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What consumers expect from 5G entertainment

Shaping new experiences in video streaming, immersive media, and eSports

IBM **Institute for Business Value**

IBM

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Talking points

Consumers are excited about the new 5G technology

The most important 5G benefit to consumers is improving mobile video streaming quality, eventually moving to ultra-high-definition (UHD) format as it becomes available.

Immersive media is capturing significant consumer interest

Consumer enthusiasm for immersive media—deeply engaging, multisensory, digital experiences—is on the rise. These enhanced experiences are made possible by evolving technologies such as virtual reality (VR), augmented reality (AR), and 360-degree video.

eSports is emerging as a main genre of entertainment

eSports is gaining popularity, attracting both viewers and players across the globe and becoming a serious rival to broadcast and traditional sports.

The direct-to-consumer relationship

For the past decade, the media and entertainment (M&E) industry has been in the midst of continuous disruption. Internet technologies have resulted in a proliferation of streaming video platforms, offering consumers an alternative to broadcast and cable TV and posing a major threat to those traditional industries. And with the new fifth-generation wireless network technology—5G—around the corner, the industry is poised for another cycle of innovation. New players could shake up the status quo as they compete for consumer time, attention, and wallets.

With consumers dropping cable and satellite TV packages faster than expected, traditional broadcasters and cable companies are experiencing difficult times. In the US, for instance, the pay TV industry is seeing a five percent decline in subscribers, resulting in more than a third of US households not having a traditional TV subscription at all. The number of streaming subscribers is actually surpassing the number of traditional pay TV subscribers.[1] This cord-cutting isn't just restricted to the US, it is also spreading across Europe and elsewhere.[2] In addition, the group of "cord-nevers" is growing as well. These are people who never used commercial cable for television service, and instead relied on internet sources from the start.[3]

The current wave of internet-streamed content disruption has radically changed customer behavior. It has empowered consumers to pull the content they want from whatever source they want, consume it when and where it suits them, and use the device of their choice. Moreover, consumers can now choose from an abundance of content. This makes it more critical for media companies to gather and analyze data about viewer wants, needs, and favorites—and offer the content the audiences crave.

57%

of surveyed consumers are excited about ultra-high-definition (UHD) video streaming over 5G

55%

of surveyed consumers are enthusiastic about music and concerts that include augmented reality (AR) experiences

49%

of eSports enthusiasts would switch to a 5G network once it's available, even if not currently eligible for a phone upgrade

The importance of unique content

Original and local content is in demand today, and streaming platforms such as Netflix, Amazon, and YouTube are tailoring their content strategies accordingly. For instance, in 2018, Netflix spent USD 12 billion to create original and international content, much of it non-English and originating outside the US and Canada.[4] And Apple, with its streaming service Apple TV Plus, offers an impressive slate of upcoming original projects, ranging from animated musical comedies to paranormal thrillers.[5]

Consumers can view this original content at their convenience, literally on demand. Sports, however, has remained a popular genre of content for consumers to watch live and therefore has been a strong asset of traditional TV. While years ago, sports streaming on digital and social media was difficult to imagine, now the streaming platforms have invaded this area as well, using their deep pockets to compete against traditional TV. For example, in 2017, Amazon paid the US National Football League (NFL) USD 50 million for 10 Thursday night football games.[6] Amazon also signed a deal with the UK's Premier League to stream 20 soccer matches.[7] And in 2018, Facebook reached a deal with US Major League Baseball for exclusive rights to stream 25 afternoon games.[8]

Streaming platforms' development of original, exclusive content is also driven by their desire to become more self-sufficient. After all, major media companies such as Disney are pulling back from licensing deals and launching their own services. Disney is betting big on its streaming venture to deliver Disney content, as well as the entertainment it acquired through its USD 71 billion deal with 21st Century Fox.[9] As well, the combined Comcast/ NBCUniversal and Sky organization pulled its own content from Amazon and Netflix to push it to Now TV, Sky's streaming service. Movie studios clearly want to be involved in the distribution and sale of their content to consumers.

Today's consumers are abandoning legacy media for digital, streaming, and mobile.

