

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE



Produced by

**(VR) Intelligence**

 **SUPERDATA**  
GAMES & INTERACTIVE MEDIA INTELLIGENCE

Proud to support

**GREAT**

BRITAIN & NORTHERN IRELAND



In conjunction with

**(VRX)**  
2017

December 7–8, San Francisco

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



## CONTENTS

1.0	THE RISE OF VR/AR APPLICATIONS ACROSS ENTERPRISE	3
2.0	The state of play: Current data and three year forecasts for VR/AR/MR investment, industry applications and R&D spend	4
2.1	Investment in VR/AR/MR Companies	4
2.2	Share of VR companies by sector	5
2.3	VR enterprise technology investment	6
2.4	Enterprise R&D spend	6
3.0	Meet the Experts	7
4.0	Interviews	8
4.1	How are you, or your enterprise partners, currently using VR?	8
4.2	Who owns the project(s)? Is it a central VR team within the business? What are the pros and cons to that approach?	10
4.3	Where are you seeing the primary interest and investment, i.e. where are biggest opportunities and where are you investing?	12
4.4	Where are the primary integration hurdles? Technical, legacy systems/ processes, transition, cost, lack of skills?	13
4.5	Away from VR, where are the biggest immersive opportunities for enterprise – including augmented and mixed reality?	15
4.6	How do you see the next 5-10 years playing out? Will immersive tech and applications become as ubiquitous as mobile tech and applications have for enterprise?	16



December 7-8

Marriott Marquis, San Francisco

The world's leading senior-level B2B event  
for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



## 1.0 THE RISE OF VR/AR APPLICATIONS ACROSS ENTERPRISE

As the VR/AR consumer market is still emerging, the use of immersive technology is seeing a boom across enterprise industries.

Traditional fields, such as AEC, manufacturing, automotive, retail and healthcare are finding an array of creative applications for this transformative technology, using VR/AR in training, collaboration, product design and visualization.

In this paper, we've brought together senior representatives from McLaren Automotive and Heatherwick Studios, who provide front-line insights on where they're using virtual reality and how they see VR/AR having increasing application as the technology matures.

You'll also hear the perspective of Intel's VR lead in the USA, who gives an overview on where the broader opportunities and challenges lie in bringing immersive technology to the mainstream for business.

These interviews are supported by core data and forecasts from SuperData on the where investment is coming from and going, where the market supply and demand is and the projected share of spend on VR versus AR/MR in the coming years.

### UK DEPARTMENT FOR INTERNATIONAL TRADE (DIT)

The UK's Department for International Trade (DIT) sees this as a key opportunity for UK businesses, which are able to combine their strengths in narrative and experience design with British excellence in applied technology development. For example, McLaren Automotive, as detailed in this paper, use VR in model design and showroom experiences.

The UK is also actively bringing together academic research and business innovation to drive R&D insight ahead of an emerging global opportunity with a network of VR research hubs developing across the country.

"Government support and funding, via Innovate UK, is focused on supporting VR/AR innovation across all sectors to catalyse and accelerate the development of a world class industry. We are poised to further reinforce our position as a global leader in this fast growing field," says Mark Garnier, Undersecretary of State for the Department for International Trade.

The UK's Department for International Trade (DIT) has responsibility for promoting UK trade globally and attracting international investment into the UK. If you would like support connecting, establishing or expanding your business in the UK VR/AR market, please contact DIT: [cindy.fabian@mobile.trade.gov.uk](mailto:cindy.fabian@mobile.trade.gov.uk)

Proud to support



December 7-8

Marriott Marquis, San Francisco

The world's leading senior-level B2B event  
for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

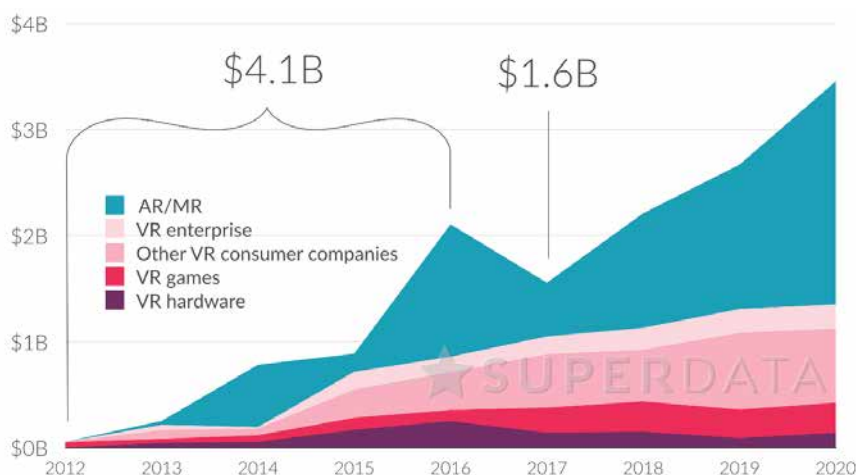


Data supplied by:



## 2.0 THE STATE OF PLAY: CURRENT DATA AND THREE YEAR FORECASTS FOR VR/AR/MR INVESTMENT, INDUSTRY APPLICATIONS AND R&D SPEND

### 2.1 INVESTMENT IN VR/AR/MR COMPANIES



Investment figures include the following investment types: Crowdfunding, seed, angel, Series A/B/C venture rounds or later, acquisitions (excluding Facebook's purchase of Oculus) and IPO.

