content. This would help them to attract investment, build customer pipelines, and test multiple devices while navigating the challenges of interoperability and device lock-in. This was vital to the early stages of the extended reality (XR) market's emergence in the UK taking immersive beyond 360 videos to fully interactive and award-winning content.

Through key programmes and projects, the labs have been used by businesses of all sizes,. They have also been used for a wide range of workshops and training sessions to bring businesses and organisations up to speed with the latest developments in this emerging industry.

Our immersive labs have been visited by thousands of people, having also been used for showcases, and for hosting the judging of international and national content awards. Facilities include mixed reality green screens (LIV), haptic gloves (Manus), motion capture suits (Perception Neuron), pupil tracking, and holographic display hardware (The Looking Glass/HoloLens).

2017-2020: Dimension Studio

> Dimension Studio was the UK's first state-of-the-art volumetric video and 3D capture studio for next-generation immersive content. Digital Catapult made the initial investment into Dimension Studio in partnership with Microsoft and UK scaleup Hammerhead. Using 106 cameras, it was established to meet the need for state-of-the-art volumetric capture facilities in the UK and Europe. Up until then, companies had been forced to travel to the US to be able to access these groundbreaking media production techniques.

Dimension enabled the creation of virtual humans and environments, taking production to the next level of realism, and injecting new life into stories, games, and experiences for both immersive and 2D media. Dimension has numerous applications and offers opportunities across industries, including games, TV, film, fashion, digital manufacturing, health, and education. Dimension is now regarded as a UK success story, having recently formed a close partnership with DNEG, the UK-based global VFX vendor. We were able to use learnings from our work with Dimension when establishing our current Advanced Media Production studios.

2023 to date: Advanced Media Production studios and services

> Building on the foundations of our R&D work in advanced media production, we established the UK's first network of advanced media production studios in 2023.

Developed by Digital Catapult and Target 3D, and funded by Innovate UK, our Advanced Media Production studios bring together deep tech startups and scaleups, media production and content companies, and end users from all industrial sectors to maximise the potential of game-changing creative technologies.

The Advanced Media Production studios are the UK's first interconnected 5G-enabled facility designed to explore research and innovation capabilities in media production.

The network, formed by studios at PROTO in Gateshead and Dock Street in London is interconnected with additional capabilities at our office in central London. The studios stand at the forefront of commercial UK innovation for creative technology and are leading the way in demonstrating how convergent technologies and virtual environments will transform media production, creating new workflows and production tooling.

The Advanced Media Production studios harness the power of technology and creativity to entertain, inform, and inspire audiences, while pushing the boundaries of what is possible in storytelling and visual communication.

Our work on early stage concepts and in bringing together key industry players and stakeholders also supported the early business case for UKRI's investment into a national network of research labs, CoStar.

Advanced Media Production studios benefits

The Advanced Media Production network offers a wide range of benefits for creators:

- **Enabling creativity:** advanced media production tools provide creators with increased flexibility and control over their artistic vision, allowing them to experiment with new techniques, styles, and formats to push the boundaries of creativity
- **Improved quality:** advanced media production technologies enable the creation of high-quality media content – from higher resolution video and audio to sophisticated visual effects and post-production, advanced tools help deliver polished and professional-grade media
- **Real-time collaboration:** advanced production tools and the high-speed network connection facilitate real-time collaboration, enabling teams to work seamlessly across multiple locations to enhance creativity and efficiency in media production
- **Efficiency and sustainability:** advanced media production tools streamline the production process, allowing greater efficiency, flexibility, and faster turnaround times, that enhance productivity and reduce production costs
- **R&D and skills development:** Advanced Media Production fosters skills development and creates employment opportunities by providing advanced training and development – boosting creative possibilities, elevating content and showcasing new talent

Who are the Advanced Media Production studios for?

The Advanced Media Production studios and services are used by businesses and organisations of all sizes, including universities and skills providers, digital agencies, filmmakers, games developers, and production studios.

Advanced Media Production can also be used by individuals wanting to explore, research, and share projects using our unique combination of cutting-edge expertise in virtual production, 3D technology, motion capture, photogrammetry, compute, 5G private networks, and XR equipment.

Advanced Media Production studios in numbers (combined financial years: 2023/24 and 2024/25)

2023 to date: Advanced Media Production skills development in the North East

> We have been working actively in foresighting and developing future skills in advanced media production since 2023.In particular, we have leveraged our strengths and R&D facilities in the North East to overcome access challenges and help young people to better understand the transformative potential of advanced media production technologies. Beginning with skills foresighting activities and workshops, our activities are now evolving into partnerships with key organisations such as the Engineering Development Trust.

Advanced Media Production skills foresighting and INFINITY27

In 2023, gaming software company INFINITY27 sought to address the significant industry-wide skills gap in virtual production in the North East. The aim was to develop a pipeline that would enable them to make lighting changes in computer graphics software Unreal Engine, and then display the scene on the LED wall in real time.

The team needed a virtual production studio with the capability and expertise to be able to develop custom workflows. After exploring multiple avenues, a partnership was formed between INFINITY27 and our Advanced Media Production studios in Gateshead at PROTO, based on a combined interest and desire to build virtual production bootcamps to help address the skills gap. We were able to offer a cutting-edge space as well as access to advanced technologies for the bootcamp.