Game on: The battle for direct-to-consumer relationships

Netflix and the like have demonstrated the incredible advantage of owning the relationship between customer and content. They have built proprietary pipelines to stream content to devices including internet-enabled TVs, smartphones, tablets, and laptops, and monetize content directly from their audience.

Subscription streaming services are all the rage now. Cable companies and television networks are focused on having their own streaming and Video-on-Demand (VoD) platforms, such as CBS All Access and BBC iPlayer. And telecom operators are now engaging in the battle as well. AT&T's WarnerMedia streaming platform, for instance, will comprise a mix of movies and original content, and leverage its customer relationships. Finally, new short-form entertainment services such as TikTok and Quibi are further diverting the audience's attention.[10]

The emergence of 5G networks is set to unleash another wave of innovation, new players, and potentially disruption on the existing value chain as video consumption grows more mobile. 5G networks promise much faster speeds, more reliable connections, and lower latencies. This results in better quality video on mobile devices and far more immersive experiences with virtual reality (VR) and augmented reality (AR), among other benefits. It will also drive the changing sports technology ecosystem and the ever-growing appetite for sports consumption. "eSports," which refers to the world of competitive organized video games that are treated as a professional sport, is slated to become a legitimate competitor to traditional sports.

The battle is reshaping the industry landscape. New players are entering and existing players are no longer satisfied with performing business-as-usual roles. This evolving landscape offers consumers an abundance of choices, and it's too early to declare the winners. But the victors are expected to be those that track, measure, and improve consumer engagement; understand and address preferences; and give consumers the content they want whenever they want it on a wide range of devices.

Streaming goes mainstream: Mobile, nonlinear, and on demand

To understand the M&E services and experiences consumers crave, and to get their opinions on new emerging technologies, we conducted the IBM Institute for Business Value (IBV) 2019 Global Telecom and Media Consumer Survey. We surveyed nearly 12,500 consumers in 21 countries. These countries represent 62 percent of the global population and 77 percent of global GDP (for more details, see "Methodology" on page 21).

Thanks to the boom of mobile apps, the mobile device has become the preferred choice of consumers to access the internet. And for 88 percent of the respondents, the smartphone will remain their most favored device for online activities over the next two to three years, far ahead of the laptop (62 percent) and the tablet (38 percent).

Even now, many smartphone users spend more than three hours per day accessing the internet. This includes 28 percent of Canadians to over 70 percent of respondents in Brazil, Kenya, and Nigeria. Forty percent of respondents—and even about half in China, South Korea, and Indonesia—indicated watching video is a main activity on their mobile devices. Indeed, today's consumers have drastically changed how they access the internet and consume content. They're massively abandoning legacy media for digital, streaming, and mobile.

Standing apart through higher quality streaming

The quality of streaming video on a mobile device largely depends on the performance of the network, whether it is consumers' home Wi-Fi networks or their provider's cellular network. It's one of the main criteria influencing consumer satisfaction with provider networks, with three out of four respondents saying that video streaming quality is important for them. Sixty-eight percent of respondents say they would switch to another provider for a better-quality video experience.

In the new sports experience, no viewer question should go unanswered.

But streaming mobile video still presents many frustrations, in particular with load times, rebuffering, playback, picture quality, and synchronization. Fifty-three percent of respondents—and up to 65 percent of respondents in India—indicated they experience these kinds of problems regularly or often. Interestingly, almost twice as many Indian respondents as those in other countries are much more willing to accept degraded quality of streaming video if they can pay less.

The insatiable appetite for sports content

Forty-seven percent of respondents selected sports as one of the most watched genres of content. This ever-growing appetite is driven by the changing sports ecosystem (including the emergence of eSports), and new technologies such as immersive video and artificial intelligence (AI).

With AI and machine learning, sports broadcasts can be analyzed in real time, identifying each player and generating customized highlights for every athlete, team, and action. In the new sports experience, no viewer request or question would go unanswered. (See case study "Wimbledon highlights produced by AI.") This stimulates fan engagement and interaction. Indeed, 57 percent of respondents indicate they would like to regularly receive personalized highlights of their favorite teams and players. For key sports events such as the Masters Golf Tournament and the Tour de France, they want the content that matters to them—nothing more and nothing less.

