EVERYTHING YOU EVER WANTED TO KNOW ABOUT

BUT WERE **AFRAID TO ASK**

THE FUTURE OF VIRTUAL REALITY FOR AMUSEMENTS

By Bob Cooney

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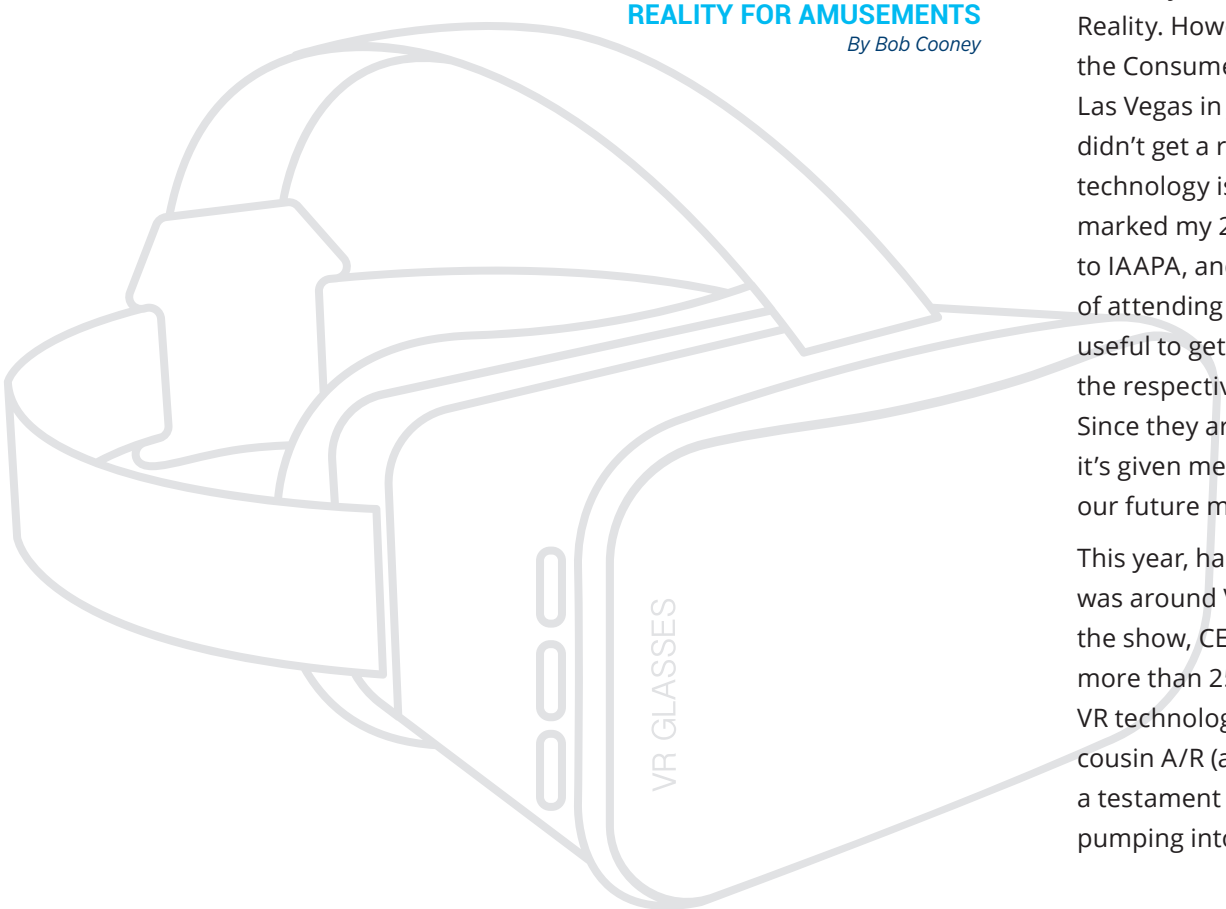


SETTING THE STAGE AT CES AND IAAPA EXPO

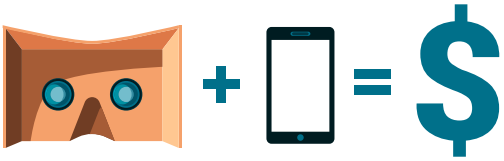
Attendees of the recent International Association of Amusement Parks and Attractions (IAAPA) Expo in Orlando certainly felt the buzz around Virtual Reality. However, unless you went to the Consumer Electronics Show in Las Vegas in January, you probably didn't get a real sense of where the technology is heading. This last year marked my 25th anniversary of going to IAAPA, and my 20th anniversary of attending CES. Both shows are useful to get a feel for the direction the respective industries are heading. Since they are inherently intertwined, it's given me a good sense of what our future might hold.

