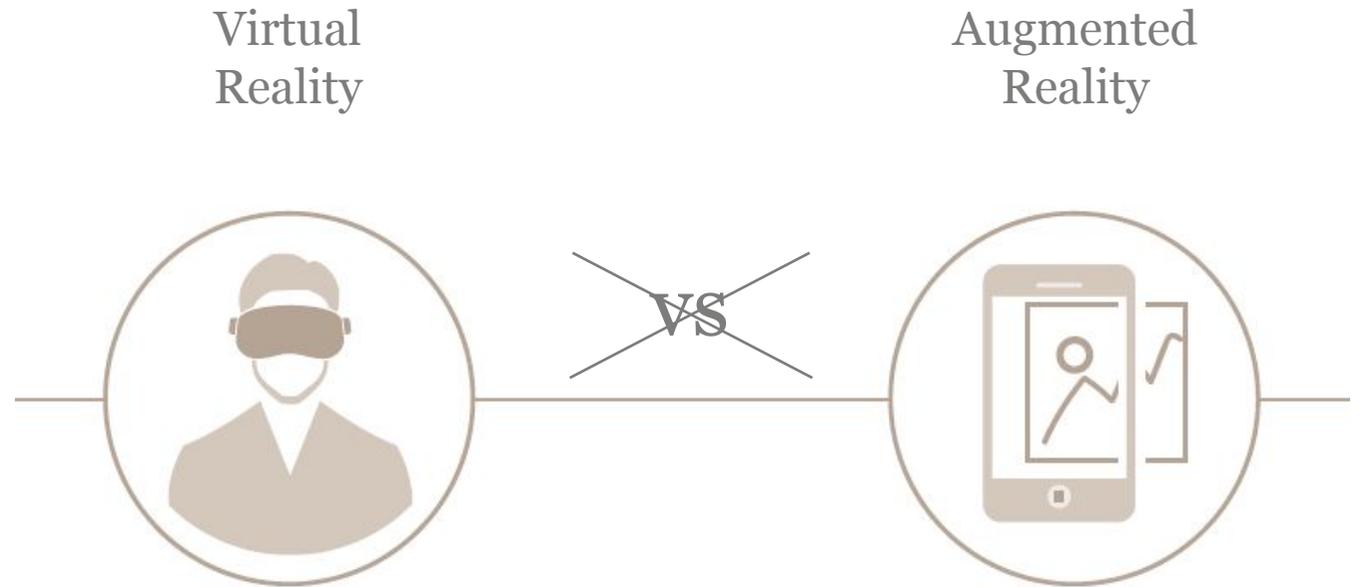


# VR/AR Trends and Developments in entertainment and media (E&M) Challenges and trends for virtual reality



# VR vs AR

There is no war



There is sometimes a desire to pit virtual reality against augmented reality with claims that AR will have a higher share of revenue than VR. While this may be true, the two related technologies are not in competition. They each have a distinct set of use cases which intersect only for a limited selection of these.

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# VR/AR technology has applications *across all industries*

## Training



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Save on time and costs and create more effective learning by performing training in a virtual environment.

## Design



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Create a more efficient design process that reduces the need to produce physical models by collaborating in VR/AR.

## Entertainment and media



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Take advantage of the next generation medium through the immersion of VR and the excitement of AR-enhanced real world experiences.

## Smart information



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Analyse and present data in a more powerful way by overlaying it in context with the real world environment.