But respondents also state they are increasingly interested in watching less popular, niche sports and smaller tournaments. Fifty-four percent of the respondents report they would like to watch specific sports that are generally not broadcast on public or pay TV.

Wimbledon highlights produced by AI[11]

For many years, Wimbledon has deployed groundbreaking technology to offer both courtside spectators and television viewers an exemplary experience. In 2019, Wimbledon used more AI than ever before, in particular to capture the best highlights from multiple matches simultaneously. The coverage of the matches resulted in hundreds of hours of footage. This would normally take editors a huge amount of time to distill as highlights.

But Wimbledon used Watson AI technology to spot particularly exciting moments. Using Watson Open Scale, the system can now recognize excitement and noise levels of various players. This allows it to remove bias when searching for highlights from players with a vocal following or those who are especially animated on court. Watson AI also deployed visual recognition technology to capture players' reactions and analyzed crowd noise using Watson acoustics, generating highlight packages lasting around two and a half minutes each.

In addition, fans could keep up with point-by-point action in real time online, as well as receive alerts and in-depth information about their favorite players.

The VoD advantage

With VoD and internet streaming, consumers are no longer constrained to the linear programming of traditional TV. They have many more options for watching every conceivable niche sport at any convenient time. And this is true for other types of content as well—a main reason subscription VoD has experienced tremendous growth in recent years and is poised to eclipse traditional broadcasters and cable companies in viewership and content quality.

The percentage of respondents who indicated they have completely replaced or might eventually completely replace traditional TV services with VoD offers varies across countries—from 20 percent in Japan to 55 percent in China and 66 percent in India. On average, 31 percent are not sure yet (see Figure 1).

Consumers are increasingly demanding new and wider ranges of digital content. Thirty-nine percent of respondents say the variation in and freshness of content on these VoD and streaming platforms leaves room for improvement.

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Figure 1

Cutting the cord: Respondents who have chosen or may choose to completely replace traditional TV with VoD

Legend: ■ (Might have) completely replaced   ■ Not sure   ■ Might/Will not have completely replaced
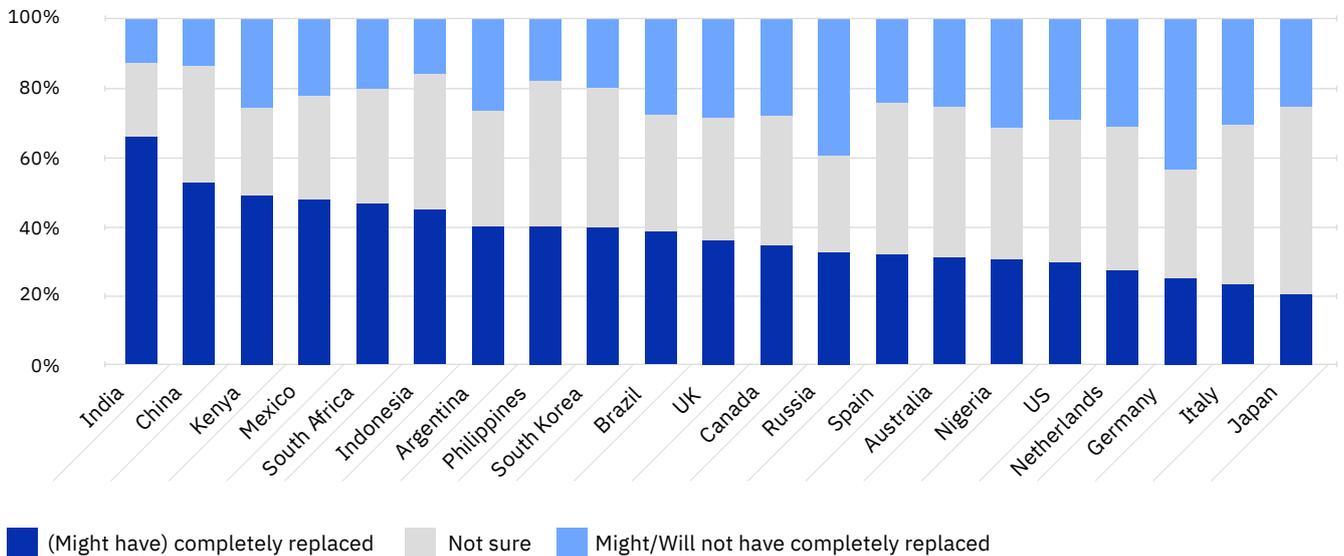
Q. Please indicate the extent to which you agree/disagree with this statement: "I have—or will have eventually—traditional TV services completely replaced by VoD offers."

