Beyond Reality

Is the long-awaited VR revolution finally on the horizon?
Last holiday season, sales of the Meta Quest 2 were red hot. Over the next few years, a flood of cutting-edge VR devices is expected from major tech players. And AR glasses and advanced smartphone cameras could boost augmented reality to new heights.

Together, these trends could spark intense demand for high-quality extended reality (XR) experiences.

But this isn’t the first time VR has been hailed as the next big thing in mass market media and entertainment. So, is this “VR renaissance” just another flash in the pan? Or is the technology finally ready to become more than a novelty for early-adopters and break through into the consumer mainstream?

This report examines how consumers feel about XR technologies. In particular, it covers:

1. How interested consumers are in today’s home VR systems, and what’s stopping more people from buying them
2. The type of VR content that consumers are most excited about
3. How consumers think VR and AR technologies will impact their lives over the next five to ten years
4. The broader social effects—both positive and negative—that consumers anticipate if VR goes mainstream

Q: What is your opinion about extended reality technologies?

**THREE KEY TAKEAWAYS**

Consumers have broadly positive views towards extended reality technologies—and the more they get to try this technology for themselves, the more they like it. Moreover, most consumers agree that VR and AR technology could have significant individual and social benefits across the domains of media & entertainment, exercise, education, and more.

This doesn’t mean, however, that this interest will necessarily convert into sales for VR headsets. While demand for home VR systems has been growing steadily, it is currently a market that is limited to those who play video games on a regular basis and/or see themselves as technology enthusiasts or early adopters. Right now, the value proposition simply isn’t there for the technology to achieve mainstream penetration.

For this to change, media and tech companies will need to change the way that consumers think about VR content. They will need to create VR experiences that both justify the upfront investment, and have appeal to people looking for something more similar to film & TV than to video games. At the same time, they will also need to create more opportunities for consumers to get value out of their VR devices by attending virtual live events and using VR for recreational purposes beyond the realm of media & entertainment.

**TERMINOLOGY**

For the purposes of this report, **virtual reality** refers to fully immersive digital experiences that require the use of a headset and sometimes other auxiliary devices. **Augmented reality** refers to applications where users’ real-world views are enhanced through digital overlays or other forms of perceptual information, typically through the use of a phone or tablet. **Extended reality** refers to the entire spectrum of technologies that blur the boundaries between physical and digital spaces, including AR, VR, and other related concepts.
Consumers are excited about the potential of VR technology—especially those who’ve had the opportunity to try it for themselves

Most US consumers—even those who haven’t yet taken the plunge and invested in a VR headset themselves—have a broadly positive attitude towards the technology. 37% describe themselves as “excited” about spending time in virtual reality, while an additional 43% say they’re interested in the technology and willing to use it under the right circumstances.

Some—but not all—of this positivity towards VR technology can be attributed to a change in priorities brought about by COVID-19. 4 in 10 consumers say that they’ve become more interested in VR technology as a direct result of the pandemic (compared to just 8% who say that the pandemic has dampened the appeal of VR). Cooped up indoors during lockdown, many started looking to VR as a way to break up the monotony; a chance to see the world from the comfort and safety of their own homes.

But perhaps an even more important reason for consumer receptiveness towards VR is the simple fact that so many of them have now had the opportunity to try the technology for themselves. In recent years, VR headsets have become an increasingly common sight in a wide variety of public venues, from theme parks to art galleries. As a result, just under half (48%) of consumers have now had at least one VR experience.

Among consumers who’ve tried the technology, 86% would describe their experiences with VR as either “very” or “somewhat” positive. 57% of these consumers say that they “definitely” plan to have more VR experiences in the future, while an additional 28% say that they will “probably” do so.

It seems that, the more that people get to try VR for themselves, the more interested they become in seeking out future VR experiences.

WHAT DOES A VR HEADSET OWNER LOOK LIKE?

71% describe themselves as people who are generally early adopters of new technologies.

49% have children under the age of 18.

61% White
20% Hispanic
11% Black
8% Other

60% Male
40% Female

47% 18-34
47% 35-54
6% 55-64

60%
40%
20%
20%
30%
20%
20%

18-34
35-54
55-64

Q: Where have you had a VR experience?