## Telepresence

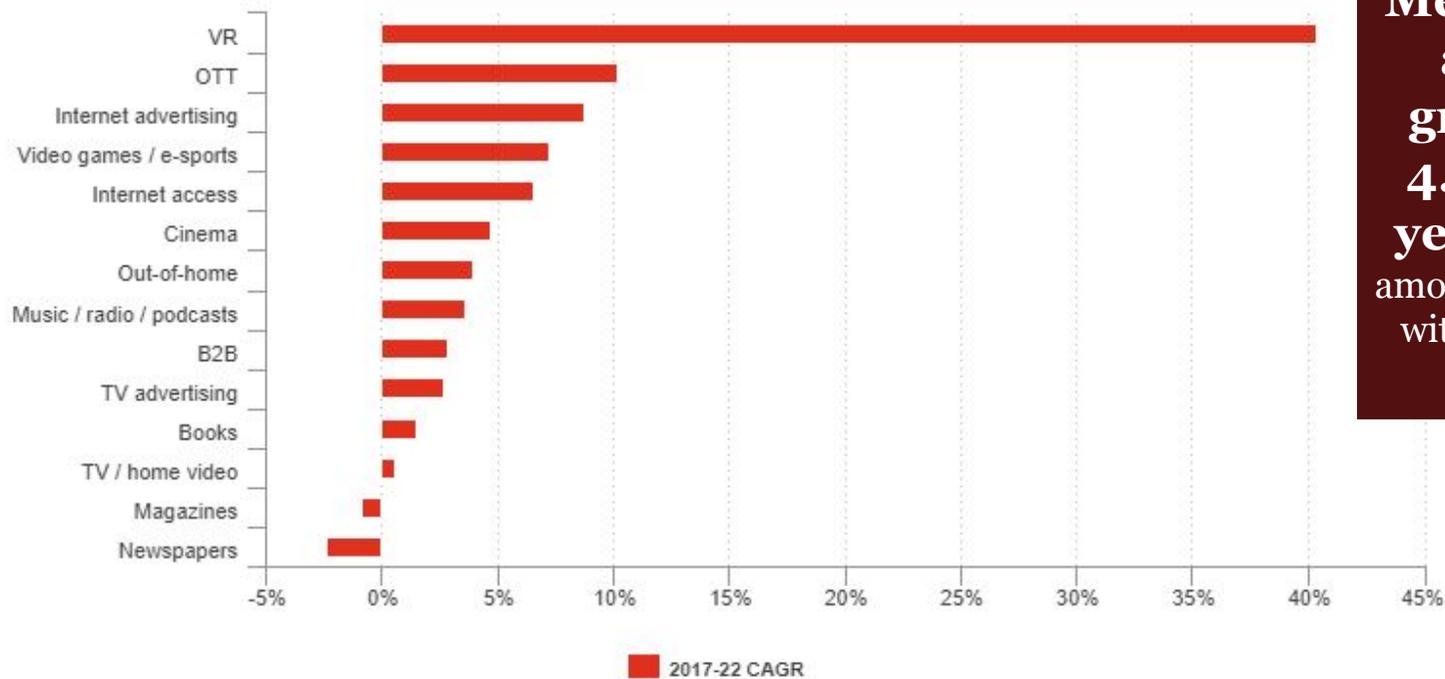


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Reduce expense on travel and maintain the effectiveness of in-person visits and activities by conducting meetings and site reviews virtually.

# Virtual reality holds significant potential for Entertainment and Media

Segment compound annual growth rate (CAGR) for next 5 years



Source: PwC Global Entertainment & Media Outlook: 2018–2022. PwC, Ovum

**Total spending in Entertainment and Media (E&M) will rise at a compound annual growth rate (CAGR) of 4.4% over the next five years, but with sharp differences among industry segments and sectors within them and across territories.**

**The fastest growth will be in digitally driven segments, with virtual reality leading the way, followed by over-the-top content (OTT).**

# Virtual reality content revenue will come mainly from video and gaming

By 2022

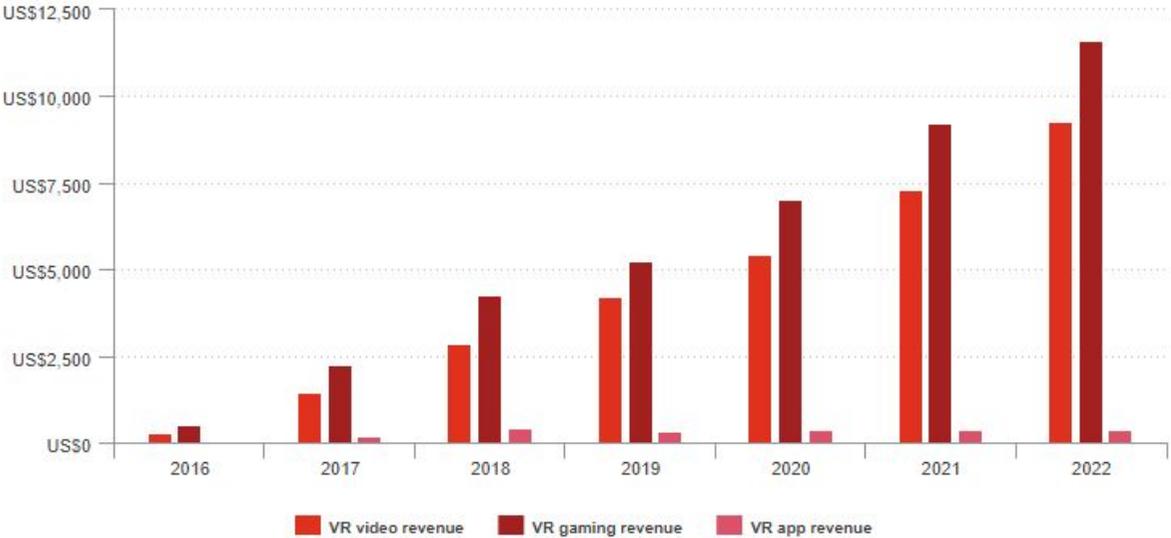
# 175.2m

VR headsets will be in consumers' hands in the ten markets covered\*, up from an estimated 37.6m at the end of 2017