The bootcamp covered topics ranging from use of hardware and software to networks and camera operation within virtual environments. For participants wanting to develop and grow their depth of knowledge within the industry, this provided an opportunity to learn new skills and techniques. Findings from this work and deeper insight gathering from the Digital Catapult team for future skills requirements in advanced media production led to the publication of the Advanced Media Production: Foresighting Skills for the Future Report, which – alongside the bootcamps – is helping to close the knowledge gap and support young talent in accessing state-of-the-art technologies and expertise.

2024 to date: North East XR & Advanced Media Production Skills Development

Digital Catapult partnership with Engineering Development Trust industrial cadets

Through a partnership with the Engineering Development Trust, we are working to support the development of STEM skills in the North East. Focusing primarily on immersive technology and advanced media production techniques, content will be developed with schools and industry partners and delivered over three years to continually engage young people from Key Stage 3 onwards. Participating schools and students will sign up to a series of experience days, routes to apprenticeships, and graduate schemes, that will build skills and work readiness as they progress, through everything from light-touch content to in-depth projects. We are providing subject matter expertise and helping to build the bridge between industry professionals and the Engineering Department Trust within the North East to create a self-sustaining ecosystem that will last well into the future.

Advanced Media Production Discovery Fund

This funded opportunity aimed to support SMEs and freelancers operating in the creative industries in Newcastle, North Tyneside, and Northumberland by giving them access to cutting-edge virtual production technologies, enabling them to unlock new creative experiences, performances, and products. Fifteen projects were given the opportunity to explore:

- Access to the Advanced Media Production studio at PROTO
- 1-2-1 support from in-house technical support
- LED volumes
- Motion capture
- Real-time games engines
- Photogrammetry suite

This programme is being run in partnership with the Culture and Creative Investment Programme, delivered by Creative UK and funded by the North East Combined Authority. Projects include:

- **Your Fight Sight:** using the studio to learn more about motion capture for recording a series of moves that could be used in a wrestling game
- **Cassini Films:** use of performance capture to allow actors to connect with digital avatars to drive motion and storytelling using face, finger, and body tracking software
- **Chameleon Studios:** motion capture to record a band's choreography, instrumental performances, and unique character actions for an audience engagement strategy

Challenge 2: Responsible development and application of deep tech

> The creative industries face challenges in the development of AI applications and solutions, especially with the increasing interaction between media production and AI, and the growing use of immersive and extended reality technologies. Digital Catapult has recently moved from theoretical exploration of ethical and responsible development challenges of XR technologies, to full R&D trials of solutions to these emerging challenges.

2020: Report on immersive ethics, in partnership with key industry figures and startups

This report was written by Digital Catapult and a number of key stakeholders across industry, and published in the Frontiers Journal. Contributors include the University of Barcelona's Mel Slater (a former Digital Catapult fellow), University College London, Hammerhead VR, the BBC, HTC Vive, Meta, Jigsaw, and Nesta. It explored the psychological implications of using extended reality technologies, and the possible ethical and responsible implications, while also considering the benefits across industry. It kicked-started discussions on this key topic at an early stage of immersive technology market development.

2023-2024: Regulatory innovation for spatial computing

Working with General Counsel and funded by Innovate UK, we delivered a project to bring together key stakeholders from across industry to discuss the regulatory implications of spatial computing technologies as they were being launched into the market. This built on our technical R&D expertise and understanding, while convening organisations such as the British Computer Society, startups such as 1UP, and large companies – including Meta – to explore areas including IP and ownership, advertising, and online safety.

2024 to date: R&D to better understand the implications and ethics of interactive AI avatars

In partnership with Target3D – a motion capture technology company and our primary partner in Advanced Media Production – we developed an interactive AI avatar, KAI, to kick-start discussions about the provenance, trustworthiness, and authenticity of creative assets in AI-enabled immersive media experiences. The project team developed KAI by combining 3D scans, motion capture, and voices from different people, with dialogue created by an LLM-enabled technology provided by Meaning Machine.

This project has leveraged our broad network and brought together key parts of a future value chain, to help innovators benefit from early integration, collaboration, and experimentation. It has also highlighted the ethical challenge of ownership for developers and AI avatar artists, as key components of KAI are the personal data or intellectual property of different people, combined into a digital character. This area is fast-becoming a challenge for the ethical development of artificial intelligence, as companies leverage AI technologies to create new experiences.

To promote transparency about KAI's provenance and ownership of likenesses, the team clearly documented the origins of each component and outlined the technical development process. We specifically developed KAI for discussions about the use of AI avatars in immersive experiences, and to highlight the challenges that this represents. KAI prompted discussion with users and, using generative AI, could maintain a discussion about intellectual property and the ethical use of likenesses. These conversations raised the question of transparency and generated valuable insights for those who interacted with KAI. KAI was demonstrated and showcased to audiences at SXSW 2024 and was heralded as a successful way to start necessary conversations around AI avatars and AI-enabled interactive immersive experiences.

2024 to date: Black Founders Programme, in partnership with Sony Music group and in collaboration with Channel 4

Our Black Founders Programme is run in partnership with Sony Music UK, Sony Music Publishing UK, and – in 2025 – in collaboration with Channel 4. It supports Black-founded deep tech startups, helping them to scale, while tackling systemic barriers to application in the UK tech sector. Since 2024, the programme has supported 20 Black-founded companies. Alumnus Flossy AI, which uses AI to allow fans to remix merchandise from artists, secured pre-seed investment after completing the programme, with other alumni set for similar success.