As funding dries up and monetization remains a grey area, investors are becoming more judicious about the companies they add to their portfolios. Entertainment companies have received the bulk of funding thus far, but without a clear monetization model, investors are looking more to enterprise applications as a way to see short-term ROI. Video content companies are also receiving funding in the form of partnerships and sponsorships. Fox Searchlight, NBC, Comcast, HBO, Lionsgate and Disney have all funded or worked with VR content makers.

IPOs and acquisition are slowly becoming the primary way companies in VR/AR/MR earn capital. Although capital investments have accounted for over 90% of funding thus far, buying out and helping companies go public are ways investors are diversifying their forays into the space. This year, only 20% of funding will be a result of IPOs and acquisitions, but that share will increase to over 60% by 2020.

Magic Leap's huge early investment rounds have lead early AR/MR investments, but investor awareness of other companies in the space has risen after the success of *Pokémon GO* and other improvements in mobile AR including Apple ARKit.



**December 7-8**  
**Marriott Marquis, San Francisco**

The world's leading senior-level B2B event  
for VR and immersive tech

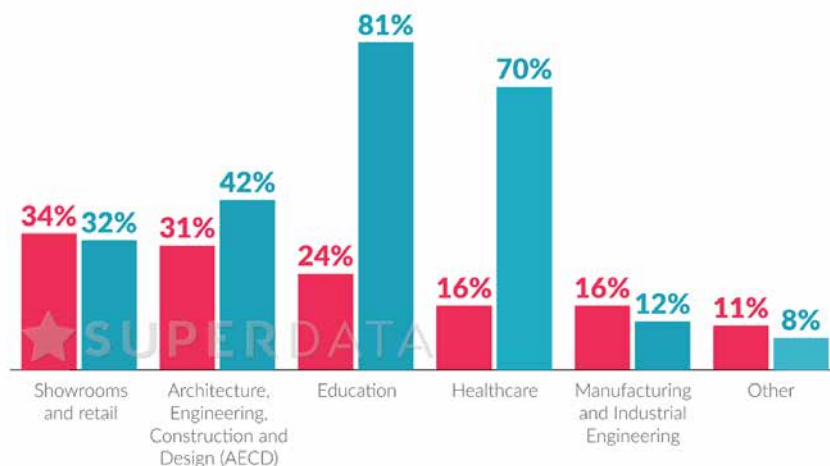
**Tickets available now at**  
**[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

### 2.2 SHARE OF VR COMPANIES BY SECTOR

**Supply: Content developers**

**Demand: Companies looking for VR solutions**



Percentages do not add up to 100% due to overlap of suppliers who work on multiple segments.

**Supply companies:** Companies that “supply” VR/AR/MR software/services to other firms. This includes companies that do not focus solely on VR/AR/MR, but does not include companies that only use VR/AR/MR internally.

**Demand companies (10 or more employees):** Companies that use VR for non-consumer facing purposes. These companies have internal teams to build their own VR solutions in house or outsource the work to “supply companies.” This does not include companies that do not “supply” VR/AR/MR products and services to other companies.

Sectors like manufacturing and industrial engineering will need products tailored to their specific needs that only specialized developers can provide. Without the proper supply, this innovation will be stunted. However, many companies in education or AECD will be able to use the same tools to service a number of applications in those sectors. Here there can be just a few developers that can license out an application for a variety of services.



**December 7-8**  
**Marriott Marquis, San Francisco**

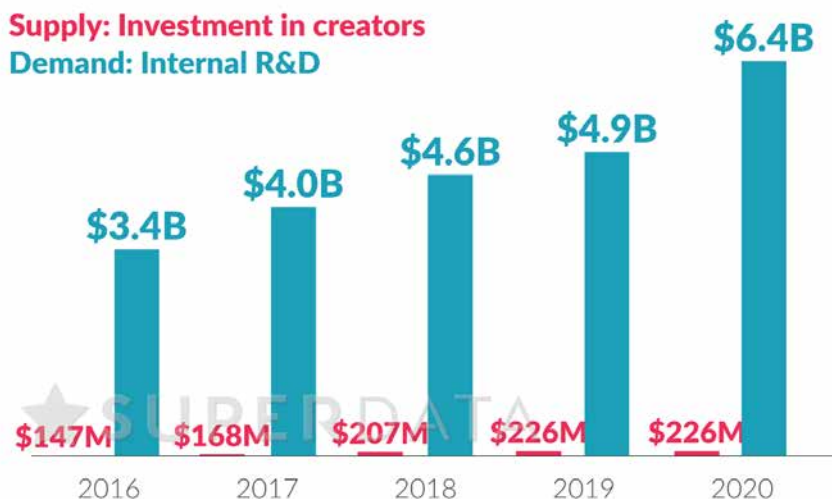
The world's leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at**  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE



## 2.3 VR ENTERPRISE TECHNOLOGY INVESTMENT

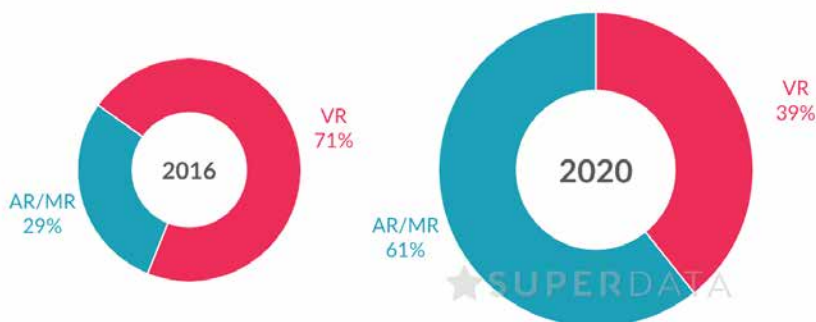


R&D: Amount “demand companies” spend on developing their own internal VR solutions or outsourcing VR development to “supply companies.”

Investments: Total money invested in the ecosystem via venture investments, acquisitions, and IPOs.

Many companies are using funds to both hire and develop internally, as well as collaborate with outside teams. Since enterprise companies are willing to spend right now on VR solutions, and consumers are not, there is more opportunity here than in entertainment where ROI is further out. Therefore, enterprise developers require less outside investment.

## 2.4 ENTERPRISE R&D SPEND



VR has previously led AR and MR enterprise R&D spending. Spending on both will grow through 2020, but AR/MR is in the process of overtaking VR as businesses discover use cases for devices like Microsoft HoloLens.



**December 7-8**  
**Marriott Marquis, San Francisco**

The world’s leading senior-level B2B event for VR and immersive tech

**Tickets available now at**  
**[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**



# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



## 3.0 MEET THE EXPERTS

We've brought together three of the brightest minds bringing immersive tech to enterprise, to discuss how they're using VR, AR and MR to transform the way they design, communicate and sell.

### MARK ROBERTS, MCLAREN

Mark Roberts is the head of design operations at McLaren Automotive. He has pioneered the use of VR within McLaren, with the aim of transforming multiple areas of the business.



### FRANK SOQUI, INTEL

Frank Soqui is the general manager of the Virtual Reality Group at Intel. His team works with partners across industries to help them realise the potential of VR.



### ONDREJ TICHY, HEATHERWICK STUDIO

Ondrej Tichy is an architect and head of visual communication at Heatherwick Studio, an architecture design firm currently integrating VR technology to augment the way they design and present to clients and stakeholders.



**December 7-8**  
**Marriott Marquis, San Francisco**

The world's leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at**  
**[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**“VR has now become a fundamental part of our design process.”**

*Mark Roberts, McLaren Automotive*

## 4.0 INTERVIEWS

### 4.1 HOW ARE YOU, OR YOUR ENTERPRISE PARTNERS, CURRENTLY USING VR?

**Mark Roberts:** I introduced VR to McLaren about 18 months ago. We’ve done a lot of great work with Epic Games using their Unreal Engine, and we’ve been using Autodesk VRED VR software as well. VR has now become a fundamental part of our design process.

The technology is incredibly powerful when it comes to developing the ergonomics of the interior of the car. We have a rudimentary seating buck; an MDF base with a McLaren driver’s seat and very basic structure. Sometimes we also use a physical steering wheel, but often we don’t even have that in place. We use that physical seat with some basic blocks where the accelerator and brake pedals are, and then we’ve configured the HTC Vive sensors around that in our Powerwall room. You can sit in that driver’s seat and have the interior for the 570GT, 650S, 720S – or whatever vehicle – generated around you in VR. You can flick from one to the other for a direct comparison, and it’s great for grasping the car design spatially.

From an ergonomic standpoint, the use of VR at an early stage is particularly powerful. Without the need for a physical model you can sit in a virtual space using an Alias generated volume of the interior around you. That gives a really good indication of how far from you the dashboard display of the car will be, where the roof structure is... If the car you’re designing falls into the Ultimate series, which is our most driver-focused series that feels much more like the cockpit of a fighter jet, you can actually experience sitting in that more spartan interior. That feeling contrasts directly with the GT, which is more open, with a full glass roof. You instantly get an impression of how open the car is, and how it ergonomically differs from a track-focused car.



