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IPSOS VIEWS

Virtual Reality: Hype or the future?

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?

Experts believed that virtual and augmented reality in 2016 would deliver $4.4billion in revenue, however, it actually only achieved $1.8billion[1] and a 6% adoption rate in the US[2]. In comparison, the smartphone only took 10 years for at least 40% adoption in the US[3].

It's not all doom and gloom, as many venture capital and technology companies are investing large sums into this industry and in 2016 we saw $2.3billion invested[4].

At Ipsos, we're exploring this technology to identify how we can make research better, faster, cost effective or even more engaging for participants and clients. The aim is to get closer to consumers' real behaviour and emotion, as well as a new level of insight.

It's only the beginning of our journey, but we know from initial studies that ground-breaking opportunities are on the horizon. From understanding audience usage and engagement with the BBC[5], Healthcare (VR surgeries), ethnographic immersions, airport journeys, testing automotive prototypes to leading FMCG brands integrating behavioural science principles to validate sub-conscious consumer behaviours.

Key takeouts

- We're only at the beginning of this journey and as the technology develops there should be further cost savings as the software/computer generated imagery (CGI) will become more cost efficient and better.
- It's providing the foundation for other technology developments such as Artificial Intelligence, the 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 and the researcher's goal of getting closer to the ultimate consumer understanding.

Virtual Reality (VR)

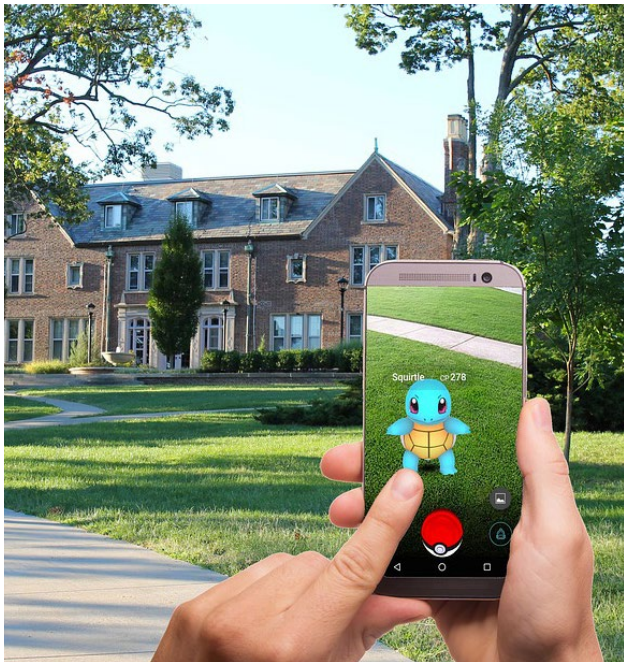
Virtual Reality is an artificial, computer-generated simulation or recreation of a real-life environment or situation.

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 a virtual experience of solitary confinement that gives you a taster of what it's 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 also provide differing levels of quality.

Augmented Reality (AR)

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 ground-breaking releases such as Google Glass, Pokémon Go and Amikasa which helps you style your room and figure out your desired layout before you ever buy a piece of furniture.



Mixed Reality (MR)

Mixed Reality (MR), sometimes referred to as hybrid reality, is the amalgamation of real and virtual worlds to produce new environments and visualisations 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.

In this paper we will cover the following areas:

- 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 and its potential impact

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 standalone technique, but can be used alongside existing research methodologies. It can be integrated into existing methods, 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 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/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 as 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 PCs) to carry it out. On top of this, you can work in an almost real-time environment by changing stimuli quickly whilst the consumer is still immersed.

Some Ipsos countries are already working with this technology 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 local client team.

In the Netherlands, they tested a completely new store concept for sports apparel in Virtual Reality to understand how the store environment feels to be in there and able to move around inside.

In the future, researchers will be able to set up multi-sensory testing within these environments to truly immerse the consumer into that 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 virtual reality in concept and product testing. We can use it to bring new/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 augmented reality to overlay the digital prototypes on existing products within the aisle itself. 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/prototype can be located in different environments and whether it attracts attention.

