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IPSOS VIEWS

Virtual Reality: Hype or the future?

By Richard Garnham



Introduction

Virtual Reality (VR) technology has been around for at least a decade and you could say it's clearly gone from sci-fi to sci-fact. However, it's still seen as a new technology and has not hit mass adoption. So what has gone wrong?

2016 was an interesting year as experts believed that the Virtual and Augmented Reality (AR) would deliver \$4.4 billion in revenue. However, it actually only achieved \$1.8 billion in revenue¹ and a 6% adoption rate in the US². In comparison, smartphones only took 10 years for at least 40% adoption in the US³.

It's not all doom and gloom, as many venture capital and technology companies are investing large sums into the industry with \$3.6 billion raised in the last 12 months (2017-2018)⁴.

At Ipsos, we're exploring this technology to identify how we can make research better, faster and even more engaging for participants and clients. The aim is to get closer to consumers' real behaviour and emotion, and to seek out new levels of insight.

It's only the beginning of our journey, but we know from initial studies that ground-breaking opportunities are on the horizon. The list of applications is already diverse; from understanding audience usage and engagement with the BBC⁵, Healthcare (VR surgeries), ethnographic immersions, airport journeys, testing automotive prototypes, through to leading FMCG brands integrating behavioural science principles to validate subconscious consumer behaviours.

KEY TAKEAWAYS

- We're only at the beginning of this journey. As the technology develops there will be further cost savings as the software/computer generated imagery (CGI) becomes more cost efficient and better
- VR is providing the foundation for other technology developments such as Artificial Intelligence, Internet of things and even 3D modelling
- Opportunities already exist within the research industry from shopper immersions to testing VR content for broadcasting
- Multi-sensory testing is going to be an integral part of VR and AR as the researcher aims to get closer to the ultimate consumer understanding

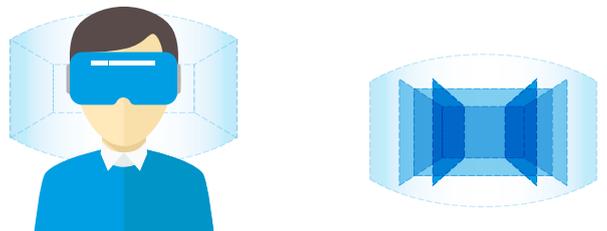
The starting point: How is it possible to have multiple realities?

As with any new technology, acronyms and jargon abound – so too in the realm of VR, AR and MR (Mixed Reality). This paper will first recap what we mean by these various realities and cover the following:

- Applications for virtual, augmented and mixed reality, complemented with our initial learnings
- What metrics we can capture and how they can add value to traditional research
- The future, including its potential impact

Virtual Reality

Virtual Reality is an artificial, computer-generated simulation or recreation of a real-life environment or situation. It immerses the user by making them feel like they are experiencing the simulated reality first-hand, primarily by stimulating their vision and hearing. Examples include flight simulators for fighter pilot training, and the virtual experience of solitary confinement that gives you a taster of what's it like to spend 23 hours a day in a prison cell, produced by The Guardian. You can also experience VR with different types of devices such as HTC Vive and Google Cardboard which provide different levels of quality.



Fully enclosed computer-generated simulation or recreation of a real-life environment

Augmented Reality

Augmented Reality is a technology that layers computer-generated enhancements atop a physical, “real” environment, in order to make the experience more meaningful through the ability to interact with it. AR is mostly developed into apps and used on mobile devices. You might have seen some groundbreaking releases such as Google Glass, Pokemon Go and Amikasa; the latter helps you style your room and figure out your desired layout before you ever buy a piece of furniture.



Computer-generated enhancements atop a physical, “real” environment that is central to the experience

Mixed Reality

Mixed Reality, sometimes referred to as hybrid reality, is the amalgamation of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time. An example of this is Google’s Tilt Brush which allows you to paint in 3D space with virtual reality. Another example is the NFL (US National Football League) and Microsoft HoloLens creating an immersive experience for fans to watch and interact with players, other fans and real-time experiences. Magic Leap is now leading this space with its new headset having launched in 2018.



The amalgamation of real and virtual worlds to where physical and digital objects co-exist and interact in real time

Market research applications for Virtual and Augmented Reality: The story so far

In the following sections we will cover the different research applications for virtual and augmented reality. We will highlight the key features, benefits, use cases, limitations and what is the future potential.

