VR location-based entertainment: the catalyst of VR?

25 VR industry leaders weigh in on this fast-evolving space

September 2017

White paper produced by VRNISH,
the 1st worldwide directory of VR locations

Methodology

This white paper was developed over the period of August – September 2017, drawing on 3 main information sources:

- 25 interviews with leaders from across the VR industry, including VR content creators (i.e. game and movie studios), VR hardware and headset manufacturers, VR location-based entertainment (VR LBE) owners and operators, and VR thought-leaders/evangelists

- Proprietary database of VR LBE operators listed on VRNISH. Please note that the database currently does not include data for China

- Secondary research on VR sector and burgeoning VR LBE space, including articles, studies, and white papers

The insights provided during the interviews have been largely consolidated into key themes throughout this white paper. When necessary, quotations used or highlighted have been edited for clarity.

White paper development :
– Author : Trista Bridges Bivens / Vizane
– Graphic design :
Jérôme Hamon / Graphédic
– Sponsor : VRNISH

Editors memo

When we launched VRNISH, the first worldwide directory of VR locations in June 2017, we were driven by a strong belief: VR locations have a pivotal role to play in evolving VR from a cool but nascent tech novelty to a mass-market entertainment platform.This belief is now shared by the vast majority of the VR community.

At a time when VR is facing increasing skepticism due to its slow adoption in-home, we believe it's crucial to study in more depth the Out-of-Home VR phenomenon. Namely, to measure its current state, its obstacles, and its potential as a full-fledged business, as well as to consider its role in the development of Virtual Reality. This more in-depth look underpins the objective of this white paper.

We hope you enjoy this white paper and we welcome your thoughts and feedback.

Emilie Gobin Mignot : emilie@vrnish.com, Bertrand Wolff : bertrand@vrnish.com – VRNISH co-founders

Contents

Executive summary

Expectations for Virtual Reality (VR) have surged to new heights in recent years. Estimates on the potential of the VR market have been highly ambitious, with varying projections of 50%-100% annual growth rates, resulting in a market that ranges in size from $19 billion to $35 billion. Much of this growth has been expected to come from the in-home VR market as the general public's enthusiasm for VR grows.

More recently, however, there have been some questions around whether these projections will ultimately come to pass. While the general public's awareness of VR has jumped dramatically, VR technology and content have evolved greatly, and sales of VR headsets have grown steadily, these dynamics have not yet resulted in VR capturing the mass market. Although there is an awareness that the industry has made great strides, there's also a recognition that a catalyst is needed to help move VR more solidly into the mainstream. What will that catalyst be? The best candidate looks to be VR Location-based entertainment (VR LBE)[1]. VR LBE, also known as out-of-home VR, offers a promising opportunity to be VR's bridge to the mass market.

VR LBE has emerged as a key sector within the VR industry. What started as small VR cafes or VR rooms, is quickly transforming into a dynamic and fully global opportunity. With big players such as IMAX, HTC, and Bandai Namco launching game-changing VR experiences and fast-moving upstarts such as The Void and Ctrl V quickly coming on the scene, the VR LBE space has become a focal point for the VR industry. As social, fun-oriented out-of-home VR experiences, VR LBE are succeeding at drawing new users to VR and, often, making the first VR opportunity for many a good one.

VR LBE is increasingly delivering real value to VR headset manufacturers by familiarizing new users with their equipment in better conditions (i.e. with sufficient space, guidance from trained staff, variety of new and engaging content). Meanwhile, content creators are increasing their focus on VR LBE as it not only gives them the chance to get their content in front of larger numbers of users, but it also provides them with valuable feedback from users as well as the potential for new revenue streams through licensing.
While VR LBE is most often associated with videogames and arcades, there are various types of out-of-home VR experiences emerging.

VR LBE is not, however, without its challenges. For example, in order to continue their rapid growth, they need to ensure they consistently deliver VR experiences that are markedly different from what consumers can get at home. Currently the quality of experiences on offer across the VR LBE space can vary widely, which is an notable risk for the industry.

In addition, the sector is still very much in flux and in its early stages with new players entering and others leaving the market at a rapid pace. Finally, on the content side, VR LBE needs access to high-quality, engaging, and unique content that is easy to source and readily available. However, with larger, more established players entering the space, more investment and partnerships, and more knowledge sharing around best practices, VR LBE is starting to quickly respond to these challenges.

By reinforcing its current business models, VR LBE is better positioning itself to pursue exciting new opportunities such as deepening collaborations across the industry, scaling up in promising geographies, and actively expanding into the B-to-B segment. The emergence of VR LBE as a central part of the VR story is an encouraging development for the industry overall.

This white paper will explore the current state of the VR industry and VR LBE, providing in-depth analysis and perspective on the value that VR LBE delivers the industry, the challenges it faces as it looks to rapidly expand globally, and its most promising opportunities going forward.

Out-of-home VR / VR LBE

The following diagram provides a first look into the principal types of locations available and provides descriptions and examples for each:

VR Cafes

Smaller, not laid out for optimal VR experience
A few off-the-shelf headsets available w/ no additional accessories
Likely to offer content via Steam or Viveport
Example: Local VR cafes

VR Arcades

Space set-up for optimal VR gaming experience
Blend of of-the-shelf & dedicated equipment
Both exclusive games & top games from VR studios
Example: Ctrl V

VR Centers

Fully dedicated VR experience w/ multiple attractions
Usually use customized equipment/devices
Multiple VR attractions/ experiences or customized content
Example: IMAX VR, TheVoid, mk2 VR, VR theme parks, Bandai Nemco's VR Zone

VR Cinemas

Theater equipped for VR experience
Short form story-based content
Sufficient number of off-the-shelf VR headsets for all viewers
Example: The VR Cinema

VR Experiences at Events

Temporary VR experiences: events or pop-up VR experience
Off-the-shelf headsets or customized equipment
Content customised for event or audience
Example: Concerts, festivals

VR Escape Rooms

Experience where objective is to solve a puzzle and 'escape the room'
Off-the-shelf headsets
Existing puzzle games – multi or single player
Example: Escape VR, ExitusVR

Amusement park attractions incorporating VR

Incorporation of VR within a game or ride experience
Partner with headset manufacturer
Customized content
Example: Six Flags' Superman, Sea World's Kraken

Museum exhibitions incorporating VR

VR incorporated in exhibit
Off-the-shelf headsets, possible partnership w/ headset manufacturer
Content customized, tailored to exhibition
Example: Franklin Institute's VR experience

VR: An Evolving Story

VR's Formative Years

Virtually Reality (VR) has had a long and storied history. While science fiction books such as Pygmalion's Spectacles imagined the possibilities of VR as early as the 1930s, it wasn't until 20 years later that VR pioneer Morton Hellig arrived on the scene and transformed some of these possibilities into reality. His invention of the Sensorama, an immersive arcade style theater, and the Telesphere Mask, the very early precursor to today's headsets, forged the future of VR as we've come to know it. Ivan Sutherland and his student Bob Sproull followed suit in the late 1960s inventing the first AR/VR head-mounted display. In the late 1980s, Jaron Lanier pushed the boundaries of VR even farther, inventing various new VR applications and devices. Seeing the commercial possibilities, the 90s saw big game players such as Nintendo and Sega jump into the fray, increasing their investment in VR and launching what they hoped would be the next big things in gaming – in-home VR devices such as the Nintendo Virtual Boy[1]. Unfortunately, their efforts to bring something to market that users would love and spend handsomely on never materialized. VR hit another roadbump.

[1]*The Virtual Reality Society, "History Of Virtual Reality"*

However, over the last five years VR has made a big comeback. The development of better computing power, more sophisticated software, and, of course, next generation VR headsets, have breathed new life into this fledgling sector. VR has, once again, been heralded as the next breakthrough technology set to transform consumer viewing experiences into immersive, interactive ones, consequently disrupting both expected sectors, (e.g. gaming, film, etc) and unexpected sectors (e.g. medicine, real estate, manufacturing, etc) alike.

The developments over the last five years have been critical in moving what could be best described as a nascent technology into mainstream consciousness. Perhaps some of the most critical events in recent years include :

2012

- Founding of Oculus and launch of Rift headset

2013

- Vendetta launches support for Oculus Rift devices, the first live MMORPG to support the virtual reality display

2014

- Acquisition of Oculus by Facebook

2015

- Launch of Samsung-Oculus collaboration, Gear VR headset
- Several VR installations in theme parks including Six Flags in the US, Europa-Park in Germany, and Alton Towers in the UK
- Location-based VR startup the Void launches with plans to expand around the globe
- Samhoud launches first VR cinema in Amsterdam
- Google debuts Cardboard, the first low-cost VR option

2016

- Consumer launch of HTC Vive, a HTC and game developer Valve collaboration
- Valve launches VR game platform and hub the Lab, for use on HTC Vive
- Launch of Sony's Playstation VR
- Google launches Daydream VR platform and headset
- Pokemon Go launched. Although AR, seen as first mass market success of AR/VR sector
- Consumer launch of STARVR, a Starbreeze collaboration with Acer and IMAX and first headset focusing on enterprise use
- VR comes to sports with both the World Chess Championship and US College Football made available in VR
- The Void launches its first public experience in NYC in conjunction with Sony

2017

- Playstation VR hits the 1 million unit sales mark, but Samsung Gear far ahead of competitors with 4.5 million headsets sold
- The Void launches new locations in Utah, Dubai and Toronto
- IMAX VR launches first location to much fanfare in LA
- Launch of VRNISH, first VR location-based entertainment directory

Stops and Starts

Although significant progress has been made, there's a growing perception that the VR sector has yet to deliver on its promise. VR did grow in 2016, but the total VR headset revenues hit the $1.8B mark[1], smaller in size than many in the industry predicted it would be at this stage. While the enterprise space increasingly looks like an attractive opportunity for both VR and AR[2], in-home VR use and mass adoption has been slower than many hoped. The core VR user still tends to be, as Aldric Chang Founder and CEO of Mixed Realms describes, *"More of a hardcore gamer type that's buying VR content rather than your average Joe"* or, more broadly, tech savvy, young early adopters[3]. The physical and design limitations of headsets appear to have been one barrier for users. They can be quite heavy, difficult to wear over long periods, and, for some, can be somewhat disorienting. Add this to the in-home space constraints, perceived high pricepoints for VR devices/technology, and the lack of social element when used in-home, it's clear that more time is needed before VR becomes a truly mass-market technology.

