CATAPULT
Digital

Future of training:
Virtual, augmented and mixed reality

Showcase guide

#Immersiveintraining
November 2018 - March 2019

"There is increased interest in immersive content to revolutionise training across the creative industries, manufacturing and beyond. By transporting people, immersive training can replicate dangerous scenarios, improve career skills and account for implicit biases.

This showcase will shine a light on six immersive companies creating engaging and innovative content to revolutionise the way we train."

Rebecca Gregory-Clarke
Head of Technology – Immersive, Digital Catapult

Immersive technologies have been used for training in some form for nearly a century. Spawned by an urgent need to train large numbers of aviators during World War One, flight simulators were developed for commercial aviation in 1915. A device was created to measure the reaction times of pilots in correcting disturbances. In the ensuing century, other uses followed in healthcare to improve operating room performance and more recently, in the automotive industry to cut costs whilst creating quality products.

Fast forward to today, training which uses innovative and exciting forms of emerging immersive technologies – augmented reality (AR), virtual reality (VR) and mixed reality (MR) – is becoming increasingly more common across a variety of markets. These new immersive experiences, create the opportunity to transport people into an environment or situation where they are enveloped and engaged more deeply than previously possible. It is a powerful tool that increases the retention of what is learned through memorable and meaningful learning experiences.

Corporate heavyweights have started to explore this technology; in 2017, KFC launched 'The Hard Way - a KFC Virtual Training Escape Room', a 25 minute virtual reality experience requiring participants to correctly prepare fried chicken to escape a darkened ranch. This year, Walmart has been using immersive training to improve employees' capability to provide good in-store experiences. Its research has found that VR learning improves employee retention of new information by 10 to 15 percent compared to the typical combination of videos, online demos, and classroom work.[1]

Similarly, Accenture is using VR learning to train employees by analysing consumer-data driven insights to immerse financial services employees in real-life work and customer scenarios.[2] These companies are investing in this technology and highlighting that even with the costs of headsets for hundreds of employees, immersive training content has a measurable positive impact on employee performance. By doing and not merely observing at a multi-sensory level, more information is retained for longer periods of time.

There are three main circumstances where immersive training can play a significant role:

Firstly, immersive is useful for replicating dangerous and complex scenarios. It is not always possible or safe to train 'in situ' and companies are finding that immersive is an ideal way to replicate that experience; example scenarios could include operating heavy, complicated machinery or mediating a crowd.

Secondly, immersive can help companies account and manage implicit or explicit biases. It is possible to experience multiple perspectives over a scenario and increase empathy for a group or individual that the participant previously held biases against.

Finally, another emerging use for training with immersive is to improve career skills, which could include negotiation or public speaking.

The UK has been particularly innovative in creating immersive training content. Digital Catapult's market research demonstrates that there are well over 50 companies creating immersive training content for enterprise. The demand for this content is ever-increasing and six companies will form part of Digital Catapult's first Future of Training showcase, which will run from 29 November 2018 to 29 March 2019.

1. https://www.vox.com/the-goods/2018/11/15/18092456/walmart-virtual-reality-black-friday-vr
2. https://www.accenture.com/gb-en/insight-vr-learning-video-fs

FUTURE OF TRAINING SHOWCASE

We are delighted to announce Digital Catapult's Future of Training showcase, where after a competitive selection process, we welcome six companies creating training content using either AR, VR and MR. The companies forming this showcase are all transforming training for industry and their content will be showcased in all of our labs across the UK until March 2019.

COMPANIES

C+L

Clicks and Links specialises in immersive technology. It has been focusing on bringing the exciting potential of VR to new industries. The organisation has carried out virtual inspection work with infrastructure projects in rail and nuclear decommissioning and has developed a range of immersive training experiences.

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MARKET POSITION

In terms of training, Clicks and Links is trying to raise the level of engagement and knowledge retention.

PRODUCT

i360 is a custom, immersive video experience tailored to customers' needs. Whether clients want to create an application for training staff or something to showcase work, Clicks and Links has it covered. The award nominated i360 application takes businesses to the next level.

i360 has been used to build applications for the Co-op, EDF Energy and Murphy construction. It also allows the client to create and edit their own application without any programming expertise.

i360 can deploy to smart phones, Oculus – Go, Vive and Rift as well as desktop and web.

daden

Daden's Trainingscapes VR is an authoring tool for immersive VR training content that lets educators create and share engaging, effective and informative training through 3D lessons and experiences. Content can be accessed through 3D, VR (such as Oculus Rift), smartphones and tablet computers.

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MARKET POSITION

The power of immersive learning is becoming accepted, however, the ability to create training content requires specialist skills normally beyond most trainers. Trainingscapes' easy-to-use editor allows trainers and subject matter experts to create their own training exercises on any topic, at any level, allowing training to be delivered in single or multi-user modes, and to desktops, tablets or mobile, including 3D and VR.

PRODUCT

Trainingscapes VR is Daden's authoring tool for VR training content. Trainingscapes allows educators to create and share engaging, effective and informative training through 3D lessons and experiences. Trainingscapes includes a user generated library of locations and objects, and an easy-to-use 3D editor that lets anyone create a 3D or VR immersive learning experience for almost any subject, level or language. Trainingscapes allows users to learn in locations that bring real context, engagement and freedom to their training.

Trainingscapes exercises can be accessed in a variety of ways including 3D, VR (such as Oculus Rift), smartphones and tablet computers. Once an exercise is downloaded it does not need internet access - so Trainingscapes can be used on site, at home, on the bus or on the train.