In my own home
49%

In a friend or family member’s home
43%

At a video game arcade
33%

At a theme park
21%

At a museum or art gallery
12%

86% play video games on a regular basis.
13% of US households currently contain a VR headset.

Of these households, 68% contain a single headset, while 23% contain two and 10% contain three or more. We are, by the looks of it, finally starting to see the long-awaited leap of VR technology from public recreational spaces into the living rooms of ordinary consumers.

And these devices aren't just gathering dust on a shelf. 88% of consumers who own a VR headset say they use it multiple times per month, with 60% reporting that they use it more than once per week.

However, these usage sessions are typically relatively brief. About half (54%) of consumers who own a VR headset say that they use the device for a total of less than 2 hours in an average week. 66% of headset owners say that they tend to use their device for a maximum of 45 minutes at a time, while 37% use it for less than 30 minutes at a time.

Taken together, this data suggests a typical usage pattern of 2-4 VR sessions per week each lasting around 30-45 minutes.

Gaming is, by a substantial margin, the most common use case for home VR systems, with 7 in 10 consumers who own a VR headset saying they’ve used the device to play games.

And over half of VR device owners cited a desire to use the device for gaming as a primary reason for making the investment in the first place.

Q: How have you used your VR headset?

Most common reasons to purchase a VR device:

- I wanted to use it to play games 53%
- I wanted to see what all the hype was about 33%
- I generally like to keep up with new technology 32%
- A friend or family member recommended I get a VR device 28%
- It was a present for me or someone else in my household 27%

Q:

<table>
<thead>
<tr>
<th>How have you used your VR headset?</th>
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<tr>
<td>Watch films or TV (e.g. through an app like Netflix VR)</td>
</tr>
<tr>
<td>Create music, videos or other art</td>
</tr>
<tr>
<td>Exercise or work out</td>
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<tr>
<td>Play video games or game-like VR experiences</td>
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<tr>
<td>Browse the internet</td>
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When it comes to the specific VR devices consumers are most likely to purchase for home use, Meta (thanks to its Oculus sub-brand) has established a strong lead for itself. Their brands are more closely linked to AR and VR tech, in the minds of consumers, than those of any other company, and their Oculus Quest boasts the highest aided awareness of any VR device currently on the market.

**BRANDS & PRODUCTS MOST STRONGLY ASSOCIATED WITH VR/AR TECH**

*Sony includes Playstation
**Meta includes Facebook and Oculus

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**THE IDEAL HOME VR SYSTEM**

Tech specs—such as image resolution and audio quality—rank highly among the features that consumers care about when choosing a VR device to purchase, reflective of the fact that consumers shopping for VR systems tend to be relatively tech savvy. But comfort also matters a lot; consumers know that they’re not going to be able to get extended use out of a device that doesn’t fit well. Already, we’re seeing the emergence of a diverse field of ergonomic VR accessories to cater for this need.

Consumers’ top features* when choosing a VR headset:

- Good image resolution
- Comfortable headset and controllers
- High quality audio
- Easy and intuitive to set up
- Compatible with a wide range of video games
- Doesn’t require a connection to a PC or gaming console
- Is compatible with my existing devices
- Eye-tracking functionality

*Consumers with an interest in purchasing a VR headset were asked to choose the top five features that would matter to them when choosing a product to buy
at a glance
CONSUMERS’ EXPERIENCES WITH AUGMENTED REALITY

79% of consumers have heard the term “augmented reality.” Many, however, are unclear on exactly what it means; 42% say that they don’t understand the difference between VR and AR technology.

Like with VR, gaming has played a major role in driving consumer interest in and awareness of AR technology. 34% of consumers have played an augmented reality game on their phone or tablet. 36% of these consumers cited Pokémon Go as their most recently played AR game—beating out Call of Duty (6%) and The Sims (6%).

But AR has also been making in-roads into the world of shopping. Furniture retailers like IKEA, for example, have launched AR apps to allow consumers to visualize what different items would look like in their house before buying them, while Snapchat has developed an AR Lens function to let users virtually try on items from leading fashion brands. 24% of consumers say that, on at least one occasion, they’ve used an AR app or web service to help them make a purchasing decision. Furniture (46%) is the most common product category that consumers have used AR apps to help purchase, followed by clothing and accessories (45%) and electronics (32%).