(VRX)  
2017

December 7-8  
Marriott Marquis, San Francisco

The world’s leading senior-level B2B event  
for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)



# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



Outside the car we use an HDR environment. All we need really is a bit of track or a road and some grass, set against a blue sky to give the impression of a believable, natural environment.

We get our test drivers to sit in the virtual car to give direct feedback to the design team. McLaren cars are all about the driver-focused experience, so we want the controls to be as close to the steering wheel as possible, and that direct feedback from race drivers is invaluable.

Away from ergonomics, on the design side we begin by translating two-dimensional Photoshop sketches into the 3D world using Alias. We transfer those Alias files and scale them up into VR. At this early stage of design, we're looking at a simple volume of the car, rather than a refined model. Because we can prototype in VR so quickly, it allows us to throw out any designs that aren't working straight away. You also have choice around how you view these VR models, either on a virtual table at 40% scale, scaled to 1:1 if you wish – all through the HTC Vive headset.

**Frank Soqui:** Surgical Theater is one partner of ours, and they have clearly demonstrated how VR can power surgical pre-op examinations and patient engagements, plus the amount of compute necessary enable it. We have several deployments with hospitals and institutions like UCLA medical, for example.

These institutions depend on us so they can deliver pretty detailed, robust CT scans, and visualise that data in three dimensions using VR. It's important technology for them because it allows surgeons to determine the right route to tackle surgical challenges, like a tumour during brain surgery.

We also have automotive partners that use VR as a more efficient tool for designing vehicles, as well as enhancing the buying experience for their customers.

Independent software vendors like ZeroLight and VR Motion are adding improvements to how vehicles are defined in the future through the use of VR. Currently, car dealer lots are full of cars that the sales people can't shift. Today consumers don't just want choice; they want to personalize their purchase. They want their car delivered to specific specifications, not simply the configuration the sales staff happen to have on the lot. To facilitate this, the car selling process will use VR either remotely or at a sales location, allowing consumers to experience their car; including preferred colour, extras, and feel, without the seller needing to have everything within their inventory.

At Intel, we also partner with vocational schools – medical schools – that are using VR to increase student ability to retain data, and ultimately improve results. Partners like Duke University in North Carolina currently have a few pilots from a learning perspective. Even some enterprises are using VR to see how they can improve corporate training, or shorten training times.



**December 7-8**  
**Marriott Marquis, San Francisco**

The world's leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at**  
**[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**“We started using VR first as a presentation tool for our clients. However, quite quickly we realised that we could use it in our design process.”**

*Ondrej Tichy,  
Heatherwick Studios*

As an aside, we just had a man who was a pilot – he’s now 100 years old – and we had him take a look at several VR experiences. He was very curious about the equipment he would have to buy, and at the end of trying it out, he said, “I need you guys to hurry up and keep advancing these things, because I don’t have a lot of time left.” He was incredible – still walking on his own, that hundred-year-old man didn’t look it to me; I’d have said maybe 75 max. We have a little video snippet of him that I love. It shows that VR truly is for everybody, and can have a real impact in practically any industry.

**Ondrej Tichy:** We started using VR first as a presentation tool for our clients. However, quite quickly we realised that we could use it in our design process. At the moment we are using it mainly as a design tool to check our designs because we work primarily on large architectural projects. It’s kind of a good tool to understand the spaces – interior and the scale – because you can get the scale 1:1 pretty accurate in VR and a sense of understanding how the space will look like and how it will feel.

The technology hasn’t changed how we design things significantly, but it’s a really good additional tool for communicating our ideas within our team, with our group leaders, and with Thomas Heatherwick (the owner of the company) and the clients themselves.

## 4.2 WHO OWNS THE PROJECT(S)? IS IT A CENTRAL VR TEAM WITHIN THE BUSINESS? WHAT ARE THE PROS AND CONS TO THAT APPROACH?

**Mark Roberts:** That central VR team is basically just me! I do have one guy, employed as an Unreal Engine artist. We are a skeleton team to say the least.

VR is something that I’ve been pushing more and more, but we’re yet to generate a budget for a team. It’s a passion that I have to develop and research the technology to investigate how we maximise the value from it.

It’s important to know that McLaren don’t design cars one at a time. A few years ago, we kicked off Track 22, an internal program which means we design at least one new vehicle every year. Because of that, we have five or six cars in various stages of development at any one time. Part of my job is to supply the design team with the tools they need, so I look for the latest technologies to develop tools to give us every possible advantage to keep the team on top of simultaneous design projects.

I try to get out of the building as much as possible to talk to industry specialists and suppliers and do some lateral thinking.

I mentioned already that I have an Unreal Engine artist, and I supplement his work by directly supporting the marketing team with customer experiences and assets. We produce the CAD geometry for the design of the cars as part of our day job.