[1] SuperData Research and Unity Report: "Can't stop, Won't Stop: 2016 Mobile and VR Games Year in Review", Feb 2017

[2] TechRepublic, "Why 2017 could be a big year for AR and VR in business", Dec 5, 2017

[3] Singularity Hub, "Meet the Consumers That Will Make or Break Virtual Reality Next Year", Dec 2015; refer to the Annex at conclusion of this white paper for more details on further details on the current VR us

If you look at the companies that have been created, the money that has been invested, I think VR is on a pretty steady course. If you look at where we were 2 years ago or 1 year ago, a lot of progress has been made. There's a lot of potential, but we need to be realistic. Compare the level of content / refinement you get on mobile or consoles, and we're definitely not there yet.

Hadrien Lanvin, CEO Innerspace (VR content creation studio).

> Any technology that comes along, the product has to be 10X better than anything other people are using now. If it's not 10X better, I can't see things changing.

Chia Chin Lee, CEO Big Box VR (Multiplayer, VR Game Studio)

Hockey stick growth?

If you look at the projections, the VR sector (along with AR and MR) is still projected to grow strongly in the near-term, with recent reports projecting it to hit $28.3B in revenues by 2020[1], 15X growth from 2016 sector revenues. It's clear that getting to this rate of growth isn't going to be easy. Not only does the technology need to evolve to be more user-friendly and affordable, but a broader range of consumers need to embrace VR and its potential. This, coupled with limited in-home space and a lack of social interaction with in-home VR, mean that VR LBE (location-based entertainment) can play a very important role in addressing some of these challenges and helping to fuel VR's evolution.

Will VR LBE be a game changer for VR? Will it be the catalyst that VR needs to connect with the mass market? The following sections of this paper will address these questions, exploring in-depth the the role that VR LBE is currently playing in the sector, the challenges and opportunities offered (deleted space) by VR LBE, and how this growing part of the market could shape the future of VR.

[1] SuperData Research Report Excerpts: "Virtual Reality Market and Consumers, 2017

photo Diversion Cinema

VR LBE: The Bridge to the Mass Market

Although VR continues to grow and generate interest, it hasn't yet moved beyond the 'early adopter' phase. This is a critical step for VR to emerge as the transformative technology many predict it will become.

Many of barriers to this transition mentioned earlier are structural, which will require significant investment and time to address. For example, aspects like ease of use, time spent in headset, or risk of disorientation, are likely to continue to be issues over the next 3–5 years. Price will undoubtedly also come down, with players like HTC continuing to make similar moves to those announced recently[1] to find more competitive pricing models that attract the general public. This will certainly make VR more accessible for many.

Industry leaders interviewed for this white paper stressed that rising awareness of VR has given way to greater curiosity amongst the general public. Yet it is too often an experience that tends to be viewed by the general public as something to try once or twice, rather than regularly.

To make the transition from novelty to necessity, VR needs a catalyst. Something to facilitate smoother access to and use of VR. Something that will enable the sector to better manage its growing pains and attract larger numbers and a wider range of users to VR. Enter VR LBE.

[1] ***TechCrunch, "HTC drops price of Vive by $200 as it*** looks to compete with Facebook's aggressive VR pricing", August, 2017

"People who guide people into VR are an important part of the business."

Anton Zaitsev, Creative Director Avatarico (VR Game Studio, VR LBE Content Licensor)

"LBE allows easy exposure for the public to the best forms of VR including content with haptic feedback, environmental effects, and multiplayer support. Once guests know how magical it can be they can bring lower end systems into their homes."

Brent Bushnell, engineer and CEO/co-founder Two Bit Circus (experiential entertainment)

The Current State of Play in VR LBE

The location-based entertainment sector has very recently come on the scene as an important part of the overall VR ecosystem. Underpinning the resurgence of VR over the last 5 years, was the assumption that in-home use would be most natural and predominant mode of delivering a VR experience. However, VR seems to be following the similar, well-worn path taken by cinema/movies and video games. In the early stages, both of these sectors fit naturally within the location-based entertainment space. Cinemas and arcades were not only places where consumers could view the latest content, but also spaces for social interaction. In addition, when each of these sectors were in their infancies, the technology was not yet ready from an ease of usability or affordability perspective to drive mass, in-home use. Comparably, VR appears to be evolving in a similar way, although the hype cycle will undoubtedly be much shorter this time. As a result, VR LBE now plays a key role in facilitating the growth of VR with the general public.

With an increasing number of VR LBE locations launching around the world, both VR 'curious' consumers and VR enthusiasts are looking for guidance on where they can test VR and find the most innovative experiences. To respond to this need, VRNISH, the first worldwide platform of VR LBE locations around the world, launched in 2017. In addition to providing the latest information on where to try and experience VR, VRNISH also offers valuable details on the types of content, headsets and other VR equipment, and services available at each location. Within just a few months of VRNISH's launch, their directory already includes 400 locations around the world, with more being added daily. Although the directory doesn't yet include key markets such as Japan and China (which VRNISH are currently exploring), the data they've gathered thus far provides an interesting look at the current state of play for VR LBE sector.

"These locations are vital to getting as many people to try VR as possible. They're particularly important for economic brackets that wouldn't normally be able to buy it."

Alan Smithson, CEO MetaVRse (VR and AR Consultancy)

VR LBE Spotlight: The Void

In the Fall of 2015, THE VOID was launched to create truly immersive, 'hyer-reality' experiences that take people to new worlds beyond reality. After launching their first experience, GHOSTBUSTERS at Madame Tussauds in New York City, THE VOID has expanded to Dubai, Lindon, UT (their headquarters), and Toronto.

Blending the virtual and the physical, each experience at THE VOID is constructed on a custom physical stage built specifically for each world. Participants wear THE VOID's proprietary and custom RAPTURE™ gear, including head mounted displays (HMDs), backtop™computers, and haptic vests to heighten participants' senses while in the experience.

Photos The Void Press Kit 2017

VR LBE – Recently on the scene and growing fast[1]

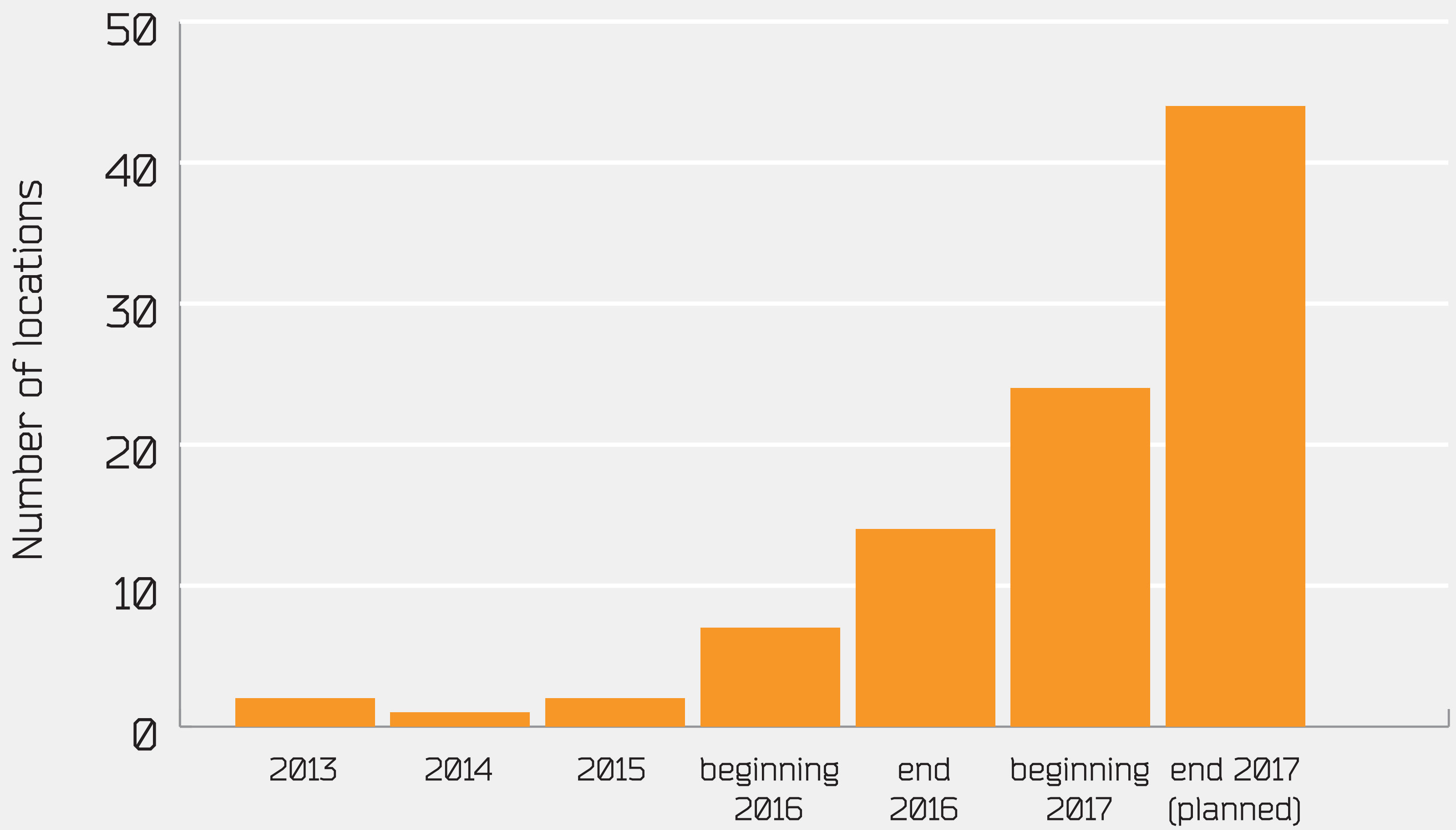
The explosion in the number of locations where consumers can find VR experiences is a recent phenomena. According to VRNISH's data, the first locations began to appear around 2013 ***(Figure 2)***. For the first three years, there were very few locations around the world offering VR experiences. 2016 proved to be the year that put VR LBE on the map. This was also the year that the industry saw new VR LBE experiences launched that were distinctly different than those users could have in-home. These included exciting experiences such as those offered by The Void, Ctrl V, HTC's Viveland in Taiwan, and Bandai Namco's sprawling VR Zone[2] in Tokyo. At the same time, the types of VR experiences and content consumers could access widened thanks to VR cinema/movies, VR cafes, and other types of locations popping up around the globe. 2017 is set to well outpace the performance of 2016, with numerous game-changing locations rolling out[3], including IMAX's first VR centers in New York and LA, Gamblit Gaming and Phosphor Games teaming up to bring VR to casinos, and many more.