Improving content recommendations through AI

Forty percent of respondents report they don't always find it easy to locate the content they are most interested in and that recommendations can be inadequate. Indeed, with so much content distributed across so many alternatives, consumers need new innovations to help them find compelling content.

AI and machine learning technologies can be used to analyze viewing patterns from multiple perspectives and incorporate personalized recommendations into consumers' digital interactions. Almost two-thirds (66 percent) of respondents stated they would value and use an AI-powered digital assistant. Such an assistant could help them to visualize and navigate their accessible content and provide recommendations—all in a single view.

Emerging technologies such as 5G, video streaming, immersive media, and new genres of entertainment such as eSports will play a key role in the future of M&E. The winners in the industry are expected to be those that use data-centric strategies to understand their audiences, extract the insights that create value for them, and use the emerging technologies to realize that value.

What consumers really want: High quality streaming over 5G

The shift toward streaming and on demand video is undeniable. In particular, the shift to mobile video is accelerating. According to Cisco, mobile video will increase ninefold between 2017 and 2022, accounting for 79 percent of total mobile data traffic by the end of the forecast period.[12] The rise in the number of mobile devices used to watch streamed content has contributed to rapidly increased viewing time. And the amount of embedded video in social media and the evolution toward higher resolution are further increasing pressure on current networks, and degrading video experiences as a result.

Indeed, as noted earlier, most respondents say they regularly suffer from video streaming problems. Video load times are sluggish, midstream stops and stutters are common to varying degrees, and connections often have trouble coping with higher-resolution formats. The previous mobile network transition from 3G to 4G offered significant improvements in video viewing but is not keeping pace with the rapacious consumer appetite for higher-resolution video content.

On their radar: Consumer awareness of 5G

5G offers more than just incremental enhancements over 4G. It promises, among other things, data speeds as much as 100 times faster than 4G, 50 times lower latency (detectible delays), 100 times more network capacity, and significantly more reliable connections.[13] It enables the downloading of a movie to a smartphone within seconds versus many minutes with 4G. For streaming video, the biggest 5G win isn't just the much higher throughput speed. It's the extremely low latency that vastly reduces stalling and buffering, and helps enable organizations to deliver higher resolution livestreaming.

Almost two-thirds (64 percent) of our respondents report awareness of 5G as a follow up to 4G/LTE. This ranges from having some idea about 5G to being very familiar with it. Perhaps surprisingly, respondents in emerging countries are more familiar with 5G than in mature countries, with the highest 5G awareness in China (82 percent). Once educated as to what 5G brings to the table, 81 percent of respondents in emerging countries and 49 percent in mature countries say they are very excited about the technology.
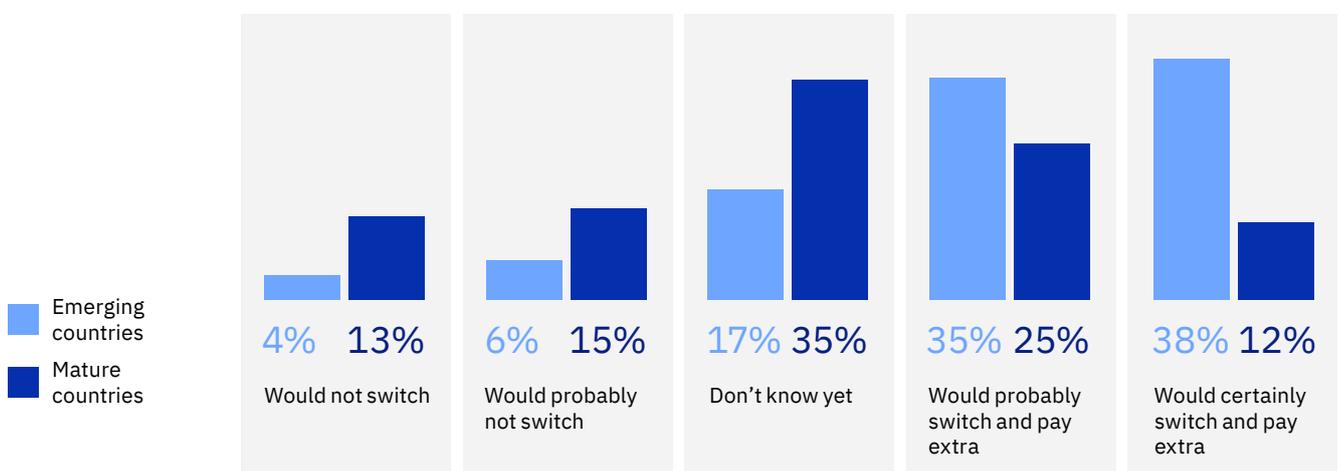
And 73 percent of respondents in emerging countries state they would probably or certainly opt for 5G when available and pay extra, if it results in a superior quality video experience (see Figure 2). A better mobile connection is very important for people in emerging countries because of their insufficient fixed-line broadband connectivity.