\*The ten markets covered in this analysis are: Brazil, Canada, China, France, Germany, Japan, South Korea, Sweden, UK and USA

### Gaming revenue remains ahead of video revenue

Total VR revenue by category, 2016-2022 (US\$mn)



Source: PwC Global Entertainment & Media Outlook: 2018-2022. PwC, Ovum

As VR is now in a long-term growth phase, many firms are diversifying beyond the dominating content categories of gaming and video to find new opportunities, especially in **enterprise VR apps** or **venue-based** VR experiences.

Cumulatively, content will generate

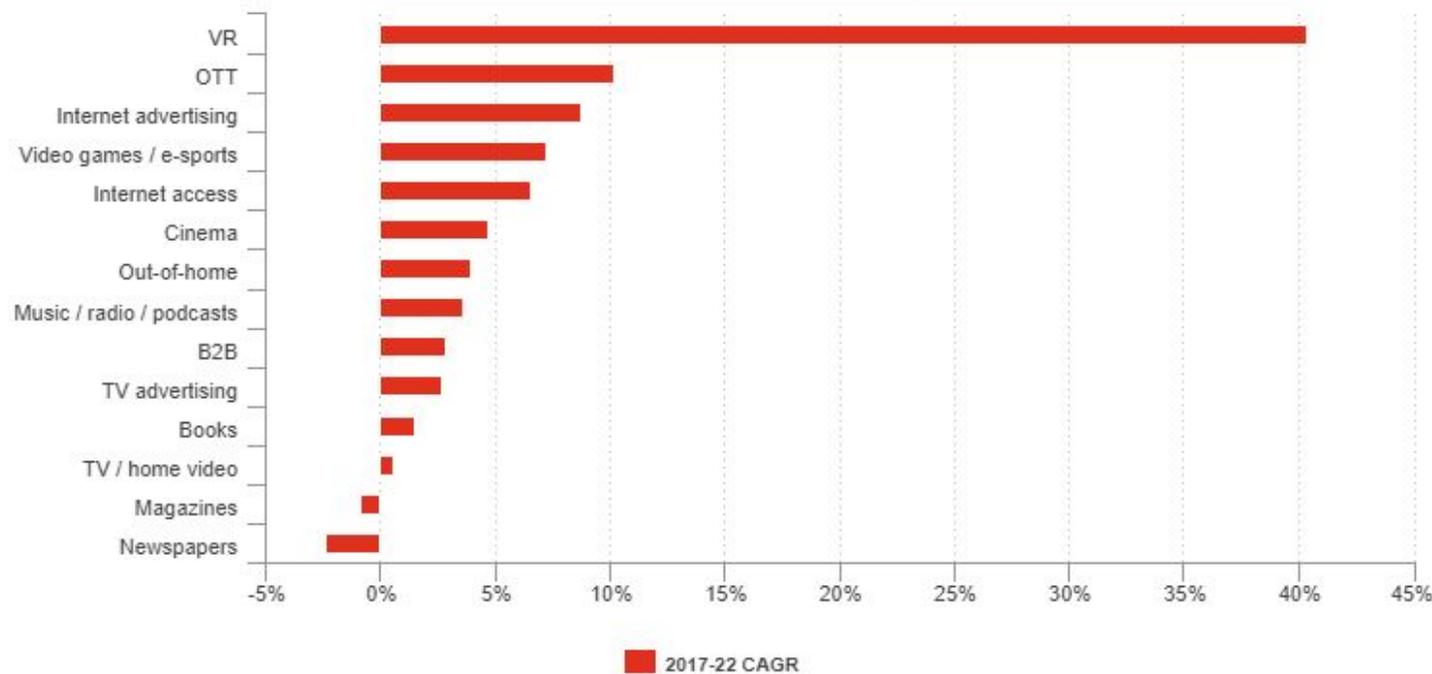
# US\$21.2bn

a year by 2022, with gaming revenue staying ahead of that of video

# *E-sports and virtual reality represent a powerful combination*

E-sports represents a professional subsector within the video games industry in which video game players compete against each other, usually in pursuit of monetary prizes. These tournaments and matches are often broadcast through online channels.

*Segment compound annual growth rate (CAGR) for next 5 years*



Source: PwC Global Entertainment & Media Outlook: 2018–2022. PwC. Ovum

E-sports will grow the fastest, from US\$620m in 2017 to US\$1.6bn by 2022 at a CAGR of 20.6%.