[1] Analysis based on VRNISH database of 377 VR LBE operators as of August 3, 2017

[2] Japan Times, "Bandai Namco to open virtual reality 8 arcades in Japan and overseas", June, 2017

[3] Upload VR, "Viveland Is HTC's Huge New VR Arcade for Taiwan", November, 2016

Figure 2
LBE VR location launch timing



Although the US dominates in terms of total number of locations (99 currently listed in the directory), North America and Europe are neck and neck in terms of total number of locations ***(Figure 3)***. Canada has also emerged as a VR LBE powerhouse as it currently has the highest number of locations per capita (outside of Asia) ***(Figure 4)***.

Figure 3
Geographic distribution of LBE VR locations (ex/China)

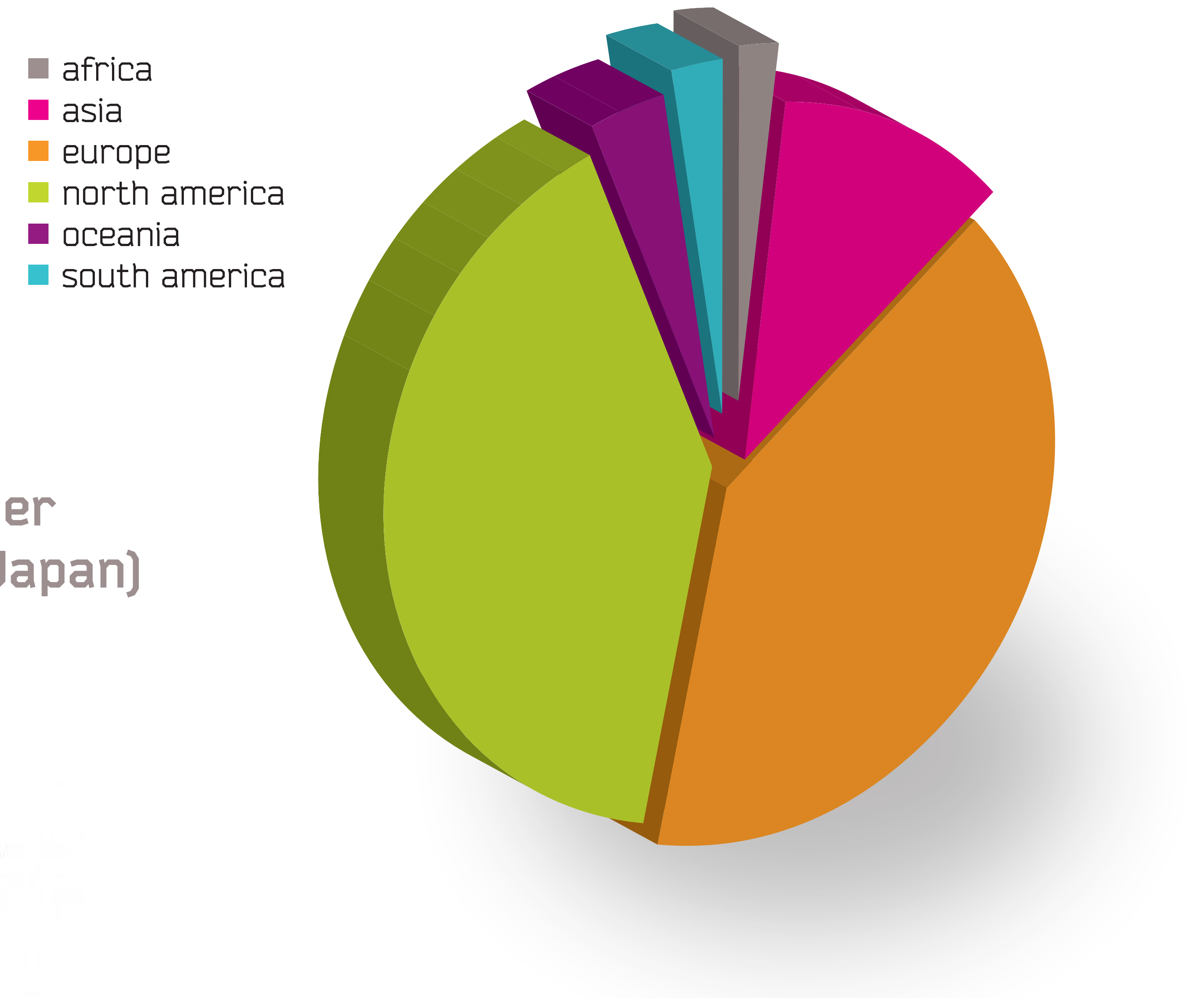
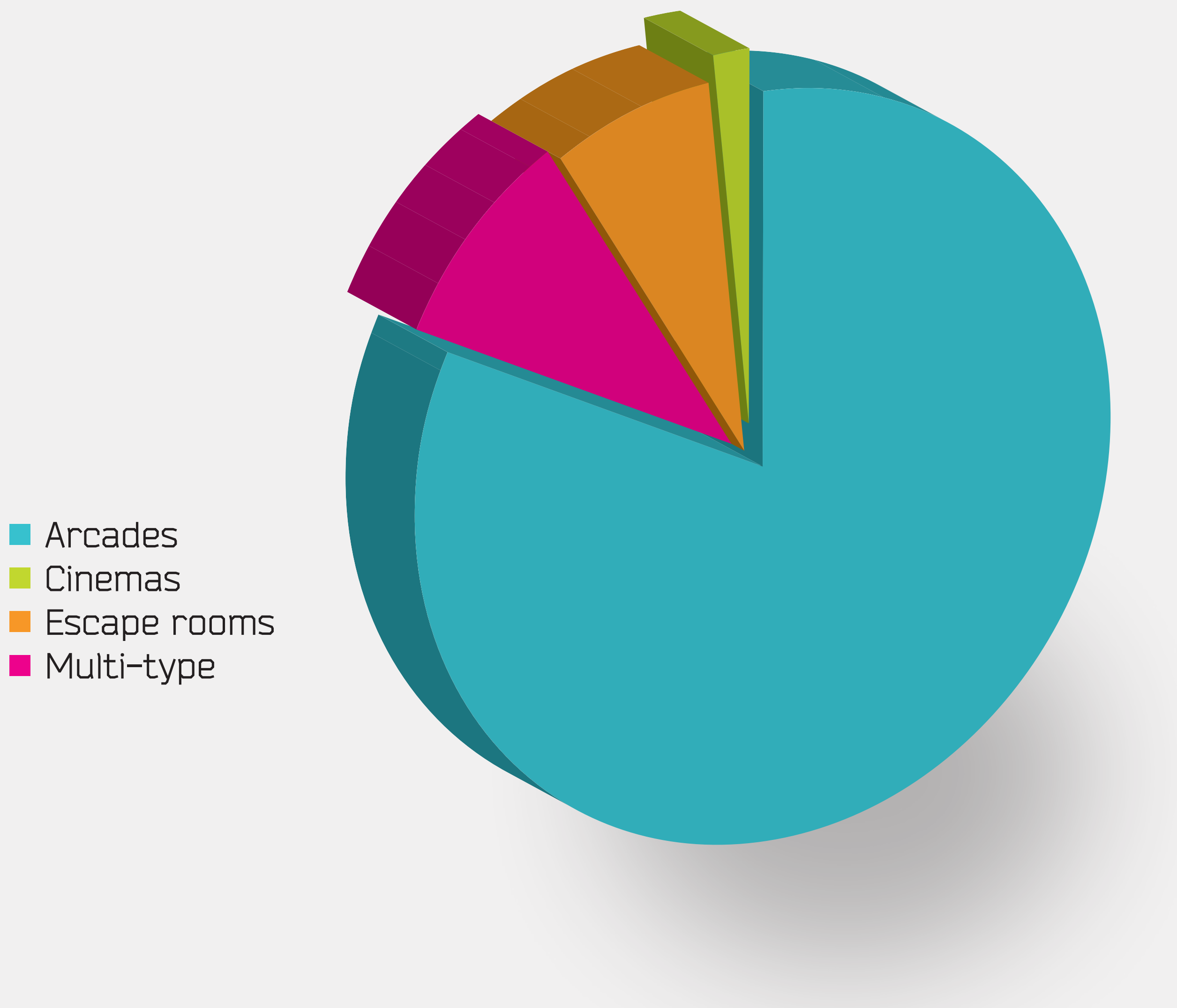


Figure 4
Geographic Distribution by Country as per number of locations (Top Ten ex/ China ex Japan)

1. United States 2. Canada 3. France 4. Germany
5. United kingdom 6. Australia 7. India
8. Netherlands 9. Poland 10. Spain

Unsurprisingly, video game locations/ arcades dominate the VR experiences on offer ***(Figure 5)***. This is likely because, while not the only areas of promise for VR, video games are perhaps the most clear use case at this stage. In addition, much of the content being developed for VR is in the games space. All this is fueling the growth of arcades. Other VR experiences such as escape rooms are beginning to become more prevalent and multi-type VR experience locations are also on the rise. Cinema/movies is often looked at as an important area of VR innovation but one that may be limited by the expensive production costs and complex economic model of filmaking. Although producing quality content is important in any medium, good storylining in film is notoriously challenging, and perhaps even more so in VR cinema which requires compelling short-films that can generate strong word of mouth amongst the general public.

Figure 5
Types of entertainment locations offering VR experiences



Over the last several years the focus of most VR headset manufacturers has been squarely on individual, in-home use. Until very recently few headset manufacturers offered services or customized their product design for the fast-growing VR LBE or Enterprise markets. However, HTC took a different approach from early on which is evident in their dominant position in the VR LBE space. The vast majority of locations (~90%) within the VRNISH directory use HTC Vive, with Oculus Rift the next closest at just under 25%. Samsung's Gear VR is gaining ground though in the VR LBE market, having launched a broad marketing partnership with Six Flags amusement parks in the US[1]. Samsung's Head of VR marketing **Bachir Zeroual** is looking to out-of-home VR as a way to achieve their objective of *"Democratizing VR and getting it to the mass market"*. This partnership is simply one piece of their strategy to extend their focus to new out-of-home VR opportunities.