We should note that, in most cases, it's not a stand-alone technique, but can be used alongside

existing research methodologies. For example, AR can be used as another layer to bring a report/data to life when engaging with stakeholders or creating a virtual environment to test product concepts, by methods such as overlaying virtual elements onto physical products in a test environment.



Shopper Experiences: In-store behaviour

Immersing consumers into a full-scale virtual supermarket, shopping centre or even high street enables us to test different scenarios in a scalable and flexible manner. With the development of a computer generated (CGI) virtual supermarket or shopping aisle, we can fully immerse consumers. They have the ability to move around and interact with the environment, picking up products from the shelf as well testing multi-sensory applications such as hearing and smell. We can set them tasks like finding certain products, or ask them if they noticed any Point of Sale materials throughout their experience.

It can help efficiently answer questions like, **“How can we quickly and easily understand consumer motivations whilst in-store?”** or even **“How do people engage with different store-layouts and shelving environments?”**

We know it can be easily scaled up from qualitative to quantitative methods, quickly and efficiently. For example, once you’ve created the CGI environment and tested within a small group of participants, you can then roll it out to be tested on a larger group. You just need the space (warehouse) and enough hardware (VR headsets and PC’s) to carry it out. On top of this, you can work in an almost real-time environment by changing stimulus quickly whilst the consumer is still immersed.

Ipsos teams are already working with this technology in various countries and their approaches are shared

globally. This means it’s not limited by cultures or geographic boundaries as it’s a technology that can be adapted to anything (...within reason!) For example, our Italian colleagues developed a CGI shopper environment for a global FMCG brand that the UK team are now using to demonstrate to the London client team.



In the future, researchers will be able to set up multi-sensory and weight testing to truly immerse the consumer into a particular environment. We will also be able to understand their neurological responses to different environments and stimuli as the technology will provide more accurate eye tracking heatmaps and EEG analysis.

Product Testing: Pack and new concept evaluation

We instantly saw the benefits of using VR in concept and product testing. We can use it to bring new or revised pack designs to life for evaluation in different virtual environments and take clients' CGI designs to test them with consumers before any physical prototypes are developed. You can also use AR to overlay the digital prototypes on existing products within the aisle itself. We are seeing real benefits to being more agile with testing multiple prototypes whilst in a real store environment.

It can help to answer questions like **“What elements of the design draw consumers’ attention and how do they react?”**, **“How can we optimise the pack design and do this in real-time whilst in test phase?”** or even **“How can we tap into all the senses with the product?”** We can combine VR with eye tracking technology to explore whether the concept or prototype can be located in different environments and whether it attracts attention.

A clear benefit of using this technology is its transferability to any country, any culture or even socio-demographic - participants just need access to a headset or smartphone. This approach also allows consumers to re-design and annotate the concepts to indicate how they would change or improve them.

In a recent project, we worked with a global FMCG brand, across multiple European countries, to test multiple concepts and designs in VR quickly and efficiently, negating the need for expensive physical prototypes and using easily accessible smartphones for devices. We generated heatmaps through the integration of eye-tracking to build a clear picture of where people gaze and dwell, indicating where their brands should be placed in the future.

Another example is our work in testing prototype cars (Car Clinics) in virtual environments against the traditional, physical environment. Results indicate participants understand what is expected within the virtual environment and still produce similar level of insight and depth compared to traditional methods.

The future of this technology will most likely allow brands to streamline their product development supply chain as they will be able to create, modify and test their designs in CGI with different markets involved at the same time. Instead of (for example) the UK making modifications and then sending to China and waiting for them to feedback.

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Content Evaluation: VR media and advertising content

VR content is rapidly growing in application; from games to TV shows, documentaries and films. So it's vital to test how well the content will resonate with the audience. VR can help to answer questions from **“What kind of content is most attractive and relevant to a given audience?”** to **“How can we quickly and efficiently test multiple ads in a real-life environment?”**.

We worked with the BBC to identify whether audiences actually know what people want out of VR entertainment experiences, as well as how everyday people experience VR in their home? With the team from the broadcaster we got underneath

the skin of the VR experience to truly understand how people experience VR, the content and how it resonates with them.