This year, half of the hype at CES was around VR. In their writeup of the show, CES noted that there were more than 250 exhibitors showcasing VR technologies, as well as its close cousin A/R (augmented reality). That's a testament to the level of investment pumping into the industry.

OVER **400** COMPANIES have received over **$8 BILLION** IN VENTURE FUNDING. = THAT'S A LOT OF **BITCOINS**

CONTENT MAY BE KING, BUT CONTEXT IS EVERYTHING

But the hype doesn't guarantee success. Lots of products get hyped beyond belief. A good way to see how a topic is trending is to use Google's Trends tool with which they track online interest (indicated by searches) on a keyword or topic going back to 2004. As you can see in the graph, consumer interest in VR has skyrocketed in the last year, peaking on Christmas day, when people the world over unwrapped their gifts and uploaded videos of their grandmas freaking out while using their Oculus Rift, HTC Vive, PlayStation VR and Samsung Gear VR headsets.

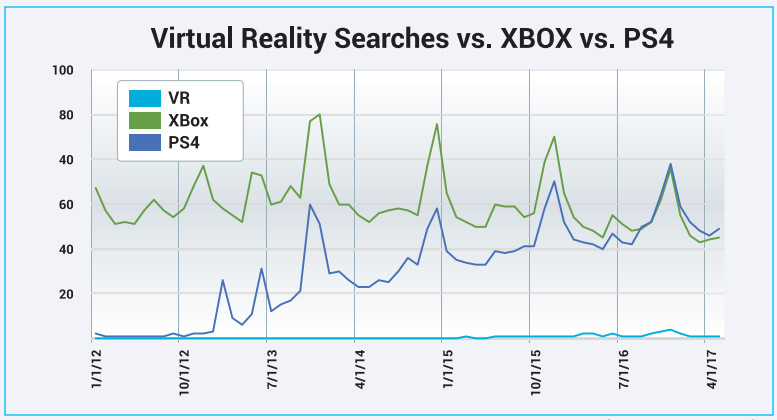


CONSUMER INTEREST IN VIRTUAL REALITY IS GROWING

But the problem with the chart is it only shows interest in VR relative to its own popularity. A better view of how VR is permeating the consciousness of the culture is to compare it to other technologies that have significantly changed the gaming landscape.

CONSUMER INTEREST IN VR VS. CONSOLES

Here is VR compared to XBOX® One and PlayStation 4 game consoles. As an entertainment technology, it looks like VR is approaching XBOX One in interest. But this represents ALL virtual reality searches, and unlike XBOX and PlayStation, VR has implications in lots of industries.



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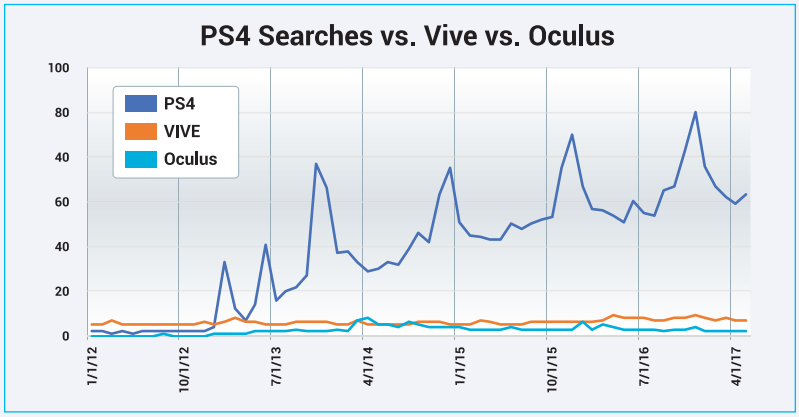


INTEREST IN VR (OCULUS AND VIVE) VS. CONSOLES (PS4)

So, what does it look like when we compare HTV Vive and Oculus, which are primarily gaming products at this point, to PS4®? They barely register.