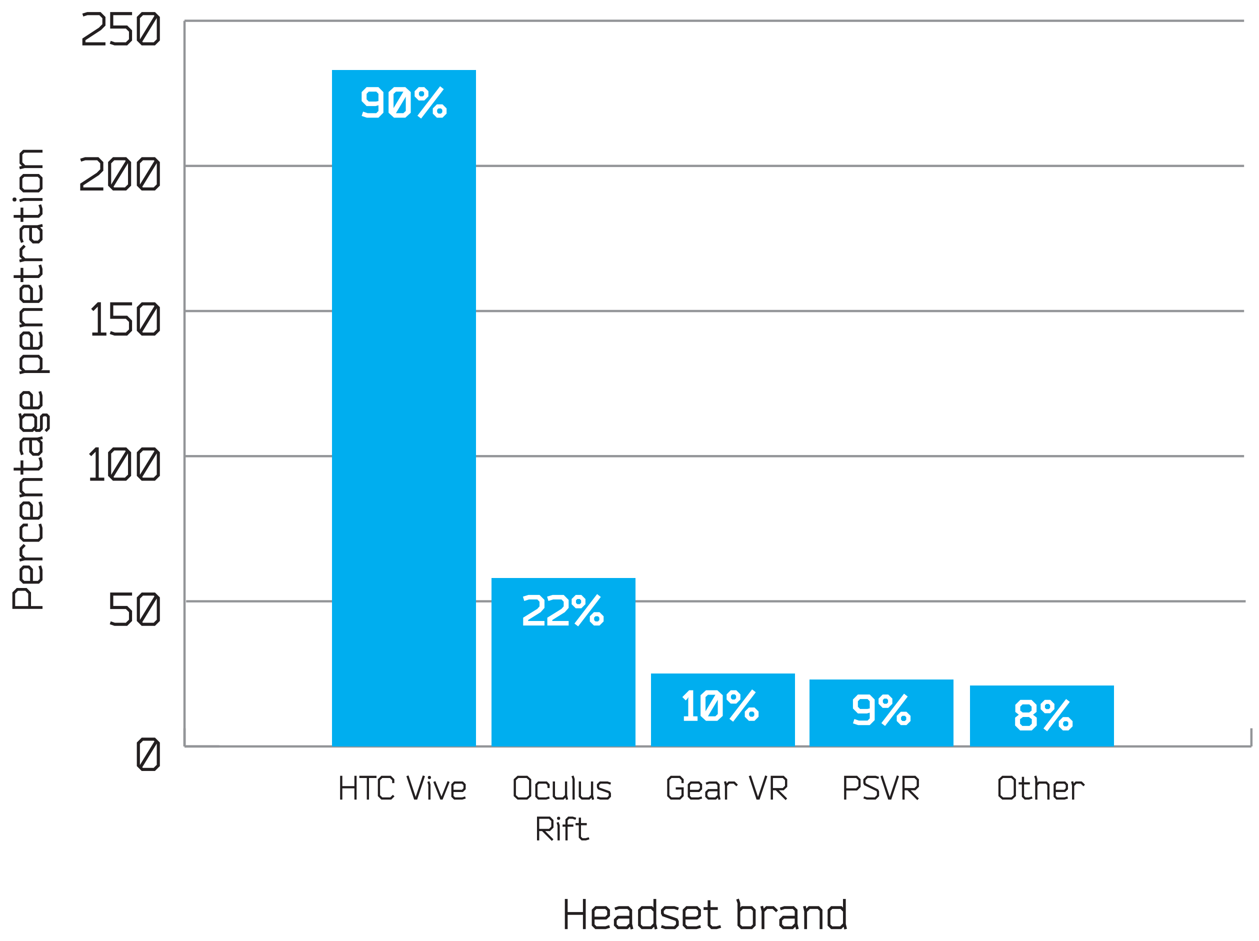
[1] Six Flags and Samsung Press Release, "Six Flags and Samsung Partner to Launch First Virtual Reality Roller Coasters in North America", 2016

Bachir Zeroual, Head of VR marketing Samsung

"We have created an enterprise edition of our headset which is designed for quick comfort adjustment for many users and to be easily cleaned. And we can provide additional technical services to support in the planning and setup of a any location."

Rikard Steiber, President Viveport and SVP Virtual Reality, HTC Vive (VR headset)

Figure 6
Percentage penetration of headset brands (259 LBE VR)



Emerging Business Models

Although the number of locations with VR experiences is rapidly expanding, the vast majority still appears to be smaller in size, limiting the number of consumers they can welcome and, ultimately, expose to VR. Of those noting the number of headsets they have on hand, most have under 20 headsets with the bulk of these having under 10.

One quickly emerging question is which VR LBE business models are the most effective and sustainable over the long-term. This is a key question which many are working through as they look to grow and expand

The VR LBE space is still very much in flux and with the diversity of sizes of spaces, types of experiences on offer and, perhaps most importantly, quality of experiences, there's not yet an agreed 'best practice' business model. However, looking at the pricing approach is key. At the moment, most locations charge using a time-based model, largely by hour or minute or for set timeslots ***(Figure 8)***. In North America, the average price is approximately $31 / hr, but prices vary from as little as $15 up to $60 / hr. Given the limited hardware available per location noted above, it make sense that VR LBE locations would seek to price in such a way to encourage throughput

and maximize revenues. However, fewer headsets and time-based pricing can also mean that those coming to experience VR only have a limited time to do so. As the sector evolves, hardware prices come down and become more accessible, the amount of high-quality VR content increases, and the number of locations increase, VR LBE owners will have a good opportunity to experiment with other pricing models to drive experience engagement and repeat visits.

Figure 7
Headset capacity across locations

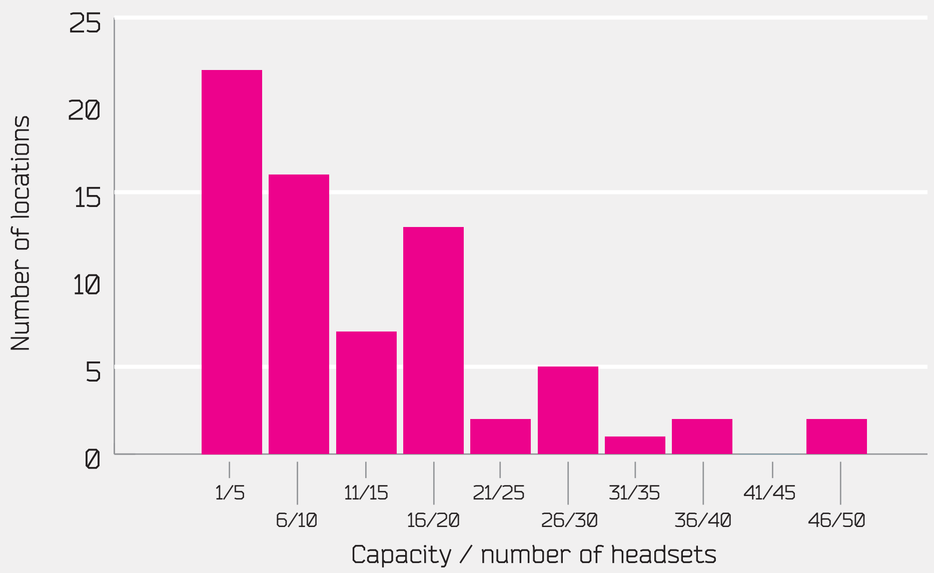


Figure 8
Pricing strategy

Changing the face of VR via LBE

Not surprisingly, those who are most excited and attracted to VR LBE tend to resemble the current VR user archetype mentioned earlier. For this group, going to a VR arcade offers the opportunity to access VR experiences that they are unable to access at home.

However, the social nature of LBE is drawing in a broader range of new users. For example, Canada's first VR arcade chain, Ctrl V, is drawing in a much more diverse clientele, 40% of whom are women and girls according to Ctrl V Cofounder and CFO Robert Bruski. VR LBE owners are also seeing a wider age range as well, expanding well beyond the teen/young adult segments. Finally, VR LBE customers rarely come alone and, instead, come in groups, often returning and bringing friends with them.

We can see this dynamic playing out with IMAX's widely successful and recently launched VR center in Los Angeles, which generates approximately $15k in revenues / week and 20k visitors through June 2017. Similar to other IMAX experiences, their ability to draw in new users and families has driven their success[1]. Fortunately, they plan to replicate this success around the globe, rapidly expand throughout North America, Asia and beyond[2].

[1] *MashableAsia, "The first IMAX VR arcade is a huge hit—and I can see why", April, 2017*

[2] *Yahoo Finance, Edited Transcript of IMAX earnings conference call or presentation, July, 2017*

Robert Bruski, CFO and Co-founder, Ctrl V (VR Arcade)

"What surprises me is that VR is attracting everyone. We have visitors varying from girl groups to older women for example. Many people who have never been very interested in computer games."