Looking ahead to the future, consumers see a wide variety of use cases for AR that could be relevant to their daily lives. But they’re particularly interested in the idea of using it as an educational tool—for example, by providing real-time feedback overlays as they practice new skills.

Q: How are you interested in using AR technology in your life?

- To learn new skills 43%
- To play games 38%
- To provide directions when traveling to new places 31%
- To translate other languages 30%
- To help repair items in my home 29%
- To help me cook 28%
- To help me shop for new products 27%
- To help me redecorate my home 25%
- To help me assemble items of furniture 24%
- To interact with other people 24%
- To enhance live events 23%
- To help me create music, videos, or other types of art 20%
- To help me at work 19%
To enter the consumer mainstream, VR manufacturers will need to challenge the perception that the technology is “just for gamers”

While the market for home VR systems has expanded considerably over the past two years, these products remain of relatively niche consumer interest, with ownership heavily skewed towards serious technology enthusiasts and regular video game players.

To an extent, this lack of mainstream penetration reflects technical challenges that have yet to be fully solved by hardware manufacturers. Many consumers, for example, complain about experiencing motion sickness or nausea when using VR devices. Among consumers who’ve used a VR headset, 37% reported that they experienced motion sickness symptoms during their last VR experience—with 13% describing these symptoms as “severe”. Moreover, motion sickness is the single most common complaint among consumers who’ve purchased a VR device for home use.

There are also safety issues that are yet to be fully addressed: 42% of consumers who own a VR headset say that either they or a friend or family member has damaged an object in their home while using their VR device. These sorts of hardware-related problems, however, are likely to resolve themselves over time as the underlying technology continues to improve, people get more comfortable using them, and as new devices are released into the market.

Comfort and safety issues, however, are just a small part of the reason that home VR systems have yet to achieve widespread adoption. A much more serious issue—and one that can’t be expected to automatically resolve itself as the hardware improves over time—is the perception among many consumers that VR is, fundamentally, a technology that is only relevant to relatively invested gamers.

Almost half of consumers who had not yet purchased a VR device cited cost as a reason behind their decision. While VR headsets have traditionally been outside the realm of affordability for many, there are now a range of devices available at multiple different price points; devices like the Oculus have become gradually more affordable over time, as new manufacturers have moved in to serve the higher end of the market. But however cheap a “mass-market” VR device might realistically become, the bigger problem is that the value proposition to justify the expense simply isn’t there for many consumers—especially those with limited or no interest in video games.

This is the central paradox of the modern VR sector. While gaming has played a crucial role in getting VR technology to the state it is in today and popularising the technology with the public, VR will need to transcend the boundaries of the gaming industry if it is to reach its full potential as a new digital medium. 55% of consumers say that they’d be more interested in purchasing a VR device if it had multi-use functionality like a tablet or a smartphone, rather than only being useful for playing games.

Already, we’ve started to see the rise of apps that allow consumers to transform their VR headsets into true multi-functional devices. Streaming apps like Netflix VR (regularly used by 36% of headset owners) allow users to stream traditionally formatted media through their devices, while Virtual Desktop (in use by 23% of owners) lets them use their headset to browse the internet and perform basic computing functions as they would on a PC. But for VR to grow beyond its existing core audience, more will need to be done to challenge wider public perceptions that VR is a subcategory of gaming, and that VR headsets are best viewed as dedicated gaming consoles similar in functionality to a PlayStation or an Xbox.
What if we imagined a world where VR was for everyone...

What would a world where VR was truly for everyone look like? What would people want to do in VR? What daily needs could VR help fulfil? In what ways could VR surprise and delight people?

If device manufacturers and media companies want to create that world, there are three primary goals they should be focusing on...

1. Invest in creating innovative VR experiences that leverage the immersive and interactive nature of the technology

2. Lean into the potential of VR live events, and the unique benefits that such events offer to consumers

3. Promote the idea of VR as a technology with use cases that extend beyond media consumption and into consumers’ daily lives
The value proposition of VR will only make sense to the average consumer once there’s a sufficient variety of content that takes full advantage of the medium’s potential for interactivity. A paucity of content is one of the chief complaints among consumers who already own VR devices; and, among the wider public, 66% agree that to be worth the upfront investment, VR content needs to provide me with something that I can’t get from traditional films, TV, or games.