The aim of the programme is to fast-track high growth potential startups by providing the support needed to increase their investment readiness level. Through targeted and specialised deep tech support, Digital Catapult's accelerator helped to drive investment into pre-seed or seed stage Black-founded companies that are creating innovative products and services in the digital entertainment industry.

In addition to supporting investment readiness for startups, the programme supports Black founders by fostering connections and networking opportunities, while driving positive change across the UK startup industry.

Participants benefit from peer-to-peer support; access to state-of-the-art facilities and deep tech expertise; access to prospective partners, investors and customers; potential funding opportunities; and masterclasses, mentoring and coaching from industry experts.

Case study: Navigating the XR art landscape through our Black Founders Programme

Opening in 2023, Nyangibo Gallery is an online and in-person extended reality (XR) and 3D art gallery that features some of the best-established and emerging talent from the XR world, including London-based artist Leslie Deere, award winning French VR director/creator Tatiana Apraxine, and 3D and fashion artist Yu Chen.

Haami Nyangibo, founder of Nyangibo Gallery, decided to join the Black Founders Programme to expand her experience of running a creative tech business. As a Black founder, she wanted to be part of a programme where she could find the right mentorship and people who share similar experiences.

Through the mentorship and investment readiness expertise provided throughout the programme, Haami gained a deep understanding of alternative funding opportunities beyond the traditional VC route. This new knowledge allowed her to tailor her plans to better support Nyangibo Gallery's strategic direction and future growth.

During the programme, Nyangibo Gallery held two successful exhibitions and secured networking opportunities for potential partnerships crucial for the development of the app's minimum viable product (MVP). The learning curve extended beyond art and technology; Haami gained invaluable insights into investment; environmental, social, and governance (ESG) principles; and the diverse landscape of the UK startup ecosystem.

The programme offers Black founders an extensive opportunity to expand their networks, receive constructive feedback, and engage in collaborative learning with other cohort members. Valuable mentorship and multiple streams of networking will continue to contribute to Naynagibo Gallery's growth and success.

> By helping me with financials and helping me explore different options for fundraising, I've come up with a plan that works for me and my business.
>
> **Haami Nyangibo, Founder, Nyangibo Gallery**

Challenge 3: Harnessing deep tech to enhance creative industries sustainability

> Sustainable production in the creative industries has become a critical area of focus, with carbon footprint challenges present across media production supply chains. This is a growing area of interest, and we are starting to explore how to tackle sustainability challenges directly.

Terra Datum

A collaboration between Dr. Paul Dolan at Northumbria University, our Advanced Media Production studios at PROTO in Gateshead, and Target 3D, the Terra Dartum project aims to help make virtual production more sustainable by measuring the energy consumption of key production methods. Through the creation of a new virtual artwork that uses real-time energy data to generate animation, the installation comprises a game engine-based data-driven artwork displayed on a large LED screen used for virtual productions. 3D scans of the studio space update in real time to display consumption data transmitted through power monitoring devices attached to technical equipment in the studio.

The project received R&D funding from XR Network+, a project led by the University of York, that provides funding and support to researchers working in virtual production technologies. A report on its findings will be published in 2026.

> Virtual production methods could potentially offer significant reductions to the most carbon intensive aspects of traditional production methods, although it is difficult to gather energy consumption data from studios to understand the nature and extent of these reductions. This project demonstrates a method of monitoring studio energy consumption that can serve as a useful starting point for other studios looking to make data-informed decisions about sustainable production.
>
> **Dr. Paul Dolan, Northumbria University**

BRAID Sustainable AI Futures

BRAID Sustainable AI Futures is a programme by the Arts and Humanities Research Council that focuses on investigating the ways in which responsible AI tools can create opportunities in the creative industries, while also building environmental resilience.

We are a co-investigator in the programme, participating in a range of activities, including advising on responsible AI courses being developed for creative tech SMEs.

CreaTech Frontiers creative cluster

Funded by the Arts and Humanities Research Council, CreaTech Frontiers is the West Midlands' creative industries cluster that's focused on driving the next generation of innovation in the region.

The ambition of the programme to bring together creative businesses, cultural organisations, artists, and academic experts to explore cutting-edge technologies and build a connected creative technology ecosystem across the West Midlands. We are a co-lead on the CreaTech Frontiers programme, delivering a number of work packages over the next five years.