A LONG WAY TO GO IN THE MAINSTREAM

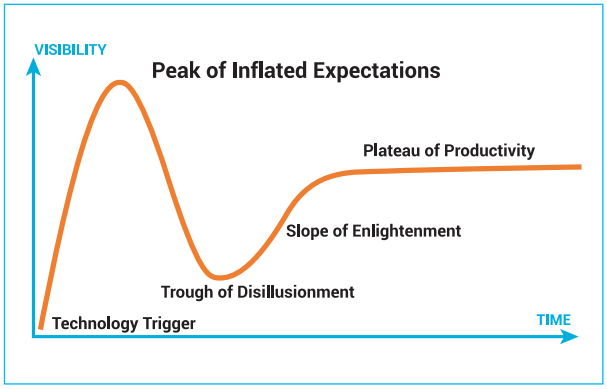
What does this mean? It seems to indicate that VR has a long way to go to garner sufficient interest from mainstream consumers before it's a threat to the out-of-home industry the way console games became. I point this out because many operators are concerned that VR is going to be in every home, and their investments in a commercial VR system will be undermined. We've certainly seen how that played out with arcade games which were gutted by home consoles, and countertops which ultimately were replaced with casual games on smartphones.

MACRO-MYOPIA DEFINED

One of the problems caused by overheated media hype is a concept known as Macro Myopia. Based upon the Amara cycle first defined by the futurist Roy Charles Amara, it says that we tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run. One of the most notable examples of this is the iPhone. When Steve Jobs unveiled it 10 years ago, there was a lot of hype. Some people thought it would change the telecommunications industry overnight. But the reality is that it took a couple of years for the App store to develop, and from that came innovations that nobody could have predicted. Uber is a great example. Without a smartphone Uber would never have been created. And without Uber I wonder if self-driving cars would be getting as much investment as they are today. You could make a solid argument that the iPhone, over time, could undermine the entire automobile industry. How's that for an unexpected impact?

PEAK OF INFLATED EXPECTATIONS

We are currently in the ramp up to "Peak of Inflated Expectations" for VR. And soon will come the "Trough of Disillusionment". That's where the roadkill happens. Dozens if not hundreds of businesses will fail. Millions or billions of investment dollars will be lost. And consumers will move onto the next shiny object.



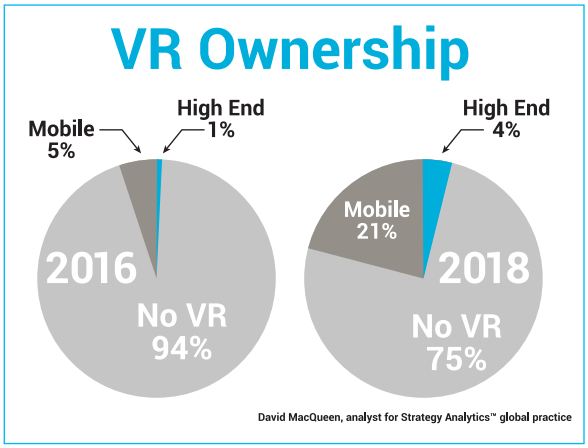
WHAT YOU SHOULD LOOK FOR

The companies that ride this out are the ones that bring the technology and the products that become the change agents. There's no way to know if it's 2 years or 5 years away. But I am certain that this graph will play out. So, when conducting your purchase consideration, make sure you are looking at companies that have both sufficient capital behind them, a product that is capturing the imagination of

the public, and a business model that enables their ability to weather the dreaded trough of disillusionment.

WHAT'S VR AND WHAT'S NOT

To the grasp impact of VR penetration into the home, you need to dig deeper into some segmentation of the VR products. By 2018, only 25% of Americans are expected to own



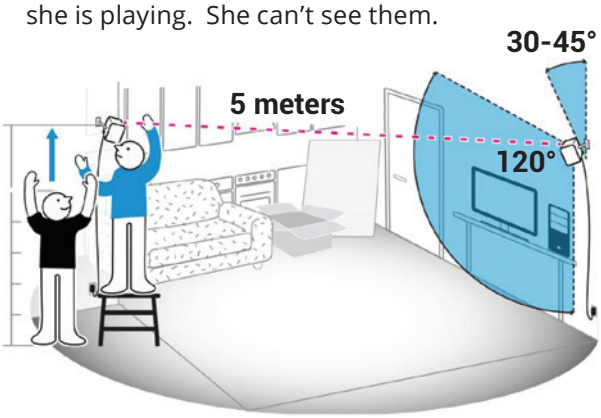
some sort of VR product, but less than 4% are expected to be the high-end systems that could be considered threatening to the out-of-home industry. The rest will be mobile phone based VR systems like Samsung's Gear VR. And I'm sorry, but that's not really VR. It's a cell phone on your face.