Jan Hursti, Founder Pikseli (VR Park / Arcade)

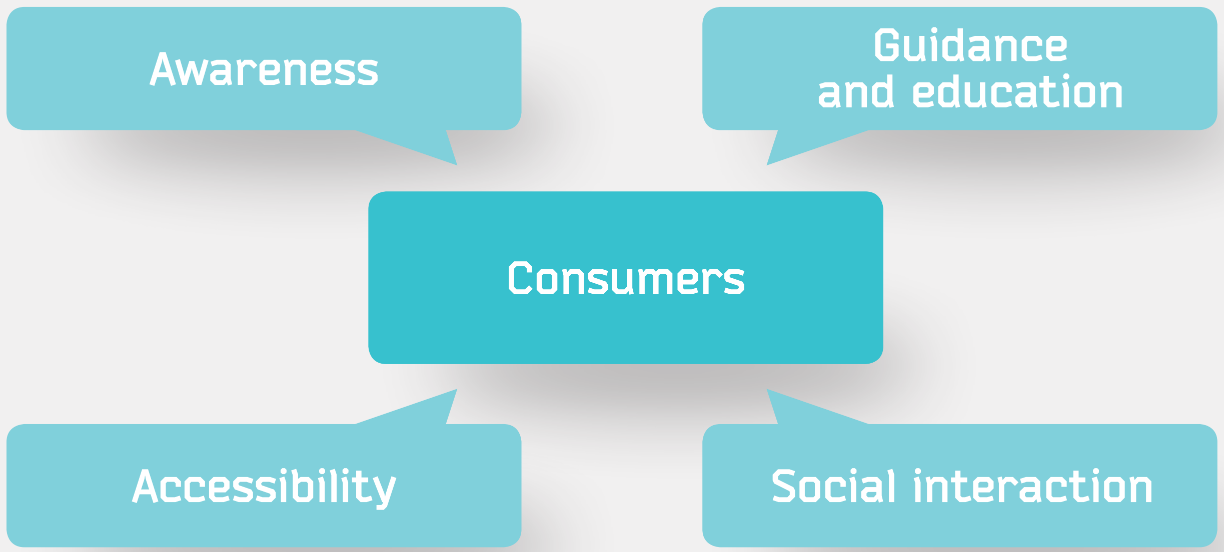
VR LBE and the Value Equation

When speaking with various key leaders from across the industry, most noted that the emergence of VR LBE as an important industry catalyst took them a bit by surprise. As the industry's focus has largely been on in-home, headset, content, and system / software development has followed suit. However, with the rise of VR LBE this is set to change. All those interviewed believe that VR LBE is bringing important value to the industry.

A: Consumers

Figure 9 highlights the principal value points LBE brings for consumers.

Figure 9



"What you experience in LBE centers makes VR more of a social event. You're connecting the social experience you have with your friends with a piece of technology, which from a psychological perspective is very valuable (in driving a connection). Getting that subliminal connection is very important to drive technology adoption."

Dominic Eskofier, Head of Virtual Reality EMEAI NVIDIA (GPU designer for gaming and professional markets)

Awareness

The aspect that was most noted throughout the interviews was that of **Awareness**. For many people, their experience with VR in an arcade or at an amusement is their first. This experience not only makes them aware of the immersive, unique experience VR can offer, but also permanently shapes how they feel about VR. Aaron Stanton, executive producer of top multiplayer VR game QuiVR , has repeatedly observed this when participating in consumer-focus VR events and at VR LBE locations. He refers to consumer-oriented VR experiences outside of the home as important "first memory experiences".

"What I refer to as a first memory experience is the point when you encounter something for the first time and it provides you with such an amazing experience that you never forget. VR Arcades are lightning rods for these first memory experiences. People can dabble in VR in a way that's positive and good and, ultimately, memorable."

Social Interaction

Location-based entertainment lends itself best to **Social interaction**. This element is clearly a big draw for visitors. They can bring their friends, engage in various VR experiences together, enjoy refreshments and, ultimately, create positive, shared memories. As VR evangelist **Chris Lafayette** notes, VR LBE is attractive for consumers because *"The biggest and best experience is social, offering community. It enables people to go on quests together, which is something consumers really value."*

Another area where VR LBE is particularly well-suited is in multiplayer gaming. Although multiplayer games are extremely popular in-home, the experience of 'togetherness' is largely virtual. By layering the virtual on the physical, VR LBE enables a more powerful, true multiplayer experience.

Chris Lafayette, VR/AR/MR evangelist

Guidance and Education

Awareness has brought VR more into the consciousness of the general public but it hasn't alleviated consumers' concerns about VR. Some are worried that the headset will be too heavy or make them sick. Others are not quite sure what to do once they have it on. Beyond raising awareness, out-of-home VR experiences also play a big role in **Educating** people about VR and **Guiding** them through the VR experience. Samsung's VR team recognize how VR LBE not only can respond to consumers' basic questions about VR, but they can also help them fully understand the types of experiences VR can deliver:

"VR LBE helps you experience VR in a more enhanced way. They're critical in helping you understand the range of possibilities of VR" **Bachir Zeroual**, Samsung Head of VR Marketing.

Accessibility

VR LBE is perhaps the best medium currently addressing VR's biggest challenge of **Accessibility.** Though pricing is declining, buying the full range of hardware needed before they fully appreciate the VR experience is a big ask for consumers. In addition, there are still experiences that VR LBE locations can deliver that in-home VR experiences can't. Many homes, particularly in urban areas, are too small and there is not yet sufficient, high-end quality content available for various in-home VR experiences. **Jan Hursti**, founder of Scandanavia's first virtual reality game park/arcade Pikseli sees this as a clear advantage and point of differentiation for VR LBE:

"We have many experiences that you cannot have in home. Including, special hardware and a lot of room. We have, for example, 480 square meter and 380 square meter arcade rooms where you can have parties for like 50 people. Movies have always been popular even though home theaters are good these days. I believe VR is the same. We have the best technology available with the best content."

What VR LBE essentially gives consumers access to is 'Ultimate Immersion', a unique and premium immersive experience that can only VR LBE can deliver. On the content side of things, the exposure consumers get to exclusive, VR LBE specific content and to previews of the latest VR films, games and more is impressive. Equipment in many locations has also expanded well-beyond headsets to technologies like 'arcade cabinets' that heighten your senses, 3D seats, and wearables. Another key part of delivering the most distinctive experience and best immersion possible.

> **"Some people don't even know what VR is when they step in. LBE is really the first point of contact for a lot of people."**

Chia Chen Lee, Founder Big Box VR (Multiplayer VR Game Studio)

B: Hardware/Headset Manufacturers

VR LBE wasn't initially a core aspect of most hardware/headset manufacturer's focus. Both the design of and support for their headsets have been centered around individual use. Some however, including HTC and Samsung, have ramped up their focus on VR LBE as the value they can deliver for hardware / headset manufacturers becomes more apparent.

PR/Branding
VR LBE is a natural fit for offering headset manufacturers an interesting **PR/Branding** opportunity. As mentioned, HTC are investing heavily in this sector. It gives them another opportunity to reach and message to consumers directly.
Through branded content and customized, exclusive equipment, consumers will come associate brands visible within VR LBE to VR. This association can also be a driver of brand loyalty, which is key for converting VR LBE visitors into headset owners.
Finally, as VR LBE reaches the general public, there is also a spill-over effect into B-to-B. Companies are increasingly turning to VR LBE for business events, trainings, etc. Being present in out-of-home VR spaces gives manufacturers the opportunity to message to them directly about the possibilities of VR within B-to-B..

Ecosystem Development
As they quickly develop, VR LBE are emerging as important hubs as well, connecting key players within the VR **Ecosystem.** By supporting VR LBE, manufacturers better position themselves within the wider VR community.

When present, this support is well-received and pays off, as is apparent with HTC's strength in VR LBE space. MetaVrse CEO **Alan Smithson** describes HTC's efforts as well as those of video card[1] manufacturers: *"HTC is full-force on this - they created professional Viveport that gives centers a license to access the headsets. HTC have been with Ctrl V from the beginning. Video card manufacturers are doing a great job marketing (with LBEs) as well".*

Figure 10

"By supporting content and creators (within LBE), they have an opportunity to better position themselves as a brand with us."

Cindy Mallory, CMO Dream Sail Games (VR Game Studio)

[1] video card is an expansion card that allows the computer to send graphical information to a video display device, usually including a GPU from NVIDIA or AMD. Lifewire, "What is a Video Card?", September 2016

"Arcades tend to be fun places with a carefully curated experience, and high-end arcades are focusing more on hospitality than ever. This creates the ideal showroom for VR hardware where potential home users can see first-hand the benefits to the hardware."

Rikard Steiber, President Viveport and SVP Virtual Reality, HTC Vive (VR headset)

Product Development

Finally, VR locations can also be important test beds for their own Product Development. As headsets were not conceived for use in professional settings, VR LBE can provide important feedback for them as they, eventually, increase their focus on the professional space. Avatarico Creative Director **Anton Zaitsev** discusses some of the challenges hardware manufacturers face on this front:

"Venues are a challenge for hardware manufacturers because hygiene is now a challenge for them. No hardware vendors have solved this issue. You can replace some parts, or adjust (when using headsets in these settings), but it's not yet perfect. It's a big test for them. Many people use the headsets, so they need to make some design adjustments. HTC Vive has a device for commercial use, but still needs improvements"

Despite signs that hardware/headset manufacturers are starting to come around to the idea of VR LBE as a big opportunity, the general consensus amongst the industry leaders interviewed for this white paper is that manufacturers are taking a cautious approach. As the VR LBE space is so new, the link between VR locations and in-home use is not yet proven. Regardless, they are encouraged by the awareness that VR LBEs are bringing to VR amongst the general public. This aspect alone makes hardware/headset manufacturers hopeful that the VR LBE opportunity will continue its strong growth.

VR LBE Spotlight: Ctrl V

Launched in 2016, Ctrl V is Canada's first VR arcade, with five locations already and several more to come. At their locations, visitors can immerse themselves in top quality experiences on custom-designed VR stations featuring the HTC Vive. Ctrl V offer a wide array of leading VR games across their locations as well as a customer-facing user interface which allows visitors to preview, load and exit games at their own discretion.