Textile & Fashion Supply Chain Testbed

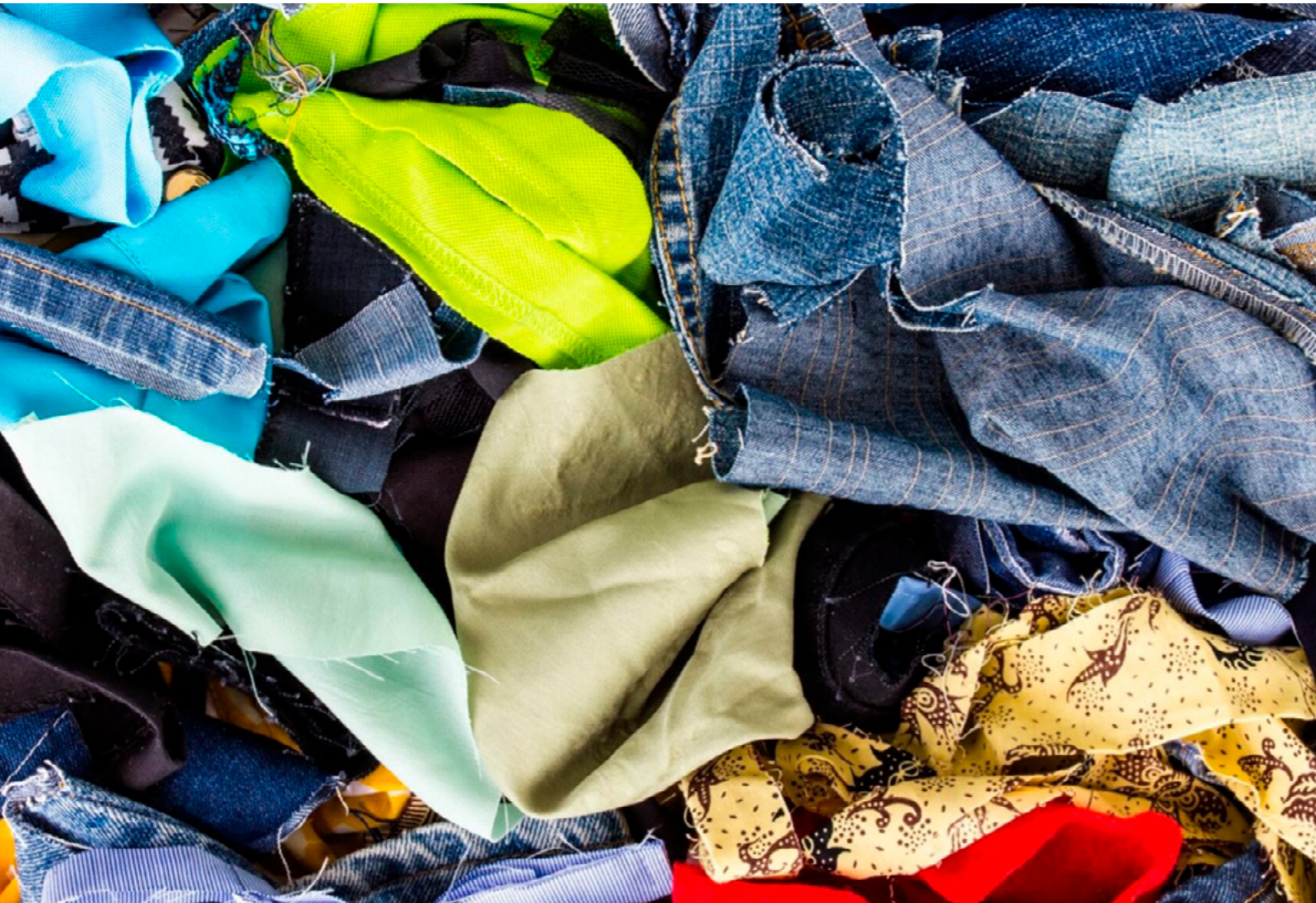
Through the Digital Catapult-led Made Smarter Digital Supply Chain Innovation Hub, Circle-8 Textile Ecosystems has established a testbed with consortium partners. Its purpose is to support the redirection of 400,000+ tonnes of low-value, non-reusable textiles from landfill and export into UK-based textile recycling plants by 2030.

This involves:

- Begg X Co
- Camira
- Circle-8 Textile Ecosystems
- Deloitte
- Entopy
- M&S
- Oxfam
- Reskinned
- Responsiv
- Shred Station
- UK Fashion & Textile Association (UKFT)

The testbed project is supporting the transition to a circular supply chain. It is advancing tier partner competitiveness and adding value for enterprises through the optimisation of working capital, transport, and other logistics. It is creating improved visibility across the chain – from basic sorter and reseller to recycler – with always-on compliant input supply. Product passport technology provides a chain of ownership and transaction flow, provenance assurance, and cumulative environmental metrics that support sustainability.

Companies supported by the testbed include LaundRE, which is the UK's first sustainable denim refinishing hub. It enables brands and retailers to reprocess unsold denim and dead stock by changing its finish and shade using laser and ozone technology. Refinished jeans are renewed and ready for full-price resale, helping to recycle around 93% of the textiles received. LaundRE has the capacity to finish up to 250,000 pairs of jeans a year, and has been designed to support business of all sizes, from major brands to bespoke and innovative, circular startups.



Challenge 4: Lack of knowledge and understanding of advanced network benefits

> High-fidelity experiences and operational improvements in the creative industries requires a significant uplift in the use of advanced networks, such as 5G and 6G. We have led a range of initiatives to support innovation in this area.

2018-2020: Enabling new 5G-powered experiences for the future of smart tourism

The 5G Smart Tourism project was led by the West of England Combined Authority, with numerous partners including Aardman Studios (creators of Wallace and Gromit), the BBC, BT, the University of Bristol and Digital Catapult. The project tested how new 5G applications could deliver innovative and enhanced extended reality experiences for tourists at major attractions in Bath and Bristol, including the Roman Baths and Millennium Square. The aim was to explore whether these trials could lead to an increased number of visitors and generate new revenue streams. The project also explored whether 5G could be used to enhance visitor safety in emergency situations, by providing more efficient communications with emergency services.