TRUE VR REQUIRES MOTION TRACKING AND MOVEMENT IN SPACE

If the only movement happens when you use some sort of controller, then motion sickness is just over the next hill or around the next corner. I've seen ads for Gear VR where people are using it on a commuter train. There's so many things wrong with that I can't begin to explain, but don't sit next to that person on your next commute.

The state-of-the-art in consumer VR systems is currently found in HTC Vive, Oculus Rift and PlayStation VR, which all offer motion tracking systems that project your movement within a room-scale virtual environment. It feels much more immersive, and with handheld wireless controllers that try to mimic natural gestures you can interact with the environment in a more natural way.

The problem with these systems, and what will ultimately slow or even stall their adoption in the home market, is that they take up lots of room. Take the woman playing with her HTC Vive in this promotional photo; if she were really playing in VR, immediately after this photo was taken, she likely knocked over that lamp, tripped over the telescope, crashed through the window, stumbling over the railing and plummeting to her death on the sidewalk below. None of those objects is mapped to the virtual environment in which she is playing. She can't see them.



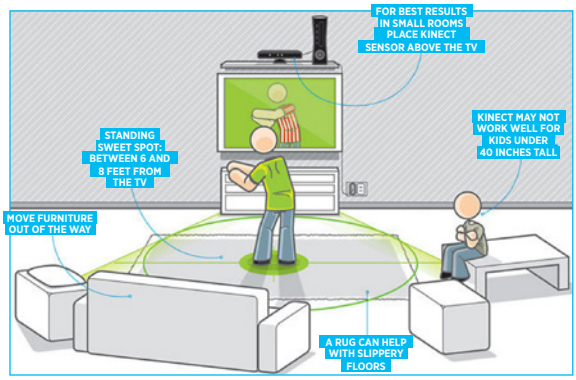
ROOM-SCALE VR

To play room-scale VR, you absolutely need to have a large clear space free of furniture, toys, dogs and cats, shoes, or anything else that you could trip over, bump into, or break. Which means that you need to either dedicate an entire room to VR, or you need to move the furniture every time you want to play.

DON'T BELIEVE THE HYPE

There was another entertainment technology that required this type of commitment. Xbox Connect was a revolutionary technology that allowed your body to be the controller. Sound familiar? It ultimately failed because it was so inconvenient. And who remembers

3DTV? It was the "Next Big Thing" after HDTV. The CES show in 2010 was dominated by 3D. Movies like Avatar had moved 3D into the mainstream, and Blu-ray players were shipping with 3D capability.



SPORTS, THE KILLER APP?

Analysts believed that sports was going to be the "killer app" for 3DTV. NBC had committed to broadcast the 2012 London Olympics in 3D, and ESPN even launched a channel dedicated to 3D with the broadcast of the opening game of the 2010 FIFA World Cup. But it never lived up to the hype, or the investment.

THE FUTURE IS BRIGHT BUT I DON'T WANT TO WEAR SHADES

The reason 3D didn't take off in the home provides another good study of the challenges that VR is likely to face. The technology of that day required viewers to wear 3D glasses, and people didn't like them. They were awkward and inconvenient, and about 15 percent of the people watching 3D complained of blurred vision, headaches and other slight discomforts. Word of this spread into the public consciousness, and despite all the market tailwinds, this was enough to ground 3D before it could even take flight.

SICK VR, DUDE

VR suffers from the same issues, only further exacerbated. Comparing the awkwardness of a VR headset to 3D glasses is like comparing the discomfort of chain mail to board shorts. And the motion sickness caused by some VR experiences can literally cause people to throw up. In addition, where 3DTV was a social experience bringing people together in a room to enjoy a movie of sporting event, VR can be extremely isolating. The person wearing the headset cannot see what the other people in the room are doing, and conversely, they can't see what the person in the virtual environment is experiencing. Therefore, it's highly likely that consumer VR will be limited to the hardcore first-person gaming market. As long as they have enough room in their bedrooms, that is.