Photo Ctrl V Press Kit 2017

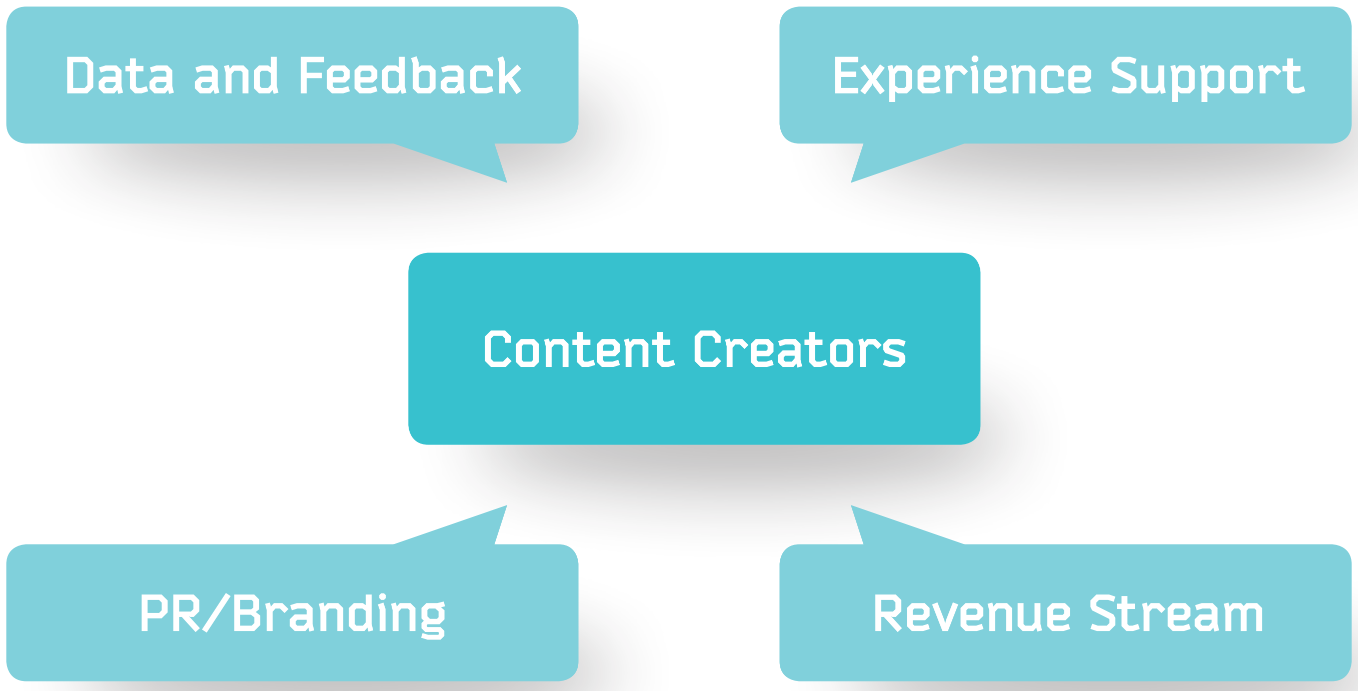
C: Content Creators

According to out-of-home interactive entertainment consultancy KWP founder, author, and leading LBE thought leader **Kevin Williams**, there are three types of content developers active today in the VR out-of-home entertainment space:

1) Out-of-home first: Those developing content exclusively for VR LBE. Given that the VR industry's focus has leaned strongly to in-home, fewer fall in this group
2) In-home first w/ increased focus on out-of-home: Those who've realized that an in-home only positioning is less viable in the current environment
3) Multi-type: From early on, they realized that it was important to focus on both the in-home and out-of-home markets

Kevin Williams, Founder/Owner KWP Limited (Out-of-Home interactive entertainment consultancy)

Figure 11



Given this diversity of approach, content creators will have differing levels of understanding of how users engage with their content in a VR LBE environment.

Data and Feedback

As such, one obvious point of value in working with LBEs is the ability to receive invaluable **Data and Feedback** on their content. For example, while those designing games exclusively for VR LBE may value understanding how users respond the overall experience most, those new to VR LBE may just be looking to understand how to best develop content for LBE more broadly.

Experience Support

Another key benefit for content developers is that VR LBE offers **Experience Support**, namely that there are trained staff on-site that can explain how to engage with developer's content in the best conditions. Avatarico's **Anton Zaitsev** elaborates on this point adding:

"As a developer we strive to make games simple so everyone can understand what to do, but when we talk about how it will work with our (LBE) partners we strongly recommend using a game operator – the person who runs the game, or a hostess or other dedicated person. This person needs to help people adapt to VR. They can give tips or advice or identify people who have issues like motion sickness. Or advise them on how to set up correctly with the headset."

> They (content creators) can find data or information about what kind of games are popular among visitors at VR arcades. Also, once they update their games, they can get user's feedback faster and more efficiently.

Kim Jeong-ho, Team Manager of Channel Business Team, YJM GAMES (VR Cafe)

VR LBE owners often look to provide support as well before a consumer even has the experience. **Jip Samhoud** works quite closely with content creators looking to distribute their content via SamHood VR Cinemas. He adds:
"It's reassuring (for content creators) that they have someone working with them to get their content seen. We have 2 full time people working with content producers directly"

Jip Samhoud, Founder, The VRCinema (VR Cinema), Founder, SamhoudMedia (VR content distributor & AR/VR agency)

photo Antoine Doyen

Revenue Stream

Currently the revenue upside from in-home remains somewhat limited given its slower than anticipated growth. VR LBE also can provide content creators with another **Revenue stream**, as licensing and royalty revenues are common accepted practice in LBEs. Dream Sail Games' **Cindy Mallory** sees the potential for VR LBE as a viable opportunity:

"The licensing piece is very interesting as a content developer. Personal licenses for homeowners are one time compensation only. However, with commercial licenses there's an opportunity to make more over time from your content (due to the recurring fee model) and the price can be slightly more expensive."

There are still issues to be resolved here however. Generating significant revenues requires high-quality content that is well-suited for VR LBE environment. In other words, as noted by **Bertrand Wolff**, cofounder from VRNISH, content that is short, easy to 'consume', with new and engaging stand-alone stories, and, of course, that doesn't require a 10 minute tutorial to use. VR LBE themselves also need to properly compensate content creators.

"Locations bring exposure on several counts -- if one arcade has it, others will want it. Being in VR LBEs is as much as a marketing driver as a revenue generator."

Aldric Chang, Founder and CEO, Mixed Realms (VR Game Studio)

Bertrand Wolff, co-founder VRNISH (VR LBE directory)

Unfortunately, this continues to be a problem for the industry. As the industry grows and matures, content creators will have more choice as to which VR LBEs they work with, which will help to resolve this dilemma. In addition, larger content distributors such as Steam have launched commercial licenses which make it a lot easier for LBEs to become compliant. Hopefully other larger content distributors, such as Occulus, will follow suit.

PR/Branding

Finally, not unlike hardware/headset manufacturers, VR LBE also offer content creators access to significant numbers of people and visibility. As most game studios and other types of content creators are small in size, they also tend to have limited marketing budgets. VR LBE gives them a **PR/Branding** opportunity that they likely would not have had otherwise.

Tackling the Challenges

Though growing significantly in recent years, VR LBE continues to face several daunting challenges. Some of these challenges are squarely in control of the LBE sector, while others are inextricably linked to VR's overall development. In either case, these challenges must be overcome for VR LBE to become a proven growth catalyst for the overall VR industry.

VR's growing pains are also VR LBE's

One could argue that some of the VR industry's overall challenges could be drivers for VR LBE – i.e. high-price of headsets and other equipment, the isolation of the experience, and limited in-home space. However, several other challenges which are limiting VR's evolution are also directly affecting LBEs growth and stability. Issues such as the lack sufficient of high-quality content and reluctance and fear to try VR amongst some consumers, are two important examples.

Regardless, out-of-home VR still has the natural characteristics that can help the industry address these. For example, VR locations are natural hubs for testing new content or content development. In addition, if locations can't source the right type of content or hardware they need to deliver a particular experience, many are starting to create their own or serve as a distribution platform for content creators. This is evident with larger VR experience locations such as the Void, but this is now extending to fast-growing, smaller VR cafes or arcades such as Eydolon based in France who believe that *"In order to democratize VR, we feel it's our role to connect content developers and end consumers."* **Ian Toullec**, Co-Founder Eydolon.

Although there are still some consumers that are hesitant to try VR, the social nature of out-of-home VR coupled with the presence of trained staff will help many in VR locations get consumers past this initial reluctance.

Not yet enough high quality, easy to source content designed specifically for VR

Content continues to be a concern across the board. Developing VR content that is engaging, tells a great story, and high-quality is a big challenge. In addition, as the VR experience tends to be shorter in length and, as noted, structured around a time-based business model, the content needs to draw the user in almost immediately. Achieving this high-level of quality content can be extremely difficult, particularly given the long development times and high cost common in VR.

Ian Toullec, Founder, Eydolon (VR Arcade) Founder, VR Connection (VR Hub)

There is increasingly more high quality content out there. However, the big issue is locating and deploying it. VRNISH cofounder **Emilie Gobin Mignot** w/ co-founder **Bertrand Wolff** elaborate on this problem:

"The problem isn't that there's not enough content. There's already a lot and of increasingly higher quality. There's platforms like Steam, which have 1800 games of which 100 have commercial licenses available. And, of course, there's also a lot of good content on other platforms and elsewhere. However, VR LBE locations have limited time to search for and filter through all the already 2000+ games out there (and even more videos), test all of them, and, of course, negotiate commercial agreements with each content creator."

"It's a big problem when content isn't good. Everything is about content. We arcade owners should be involved in creating this content. We are our customers' best testbed as to the types of games and experiments that will be a huge success."

Jan Hursti, Founder Pikseli (VR Arcade / Park)

Out-of-home VR – a sector still taking shape

Emerging sectors always go through an initial period of flux, which can feel somewhat chaotic. VR LBE outlets are not only being opened almost daily, but also closing as well. This means that many in the industry are taking somewhat of a wait and see approach before investing time, money, and/or resources in these spaces. Springboard VR's Founder **Brad Scoggin** notes the upside for VR LBE if bigger players start getting more involved *"We need more arcades, but it's the same story as with content. For the most part the big boys haven't entered the market yet; this is going to be a big and important shift"*

The shift may, however, already be underway. As mentioned earlier, IMAX is looking to expand their VR experiences around the world. Top film distributor and cinema operator MK2 actually leapfrogged IMAX in launching a dedicated VR experiential space, Europe's largest, in December 2016. MK2[1] has made VR a top priority straight across their business. In addition to launching more superior, out-of-home VR experiences, they also want to create the best catalog of VR content in the world and offer a full-service offer for brands to create their own VR experiences. The entry of larger players in this space is a positive sign that the out-of-home entertainment industry is also starting to see the opportunities VR can offer.

High barriers to entry to deliver a high-quality experience

While it is probably fairly easy to buy a few headsets, rent a space, and set-up a few 'VR stations or desks', most people across the industry would agree that this is not the experience that VR LBE owners ultimately want to shoot for. Developing an engaging and memorable experience can require substantial investment, including:

- Several trained staff to facilitate the experience and safety
- Sufficient space
- In some situations, customized equipment
- Unique, high-quality content, which VR LBE owners may need to invest in if unavailable
- Regular upgrades to content, equipment, and other aspects of the experience.

[1] Variety, "MK2 Launches International Sales on Director-Driven VR Content", May 2017

"LBE providers are basically in the rental business, looking to provide compelling experiences as fast as possible to as many people as possible at the lowest cost. VR requires space, staff and expensive (often fragile) equipment all of which is expensive."