Key benefits

- The project demonstrated the benefits of network slicing as a more effective way to share infrastructure than using the same unlicensed spectrum with other services. This enabled better emergency response to unexpected incidents during busy public events, such as the Bristol Harbour Festival.
- A survey commissioned by Digital Catapult found that 5G could boost cultural and economic value for the tourism sector in UK cities, by bringing together mobile network operators, creative tech businesses, and destination management organisations.
- Leveraging 5G's high speed, the BBC successfully tested its first public AR application with over 100 visitors, enabling them to see the Roman Baths throughout its history by streaming 360 video content over the project's network.

Using 5G's low-latency capabilities, the project also delivered the world's first 5G music lesson, featuring artist Jamie Cullum, which connected musicians in London, Birmingham, and Bristol and enabled them to play together.

2019: 5G Orchestra: The world's first fully synchronised concert using 5G

Digital Catapult led this groundbreaking project with the University of Bristol and King's College London. Using low-latency 5G, we launched the world's first fully-synchronised concert, which was brought to life in venues across Bristol and London in March 2019.

This unique multi-site live performance – Orchestrating the Orchestra – connected musicians in three separate locations (King's College London, Digital Catapult's London office, and Millennium Square in Bristol), enabling them to feel as if they were performing in the same room. This was made possible using a pioneering 5G network that connected the sites using a low-latency and high-capacity design.

2021-2022: 5G Festival – the world's first live immersive 5G-enabled concert

5G Festival was the world's first live immersive hybrid concert, creating an exciting new business model for music professionals, live venues, and artists. At the 5G Festival, Twenty-one artists performed together across three UK venues: the Brighton Dome, the O2 Blueroom, and Metropolis Studios in London. This landmark event showed how 5G and immersive technologies can seamlessly connect artists and audiences in real time, anywhere in the world.

The 5G Festival was the successful culmination of a two-year technology collaboration led by Digital Catapult and partners:

- **Audiotonix:** audio mixing consoles, immersive in-ear monitoring and AoIP networking
- **Brighton Dome & Brighton Festival:** renowned live arts venue and cultural organisation, working with Brighton 5G testbed partner Wired Sussex
- **LiveFrom:** blockchain ticketing
- **Mativision:** 5G, 360° immersive live streaming, and distribution platform
- **Metropolis Studios:** audio mixing, production, and music venue
- **Sonosphere:** immersive audio and live streaming
- **Virgin Media O2:** telecommunications service provider and sponsor of The O2 and O2 Academy venues
- **Warner Music Group:** global music company

The 5G Festival took place across three prestigious UK music venues:

- **Brighton Dome:** the leading arts and entertainment venue in the South East, with three distinct performance spaces including its 1,800-seat concert hall
- **O2 Blueroom at The O2:** an intimate live music space, lounge and bar inside The O2, the world's top arena for ticket sales since 2008, with a capacity of 20,000
- **Metropolis Studios:** Europe's number one independent recording studio, home to the best mastering engineers in the world

> Music is at the heart of the O2 brand. We're always looking at ways in which we could enhance the live music experience, from the moment a ticket is purchased all the way through to the event. The 5G Festival was a perfect fit for O2 – it looked at technology, how we could enhance music events and was focused on our venues as well.
>
> **David Owens, Head of Technical Trials at Virgin Media O2**

This pioneering live event was delivered using the latest advances in 5G (stand-alone, mobile edge compute) and immersive technology (virtual and augmented reality). The core 5G infrastructure is based on our 5G testbeds in Brighton and London, linked with Virgin Media O2's public 5G network.

The 5G Festival project aimed to create a more diverse, sustainable live music industry and reach new audiences anywhere in the world. The ability of 5G technology to transmit with low latency (delay) and ultra-high bandwidth, can allow separate music professionals to produce, collaborate and perform in real time, without restrictions on travel, location, and availability.

> It sounds crazy now, but when we started the project, none of us were actually sure we could really do it. We had all sorts of doubts about whether we really could collaborate remotely like this with parties playing together across all the different stages, but everyone proved it could be done.
>
> **Neil Hooper, Group Chief Technology Officer, Audiotonix**

5G Festival: What did we achieve?

The idea for a 5G-powered festival was conceived long before COVID-19 devastated the live music industry. The team at Digital Catapult and a team from Brighton Dome and Brighton Festival had met to discuss how 5G technology could be used to improve the live venue experience. Through the project, three new business models and use cases were developed.

1. **Remote music production:** two or more artists in remote locations would be able to play synchronously via a 5G network, see each other for visual cues using augmented reality, and experience audience reactions in virtual reality
2. **Virtual festival (at home):** audiences consume a combined live feed from collaborating artists using any device, for a rich and immersive live experience without the need for travel
3. **Hybrid festival (at venue) –** audiences at a venue experience part of a live performance, using immersive technology to augment the traditional experience

On March 3, 2022, in a world-first hybrid concert performance, 21 artists performed together in real time from three separate venues. This performance was underpinned by 5G connectivity, showcasing the technical achievements made during the project and the expanding possibilities for music, culture and the arts.

The performance included globally-recognised artists, such as Newton Faulkner, and the musicians were split across the three venues – with singers, drums and a guitarist on stage at the Brighton Dome; a percussionist, bass player and singer at Metropolis Studios; and a string quartet and guitar playing at the O2 Blueroom.

2022: Enabling 5G use cases in live entertainment and stadiums

In a crowded stadium, thousands of spectators can be competing to access a congested mobile network, with fans struggling to use social media, place live in-play bets, or share a few selfies.

