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(XR) Intelligence



# State of the XR Industry in 2020

With insights from Siemens, GSK, HTC Vive, LADbible Group, Manchester Metropolitan University and the Augmented Reality for Enterprise Alliance.



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## Introduction

For some time now XR has always seemed to be on the cusp of going mainstream. It is proclaimed every year that it is the year XR will take off and those within the industry are growing weary of baseless, simplistic sensationalism. Yes, there has been fantastic progress but there is still an enormous amount of untapped opportunity for immersive.

Over the next 10 years the potential across consumer and commercial to industrial and enterprise is huge; every single market involved in the XR space is set to grow both in technology and application – which means more chances for you and your business to save time and money by embracing technological innovation.

As we enter a new decade XR Intelligence has caught up with a diverse group of six XR thought leaders spanning enterprise, consumer entertainment and academia to look back on key immersive technology achievements of 2019, take a realistic look at the future of XR in 2020 and beyond and offer some practical advice on getting started with XR for organisations yet to begin their immersive journey.



Miguel Paulo  
Global Digital Enablement IT Lead  
**Siemens**



## Miguel Paulo

### What has been your biggest immersive technology related achievement in 2019?

Aggregating several internal initiatives and projects on AR/VR to generate awareness for our top management thus contributing to more projects and skilling of colleagues. Standardisation of tools is also underway.

### What do you think are the most significant growth opportunities for XR in the enterprise +/- entertainment space?

Being well connected with the production sites and manufacturing facilities. I would say using AR for maintenance and execution processes could be the biggest growing area now.

### What new technologies or trends do you see impacting the immersive landscape in 2020?

5G, the better standardisation of AR in the Cloud (e.g. Open AR Cloud), availability of day-to-day devices being able to use AR (e.g. iPhone 8) and the availability of better-quality devices/interfaces/experiences in the market.

### What is your main goal for 2020? And how are you going to get there?

Being able to deliver AR/VR solutions to our customers and internally to leverage our current portfolio offering. By aggregating several internal projects and professionals contributing to a) ensuring the potential of the technology reaches everywhere in the company (how can we support what we don't know) and b) aggregating several projects and professionals contributing to significant skilling in this technology.

### What advice would you give organisations keen on implementing XR technology but who have yet to get started?

Understand the "simple" and "easiest to use" scenarios for XR, verify if they could be applicable for your company. If so, show the potential to a sponsor and execute your first POC.

### What is still hindering adoption of immersive technology and what needs to be done to overcome these barriers?

Besides the classical innovation barriers, I would say price tag on consumer devices, shortage of professionals to produce leaner content and scalable solutions (e.g. Unity developer with cloud know-how) and awareness for the potentials of XR. Time will solve the first barrier and the second will be solved after we see demand for solutions and use cases and the third is perhaps the situation which we can most influence right now.

### Can you share in one sentence why you are looking forward to uniting with European XR leaders and sharing your insights at XR Europe 2020?

Knowing what others are doing and how can we perhaps cooperate.

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Joe Williams  
Immersive Lead  
**LAD Bible group**



## Joe Williams

### What has been your biggest immersive technology related achievement in 2019?

A Mixed Reality video which was part of an ongoing partnership with Three Mobile, capturing the moment a grandad spent time roaming his “Happy Place” created in Tilt Brush.

It’s a very clean example of us as a social publisher broadening the exposure of XR to mass audiences. It’s an incredibly creative concept which has achieved huge engagement across all platforms. 1 million views and counting.

This was also one of the first pieces of output from our immersive artist in residence, Continuum, who we have a number of future projects lined up for in 2020.

### What do you think are the most significant growth opportunities for XR in the enterprise +/- entertainment space?

AR - mass adoption for both individual and group entertainment experiences. Growing range of utility functions, wayfinding, try-ons etc.

VR – huge growth in LBE enjoyment first, as that subsection of the industry begins to learn from the past couple of years, then potentially home console ownership to rise.

### What new technologies or trends do you see impacting the immersive landscape in 2020?

Social platforms increasing commitment to offering AR touchpoints will be vital for new audience adoption. Hand tracking will be significant for VR as the current controllers are a bigger barrier to mainstream appeal than the industry is willing to admit. An ongoing slate of convention forming titles on stand-alone consoles will be what enables the best chance of home adoption. The likes of Phantom: Covert Ops by nDreams will set the agenda in this space.

### What is your main goal for 2020? And how are you going to get there?

We have spent considerable time auditing the XR landscape, and equally our audience’s perception and appetite for experiencing it. We have a thorough strategy in place which we began executing in Q4 of last year.