Still, there is a long way to go before 5G is widely available. Nobody really knows when it will hit a tipping point in terms of adoption. Early 5G deployments are underway, albeit in a small number of markets. 5G has become available on a moderate scale in countries such as South Korea, the US, and the UK. But the selection of 5G phones is still very limited. Though operators are just getting started, 5G rollouts are due to accelerate in the coming years, with the Global System for Mobile Communications Association (GSMA) expecting 5G connections to reach 1.4 billion in the year 2025.[14]

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Figure 2

Consumers in emerging countries are open to 5G if it results in superior quality video streaming

Emerging countries
Mature countries

| 4% 13% | 6% 15% | 17% 35% | 35% 25% | 38% 12% |
| Would not switch | Would probably not switch | Don't know yet | Would probably switch and pay extra | Would certainly switch and pay extra |

Q. Please indicate the extent to which you agree/disagree with the following statement: "I would switch to 5G—and pay extra—if it results in a superior quality video experience."
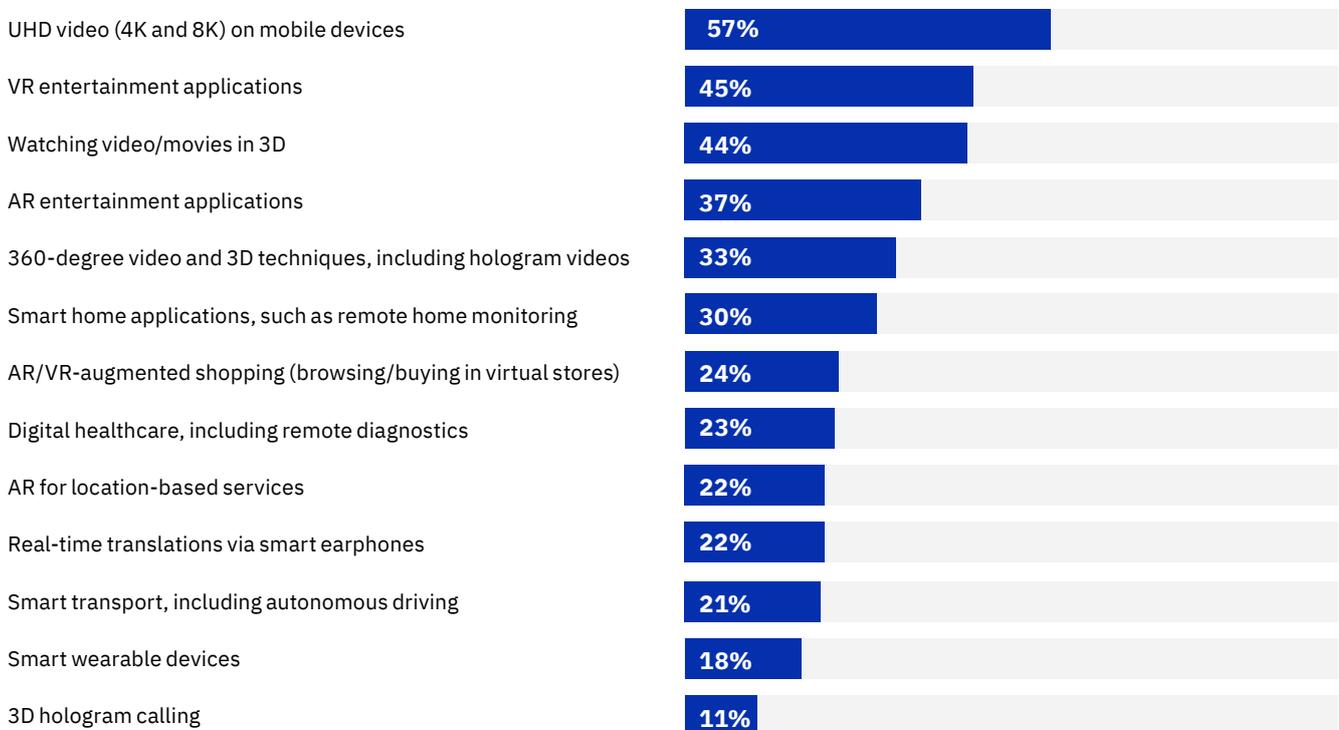
**They're excited: Enthusiasm
for high quality streaming video**