Ipsos' VR out of home, pre-testing approach uses a controlled VR or 360 video environment to re-create how adverts are experienced in the cluttered real world. A pre-recorded route with digitally integrated billboards/ad displays shows a variety of ad concepts and can be further integrated with neuro and biometric measures to understand the participant's emotional reactions to the VR content or ads.

This enables us to:

- Test ads in **near real-life environments**, which would otherwise be impossible to simulate in the real world. This could help you to find out which ad locations might have the optimal impact for your brand. E.g. run a 360 video of a high-street with outdoor advertising spots and get people to experience it with different ad concepts each time.
- **Achieve cost savings** by developing virtual vs. physical environments. Expensive prototypes could therefore become a thing of the past. E.g. participants are still able to interact with digital concepts within a VR environment and it's more easily adaptable compared to real-life testing.



- You can easily and quickly **change these environments** in a way that is not so easy when working with “the physical”.
- Access **a reality that only VR/AR can bring** i.e. nowhere else could you have an audience literally walk with the dinosaurs.
- Bring **immersive context to scale** across multiple markets and even in people’s homes, efficiently and at the same time. E.g. run the same study using the same environment in China and US.

One industry that has truly embraced the virtual reality industry is the adult entertainment industry. In 2016, Pornhub’s VR portal went from 30 videos and a handful of views a day to over 2,600 videos and more than 500,000 views a day in a space of two months⁶. They took advantage of this technology diversification and they’ve noticed that viewers want to be immersed even more and use it to escape real-life situations and issues.

From the work we’ve conducted with the BBC, it’s clear that the future for VR content will need to focus on resonating with audience and not just being a ‘novelty’ production. Content makers need to tap into their audiences’ need states such as escaping, relaxing, empathy and learning as the content needs to be impactful and have a strong story. They want substance.

Storytelling: Bringing insights to life

We are continuously looking at how we can bring reports, insights and data to life for clients. Making it more digestible and actionable is critical. A new opportunity for research is to harness the power of VR, 360 video and AR to get stakeholders closer to their results as well as the consumers or audience.

A clear example is the use of AR triggered content. This involves moving from a report, infographic, video, physical object or image. to provide further content, such as reports, images, videos or even surveys.

We’ve been working with AR technology for a while now and have started to see how it enhances the experience when reporting back on our findings. It really does provide an interactive method for more effective storytelling and offers an engaging way to share results across an organisation.

Limitations: Being realistic

As with all new technology, there are still limitations and teething problems, especially as we're still in the early adoption part of the lifecycle. Although we expect improvements over time, it's worth considering the following when working with this technology:

- **It's not real** and as human beings we are climatized to physical, natural, real-life environments.
 - » If we define 'real' as what you can feel, smell, taste and hear, then 'real' is simply electrical signals interpreted by your brain. You can use 360 video to capture the real world and still immerse consumers into this environment. Computer generated VR is a 'near reality' experience which will only become more 'real'.
- **The technology is still expensive**, especially truly immersive VR as it typically requires a significant investment to create a VR environment. Hardware like headsets need to come down in price whilst improving its quality.
 - » 360 video is a lot more cost effective and not as intense on the senses, especially sight.
- **Disorientation**. Moving in a world that feels real without actually moving has been proven to cause nausea after extended use. Developers need to figure out solutions or accept limited usage at a time.
- AR can be **socially distracting**. When everyone lives in their own version of reality, will they still be able to relate to one another? Pokémon Go brought people together, but will every AR app?
- It's a **virtual environment** or layer (AR) and does not capture all the characteristics of 'real-life' situations. For example, the feeling of weight is only starting to be introduced and still far from becoming a mainstream addition.

What's happening at the moment?