Recent projects include: Nursing and Midwifery Training (with Bournemouth University). Bournemouth University have developed a number of exercises in Trainingscapes to help train their midwifery and nursing students.

Virtual Avebury is (with National Trust and Bournemouth University) where Trainingscapes was used to create VR in heritage communication and outreach. As a multi-user system users can even go in as a group to examine and discuss the site.

KIT AR

Increase productivity and reduce errors with KIT-AR's intelligent step-wise AR instructions that proactively react to the actions of workers.

KIT-AR

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MARKET POSITION

The skills gap in manufacturing is widening with 10 million jobs worldwide going unfilled (two million in the US alone) due to retirement of the boomer generation, the shift in the skills required in response to advances in technology and market economic expansion. As a result, the manufacturing industry will not meet the demands of the globalised market catering to the ever increasing demand on product personalisation whilst lacking the capability to handle the increased complexity of products and the associated manufacturing processes. Studies report that a US manufacturer is losing an average $3,000 per existing employee due to a shortage of skills and a further loss of $14,000 per unfilled position. These losses are similar in the EU and will only increase over the next 5-10 years.

PRODUCT

KIT-AR is an end-to-end system which consists of four major components: KIT-ASSIST, KIT-SMART, KIT-INSIGHT and KIT-BUILD.

KIT-ASSIST supports untrained workers to perform like experts by providing the right information at the right time. This functionality is enhanced with one or more KIT-SMART modules, which exploits a set of cues that captures a contextual understanding of the workplace and decides what intervention to trigger in real-time. The combination of KIT-ASSIST and KIT-SMART increases productivity and reduces mistakes.

The KIT-BUILD provides the means to generate and manage the AR-based work instructions for the KIT-ASSIST, using a predefined annotation library with consistent symbology.

Since the KIT components perform a comprehensive analysis of user action to drive the augmentations, a suitably curated subset of information can be used to provide new insights into operations and processes. The KIT-INSIGHT provides decision making support for workplace optimisation.

London based Mativision has produced immersive experiences for global brands since 2012. The company is the world leader in VR-Live streaming. Its clients come from live entertainment to enterprise training and medical education, and include Facebook, Google, Samsung, FOX, MTV, Universal, Warner Bros, Vodafone, Unilever.

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Anthony Karydis, Managing Director

MARKET POSITION

Mativision makes high-level specialist training available to less privileged geographies or to groups of people with limited access to such education and training. It improves the effectiveness of group training.

PRODUCT

Mativision delivers group based, synchronised immersive interactive training both online and locally. It delivers training to groups of professionals by immersing them in operating theatres and real situations presented as first person experiences.

SmartDS

SmartDS believes that technology can empower and enrich peoples' lives. By using holograms in mixed reality, it delivers safer, more effective training and visualisation tools at a lower cost for clients in sectors as diverse as engineering, health, pharmaceutical, training, insurance, education and leisure.

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MARKET POSITION

SmartDS' clients need to deliver training or share information regarding products, locations, tools, situations and data. They operate in areas where the cost, speed, danger, complexity, regulation or simply the poor quality of tools prevents them from doing this effectively. Through the use of mixed reality and its MR design suite, SmartDS can now help clients to see new products before they are built, train on equipment and assets, see how drugs work and inform patients about procedures and issues.

PRODUCT

Mixed reality is a next generation experience driven by the real world presence of 'intelligent virtual objects' enabling people to interact with these objects within their real world field of view.

SmartDS is building both the tools and services needed to deliver and analyse mixed reality solutions.

9

UNIT9 is one of the leading multidisciplinary production companies working in different interactive areas: films, games, virtual reality and digital technology. Founded in 1997, UNIT9 operates globally with offices in London, Los Angeles, New York, Florence, Berlin and Poland.

Unit9

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MARKET POSITION

Unit9 produces multimedia production, innovation and immersive experiences.

PRODUCT

UNIT9 is an innovative production studio. It believes in people and talent to create and craft and believes in tools and methodology to achieve and deliver.

The UNIT9 studio is a breeding ground of disciplines with a common vision to achieve ground breaking marketing experiences and create new audiences.

Its talent roster includes film directors, innovation architects, product designers, software engineers, art directors, designers and producers – all delivering installations, events, social films, VR content, games and digital campaigns.

DIGITAL CATAPULT AND OUR WORK IN IMMERSIVE:

Immersive (AR/VR/MR) is one of Digital Catapult's core focus areas and we offer a portfolio programme geared towards making the UK the best place in the world to create immersive content and applications.

Recent technological advances, coupled with significant global investment has increased the appetite for VR and AR solutions for businesses and consumers alike. As a result, companies of all sizes are moving into this exciting area from a range of industry sectors. The challenge now is to build upon the UK's wealth of knowledge and skill, to bring together this growing ecosystem. This will drive forward the game-changing innovations that will make the UK the best place in the world to create immersive content and applications.

Digital Catapult offers facilities such as Dimension and the Immersive Labs.
Our Immersive Labs are an expanding network of facilities equipped with a range of the latest augmented and virtual reality hardware available for hire by businesses, academia and corporates. Dimension is a volumetric video and 3D capture studio, equipped with over 190 cameras, this studio was launched in collaboration with Hammerhead and Microsoft.

Digital Catapult also runs innovation programmes including Augmentor and CreativeXR.
Augmentor is a ten-week mentorship programme for early-stage immersive companies creating commercially focused products. CreativeXR is a programme in partnership with Arts Council England to help creatives unlock the potential of immersive content.

CATAPULT
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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 solve 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

cATAPULT
Digital

Accelerating early adoption of
advanced digital technologies

Working with
Innovate UK