The same challenges arise at live events that span a wider area or multiple locations, especially where spectators can only see part of the action (such as at golf competitions, motor racing, or music festivals) and want to stay up-to-date with what's going on elsewhere. In the not-so-distant future, some of these pain points could be a thing of the past.

5G VISTA (Video in Stadia Technical Architecture) tested and demonstrated the potential of 5G broadcast/multicast to deliver new and exciting digital experiences to spectators at live events.

We played an integral role in this project, providing the 5G testbed network, validating business cases, and assessing further applications and market verticals for the project. By providing live, multi-angle HD video streams and interactive content direct to devices in stadiums and across the UK, 5G VISTA helped to demonstrate how the customer experience can be enhanced and engagement increased for live sport and entertainment.

2023 to date: 5G-enabled Advanced Media Production

Access to high-performance computing (HPC) for business innovation beyond research infrastructure is essential for the creative industries, particularly with the multi-technology nature of advanced media production. HPC can be combined with data to allow creative tech startups to develop their own technology models and scalable solutions.

The deployment of low-latency networks such as 5G enables the development and connection of complex, high-fidelity, and real-time data-driven systems in the creative industries. This opens the door for the UK to develop a future internet that blurs the lines between the digital and the physical.

Our Advanced Media Production studios are the UK's first interconnected 5G-enabled facilities. They were designed to explore research and innovation capabilities in media product, and form a pioneering network that demonstrates the potential for connecting innovation infrastructure.

The network interconnects our studios at PROTO in Gateshead and at Dock Street, London, with additional capabilities at the Digital Catapult London office. It is connected via a 10-gigabit line that enables teams across the country to connect and work together in real time. This sophisticated infrastructure leverages a private 5G network to enable ultra-low latency communication between motion capture systems, LED volumes, real-time rendering engines, and compute across multiple locations simultaneously. The interconnected nature of these assets creates a blueprint for how innovation infrastructure could be scaled nationally, Digital Catapult already operates facilities across the UK in London, Sunderland, Belfast and Bristol.

The Advanced Media Production network demonstrates how specialised facilities could be seamlessly connected to create a nationwide innovation ecosystem accessible at different stages of the research, development, and innovation journey – from early-stage R&D and proof-of-concept development through to commercial production and skills development. This model shows potential for connecting diverse innovation assets including universities, research institutions, accelerator programs, and commercial testbeds, enabling collaborative projects where teams can access complementary capabilities regardless of geographic location.

Challenge 5: Identifying emerging new human computer interfaces for creative experiences

The launch of VR, AR and XR headsets, alongside tools such as haptics and immersive sound now provide new ways of interacting with and embodying digital products. This is creating new commercial use cases for advanced digitalisation in the creative industries, which need nurturing, testing, and trialling.

2019: Surroundscapes

In 2019, in collaboration with record labels body the BPI and its BPI Innovation Hub, we delivered Surroundscapes. This was a first of its kind industry-leading showcase – combining audio with virtual and augmented reality technology to demonstrate the power of richer sound in immersive content and standalone augmented audio experiences.

This immersive showcase presented six companies, selected from over 30 applicants, that had developed tools and solutions at the leading edge of amplifying the power of sound in VR, AR and mixed reality (MR) experiences. The event brought together global industry leaders, hardware providers, sound-led content creators, investors, and commissioners and producers, including:

- **1.618 Digital:** a creative sound design studio offering audio production and post-production services, immersive and spatial audio solutions for 360 video content, interactive VR/AR media and intelligent audio branding.
- **Darkfield:** a collection of individual theatrical experiences staged in shipping containers that explore fear and anxiety. Each show employs binaural sound, pitch darkness and movement to situate each audience member at the centre of an evolving narrative.

- **MagicBeans:** creates amazing shared audio experiences that captivate and engage audiences using advanced augmented reality audio mapped to physical spaces.
- **PlayLines:** a London-based immersive AR studio that creates digital layers of narrative and gameplay in iconic locations, working with venues, attractions, and festivals to add compelling new digital dimensions to spaces.
- **Volta:** a new way to visualise sound in a 3D space, providing a first-person perspective user experience built for spatial audio.

We convened a panel of expert international speakers from across industry to help explore the impact of the growing focus on immersive and spatial sound, and how it can amplify and transform immersive experiences. We drew on real-world examples of pioneering work in music and broadcast from world-leading UK companies such as BoseAR, Abbey Road Studios, the BBC, Inition, and Dolby.

2020: Haptics Report

In 2020 we published Haptics: What the future feels like to highlight and raise awareness of the increasing opportunity and importance of haptics technologies. The report focused on the opportunities, to help drive investment and build understanding of how this emerging technology presents new opportunities for startups, enterprise, content creators, investors, and academics.

Haptic technology – also known as kinaesthetic communication or 3D-touch – is the use of electronically or mechanically-generated movement that a user experiences through an interface. Now a feature on many different types of devices, haptics allows information to be transmitted and understood through touch.

With the market for haptics growing rapidly, immersive experiences can be amplified and transformed through the feedback or physical interaction between humans and machines, creating tangible and mind-bending experiences and content. Future use cases may include an increase in immersive design – with cars, mobile devices, and IoT appliances all using touch surfaces with haptic feedback instead of physical buttons.