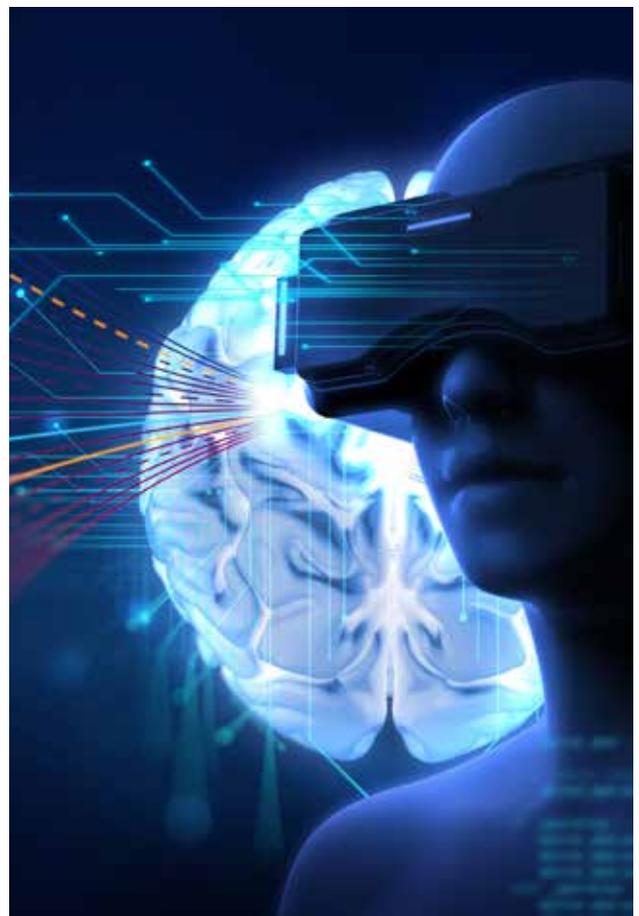
VR and AR technology has gained a lot of attention over the past few years, despite it being around a lot longer. Google Cardboard and Pokemon Go started the drive to mass awareness in consumer markets, but we're still way off mass consumer adoption of VR. Experts believe AR will see mass adoption before VR.

VR is gaining most traction in the gaming and entertainment industries, specifically for the adult entertainment industry. As the technology becomes cheaper and quality improves, this will likely broaden its adoption into industries ranging from market research to healthcare.

With 2.9 billion smartphone users in the world by the year 2020³, mobile VR and AR is starting to offer the potential of more mass consumer adoption. With the launch of the Apple X & XS iPhone and AR being a standard system app, this will naturally drive the adoption rate and usage. Meaning consumers will become accustomed to this technology.

We will potentially see the more immersive hardware and software companies, like HTC Vive, Oculus, Amazon Alexa, Google Home and the full Internet of Things becoming more cost effective and adaptable to consumer homes. For example, you could walk into one room and Alexa will ask if you want to play FIFA (football computer game) and by responding 'yes' a headset (VR/MR) will appear. This would probably be without any controllers as sensors within the room detect your hands and feet.

At the moment, VR is limited to a user's visual and auditory senses, but we will no doubt see it start to cater to all the other senses, providing the true 'reality factor'. It will be very difficult to break the barrier between the virtual and real world, but hardware and software developers are already looking at how they can provide a truly real, immersive experience.



Future future... Sci-fi or sci-fact?

Over the coming years, you may hear the term '**mixed reality**' used more and more as VR and AR collide with each other. The term covers both, plus any future developments that may impact our approaches. It will most likely be more advanced than VR or AR when they stand alone, as we envisage mixed reality combining advanced forms of technology, such as multi-sensors, advanced optics and next generation computer power. We see mixed reality becoming one of the strongest contenders for mass adoption, especially within the research industry.

Leading on from this, is the potential rise of **hyper reality**. This is where the technology is integrated into part of the real world as they comfortably interact with each other. This will mostly be led by hardware that involves a head-mounted virtual retinal display which superimposes 3D, computer generated imagery over real world objects. Magic Leap has been launched and is incorporating multiple features, such as eye tracking, hand tracking, real-time meshing and number of other elements that have not been used in Mixed Reality. It's not going to solve everything, and the current price tag is off putting, but it's a step in the right direction and we are excited to see where we go from here.

To return to where we started, the forecasted VR sales are not entirely in line with predictions... yet. You could say it's all still quite "niche", especially for the

market research industry. However, we are only at the beginning of this virtual journey and who knows what opportunities await us. At Ipsos we're not fearing this uncertainty as we're already testing out how other data capture techniques like heart rate monitors and voice sentiment analysis can be integrated.

Through innovative partnerships in the industry, we are truly pushing the boundaries of consumer understanding. If the adult entertainment industry can embrace it...

The Royal Shakespeare Company (RSC) have long seen the potential for VR and AR within live theatre. Working in partnership with them, we captured and uncovered the true emotional response of theatre-goers to the Titus Andronicus production, using the mixed reality techniques described here⁷.

Read more: <https://www.ipsos.com/ipsos-mori/en-uk/shakespearestill-shocks-even-virtual-reality>



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