Brent Bushnell, engineer and CEO/co-founder Two Bit Circus (experiential entertainment)

Brad Scoggin, Owner/CEO, Springboard VR (VR Game Distributor)

"I believe that out-of-home will become the most important part of the VR industry. However, running locations is an old tough business, so I expect to see huge investments, big failures and a lot of disruption in the business.
There may ultimately be fewer players, but instead there will be bigger networks. It's quite obvious to say that out-of-home locations are going to be a very important part of the sector."

Elisha Karmitz, Co-owner and Managing Director at MK2 (Movie Theater Operator and Film Distributor)

Out-of-home entertainment industry expert **Kevin Williams** notes that most VR LBE owners significantly underestimate what's required to deliver a high quality VR LBE experience:
"All of these experiences require a certain level of engagement. (Out-of-home owners) need to focus on hygiene control, monitoring the individual's experience, safety, etc. For example, when you have 4 people in an experience, you almost have the same number of people monitoring them. This is a cost aspect of out-of-home VR that catches a lot of people by surprise."

The industry does seem to be getting up the learning curve quickly on this point. The knowledge and best practices learned by those who launched the earliest VR locations are starting to be transferred across the industry. A good example is **Jip Samhoud**'s The VR Cinema (launched in 2015) who are expanding across 15 countries through a local partnership and distribution platform model. Perhaps the most important benefit they provide these locations is the transfer of knowledge and know how on how to launch and run a quality, engaging VR cinema. They also provide content through their platform so the local owners can focus their energy on delivering their viewers the best experience possible. Ctrl V is also taking a similar expansion approach, with now 30 franchises around the world, who've leveraged their expertise.

Inconsistency on quality of experience

One of the biggest current issues which was highlighted repeatedly during the interviews was the inconsistency across VR LBE in terms of quality of experience. One of the important elements that VR LBE must deliver on is providing an experience that is unique and better than consumers can have at home. This can be particularly problematic if it is a first time experiences as this will shape how they view VR. As there is such a variation in out-of-home VR experiences on offer, the risk of a underwhelming VR experience is even higher. This can, of course, decrease the chance of repeat visits for VR LBEs and be damaging for the sector overall.

This is a challenge that VR LBE owners are increasingly aware of and are identifying ways to improve quality across the board and, as a result, consistency. With 400 locations on their platform, and more joining daily, VRNISH has increasingly high-level of visibility on VR LBE locations around their world and their efforts to improve and ensure quality.

"The most dangerous situation for out-of-home VR is not meeting expectations which, unfortunately, is somewhat of the situation we have now in certain places."

Camille Lopato, Founder DIVERSION Cinema (VR Film Distributor and Experience Creator)

"We speak with many of the larger operators and they are putting in place operating rules and procedures as well as training programs for their staff. As more locations become connected, either through franchises or partnerships, this will help to increase quality as well."

Emilie Gobin Mignot, Cofounder VRNISH (VR LBE Directory)

VR LBE Spotlight: MK2 VR

In December 2016 MK2, leading film distributor and cinema operator, launched mk2 VR, Europe's largest permanent VR facility dedicated to experiencing the best of VR. The spaces showcases the latest VR technologies from Oculus Rift, Sony PlayStation VR, HTC VIVE, MSI and more. Visitors can immerse themselves in a range of VR experiences which draw on content from fiction, documentary, gaming and art.

Photo MK2VR Press Kit 2017

Harnessing the opportunities of VR LBE

Out-of-home VR is posting strong growth, making it an attractive growth opportunity for both those looking to open new VR-dedicated spaces and the VR industry overall. There are, however, a few actions the industry can take to its hasten its growth and solidify its position as a bridge to the VR mass market.

View VR LBE as partners rather than competitors

In-home VR and VR LBE are in many ways complements rather than competitors. For the moment, more innovative, high-quality VR LBE locations are well-positioned to deliver an experience that is not yet feasible at home. When done well, they often have ample space, more resources to provide guidance, and often more experience to deliver superior. social VR experiences. It's preferable that consumers' first experience be a good one, which VR LBE is equipped to provide.
In addition, many of those interviewed expressed that consumers look at out-of-home and in-home VR as different experiences. Ctrl V's Cofounder and CFO **Robert Bruski**, notes that they have some gamers that already have Vives at home, but still come to the arcade to try new multiplayer games which they can play with their friends.

Finally, within the out-of-home entertainment market, there's opportunities for collaboration and the creation of blended experiences; namely, those that draw on the best aspects of what out-of-home entertainment (VR and non-VR) has to offer and reimagines new ones.

> "You might have already been planning to buy a VR headset. This experience pushes you over the edge."

Aldric Chang, Founder and CEO, Mixed Realms (VR Game Studio)

Go east

With Asia-based hardware manufacturers already increasingly dominating the VR headset market, tapping into the Asian consumer market is increasingly looking like the big prize for the VR industry. In China alone, the VR market is exploding with a massive 350%+ jump in headset sales in Q3 last year, fuelled in part by 5,000 VR experience stores and numerous VR cafes and arcades (referred to locally as VR parks) across China. This trend is expected to continue in 2017 with anticipated 400%+ growth[1]. There's similar enthusiasm for VR elsewhere in Asia, particularly in tech forward markets such as South Korea, Taiwan, and Japan. VR LBE not only plays a big role in fueling growth of VR in these markets, but is also, in many ways, a natural fit. Arcades and game centers have continued to be big entertainment destinations in these markets, even as technology has become more entrenched at home via smartphones, mobile games, and gaming consoles. As such, out-of-home locations have rapid popped up across Asia, with more coming from the likes of Bandai Namco who plan to expand their VR Zone across Asia[2], Sega Joyopolis who will soon jump into the VR arcade fray[3] in China 12, Havson Group's plans to expand their recently launched EXA VR Park across SE Asia[4], and, of course, HTC Vive who've opened Viveport as a launchpad for thousands of VR arcades across China and Taiwan[5].

With so many VR cafes and arcades rapidly popping up, there continues to be a varying quality level in terms of experience. As such, there will always be room for innovative, reimagined experiences, even in a crowded market. In addition, VR LBE is very much in the early stages in SE Asia, offering a opportunity to shape the market early on.

[1] IDC Press Release, Report extract: "China's VR market set for 4-fold expansion in 2017 after a wild ride in 2016", January, 2017

[2] VR Focus, "The Virtual Arena: The Virtual Theme Park! (Part 2) - by Kevin Williams", August, 2017

[3] VR Insider News, "Southeast Asia Now Has Its Very First Virtual Reality (VR) Park", June, 2017

[4] Gamecreate, "HTC launches Viveport arcade to open VR Arcades across Asia", January, 2017

[5] MashableAsia, "The first IMAX VR arcade is a huge hit—and I can see why", April, 2017

> "I was really impressed by what I saw in South Korea. Big spaces, numerous units, you could order food at your seat, there were couples playing areas...They already have a lot of business models there that work really well."

Aaron Stanton, Executive Producer QuiVR - Alvios Games (Game Studio and Distributor)

"VR cinema is complimentary with traditional movies. Movies didn't kill the radio, TV didn't kill movies. VR will be the same...I believe that VR will have is place within the entertainment industry. It offers ways to tell stories that fit with other entertainment experiences."

Antoine Cayrol, Founder and Producer Okio Studio (VR Film Studio)

Develop Augmented and Mixed Reality Experiences unique to VR LBE

Augmented Reality (AR) has made the leap to the mass market much more quickly than many anticipated. Pokemon Go! lit a spark that has created AR fans around the globe. The tech giants are equally enthusiastic, anticipating that AR will be the next big disruptive technology. Apple's launch of augmented reality platform for developers ARKit, Google's roll-out of its own augmented reality platform ARCore, and Facebook's new Camera Effects platform, will further integrate AR into consumers' lives. The success of mixed reality (MR), which goes a step beyond AR by enabling physical and virtual objects to interact in real time, is likely a little farther off. But that hasn't stopped Microsoft from aiming to be 'the leader in mixed reality' with its HoloLens.

What does this mean for VR LBE? The biggest upside for VR LBE is that consumer awareness of and comfort with non-physical reality experiences will grow substantially in the coming years. As AR and MR can be delivered via either smartphones or, eventually, more streamlined wearable devices, adoption should be much quicker. Another big plus is that, the big tech leaders' commitment will also encourage developers, game studios, and others to develop a host of new applications and services around AR and MR. This should result in a big jump in the volume and quality of content available. All of this translates to a big potential opportunity for VR LBE.

However, the dilemma for VR LBE is that with AR experiences easily accessible via iPhone or Android phones and MR via streamlined glasses, it may be a lot harder to create awe-inspiring, location-based experiences around AR and MR. The opportunity here could be for VR LBE to, instead, transform their spaces into blended reality experience centers, where visitors can engage in new immersive experiences and also create and test their own. In addition, VR LBE can also leverage AR and MR to explore innovative, new ways of enticing consumers to their locations and encouraging past visitors to return.

"If people are using it in a professional setting, it will cross over to usage in personal as well. We'll see many more use cases becoming reality – marketing, HR, manufacturing, etc. going forward."

Laurent Chretien, General Director of Laval Virtual (Leading VR and AR conference and tradeshow)

Reinforce quality of VR LBE game content, reimagine the game experience

As Laurent Chretien, General Director of Laval Virtual notes
"Gaming is an essential subject. Like in almost all technology sectors, gaming is the biggest driver".
VR LBE's development is largely being fueled by gaming experiences, with VR arcades being on of the sector's biggest growth areas. As with other digital technology, this is a critical first step in the evolution of the sector. VR is a transformative technology and needs content that's not just high quality, but also delivers a reimagined game experience. As VR LBE can marry great content and customized, premium gaming equipment, it's better positioned to deliver on this aspect. Ultimately, it is unlikely that out-of-home VR will continue its impressive growth without gaming experiences that are markedly better than what's possible in-home.
Another reason that gaming is critical to get right early on is that it is often technology's first step into other forms of content and medium. Many of the learnings in out-of-home VR gaming can be extended to other formats such as events, exhibits, and, even, film. Out-of-home VR can offer blended experiences, incorporating various types of content and experiences. It has the potential to play a big role as an incubator for these new experiences.