OUT-OF-HOME

While 3D never made it in the home, it has had a dramatic impact on out-of-home. 3D box office continued to grow through 2015, up some 15% over the prior year. And while there were some headwinds in 2016, overall 3D has been an overwhelming success for theaters. Its impact on large scale amusement rides has been tremendous, with experiences such as The Amazing Spider Man at Universal and Star Tours at Disney World drawing both critical acclaim and hour-long lines.

VR stands a strong chance of following this model of success in the out-of-home market. Currently we are seeing strong consumer

demand for VR on roller coasters. It seems like a no-brainer for an amusement park when they can invest 15% of the original cost of a ride and create an entirely different experience for their guests. Most of the current coasters are utilizing consumer headsets like the Samsung Gear VR, which do present some operational problems. One high-profile installation in England recently changed from using consumer Gear to a custom Head Mounted Display permanently affixed to the cars. I expect you will see more of this over the coming years.

CAN YOU TAKE HOME VR OUT-OF-HOME?

Another area where the activity is hot is in VR arcades, and this where I see the most peril for operators. Room-scale VR based upon consumer technology like the HTC Vive can look attractive on the surface, but there's real risk in investing in virtual reality, as well as great opportunities.

The amusement industry can leverage the investment being made in the consumer market to its distinct advantage, but where to place those bets is going to be a key question. Lots of operators are looking at consumer VR systems as an entry point into location-based VR, but what looks like a tempting investment could be a potential pitfall.

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THE VR ARCADE TRAP

VR arcades consist of multiple setups of consumer gear, mostly HTC Vive, running consumer games rented out by the hour. This is a similar business model that LAN gaming centers utilized in the early '00s, before high-speed internet had penetrated deeply into the home market. **For about $2,500, you can purchase an HTC Vive with motion controllers and tracking cameras, bundled with a high-end gaming PC. Add in some truss and some lighting, and you can pop-up a VR arcade with a relatively small investment.**

One of the problems with LAN gaming centers in the early days was that consumer games didn't have a licensing model, and gaming center operators ran the risk of copyright infringement. It took years for the game publishers to agree to license games to LAN gaming centers in an affordable manner. It looks like this isn't going to be an issue with VR, however.

In November of last year, HTC announced Viveport Arcade, an app store that allows VR arcade operators to download games they can legally offer to the public. A share of the revenue is captured and paid upstream to the app developer.

It's a great business strategy for HTC, because in the words of Viveport's president, they're struggling with awareness. ***"One of the big problems we have is a marketing problem for virtual reality, and this is a way to get the Vive out there before VR is ready for mainstream home adoption,"*** Rikard Steiber told The Verge in November 2016. Think about that for a minute; he wants operators to open VR arcades so they can help him market a product that, once consumers buy it, they'll no longer have the need to go to the arcade. ***It's brilliant and evil at the same time. Caveat emptor! This built-in obsolescence should give would-be buyers reason to pause.***

VR ARCADE PRICING **$15** FOR **30**MIN

IMAX PRICING **$10** FOR **7**MIN

VR TO THE (I)MAX

Currently VR arcades are charging consumers anywhere between $0.40 to $0.50 per minute of play, usually sold in 30 to 60 minute packages. However, IMAX just opened its first of a projected half-dozen test locations of IMAXVR. The center in Los Angeles is charging $10 for a seven-minute game or video, primarily using the same equipment you can buy on Amazon, the HTC Vive.

Are these prices sustainable as VR penetrates the enthusiast market? It is unclear whether the experience is good enough to keep casual players coming back and, assuming hardcore gamers will have their personal gear, I would be wary of making a significant investment in a VR arcade based upon the same exact entertainment experience people can already do at home.

CUBE-ISM

There also are a few companies repackaging the consumer versions of Vive and Oculus and offering them as commercial packages. These "Cube" VR systems (pictured inset at a shopping mall) sell for 10 times what the consumer versions cost. You should ask yourself how a $25,000+ investment in a room-scale VR system that essentially provides the same experience as a $2,500 home system is going to sustain a return on investment. **Again, buyer beware.**

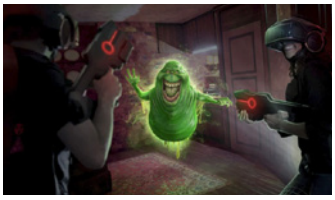
SAME VR EQUIPMENT

$2,500	$25,000
COST TO CONSUMER	COST TO OPERATOR

EPIC-SCALE VR!