To date, many of the most commercially successful VR releases have been products like Beat Saber—that is, non-narrative games with cross-generational appeal, designed for high replayability. Consumers, however, are more excited about the prospect of VR content that combines rich and engrossing narratives with a high degree of interactivity. In other words, they recognise the potential of VR to make them feel immersed in a fictional world in a way that no other medium truly can, and they want to see more content that lives up to that promise. They want experiences that make them feel like an active participant in the virtual world around them, and where the story unfolds in response to their actions.

However, since this new category currently lacks a universally recognizable name, most consumers default to treating these sorts of narrative VR experiences as a form of video game. It certainly doesn’t help that, more often than not, these experiences are marketed primarily towards gamers and distributed through video game-centric platforms like Steam. If VR studios were to start distributing this type of content through streaming services like Netflix or Amazon Prime Video, then VR headsets might start looking like a more attractive proposition to non-gamers.

Looking at consumers’ genre preferences for VR content, we can again see a clear desire for experiences that provide them with opportunities to fully immerse themselves in rich and nuanced virtual landscapes. Those landscapes could be fictitious or fantastical ones, but they don’t need to be; the demand for VR travel shows suggests that there’s an audience out there who are excited by the idea of using this technology to vicariously explore the more far flung and remote parts of the real world from the comfort of their own living rooms.

For many consumers, one of the great selling points of VR is the ability to dive into worlds they are already familiar with from their favorite movies and TV shows. So there’s a big opportunity here for media companies to broaden the appeal of this technology by developing VR experiences around their existing franchises and properties—whether those properties are as fantastical as Star Wars or as down-to-earth as The Office. Many fans are excited about the prospect of seeing settings they already know and love from a new perspective, and getting to experience those places as if they were a character themselves.

But when developing these kinds of experiences, it’s important to keep in mind the need for users to be able to jump in and out at their convenience. Only 13% of consumers say they’d be open to the idea of spending more than an hour in a VR headset without taking a break. The market for theatrical-length VR content is therefore likely to remain relatively limited for the foreseeable future—unless that content can be designed with clear breakpoints for users to take advantage of. Instead, studios are likely to have more success focusing on episodic or short-form content (potentially with branching narratives to allow for greater replayability).
Live events represent another important avenue of exploration that could help bring more non-gamers into the VR fold. Music artists have paved the way on this front; bands and singers like Imagine Dragons and Travis Scott have already made headlines by performing virtual reality gigs for their fans. Right now, about 1 in 5 headset owners say that they’ve attended at least one live event using their device. 40% of consumers would be excited by the idea of attending a VR concert, while 36% would like to watch a sporting event in VR, and 30% would be interested in attending a live VR comedy show.

This doesn’t mean, however, that VR events will ever be seen as a like-for-like substitute for the real thing. 59% of consumers say that, given the choice between attending an event through VR or in-person (assuming that they owned a VR headset and that the tickets were the same price), they’d opt to attend in-person; only a quarter would prefer the VR version. For that latter group, it’s largely the ability to avoid large crowds—and all the COVID risks that come with them—that makes VR events so attractive.

**Q: Why would you prefer to attend VR events over in-person live events?**

- I wouldn’t have to worry about COVID protocols **42%**
- I’d get a better view and be able to see the event from different angles **40%**
- It’s easier to jump in and out of a VR event **40%**
- I wouldn’t have to travel **40%**
- I don’t like large crowds of people **38%**

The good news, however, is that VR events don’t have to be in direct competition with their meatspace equivalents. Instead, VR can give consumers the option of attending events they simply wouldn’t be able to otherwise. 53% of consumers say they’d go to more live events if they had the option of doing so using a VR headset.

VR events, therefore, are best seen not as a replacement to real-world ones, but as supplementary to them. By offering a VR broadcast, event organisers can sell discounted tickets and increase total revenue without too much fear of cannibalising their core audience. Moreover, doing so can also allow them to attract viewers who are physically unable to travel—either because they live too far away, or due to disabilities or other access issues.