Find new, better use cases for VR and look to VR LBE to develop and deliver them

As gaming is often the first step in evolution of technology and digital content, the next step is finding those 'killer apps' that offer opportunities to incorporate VR into consumers' daily lives. VR LBE can play a pivotal role in helping these new use cases develop.
One big area that is already quickly gaining momentum is enterprise VR. The B-to-B portion of the market is expected to grow to $9.2 billion in 2021, equaling a compound annual growth rate of 59.6%[1].
Sectors like architecture, construction, real estate, education, marketing, medical therapy and, or course, training, all offer compelling use cases for VR. With sizeable resources, multiple potential users, and, often, limited space to create dedicated VR zones (equipped with VR hardware and other required resources), the enterprise segment is an extremely attractive one for VR LBE.
The B-to-B-to-C opportunity is yet another interesting one for the industry. As brands look to new technologies such as VR to create more engaging ways to attract consumers, VR LBE can be an important partner in this effort. Some players, such as MK2, are already developing innovative experiences in their VR center for brands to engage with consumers. These collaborations not only draw consumers to brands, but they also deliver the added benefit of bringing new users to VR. As more compelling and innovative VR LBE locations are launched, brands will ultimately see the value that these spaces can deliver.

[1]Tractica Report Excerpt, "Virtual Reality for Enterprise and Industrial Markets", 2017

Conclusion

VR has had many stops and starts since its inception, but from early this decade, the enthusiasm around VR and the industry's progress has been impressive. We've seen strong increases in consumer awareness of and interest in VR, increases in quality content, and better and more accessible VR technology. However, the bullish projections for VR in recent years appear to have been off the mark. In-home sales have been steadily growing, but not at the rate anticipated. VR needs a game-changer. Something that can be the bridge the sector sorely needs to the mass market. VR LBE is best suited to play that role.

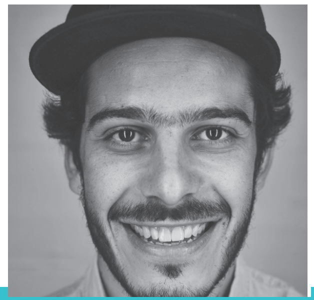
Numerous VR LBE locations are already springing up around the world, delivering new, imaginative VR experiences and bringing countless first-time users to VR. It's clear that VR LBE delivers many points of value to sector, including guiding new users through their first VR experience, helping headset manfacturers better connect with consumers, and offering content creators new streams of revenue and valuable opportunities to receive direct feedback from users. However, for VR LBE to be the catalyst the industry needs, it will need to tackle a range of challenges. From making the consistency and quality of experience more uniform across the sector to putting place better training and operational standards, VR LBE will need prepare itself to invest more time and resources to addressing certain issues. However, the awareness across the sector of these challenges is high and efforts are actively underway to address them.

The path forward for VR LBE lies in the many opportunities on the horizon for the sector. New use cases for VR, B-to-B, reimagined 'wow' experiences, AR and MR, deeper partnerships -- all of these offer exciting growth opportunities for VR LBE and, as a consequence, the entire industry.

Introducing the VR Industry Leaders who shaped this White paper

The Architects

(VR LBE operators, entrepreneurs)



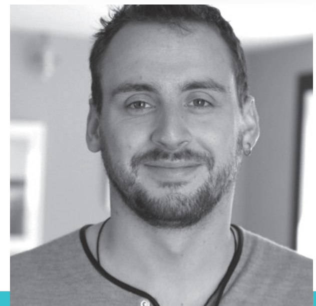
Who: Elisha Karmitz

Role: CoOwner and Managing Director MK2 (Movie Theater Operator and Film Distributor)

Based in: France

Who: Robert Bruski

Role:
CFO and Co-founder, Ctrl V (VR Arcade)
Based in: Canada



Who: Ian Toullec

Role:
Founder, Eydolon (VR Arcade)
Founder, VR Connection (VR Hub)

Based in: France

Who: Kim Jeong-ho

Role:
Team Manager of Channel Business Team, YJM Games (VR Cafe)

Based in: S Korea

Who: Jan Hursti

Role:
Founder, Pikseli (VR Arcade / Park)

Based in: Finland

Who: Jip Samhoud

Role:
Founder, The VRCinema (VR Cinema)
Founder, SamhoudMedia (VR content distributor & AR/VR agency)

Based in: The Netherlands

Who: Camille Lopato

Role:
Founder, DIVERSIONCinema (VR Film Distributor)

Based in: France

Who: Brent Bushnell

Role:
CEO, Two Bit Circus
Chairman, Two Bit Circus Foundation

Based in: US

Introducing the VR Industry Leaders who shaped this White paper

The Creatives

(VR Content Creators -- videogames, films, etc.)

Who: Anton Zaitsev

Role: Creative Director, Avatarico (VR Game Studio, VR LBE content licensor)

Based in: Russia

Who: Aaron Stanton

Role: Executive Producer, QuiVR – Alvios Games (Studio and Game Distributor)

Based in: US

Who: Chia Chin Lee

Role: Co-founder, CEO Big Box VR (VR Game Studio)

Based in: US

Who: Antoine Cayrol

Role: Founder and Producer Okio Studio (VR Film Studio)

Based in: France

Who: Cindy Mallory

Role: CMO, Dream Sail Games (VR Game Studio)

Based in: US

Who: Brad Scoggin

Role: Owner/CEO, Springboard VR (VR Game Distributor)

Based in: US

Who: Hadrien Lanvin

Role: CEO Innerspace (VR Content Creation Studio)

Based in: France

Who: Aldric Chang

Role: Founder, CEO Mixed Realms (VR Game Studio)

Based in: Singapore

Introducing the VR Industry Leaders who shaped this White paper

The Builders
(VR Headset / Hardware Manufacturers)

Who: Rikard Steiber

Role:
President Viveport and SVP Virtual Reality, HTC Vive (VR headset)

Based in: US

Who: Dominic Eskofier

Role:
Head of Virtual Reality EMEAI NVIDIA (GPU designer for gaming and professional markets)

Based in: Germany

Who: Bachir Zeroual

Role:
Head of VR Marketing, Samsung (VR Headset, Electronics Manufacturer)

Based in: US

The Evangelists
(Thought leaders, VR Experts)

Who: Christopher Lafayette

Based in: US

Who: Alan Smithson

Role: Cofounder and CEO, MetaVRse(VR/AR Consultancy)

Based in: Canada

Who: Laurent Chretien

Role:
General Director of Laval Virtual (Leading VR and AR conference and tradeshow)

Based in: France

Who: Kevin Williams

Role: Founder/ Owner KWP Limited (Out-of-Home interactive entertainment consultancy), Author/Publisher The Redemption Report

Based in: UK

Who: Emilie Gobin Mignot

Role: Cofounder VRNISH (VR LBE directory and platform)

Based in: France

Who: Bertrand Wolff

Role: Cofounder VRNISH (VR LBE directory and platform)

Based in: France

smartVR© store

THE CONTENT CATALOGUE DEDICATED TO VR ARCADES

A STORE WITH ALL THE EXPERIENCES YOU NEED

Dozens of experiences available, some of them exclusive, specially selected to meet the needs of arcades and satisfy their customers. A library updated regularly with new content.

A FIXED PRICE, AHEAD OF THE COMPETITION

Even if the number of experiences available on the smartVR store is always increasing, the price remains fixed. A competitive and advantageous plan compared to other VR distribution platforms.

A SIMPLE AND INTUITIVE INTERFACE

An easy-to-use interface that will allow you to install and uninstall the games available on the store as you wish, access the game documentations, communicate with the developers, manage your invoices and licenses and many more.

https://store.smartvr-studio.com/

The **Laval Virtual Center** draws on 20 years of experience and expertise in virtual reality, augmented reality and other convergent technologies to support you. A methodology, expert competences and state-of-the-art equipement are provided to accelerate your projects.
Thursday 5 October 2017, Laval Virtual will inaugurate this new Innovation Center with the setting-up of workshops and conferences to make you discover the new services such as the technological and sectorial watch, the creative sessions on the uses of the new realities, the comparative tests of the test bench, the global or specific advanced training and the technological development accelerator.

Annex

Who's shaping the VR sector?

The structure of the VR market has become much clearer over time and includes various players. Each one plays a critical role in the VR ecosystem (please put in a figure format):

I Hardware/headset manufacturers

• Following launch and acquisition of Oculus, most new VR hardware is being developed by the 'big guys', such as Sony, HTC, Samsung, Google, and Facebook

II Content Producers/Distributors

• Independent and large content developers: i.e. games, corporate training, films, educational content, etc.

• Game and other content distributors: game platforms, portals, broadcasters, film distributors, etc.

III VR Software / Infrastructure Developers

• Various platforms and firms: i.e. Nvidia, Unity, Bricks & Goggles, software from headset manufacturers, etc.

IV Thought leaders / other innovators

• VR focused and general tech media, evangelists, researchers and academics, etc. help drive awareness and innovation

V Location-based Entertainment VR

• Newest entrants in the ecosystem

• Game rooms/VR arcades, VR cafes, VR cinemas, VR attractions at established locations (i.e. amusement parks)

• Global trend: very present in Asia (e.g. Taiwan and China), Canada, US, Europe, and, increasingly, the Middle East

Annex

The Emerging VR User

The interest of many internet users has been peaked by VR, with 4 out of 10 now expressing an interest in using VR technology in the future. However, like many new technologies, this interest skews younger and varies greatly according to demographics. 16-24 and 25-34 year-olds (Generation Z and Millennials respectively), men, and higher income individuals express the strongest interest in VR[12].

Aldric Chang, Founder and CEO of Mixed Realms, describes how their users mirror these findings and describes what they're looking for:

"Our current customer's a hardcore gamer type. It's not your average Joe who buys VR content right now. They're looking for a futuristic experience and want edgy content. They want to feel different, different (from what they feel with) a normal PC game. They want to feel powerful and immerse themselves"

Interestingly, internet users in Asia Pacific, Latin America, and MEA's post a significantly higher interest level than that of the US and Europe. This implies that in contrast to other tech sectors, the key players in the VR sector may want to look beyond the US much earlier than they have in the past.

Unsurprisingly, a strong indicator of interest and future use of VR[1], is which technologies users are already using, with smartwatch owners and console gamers being the most enthusiastic about VR.

[1] Globalwebindex, "Are Consumers Ready for Virtual Reality?", August 2016