While the room-scale VR systems deliver an experience people can have at home (if they have the dedicated space, or are willing to constantly rearrange their furniture), large, warehouse-scale, free-roam VR is something that will never be replicated at home. These systems allow as many as eight players (and someday up to 16) to explore 2,000-4,000 square feet of tracked space. The leader in this area is Zero Latency from Australia. They've opened six sites on four continents and are growing rapidly. (I became such a believer in their platform that I joined them as a business development consultant.)

LUXURY ATTRACTIONS: A NEW MINDSET



Unlike typical mass market amusement industry attractions that are targeted to families, warehouse-scale, free-roam VR is a luxury attraction targeted to Millennials. What do I mean by "luxury attraction?" The inherent lower throughput requires operators to charge a significantly higher ticket price. Therefore, it's going to target and attract a different consumer segment. Think of business class instead of coach on an airplane. The FEC is the airplane, but the VR attraction is business class. There's always a segment of any audience that is willing to pay a higher price for a unique and scarce experience. The good news is that you will need far fewer of these customers to take up the capacity. And once they're in your facility, be assured that they absolutely have the money to spend on other attractions.

FILLING A VOID

THE VOID: $20 FOR 6 MIN

The VOID has a site in New York's Times Square based upon the Ghostbusters movie franchise. They're charging $20 for a six-minute game in a 15-minute overall experience. However, in order to play you also have to purchase a $30 admission to Madame Tussaud's Wax Museum. In my exit interviews on several occasions, I found that all the customers playing Ghostbusters Dimensions were locals. They were overcoming the hassle of commuting and essentially paying $50 for a VR experience.

ATTRACTING MILLENNIALS W/ LUXURY ENTERTAINMENT

JOYPOLIS (TOKYO, JAPAN)
TYPICAL CUSTOMER **17** YRS OLD

ZERO LATENCY
VIRTUAL REALITY CUSTOMER **30** YRS OLD

In Tokyo, Sega operates a Zero Latency arena at their flagship Joypolis FEC. The typical customer at Joypolis has historically been 17 years old. The average age of a Zero Latency VR player at Joypolis is 30. The attraction is bringing in an entirely new audience, with high disposable income. They charge $17 for the game,

plus another $7 as an entry fee, so essentially $25 for a 12-minute game, which can be marketed as a 30-minute experience.

ZERO LATENCY (TOKYO) **$25** FOR **12** MIN

In Melbourne, Zero Latency has been operating a free-standing attraction since mid-2015. They offer a 45-minute game marketed as a one-hour experience and charge AU$88 per person (US$65). And they've sold out nearly every game since they opened the doors 18 months ago. Not just on weekends, but during the week too.

ZERO LATENCY (MELBOURNE) **$65** FOR **45** MIN

THE KEY TO IMMERSION GO DEEP!

A significant reason for the success of Zero Latency's Melbourne site is due to the length and scale of the game. **The longer a player stays in a virtual environment, and the more they get to walk, the deeper the immersion experienced.** Therefore, the current offerings of five- to seven-minute games just don't work. A large consumer segment is willing to pay top-dollar for an amazing experience, but that can't be delivered in five minutes.

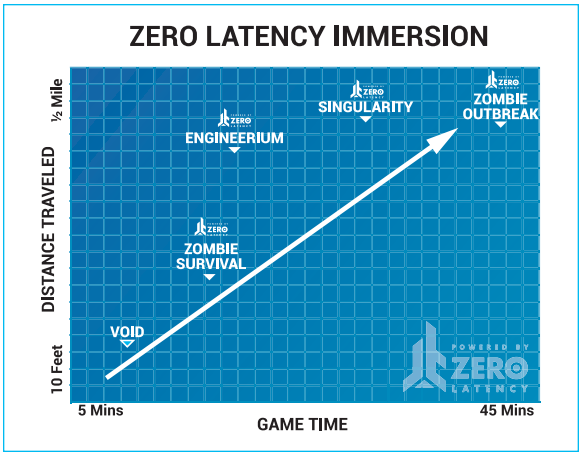
FOMO AND THE MILLENNIAL MINDSET

Operators of these types of attractions need to change their mindsets. High ticket prices and lower throughput works for the right amusement attraction. It's well documented that the Millennial Generation prefers spending their money on experiences rather than things, and they have plenty of disposable income. They are also prone to FOMO (fear of missing out), and the scarcity of tickets can drive frenzied purchase behavior. When Zero Latency Melbourne released tickets for a new batch of games on a Monday, they would see a huge spike in tickets sales because their customers knew that if they didn't snatch one up, they would miss out.