### What advice would you give organisations keen on implementing XR technology but who have yet to get started?

Take time upfront to assess the realities of XR, not everything converts from the development basements to audiences. Ignore the ill-placed and frequent unrealistic expectations of any year being “the year”. XR has the potential to revolutionise multiple existing industries, whilst creating many new ones – this will not take place in any single year.

### What is still hindering adoption of immersive technology and what needs to be done to overcome these barriers?

An unrealistic understanding of what non gamers would want from XR is a common and dangerous feature. It’s crucial that XR has broad appeal for it to reach its potential.

### Can you share in one sentence why you are looking forward to uniting with European XR leaders and sharing your insights at XR Europe 2020?

We believe we stand at the intersection of mass adoption of XR due to our unparalleled reach, so I’m extremely excited to again share our vision and source partners to collaborate with.







Dave Haynes

Director of Developer Ecosystem & Vive X, EMEA

HTC Vive



## Dave Haynes

### What has been your biggest immersive technology related achievement in 2019?

In 2019 we held our first Vive X investor event in London, showcasing the three European companies we invested in and several others. Two of those companies, Immersive Factory and LIV went on to raise strong new financing rounds later in the year and are growing quickly.

### What do you think are the most significant growth opportunities for XR in the enterprise +/- entertainment space?

At Vive X we see a huge opportunity in enterprise. One new breakout category is likely to be soft skills training. We've seen a number of great startups using a new generation of standalone devices to deliver everything from sales and leadership training to safeguarding and diversity & inclusion. In this category I'm particularly excited about Bodyswaps, one of our new Vive X startups for 2020.

### What new technologies or trends do you see impacting the immersive landscape in 2020?

We're starting to see a lot of new opportunities open up at the intersection of XR and 5G. This is an area that received a lot of buzz and attention in 2019 but will start to feel more tangible in 2020. For startups, this is good news, unlocking new ways to deliver valuable experiences for both the enterprise and home users.

### What is your main goal for 2020? And how are you going to get there?

The mission of Vive X is to grow the whole XR ecosystem by investing in startups and supporting them to scale up. We'll be announcing several new investments soon and continue to look for more opportunities. But we need to see more financing from other VCs in Europe so we will continue to evangelise other investors and take part in programs such as InnovateUK's Investor Accelerator to get more XR startups funded.

### What advice would you give organisations keen on implementing XR technology but who have yet to get started?

We now have a lot of enterprise use cases that are showing real ROI. Based on this data, a lot of organisations are already moving from 'experimenting' to 'implementing'. The enterprise startups I speak to are saying the main question they get from potential new customers is now 'how' not 'why'?

### Can you share in one sentence why you are looking forward to uniting with European XR leaders and sharing your insights at XR Europe 2020?

There is a lot of opportunity in the XR industry in 2020 and by sharing insights we can all grow together.

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Gregory Hough  
Digital Projects Manager  
GSK



## Gregory Hough

### What has been your biggest immersive technology related achievement in 2019?

Scaling up project delivery. By optimising production methods, we have cut project delivery time significantly - projects that used to take 2 weeks now take 3 days. Much of this has been in the creation of a library of generic assets that can be reused and automation of certain tasks.

### What do you think are the most significant growth opportunities for XR in the enterprise +/- entertainment space?

Mixed Reality headsets to date have been held back by a limited Field of View, ghost-like content and limited UX. However, recent headsets have improved on these limitations considerably and over the course of the next year we could reach a threshold in which they are opened up to a wide range of new uses. This is particularly important with conducting research for Fast Moving Consumer Goods, where the peripheral vision of a research respondent is of critical importance.

### What new technologies or trends do you see impacting the immersive landscape in 2020?

Portability. VR is already a portable technology, but it requires a powerful PC to render high-end graphics and until recently required tracking sensors such as lighthouses. The emergence of reliable inside-out tracking has removed the need for lighthouses and the release of the Snapdragon 865 should see improved graphics delivered on devices that don't require a PC. VR headsets will soon be very simple to transport and set up, making them truly portable.

### What is your main goal for 2020? And how are you going to get there?

We are aiming to embed a headset based Mixed Reality system into our research centres and to do that we have partnered with Birmingham City University on a Knowledge Transfer Partnership, where we will be leveraging their expertise to deploy these systems to meet the needs of our stake-holders. From this we will be publishing 3 research papers that will contain our findings over the next 2 years.

### What advice would you give organisations keen on implementing XR technology but who have yet to get started?

Don't be afraid to dive in. The hardware is affordable, it is easier to produce content than ever and the best way to learn is to be hands on with it.