**Q: How much would you spend on a ticket to a VR event, if you owned a headset?**

Beyond the sphere of media and entertainment, there are also plenty of opportunities for VR to extend itself into the daily lives and routines of the average consumer. This is the idea that undergirds the concept of the Metaverse; the notion that we’re heading towards a world in which we can live, work, and play in 3-dimensional digital spaces that blur the boundaries between the real and virtual world.

While the Metaverse is still a mostly theoretical concept at this stage, there are some areas where consumers are likely to prove more receptive to the idea than others. Most people, for example, aren’t particularly excited about the idea of using VR in a professional setting. Just 1 in 5 Americans are interested in attending a work meeting in VR, and 70% see teleconferencing apps like Zoom and Microsoft Teams as an equally good or better way of connecting with colleagues.

There’s comparatively more interest among the general public in the idea of using VR for social or recreational purposes. This is a context where VR—by providing a more tangible sense of connection to friends and family—can offer something that can’t be easily replicated through alternative means of long-distance communication.

**39%** of consumers would be interested in using a VR headset to visit a virtual museum or art gallery

**32%** would like to do an exercise class in VR

**31%** would be interested in socializing with friends and family in VR

**29%** would consider going shopping in VR

**26%** would attend a VR class or educational event

**24%** would be willing to use VR to attend a doctor’s appointment or medical check-up

Consumers show particular interest, however, in the idea of using VR for what could broadly be classed as “self-improvement activities”: things like exercising, attending remote classes, or visiting cultural institutions like museums and art galleries. These types of enrichment activities represent, arguably, the most fertile early ground for the concept of the Metaverse to take hold in the hearts and minds of consumers. So it wouldn’t be surprising to see some high-profile partnerships take shape in the near future between VR device manufacturers and organisations like gym chains, sporting goods retailers, and museums.

To have and to hold…until we log off?

31% of Americans would “definitely” attend a VR wedding of a close friend or family member, if invited—while an additional 42% say that they’d probably attend. But only 28% would immediately say yes to a VR date with someone they were romantically interested in.
If consumers can be convinced that VR has applications beyond gaming, then it could create opportunities for significant social benefits

VR manufacturers and VR content studios still have a long way to go when it comes to convincing consumers that there's a value proposition there for non-gamers. But if they can solve this perception problem, then there's a real chance that, over the next decade or so, VR could start to radically reshape the way we spend our time—and even the way we think about the distinction between our physical and virtual personas.

The majority of consumers do think that VR is eventually going to break through into the commercial mainstream. 56% believe that, by 2032, most American households will contain a VR headset. And, for the most part, they see that as a good thing. In fact, they anticipate a number of positive knock-on effects from the rise of VR technology.

Over the past few years, there’s been a general sense among much of the public that new technologies have served to make us feel more emotionally distant from our fellow human beings. While most consumers recognise the benefits of social media, they also feel that its “echo chamber” effect has helped to fuel political polarisation and atomisation. VR—by broadening our horizons, exposing us to new cultures, and connecting us more directly to other people—has the potential to reintroduce some of that lost empathy back into society.

There are already examples of organisations successfully using VR as a tool for social good. All the way back in 2015, UNICEF won headlines for developing a VR experience that gave potential donors an immersive view into daily life in a Syrian refugee camp. Since then, a number of other charities and campaigning organizations have also sought to take advantage of VR’s capacity for empathy-building. In the UK, hospices have used VR to provide virtual travel experiences for bed-bound patients, and one public health organization designed a VR training game to teach CPR.

This doesn’t mean, however, that the growth of the market for home VR systems won’t also create new problems for society to solve. Over the past year or so, as the concept of the Metaverse has moved into the media mainstream, there’s been a steady trickle of stories about users taking advantage of poorly regulated VR platforms and other virtual spaces to harm others. From identity theft to sexual assault, there are now plenty of stories out there of crimes being committed in the Metaverse; some medical experts have even publicly speculated about the possibility that bad actors could use VR social platforms to induce heart attacks, seizures, or otherwise do real-world harm to other users.