A clear benefit with 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/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 for 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. For example, this would obviate the need for the UK to make modifications, send them to China, and wait for their feedback.

Content Evaluation: VR media and advertising content

We're only at the beginning of this journey as VR content is rapidly growing 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?'.

How do everyday people experience VR in their home? With the BBC, we got underneath the skin of the experience to truly understand how people experience VR, the content and how it resonates with them.

Multi-sensory testing is going to be an integral part of VR and AR and the researchers goal of getting closer to the ultimate consumer understanding.

Ipsos' VR out of home, pre-testing approach uses a controlled VR or 360° video environment to recreate 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 and find out which ad locations might have the optimal impact for your brand. e.g. 360° video of a high-street with outdoor advertising spots and get them to experience it with different ad concepts each time.
- Achieve cost savings by developing virtual environments vs. physical, so expensive prototypes could 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 compared to 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 2 months[6]. 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 the 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.

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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/audience.

A clear example is the use of AR triggered content. From a report, infographic, video, physical object or image to provide further content such as additional 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. It's worth considering the following when working with this technology, but we expect this to improve over time.

It's not real and as human beings we are climatised to physical, natural, real-life environments. However, when thinking about 'real' you ask yourself:

- How do you define 'real? If you break 'real' down, it's about 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 real world or environments and still immerse consumers into this environment. Computer generated VR is a 'near reality' experience and will only become more 'real' … something to ponder on!
- The technology is still expensive, especially truly immersive VR as it typically requires tens of thousands of pounds to create a VR environment. Hardware like headsets needs 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, feeling weight is only starting to be introduced and still way off 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 Pokémon Go have started to drive more 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 mentioned previously!). As the technology becomes cheaper and improves in quality, this will likely broaden its adoption into industries ranging from market research to healthcare.

With 2.87 billion smartphone users in the world by the year 2020[3], mobile VR and AR is starting to offer the potential of more mass consumer adoption. With the launch of the Apple iPhone X and AR being a standard system app, this will naturally drive the adoption rate and usage. This means that consumers will become accustomed to this technology.

We will potentially see the more immersive hardware and software companies, like HTC Vive, Oculus, Amazon Alexa and Google Home (Internet of Things – IOT) becoming more cost effective and adaptable to consumer homes. For example, you 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. It will probably be without any controllers as the sensors within the room will pick up 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.

Video

A market just outside Nairobi, Kenya, which showcases how we can immerse consumers into hard to reach places from anywhere in the world using 360 video technology.

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 may start to collide with each other; it covers both, plus any future developments that may impact our approaches. It will most likely be a more advanced form of technology compared to VR or AR when they stand alone, as we envisage mixed reality combining advanced 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.

At Ipsos we've partnered with Market Logic to create an Artificial Intelligence (AI) Bot to help users navigate our online knowledge platform, Insight Cloud, in a new way. With the advances of AI, the Bot can find what people know they want but also what they don't know they want – it's discover not search.

Leading on from this is the potential rise of hyper reality. This is where the technology is integrated or part of the real world and 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. Microsoft HoloLens is already on the market and offers a version of this, but it's still quite limited with the field of view. There is a lot of buzz around a company called Magic Leap. Large technology organisations have already started to invest and support their development work. The market awaits its Beta product that is meant to provide this mixed reality experience.

The forecasted VR sales are not entirely in line with predictions… yet and 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.

Working in partnership with the Royal Shakespeare Company (RSC), we're capturing and uncovering the true emotional response of theatre-goers to the Titus Andronicus production, using these exact techniques mentioned above. The RSC have long seen the potential for VR and AR within live theatre and matched with our capabilities we are truly pushing the boundaries of consumer understanding. If the adult entertainment industry can embrace it…

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[5] *BBC Case study*

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Richard Garnham
Associate Director, Innovation, UK

Contributors:
- Robert Schueler (Netherlands)
- Rollo McIntyre (Global)
- Luisa Vassanelli (Italy)
- Diana Livadic (Germany)
- Neil Stevenson (UK)

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