2025 to date: Supporting haptic technologies through the cross-Catapult Design to Deliver project

Design to Deliver brings designers and innovators together. Specialist design consultancies bring their design expertise and methodologies to help participating SMEs go through a series of sprints, helping them develop their existing service or product.

The design consultancies tailor their approach and methodologies to each SME's requirements, and are there to help SMEs validate their concepts and design a viable trial.

As part of the Design to Deliver project, we supported the Bristol-based creative studio Mechanimal, which has produced an immersive nature experience that uses biosensors connected to trees to collect data and transform it into immersive audio.

Challenge 6: Supporting responsible and innovative creative AI use cases and opportunities

Despite the documented efficiency and productivity gains that it can bring, only 15% of UK businesses have adopted AI, a rate that has remained consistent – despite the release of tools such as ChatGPT that are accelerating the broader uptake of AI on a global scale. This lack of uptake is particularly prevalent in the creative industries, with 92% of arts, entertainment, and recreation reporting that AI use was not applicable to them. Additionally, the sector has a relatively low number of sector-specific AI startups, and a nationwide supply-and-demand imbalance.

2024 to date: Accelerating AI applications across the creative industries

Eight creative industry AI startups joined our High Growth Accelerator for the Innovate UK BridgeAI programme, in partnership with leading creative industry players LADbible Group, Merlin Entertainments, Bauer Media Group and Music Technology UK.

By developing new creative innovations to enhance efficiency, engagement, and content quality, participating companies are accelerating the practical application of deep tech, and boosting scalability by leveraging cutting-edge advancements in AI.

BridgeAI, delivered by a consortium including Innovate UK, Digital Catapult, The Alan Turing Institute, the Hartree Centre (STFC), and the British Standards Institution (BSI), has awarded over £60 million to businesses in high-growth potential economic sectors to improve productivity and efficiency through the adoption of new AI solutions.

Each of the participating companies received support from experts at Digital Catapult to help them develop, commercialise, and scale their solutions, and bring products to market more effectively.

- **Music Technology UK**, worked with Halo, Echo, Feedback, and Flossy AI to explore how AI can simplify rights management for entertainers, and empower artists on digital streaming platforms. Halo and Echo's AI-driven marketing platform, HypeMuse, aims to enhance content creation and amplify the reach of creative professionals with AI. Feedback transforms live shows by simplifying performance rights management for artists and offering real-time insights into audience sentiment. Flossy AI uses AI to power a merchandise personalisation platform to encourage ethical and artist-friendly AI innovation.
- **Merlin Entertainments**, the global leader in branded entertainment destinations, partnered with innovators to develop a solution to improve the visitor experience and offer guests more personalised interactions. Placemaking AI, which leverages real-time insights to create unique guest experiences, worked alongside Tellme AI, an AI company that creates virtual tour guides for tourist attractions, to make Merlin Entertainments' venues more accessible, entertaining, and immersive for international audiences.
- **LADbible:** A digital media content-focused cohort allowed LADbible, one of the world's largest social publishers (452 million followers worldwide), to collaborate with Assistant Engineering to develop an AI-powered video metadata extraction tool, generating precise keywords and metadata. This allowed LADbible's audience to engage with video content more effectively, benefiting the audience, advertisers, partners, and creators.

- **Bauer Media** collaborated with Overtone Technology and Adclear to improve and enhance its audio output, focusing on audio content and how to drive engagement with listeners. Using proprietary AI, Overtone Technology brought tone analysis to audio content, and Adclear's AI solution transforms how adverts are reviewed using an automated process. Both solutions help to make sure listeners receive compelling content, significantly enhancing the listening experience while ensuring that advertisers reach the right audiences.

With 1 in 14 people employed by the creative industries and the UK Government's plans to make these industries a key driver of economic growth under the Creating Growth initiative, Digital Catapult's award-winning High Growth AI Accelerator is helping drive forward the ambition to leverage human-centred creativity and AI to unlock new creative frontiers. Participants have access to advanced computational resources, expert strategic guidance on AI development, and comprehensive risk identification and mitigation strategies. The accelerator culminates with a showcase event, where they demonstrate the ethical integrity and value of their solutions.

To date, Digital Catapult's High Growth AI Accelerator programmes have enabled participating companies to scale at pace and advance industrial sustainability, developing deep tech innovations for specific industries. Previous participants have seen their products evolve significantly through the programme, reporting average increases of 25% in operational efficiency, and 20% in AI model accuracy. The accelerator has also helped them improve the use of resources and cut carbon emissions.

Truss AI: Revolutionising the fashion industry with AI

UK deep tech startup Truss AI is transforming the fashion resale industry with AutoID, an AI-powered tool that automatically identifies and enriches product listings across the internet. By joining our BridgeAI High Growth AI Accelerator, Truss gained access to expert mentorship, technical resources, and investor networks, enabling them to scale quickly and responsibly. With BridgeAI's support, Truss secured a £1.1 million CR&D grant with Depop and Selfridges, built a bespoke model to improve image recognition, and showcased their solution to industry leaders. The accelerator helped Truss AI to overcome early challenges, expand their team, and rapidly grow their market traction.

Challenge 7: Exploring distributed ledger technologies for creative IP and ownership

Exploration has begun into the use of distributed ledger technologies, such as blockchain, for managing intellectual property and artists rights across a range of subsectors in the creative industries. This application is still in its infancy, but our experimentation has helped to build the case for these capabilities, showing how they can change future business models and empower creators.