AND GO LONG!

Amusement operators are used to making money three minutes and one dollar at a time. Some of the early Zero Latency operators in the U.S. have priced the game at $20-25 for a 12-minute game. This creates a lot of inventory, which requires two to three times more customers to be profitable. The plethora of available tickets also removes the urgency to purchase.

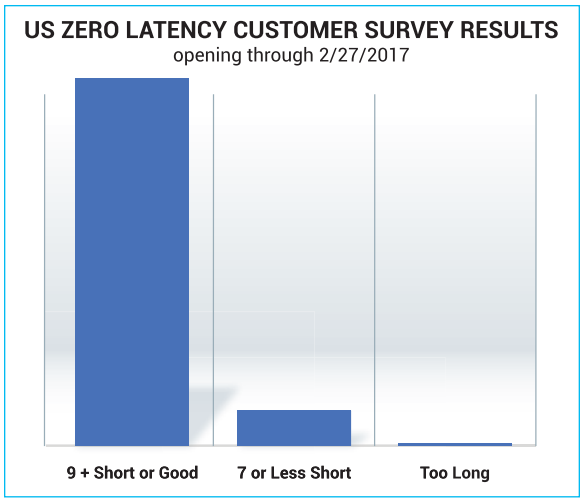
Customer surveys of U.S. Zero Latency players show that **80 percent of them rate the game a 9 or higher on a 1-to-10 scale, and say the game length is either "good" or "too short."** Only 2



out of 800 players surveyed said the game was too long. If they were complaining about the value of the experience when saying the game was too short, surely they would rate it lower. This suggests there's plenty of headroom for longer experiences and higher prices.

The big selling point of VR is immersion. The longer the game, and the more actual physical distance walked by the player, the higher the immersion. This means operators need to dedicate the space to free-roam VR, and then have the guts to charge what people are willing to pay.

This can be scary to an FEC operator who built his business offering multiple hours of entertainment for $20. Attracting a luxury customer who is willing to pay $50 for a half-hour of amazing VR can also pay dividends for your other attractions, as they will spend on your mass market offerings, raising your top line across the board.



Large scale VR attractions are not for every operator. They're expensive and the technology is bleeding edge. But, early adopters can significantly differentiate their businesses, and also benefit from the advantage of the hype cycle, wherein a new location can generate hundreds of thousands of dollars of exposure through public relations efforts alone. And they offer the ability to attract a highly valued Millennial demographic... if you're willing to price it correctly.

There are also a lot of unknowns, around best practices to optimize pricing, game length, ticket availability, and what other attractions might complement the amazing experiences that so far only free-roam VR can offer. Stay tuned for updates on what's happening with VR in the amusement industry.

Bob Cooney is an electronic gaming and location-based entertainment veteran and a frequent contributor to *RePlay Magazine* with 25-years of experience bringing out-of-home entertainment to consumers, operators, and venues. Cooney was founder and chief executive of NASDAQ-listed laser tag pioneer Laser Storm and later an initial member of the Global VR executive team, which introduced the first commercially successful virtual reality arcade game, the VR Vortek, and the first successfully licensed AAA PC-to-arcade game conversion. Cooney went on to become VP of marketing and business development of Ecast, the digital content provider for broadband-enabled jukeboxes, and COO of NTN Buzztime, the networked trivia game company. Cooney has been a driving force behind the development of numerous top-earning licensed games, including products based on EA Sports PGA Tour, X-MEN and Stargate. Cooney has been involved in VR since 1991, when he co-developed Laser Storm and Virtuality VR Centers for Edison Brothers. He now consults with Australian VR company Zero Latency on strategy and business development. He is excited about this third wave of VR and its potential for the commercial amusement space. Cooney has been a long-time vocal proponent of leveraging new consumer technology to keep the out-of-home amusement industry relevant at a time when in-home entertainment continues to threaten its very existence.