### What is still hindering adoption of immersive technology and what needs to be done to overcome these barriers?

Many of the current barriers are largely user based. This technology is still novel to many people and so they may resist adopting the devices for their day-to-day work or may not yet intuitively understand it. Creating a simple and effective user experience is more important than any single technological barrier.

### Can you share in one sentence why you are looking forward to uniting with European XR leaders and sharing your insights at XR Europe 2020?

XR is a set of emerging technologies and as it is fantastic that industries are sharing their learnings with the technology so that we can grow together.



Mark Sage  
 Executive Director  
**Augmented Reality for  
 Enterprise Alliance**



## Mark Sage

### What has been your biggest immersive technology related achievement in 2019?

As the Executive Director of the AREA, the only global alliance dedicated to helping accelerate the adoption of Enterprise AR by supporting the growth of a comprehensive ecosystem, I have been excited by many achievements in 2019. The three key areas are:

- the improvements of hardware including new product launches from Vuzix, ThirdEye, Ho-loLens, Magic Leap, NReal to name a few
- software – the continued improvement of AR products and solutions
- customer deployments – last year more and more companies used AR to deliver real benefit and improve their bottom line

### What do you think are the most significant growth opportunities for XR in the enterprise +/- entertainment space?

There really needs to be a push on all fronts; the solution providers – both hardware & software and the awareness / ability for companies to deploy AR solutions. On the hardware / wearable front, the technology will improve over time but I would like to see a focus on making the devices more “enterprise ready” including devices becoming intrinsically safe for the workspace.

From a software perspective, further improvement in markerless technology, solutions that integrate into the “core” enterprises systems (e.g. PLM and MES’s) as well the development of the AR cloud will further enable the ecosystem.

Finally, more is needed to help enterprises successfully deploy AR. A lot of the AREA’s focus is on helping to overcome the current barriers to adoption, including business issues such as security, safety, human factors (UX/UI), research and creating a set of AR hardware and software requirements that the industry can use.

### What new technologies or trends do you see impacting the immersive landscape in 2020?

There is a definite trend towards AR companies focusing on the enterprise, this is something I expect to continue this year. At CES there were a number of new wearables / product announcements which will bring more choice and new solutions to the industry.

### What is your main goal for 2020? And how are you going to get there?

The AREA goal is to help accelerate the adoption of Enterprise AR. This includes delivering thought leadership to help the business leaders understand what is needed to deploy AR, including the ROI (return on investment) for AR projects. Working together with the other AREA members (currently 65) to over the barriers to adoption and making sure there is a steady set of skilled workers joining the AR industry by working with universities and educational organisations.

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### **What advice would you give organisations keen on implementing XR technology but who have yet to get started?**

Giving the AREA focus on the enterprise AR, my first advice is to make sure that you are clear on the problem (use case) you are solving. This will need to be tested internally and ensure there is buy-in, including senior stakeholder support. Start to build your ROI case by measuring how things work at the moment (so you have a base line that can be built on). There are many technology providers so make sure they meet your requirements and solution needs (the AREA provider members are a great place to start) and then make sure you bring all the departments / key decision makers (e.g. IT, Security, Safety, workers etc.) to the project and listen to their concerns and inputs. Finally, treat this as a change management project (not just an IT project).

### **What is still hindering adoption of immersive technology and what needs to be done to overcome these barriers?**

The hardware technology needs to improve and focus on the challenges of deploying in the enterprise. Greater awareness, thought leadership and case studies to help show the benefit and what needs to be done to successfully deploy AR will also help.

### **Can you share in one sentence why you are looking forward to uniting with European XR leaders and sharing your insights at XR Europe 2020?**

A place where we bring together experts to have an open and shared exchange of XR best practice, insights, challenges and ROI.