**December 7-8  
Marriott Marquis, San Francisco**

The world’s leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**“What I see in the market is extremely collaborative software companies, enterprises and technology companies all reaching out to each other”**

*Frank Soqui, Intel*

Ultimately, we push for the most photo-realistic models, whether that’s in VR or in real time on screen. Designers need that photo realism so they have the confidence to make design decisions based on a virtual model. We have such high standards that it lends itself perfectly to use these assets for the marketing team. We can put together configurators and other marketing assets. This way of working allows me to get a little bit clever when it comes to juggling budgets around, so I can fund projects from multiple areas of the business by helping out with their projects and punching above our weight when it comes to delivery, it’s a win-win situation.

**Frank Soqui:** Within Intel I have a small team of people that are focused on defining high-level pilots and proof of concepts for what we’ll want to go test inside the industry. We do that through research and through partner interactions, as well as by having a software solutions group with strong touch points with end users and consumers.

From an external company perspective, the more forward-thinking companies have a lead driver and a group of individuals that lead research and development so they can move their strategy to a point of maturity. Then they look for partners in the industry on the technology side to help them deliver.

What I see in the market is extremely collaborative: software companies, enterprises and technology companies are all reaching out to each other and arriving at similar points of view, or intersecting points of view, where they can all help each other.

Software companies and the enterprise are looking for the companies that are moving this technology forward and how they can partner better, which is where I come in. When I talk to clients and partners, it’s no longer a case of having to convince them that VR has a ROI, because they can see applications to reduce the training times, the number of prototypes necessary to produce an end product and so on. A lot of companies already have a point of view on how VR can help them, and want to see what technology can help them reach that point.



December 7-8

Marriott Marquis, San Francisco

The world’s leading senior-level B2B event for VR and immersive tech

Tickets available now at [www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)



# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**Ondrej Tichy:** We have started a project enabling domain, which is a domain that helps facilitate and support our projects across the studio. This is a group of people who specialise in certain areas. I'm actually leading this work stream that is called visual communication that sits under digital design. We are looking after and helping these projects to achieve their goals. I'm the one who helps set up the strategy for them and if there are any technical questions or need some support I'm here to help and guide them.

## 4.3 WHERE ARE YOU SEEING THE PRIMARY INTEREST AND INVESTMENT, I.E. WHERE ARE BIGGEST OPPORTUNITIES AND WHERE ARE YOU INVESTING?

**Mark Roberts:** In all honesty, we're yet to carve out a specific budget for VR. The interest and investment from our point of view is more a case of being really smart in the way I introduce these tools. Out of necessity I've made great progress by collaborating with suppliers; working closely with them and coming up with mutually beneficial partnerships. For want of a better description – it's a case of 'beg, borrow and steal' in order to get things done. We've been able to achieve some real results with an absolutely minimal spend.

We never design vehicles as a pure design piece – we always work hand-in-hand with aerodynamics, engineers and manufacturing. Our design work always has to respect the position of the engine, front and side radiators, etc. – the so-called 'hard points' of the car. We can never just indulge ourselves to come up with a beautiful creation without considering how that design performs aerodynamically and from an engineering and build quality perspective.

One development that I'm really excited about is that I've just developed a completely bespoke tool for the studio. It's a VR design sketch tool, and we're rolling it out this week. The tool allows the designer to sit at their desk, put on a VR headset and import all the hard points – even if we only know the approximate position of each hard point. Within the tool you can see those hard points and how they relate to one another at 40% scale at your desk. You can spin them around to view the car from any angle. The designer can then select a virtual paintbrush and paint a car centre line over those hard points.

That virtual painted line switches to a vector straight away, so you can easily adjust to position it exactly where you want it, and begin to add car cross sections and tweak as you go. The really clever bit is that you can click the lines you have drawn in and turn them into a surface; adding a rudimentary skin over the wireframe. Within half an hour you've got a basic volume model that can be imported directly into Alias and worked up into a full car design. It's really game-changing.

**Frank Soqui:** I don't think it's all cost reduction, but for a business it's always about the bottom line. As a business either I need to become more efficient and reduce costs, or I want to create better designs, or attract more customers.

**“Often you can frame the benefits of VR by looking at costs a different way.”**

*Frank Soqui, Intel*



December 7-8

Marriott Marquis, San Francisco

The world's leading senior-level B2B event for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



One particular use for VR is where companies want to go and touch the customer with an experience; they want to sell you an experience whether it's a car, a vacation, a home, or whatever. Often you can frame the benefits of VR by looking at costs a different way. For example, if I can get to my customers virtually, I don't have to build 50 more little offices to attract customers. That's a lot easier. This is really an extension of what's happening in retail with online sales, but now I can actually have an experience where I can sell you a holiday to Hawaii without dragging you into an office to look at a bunch of flat screens. You get a better customer experience, that's more compelling, with VR.