2017-2018: Experimenting in the use of DLT for managing creative IP attribution and ownership

Since the turn of the century, creative industries have undergone a series of rapid and fundamental changes that have transformed the way that content is created and consumed. The internet has transformed creators' ability to collaborate and distribute their content across geographies and time zones. Games, films, music, and visual content are now frequently created iteratively by groups of online collaborators, and shared directly with consumers through social media or online distribution platforms.

However, the absence of an equivalent transformation in the way that value flows back to creators from consumers, represents a missed opportunity worth an estimated $11 billion every year. Through funding from Innovate UK, we undertook a collaboration with music rights and data platform Blokur and the UK Games Fund to develop blockchain-based technologies that would facilitate low-friction interactions between creators and customers, and unlock new value within the creative ecosystem.

Blokur's solution can track, identify, and accurately reconcile rights attribution over time and over multiple iterations. It displays all stakeholder rights on a public blockchain as a tamper-proof source of truth for all the relevant writers and publishers. The initial project was to develop a cheaper and more scalable way of writing data to the Ethereum blockchain (a public blockchain network), an undertaking which proved to be successful.

We worked with Blokur to develop an open-source solution for approximate graph search, Fornax, which would be essential to Blokur's ability to identify and reconcile attribution and rights.

As well as working with our technical team and developers, and learning how to best approach formal user testing, Blokur benefited from the commercial skills and contacts that we shared. With support from Digital Catapult, Blokur put together an application for funding, fulfilling the associated requirements for financial modelling, due diligence, and meeting requirements for external oversight. As a result, they secured £1.5 million in venture capital investment and increased from being just the original two founders to a team of nine full-time employees.

2018: Tackling challenges in gaming ownership and IP using distributed ledger technologies

In partnership with the UK Games Fund we built a small, free sandbox where independent games studios can use smart contracts to record who owns what share of a game, adjust shares when people join or leave, and resolve disputes – without paying lawyers or forming a company too early. To help companies understand blockchain and filter the value from the hype, we established a team to design and build full-stack blockchain applications. These were delivered through Field Labs, and tested with around 20 prototype teams. The prototype code is open-source, and the sandbox has been kept running, so any UK creative startup can still log in, fork the ready-made contracts, and experiment with blockchain-based revenue splits on Catapult-hosted nodes – all before spending real money on legal structures.

Our experiment with creating a test case for the UK Games Fund used a public permissionless blockchain network, as it was faster and simpler to get up and running.

The alpha version allowed creative teams to allocate different types of shares for a project, add new team members, and to vote on proposals using a transparent and tamper-proof process. It also allowed teams to manage disputes and involve agreed arbitrators (such as the UK Games Fund) to resolve future disagreements between team members.

2020-2025: DECaDE DLT Field Labs

DECaDE, the UKRI next stage centre for the decentralised digital economy, explored how cutting-edge technologies like distributed ledger technologies and AI can revolutionise the digital economy. Through its DLT Field Labs initiative, DECaDE fostered open innovation, enabling rapid translation of research into real-world applications and advancing solutions at higher technology readiness levels (TRLs).

The DLT Field Labs brought together demand-side stakeholders with experts from academia, industry, and regulatory bodies to tackle shared challenges. By trialling solutions in near-real-world environments, the labs addressed coordination problems that require decentralised digital infrastructure, advancing practical applications and academic knowledge.

As part of this initiative, DECaDE partnered with the University of Surrey, University of Edinburgh, and Digital Catapult to explore ORA (ownership, rights, and attribution), a framework that addresses licensing, ownership, and attribution in digital content. Using the ORAgen demonstrator, the lab examined its potential across industries – especially in reuse practices, remix cultures, and the rise of Generative AI – and identified new opportunities and challenges for stakeholders.

Through DECaDE we have also worked with the Coalition for Content Provenance and Authenticity (C2PA) to work towards a standardised markup format for asserting provenance of digital assets, supported by key industry stakeholders including Google, Meta, Microsoft, Sony, and Intel.

2025 onwards
Digital Catapult and the future of creative deep tech

> Digital Catapult and its partners have played a pioneering role in realising the UK's creative deep tech landscape, turning the genesis of the concept into a movement that represents the future of innovation – as enabled by the UK's leading creative industries and technologies.

Through our world-class programmes, facilities, and partnerships, we have fostered a generation of innovators who are pushing the boundaries of what is possible, transforming creative ideas into scalable, commercial technologies and global opportunities. The UK now has the opportunity to be a world leader in creative deep tech, and redefine the role of creativity within the digital economy.

Looking ahead, Digital Catapult will continue to drive this ambition forward by working with government, industry, and innovation partners across the UK and internationally to strengthen the ecosystem, scale emerging capabilities, and unlock new forms of value.

By deepening our creative collaborations, expanding the UK's opportunities, and sharing our knowledge, we will help to shape the next phase of creative deep tech and cement the UK's position as a global leader at the intersection of creativity, technology, and innovation.

Insights into the definition of creative deep tech and its importance to the UK can be found in the first report of this series: *An emerging catalyst for the global economy*.

Further information on our vision for the future of creative deep tech in the UK can be found in the final report of this series: *Our vision for the future of UK creative deep tech*.

CATAPULT Digital

For more information on how to get involved with creative deep tech and Digital Catapult's work, email creativedeeptech@digicatapult.org.uk

Or visit our website www.digicatapult.org.uk