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Roger McKinley

Researcher

**Manchester Metropolitan University**



**Manchester Metropolitan University**

## Roger McKinley

### What has been your biggest immersive technology related achievement in 2019?

In September 2019 I joined the research team at Manchester Metropolitan University on the Audience with a Hero project. This was part of a fantastic suite of research projects and programmes being undertaken by funding through the Audiences of the Future programme as part of the Sector Deal for the Creative and Digital Industries in the UK. The project is an experiment in using an artificial intelligence agent in a virtual reality environment with a pre-recorded 360 video of a living “Hero”. It’s pretty cool, you get to ask them questions and they respond in close to real time from a large pool of pre-recorded material. The project began life in the Holocaust Museum in Nottinghamshire, working to capture the stories of living Holocaust survivors to share in an interactive way with young people. Though the 360 recording of the actual person is labour intensive, and this could be done with audio only or even deep fake video technology pretty convincingly, the sense of presence you get from the recording of an actual person is very rewarding. One of the biggest challenges was to work towards designing the entire user journey and experience, the wraparound as well as the core Q&A experience. Generally this is something that has not been given enough attention except in the out of home entertainment market, specifically theme parks (and to a lesser degree festivals), who do this very well. There is a not enough attention and care paid to the visitor in the world of a VR experience but there is a huge amount of potential in finding creative solutions for the wraparound extension of VR related experiences into both physical and digital spaces. I think this is what will make things genuinely XR and immersive. So the biggest achievement for me personally was a conceptual shift from considering VR not as a content-driven experience but as a immersive journey where finessing on-boarding and off-boarding is just as important as the core technology experience and also important as an ongoing journey for your customers.

### What do you think are the most significant growth opportunities XR in the enterprise +/- entertainment space?

I would start out by saying that in my opinion the home entertainment market is going to be very sluggish and will probably dry up almost entirely in 10 years’ time. Homes are getting smaller and the question will be who can afford the additional real estate needed for a VR entertainment system? This will not be a big market and likely to decline rapidly over time. It’s a very short-term market opportunity. There is already a significant downturn in investment in this area. The out-of-home experience is really starting to show signs of taking off though and this is where I would put my money. If I were an XR business today, I’d be looking at the most diverse portfolio possible. Yes of course it’s exciting and sexy working in games and filmmaking/storytelling and theatrical spaces, but this technology can really be transformative in psychology, health, ageing and education - especially for understanding complexity in concepts like ecology, culture and science. Also connecting in additional tools such as internet enabled devices, the so called Internet of Things, is going to be a big mid and long term growth area for XR. For example, new broadcast models where radio and television interact with other devices in the home (including lighting, picture frames, heating, second and third audio and visual screens and components etc.) to enrich a broadcast experience has a lot of potential. I’ve worked with the BBC in this area, and the opportunity is huge and really exciting! There will be a growth in machine learning in the XR world too, augmenting our own intelligent decisions with AI to give the best possible experiences and results. This will definitely happen in medical, learning and other training environments, but there is also potential in entertainment - tailored experiences that adapt and learn about you to create unique interactions and events that give you agency in the design of those. This will be an important shift towards a more human-centred and blended XR experience.



### **What new technologies or trends do you see impacting the immersive landscape in 2020?**

There will certainly be more deployment of machine learning, AI, IoT and the physical wraparound to immersive experiences. I predict a growth in the immersive group experience. We are social creatures, who love a good story and yearn for shared experiences - how often do we go to the cinema alone? Exploring big issues of the day like climate emergency, mental health, human-computer interaction, sovereignty and geopolitics as well as games and entertainment will all be enriched by being a group experience. It's no surprise that out-of-home entertainment is having such a boom period and rapidly adopting this technology - it's the exact and necessary counterpoint to the isolating solitary experience we usually have with our mobile computers and smart phones.

### **What is your main goal for 2020? And how are you going to get there?**

We'd like to get the advanced machine learning interaction tested and finessed in the Audience with a Hero project - that's the immediate goal and should be completed by September this year. Beyond that its really going to be about securing the next phase of research in immersion, and specifically the XR wraparound experience in a Festival environment.

### **What advice would you give organisations keen on implementing XR technology but who have yet to get started?**

Think about your audience, take them seriously and talk to them constantly, start small, fail quickly and fail again but keep the audience engaged a part of the R&D itself. Start with them - if you think you could take any of your existing customers on another kind of journey with technology you've yet to use, then go for it and get the end-user on board right away - hold a think tank with your best customers, then invite them to prototype with you. Think horizontally, not vertically at first. They can be your biggest marketing tool for this, make them feel included. Also consider on-boarding and off-boarding from the very start - it's not about the technology, it's about the audience - the very best interactions with technology render the equipment invisible - think about driving your car, watching a film or being in a theme park ride, you don't need to think about or know how or what the technology is doing, it's just a great experience that you want to share with others.

### **What is still hindering adoption of immersive technology and what needs to be done to overcome these barriers?**

I don't believe anything is hindering the adoption of immersive technologies if you think beyond the home entertainment market. I see rapid growth in everywhere else but that market, in health, museums, arts practice, science, education, training, architecture, conferencing, design, performance, engineering, etc. etc. It's all going on beyond the constrictive and limiting space of in-home entertainment! Get out of the box and diversify, that is where things are getting much more interesting!

With insights from