**Ondrej Tichy:** We are focusing on three main areas. Static 360 degree images is one group where we produce photographic renders. Previously this was done in 2D, however now we produce spherical images that help show the space better. The second group is interactive tools – think of this as anything that uses a game engine, for example Unreal Engine, where basically you build the architecture design almost as a game so that you can walk through it and go wherever you want to go using a VR headset. You can really explore the space. The third area is virtual reality sketching. This is very new, and we're going to be testing to see how we can best use this technology. Instead of sketching on paper we are experimenting with sketching in virtual space using HTC Vive.

Actually beginning, or indeed doing the entire process, of designing a building in a 3D space is more intuitive than sketching on a screen. It gives you almost like a freehand drawing in three dimensions and you can scale it almost as you want it. This is something really interesting but, as I said, it's a little early for us to implement it across every project. We've only tried it on a couple of projects so far. Where we would like to get to is AR – augmented reality – but we're not there yet.

#### 4.4 WHERE ARE THE PRIMARY INTEGRATION HURDLES? TECHNICAL, LEGACY SYSTEMS/PROCESSES, TRANSITION, COST, LACK OF SKILLS?

**Mark Roberts:** Historically, buy-in from the business has been the biggest challenge for us in generating a budget. A year ago, VR was perhaps perceived as more of a novelty that we were experimenting with. Now, the exec team and the directors can see that VR has become a fundamental part of the design process and, at the other end of the vehicle design journey, a great customer experience too.

One of the key things I always try to put across for the user is to not get hung up on the hardware or software limitations. In an ideal world, I don't want people to focus on the pixel quality, latency or the headset they've got to wear – these aspects of the technology will improve as we develop the tech. Instead, the goal is for them to believe they're seeing a physical car and to talk with confidence and be able to critique the design aspects of the actual car itself.

**“One of the key things I always try to put across for the user is to not get hung up on the hardware or software limitations.”**

*Mark Roberts, McLaren Automotive*



December 7-8

Marriott Marquis, San Francisco

The world's leading senior-level B2B event for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



Pretty much all of the technical barriers can be overcome today. For over a year now we've been working closely with VR and AR suppliers; providing and receiving feedback. Getting out to conferences and interacting with the community is also invaluable in that respect. Whether it's at GDC, VRX or wherever, those suppliers want you to be using their technology, and they really listen to what you need to make the experience even better.

We're now at the stage within McLaren where we have some great tools and we've incorporated VR as part of our design process. We're also using the same product in marketing for our customers. We're at a stage where I can begin to justify a dedicated budget for VR, and once I've secured that, we'll really start to fly.

**Frank Soqui:** Companies need to connect VR into their existing workflows. If you're looking to use the technology as part of mechanical design, as you're modifying the design process and collaborating in VR you need to consider how you connect to a back end, so you can see the ripple effect of changing the design – with material costs and replacement parts and things like that. Fitting VR into the workflows is just one hurdle example.

We already have the hardware capability, and I think the content development tools are starting to become available. However today we lack a turnkey technology that allows companies to quickly deploy a VR experience. Companies know what they want to do, but the tools aren't quite there for them to do it without significant investment. They're looking for the tools that make the conversion of the flat experience they have, or the development of new VR ideas, much easier.

A great way to frame VR is by comparing it to the internet; it wasn't easy to stand up an e-commerce site or develop logical services through the web until the tools were created to assist you. Developers also had to change their mode of development; the pipeline for distribution of content had to change. All of this didn't happen overnight. However, once all the tools were there, the internet really blew up. The same thing is happening for VR now.

A company called Linden Lab is democratizing the creation of VR environments by making it super easy. With their Sansar platform you don't even have to know a programming language – it's pretty cool.

**Ondrej Tichy:** The largest barrier is technical, because the technology is still relatively new. We have worked closely with developers to test the new headsets before they arrived on the market. At the time understandably, as the product was still in development, there were quite a few bugs and it was quite frustrating at times.

Cost isn't really an issue because we already had fairly capable compute power within the company, so we only really needed to invest a few hundred pounds to get the headsets, which is palatable for us.

**“Some of our clients aren't familiar with VR, and so might be scared of putting a headset on.”**

*Ondrej Tichy,  
Heatherwick Studios*



**December 7-8  
Marriott Marquis, San Francisco**

The world's leading senior-level B2B event for VR and immersive tech

**Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**



# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



The third hurdle I would say is more of a social one. Some of our clients aren't familiar with VR, and so might be scared of putting a headset on. I can think of a couple of times where we had prepared a VR presentation and the client just didn't want to put on the headset. Because of that we now try to mirror everything so that we have a screen friendly version of the presentation so we can avoid these kinds of issues. Obviously viewing on a flat screen or tablet won't have the same impact as the full VR experience, but you always have to cater to the lowest common denominator with these things.

## 4.5 AWAY FROM VR, WHERE ARE THE BIGGEST IMMERSIVE OPPORTUNITIES FOR ENTERPRISE – INCLUDING AUGMENTED AND MIXED REALITY?

**Mark Roberts:** For me, mixed reality is absolutely where we need to be. Today I don't think there is anything on the market that truly delivers. Whilst there are a couple of suppliers with some great products, each one is compromised in certain ways.