While consumers are certainly aware of these issues, they’re even more concerned about the potential negative effects that the widespread adoption of personal VR might have on children. 50% of parents say that they’d be uncomfortable with the idea of their children using VR for more than 3 hours in a week—including 8% who don’t want their children to use VR devices at all. If VR manufacturers want to insulate themselves from potential moral backlash as the technology goes mainstream, they will need to make sure that their products incorporate strong parental controls. At the moment, there’s still a lack of high-quality academic research on the long-term impacts of childhood VR usage, but that could easily change in the near future. There’s a good chance that, as personal VR devices become more common, children’s VR usage will transform into a hot-button social issue.

59% think that VR and AR technologies will create new spaces for social advocacy

61% think that VR and AR will be a useful learning tool for children

68% say that VR and AR will create new opportunities for artists and creatives

69% believe that these technologies will make life easier for people with disabilities

70% of consumers think that AR and VR can provide users with exposure to other places and cultures

Q: What worries you most about the social impact of VR technology?

Children will spend too much time in VR 40%
People will be less present in the real world 39%
People will abuse, bully, or sexually harass others in VR 33%
It will be harder for people to protect their privacy and personal information 32%
Media will become more addictive than it is today 32%
An era of mass market VR is in sight—but only if device manufacturers and content creators are prepared to rethink some long-held assumptions about who this technology is for.

Right now, we are at a crucial juncture in the long-term trajectory of extended reality technologies. Historically, usability and safety issues held VR systems back from mass commercial appeal; now, however, it seems that hardware manufacturers are finally on their way to solving these issues. The price of mid-range VR headsets is coming down, while the quality rapidly improves—meaning that, for the first time, there’s a clear pathway forward for the technology to move beyond the realm of hobbyists and into the consumer mainstream.

We are at the stage now where the quality of the hardware is no longer the primary factor holding back the growth of the market for home VR systems. A far bigger problem is that many consumers—especially those who don’t closely follow tech news and aren’t regular video game players—simply don’t see a compelling enough reason for owning their own VR headset, even if they may in theory be excited by the idea of immersing themselves in these digital worlds.

Solving this problem of “gamer bias” will not be easy, and will require deliberate action on the part of both device manufacturers and VR content studios. Partly, it’s an issue that can be solved with clever marketing; the market for the technology could be expanded by pitching VR to consumers as a way to keep healthy, attend live events, or to stay connected with friends, family and online communities.

But marketing on its own is unlikely to be enough. Instead, VR companies need to reimagine the end-to-end consumer journeys surrounding this technology; they’ll need to rethink how people first come into contact with the concept of VR, and how they discover new pieces of VR content to engage with.

Right now, VR gaming is the way that most consumers are first exposed to the technology—either by trying a friend or family member’s device, or by using a headset at an arcade, theme park, or similar entertainment venue. But if consumers started coming across VR systems more frequently at their gyms, libraries, or schools—to name just a few potential examples—then they might start to better appreciate the full spectrum of use cases for this technology. And if they were able to discover VR content through the same streaming platforms they use to watch TV and films, they’d probably begin to realize that these sorts of experiences are capable of transcending existing media categories.

The long-awaited VR revolution may soon be on the horizon. But turning that dream into a reality will still require a great deal of innovation and experimentation, along with a willingness to challenge some basic assumptions about who VR experiences can appeal to.
WHAT TO EXPECT IF VR STARTS TO GO MAINSTREAM

1. VR studios start marketing their content towards film and TV fans as well as gamers. Some may even strike distribution deals with streaming services.

2. Consumers begin to see dedicated VR content as its own distinct category of media, adjacent to but distinct from gaming and TV & film.

3. A dedicated market for VR “self-improvement” experiences emerges, with many consumers looking to the technology as a way to help them stay healthy and well-informed.

4. More venues start offering VR broadcasts of their live events, allowing them to expand their reach significantly.

5. There’s an intensified public debate about the social impact of AR and VR technology—and especially their impact on childhood development.

Five extended reality trends to watch for in the next five years

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METHODOLOGY
This report is based on a study of 2,500 consumers ages 18-64 in the United States, conducted in March 2022.

Words and analysis by

Fergus Navaratnam-Blair
Keith Wagstaff
Grady Miller
Marlon Cumberbatch
Chris Rethore

Design by Grace Stees
Illustrations by Hannah Robinson