Mobile games are emerging as an important e-sports vehicle, while the “battle royale” format is also quickly gaining traction.

Large E&M companies, advertisers and sponsors are taking a strong interest in e-sports, focusing on monetisation.

As VR and e-sports mature, audiences could find exciting new forms of sport to explore that combine both the physical and digital worlds.

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# *Challenges to mainstream adoption of VR technology*

*There are four main areas slowing down the mainstream adoption of VR technology. All of these are surmountable and are currently being tackled.*

## *User experience*

Setting up and running high-end virtual reality headsets is not a process consumers are used to. Additionally, the hardware is cumbersome in comparison to most mainstream consumer technologies.

## *Cost*

The total cost to the consumer of a premium VR experience comes mostly from the cost to purchase a high-end headset.

## *Content*

There is not enough quality content for consumers to justify the purchase of VR headsets.

## *Education*

The majority of the population does not truly understand the potential of VR technology due to a lack of firsthand experience with it.



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*Standalone headsets offer a cost effective solution for consumers with a more streamlined user experience*

**Standalone headsets** are self-contained units that do not require any connection to external phones or computers





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*VR out of home entertainment offers consumers premium VR experiences at an affordable cost*

**VR out of home entertainment** can take the form of enhanced attractions, traditional arcades or singular experiences allowing multiple users to have fun together





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*Volumetric video technology could help create more immersive and engaging VR content*

**Volumetric video** represents a midpoint between 360 degree and computer generated experiences, effectively adding depth to 360 media





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*The broadcasting of sport in virtual reality provides consumers with exciting and engaging content*

**Broadcasting sport in virtual reality** is already happening but the potential will only be fully realised once the VR market matures

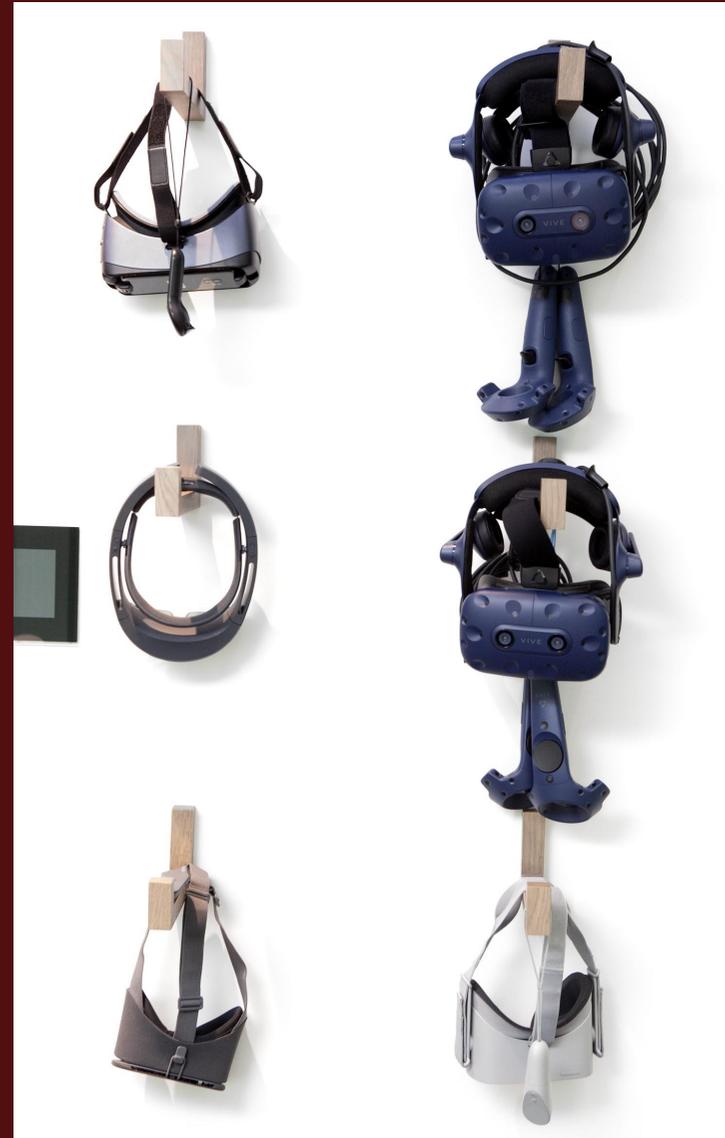




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## *Standardisation will encourage more development of virtual reality content*

**Standards**  
for virtual reality are currently being developed through initiatives like OpenXR which will help lower the development cost of VR content across multiple devices



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# Thank you



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