I absolutely love the concept of HoloLens – being able to pin reference images virtually to the wall, leave the room and return later for that pinned item to still be there, to receive live instructions and interact with the real world at the same time. It's a fantastic concept, but it's not for us at this stage because the field of vision isn't quite right: it isn't a natural visual experience.

I'm still waiting with baited breath for Magic Leap to come up with the ultimate solution. That really excites me, and if what I hear is to be believed, that could be truly revolutionary. The conversations I've had have given me confidence, but it's a waiting game at the moment.

The concept of VR works really well for us today, but it would be even more powerful if you and I could be sitting in the same seating buck; see each other physically at the same time as seeing the interior and exterior of the car virtually.



December 7-8  
Marriott Marquis, San Francisco

The world's leading senior-level B2B event  
for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)



# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**“Augmented reality is going to mature and be a big component of the business landscape eventually.”**

*Frank Soqui, Intel*

We’ve also seen that certain individuals don’t really feel comfortable with VR technology. Putting the headset on when you’re surrounded by twenty or thirty people is a bit of an isolating experience, you can see the level of discomfort some users encounter when put in that situation. They’re not able to freely comment on the virtual subject because they’re focusing on the technology instead. To move that to a mixed reality experience will completely solve the problem.

**Frank Soqui:** Augmented reality is going to mature and be a big component of the business landscape eventually. We’re already seeing some of those applications within big shipping logistics companies, healthcare, manufacturing, training and simulation, and location-based entertainment.

I think mixed reality is going to take a little bit longer to grow; it’s just starting out. The technology definitions are just becoming understood right now. Mixing the realities is going to be an interesting challenge.

All of these technologies are going to play a role in how business will be implemented in virtual environments. It is very tempting to think about one technology dominating – VR taking over AR; AR taking over VR; or everything becoming MR – I’ve never seen, within any environment, a one-size-fits-all approach working. I believe different types of realities will become prevalent in certain industries and certain sectors.

**Ondrej Tichy:** Augmented reality is by far the biggest opportunity. For us, the social aspect of gathering feedback on our projects is huge. When someone puts on a VR headset, the very nature of the immersive technology is such that they are transported to more of an isolated location, so conversing about the project at that point can be awkward.

We’re really looking forward to increasing the social aspect of displaying architecture projects, and we’re really hoping that AR will allow us to achieve this because you’ll still be present in the room and able to talk about the content at the same time as having the immersion and scale benefits that VR has brought. I also think this could alleviate some of the reluctance that we’ve seen – although that will also become less of a problem as people get more used to immersive technologies.

## 4.6 HOW DO YOU SEE THE NEXT 5-10 YEARS PLAYING OUT? WILL IMMERSIVE TECH AND APPLICATIONS BECOME AS UBIQUITOUS AS MOBILE TECH AND APPLICATIONS HAVE FOR ENTERPRISE?

**Mark Roberts:** Haptic feedback is a really exciting area that is already coming on leaps and bounds. Some of the solutions I have seen are a little too extreme, and certainly not the route we want to go down. I’m talking about low-tech electric shocks when you’re touching a virtual surface. I’m not comfortable with that!



**December 7-8**  
**Marriott Marquis, San Francisco**

The world’s leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at**  
**[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**“Haptic feedback is a really exciting area that is already coming on leaps and bounds.”**

*Mark Roberts, McLaren Automotive*

However, ultrasound-based technology has lots of promise. It's very subtle. When I can reach out in VR and get some sort of physical feedback from the objects I'm interacting with, that's quite literally adding another dimension to the experience.

In five or ten years' time, we'll probably look back and laugh at seeing pictures of us today wearing VR headsets. The technology will evolve so much that it'll be almost unrecognisable from what we have today.

**Frank Soqui:** Very soon, augmented reality – or something very similar to it – will disrupt the phone market. You'll see augmented reality initially tied to phones, because we're currently using the phone every day, but augmented reality headsets could connect wirelessly to the phone. Then pretty soon the phone stays in your pocket, and shortly after that perhaps you won't even need the phone at all.

This technology is going to connect to the most convenient compute power possible, and that happens to be the smartphone currently. In the future that could be the cloud as I'm walking around, a phone or compute device in your pocket, or maybe even remotely with a home-based PC or desktop. *How* people connect to computing power is going to be the factor that disrupts everything.

You're also going to see immersive technologies continue to get pushed forward. Things like bi-directional haptics are on the horizon already. By that I mean environments that alter because of your reaction to them. For example, if I'm playing a zombie game and my heart rate is low, the game could throw more zombie attacks at me. Maybe if my heart rate is a little too high then the challenge could reduce slightly. The environment reacts to me because of my reaction to the experience.

Then when you consider eye tracking, voice control, voice translation... I don't see any end in sight to the progression of immersive technologies when they start interacting with VR and AR.

If you look at the revolution that Amazon Echo is fostering, and that's just voice control. People are buying more products and services just off the back of voice control. What if I could actually see a product and understand how it fits into my environment, how much easier would it be for me to make a purchase decision?

Plus, with 5G networks rolling out, as well as artificial intelligence and cloud-to-client services – all of this will keep enhancing immersive tech.

People are currently limited by time, funds or limited abilities. Immersive technology will help bridge those gaps. People want this technology, there's no question. *How* they do it technologically – that's exactly what I'm looking for at Intel.

**Ondrej Tichy:** The construction industry will benefit greatly from this. Particularly from construction on site where you can use AR during the process of building to see the next phases – so we can visualise a completed project directly on site using AR glasses. I hope



December 7-8

Marriott Marquis, San Francisco

The world's leading senior-level B2B event for VR and immersive tech

Tickets available now at  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



**“I hope AR will be the leading technology, certainly within five years, when it comes to presenting work to clients.”**

*Ondrej Tichy,  
Heatherwick Studios*

AR will be the leading technology, certainly within five years, when it comes to presenting work to clients.

Generally, the designing tools for architects or designers in general will be improved within these 5-10 years. We'll probably be working more intuitively in the modelling space, as we get more immersed. We won't just be looking at a screen and thinking about how a project will be built, we will be getting really immersed in the building working with this technology.

We're already seeing that the young generation come from a game engine background – they love playing games and suddenly it's natural for them to use Unreal Engine and get working with virtual reality on these projects. The whole new generation will be more VR ready.



**(VRX)**  
2017

**December 7-8**  
**Marriott Marquis, San Francisco**

The world's leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at**  
**[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)**

# IMMERSIVE INDUSTRIES: THE RISE OF VR/AR/MR IN ENTERPRISE & THE WORKPLACE

(VR) Intelligence

Proud to support



## Driving the Business of VR and Immersive Tech San Francisco, December 7-8

With so much opportunity on the horizon for VR in gaming and way beyond, now is the time you need to hear from those building the future of VR and immersive tech and network with the true industry leaders in the field.

VRX 2017 in San Francisco is just the opportunity. Established as the globe's leading senior level cross-industry event, the agenda features the brightest and best minds from across gaming, media, enterprise, brand marketing and immersive technology.

With speakers representing everyone from Oculus, HTC, Unreal Engine, Unity, Intel, HP, Accenture and Google to Gensler, Ford, Wayfair, The VOID, Honda, AECOM, Sony Pictures, BMW, Gulfstream Aerospace, Viacom and Walmart there's no better place for you to learn from and network with the top tier companies leading the charge.

Head to the dedicated event website to see more: [www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)



**December 7-8**  
**Marriott Marquis, San Francisco**

The world's leading senior-level B2B event  
for VR and immersive tech

**Tickets available now at**  
[www.vr-intelligence.com/vrx](http://www.vr-intelligence.com/vrx)





(VRX) 2017

December 7-8 | San Francisco

Register early, Save \$\$\$

The world's leading senior level VR industry event
Where the real business of immersive tech gets done

GAMING • CINEMATIC • BRAND MARKETING • ENTERPRISE • HEALTHCARE • EDUCATION

- GET INSIGHTS ON TRUE MARKET OPPORTUNITIES: Hear perspectives from the world's most active and respected analysts and investors...
UNDERSTAND THE REAL COMMERCIALS OF VR/AR/MR: Explore in depth the various technologies, applications and business models...
MEET THE VISIONARIES BUILDING THE FUTURE OF VR AND IMMERSIVE CONTENT: This is the only event to have c-suite representation...
THE CHANGING FACE OF ENTERTAINMENT: Gaming, film, sports - you name it, every form of entertainment is being transformed...
DISCOVER WHICH INDUSTRIES ARE EMBRACING IMMERSIVE TECH MOST... AND WHY: Hear about real-world enterprise applications...
FIND OUT HOW IMMERSIVE TECH IS HAVING A MASSIVE IMPACT ON ENTERPRISE: From training & simulation, to collaborative product development...

REGISTER NOW @ WWW.VR-INTELLIGENCE.COM/VRX

A world class speaker line-up from across industry...



Rikard Steiber
President,
Viveport & SVP
Virtual Reality
HTC



Yelena Rachitsky
Executive Producer of Experiences
Oculus



James Jensen
Chief Visionary Officer
The VOID



Brock McKeel
Senior Director of Operations
Walmart



Rebecca Howard
SVP Emerging Platforms and Partnerships
Discovery Communications



Ted Schilowitz
Futurist in Residence
Paramount Pictures



Morgan Garrard
Director of Systems Innovation
AECOM



Vicki Ferguson
Programming Team Lead,
Virtual Reality
Ubisoft

SPONSORS AND EXHIBITORS INCLUDE

Diamond Sponsor



Gold Sponsor



Bronze Sponsors



Exhibitors