The launch of 5G networks will accelerate growth for many subsectors of M&E, from high-definition video streaming of sports events to immersive cloud-based gaming. Respondents are more excited about 5G applications in M&E than those in other industries. They identified ultra-high-definition (UHD) video, AR and VR entertainment, and immersive media as the most appealing applications. They are less excited about 5G applications in areas such as smart home, AR/VR augmented shopping, and digital healthcare.

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UHD video is by far the most relevant 5G application for consumers, selected by 57 percent of the respondents (see Figure 3). Clearly, people are longing for high quality viewing experiences in both linear (for example, live streaming) and nonlinear (on demand) video. In the mid- to long-term, UHD video formats such as 4K and 8K will become common for videos viewed on mobile devices. Companies such as FOX Sports and the China Media Group are already test-streaming 4K high dynamic range (HDR) video over 5G.[15] As another example, Disney is partnering with Verizon to test 5G applications for content distribution.[16] And AT&T has tested streaming 4K video over 5G at the 2018 US Open golf tournament (see case study "FOX Sports tees up 4K over 5G at US Open" on page 9).

Figure 3

Jazzed by 5G: The applications consumers are most excited about

Application	%
UHD video (4K and 8K) on mobile devices	57%
VR entertainment applications	45%
Watching video/movies in 3D	44%
AR entertainment applications	37%
360-degree video and 3D techniques, including hologram videos	33%
Smart home applications, such as remote home monitoring	30%
AR/VR-augmented shopping (browsing/buying in virtual stores)	24%
Digital healthcare, including remote diagnostics	23%
AR for location-based services	22%
Real-time translations via smart earphones	22%
Smart transport, including autonomous driving	21%
Smart wearable devices	18%
3D hologram calling	11%

*Q. Which of the above 5G-related applications are you most excited about and might become most relevant for you?
Select up to 5.*

It's fair to say that 5G will create a huge impact on the future of mobile video. In addition to UHD for live and on demand streaming, 5G will help to advance 360-degree video, three-dimensional (3D) holograms and live personal 3D broadcasting from mobile devices. 5G is also needed to support the increasing use of video-focused services on social media platforms. In particular for younger generations, video-based platforms such as Instagram, Snapchat, and TikTok are the apps of choice.

Time for action

Providing high quality video streaming experiences to customers should be central to the strategies of media companies. Ideally, they should:

– Make production and delivery of high quality video, video that distinguishes them from the competition, a key priority.

– Work together with telecom operators to optimize UHD video streaming over 5G. For instance, telecom operators can provide dedicated network slices for streaming 4K video from high profile, real-time events such as Wimbledon.

– Make 5G, cloud, and edge computing key ingredients in the video distribution of the future.

FOX Sports tees up 4K over 5G at U.S. Open[17]

In June 2018, FOX Sports partnered with AT&T and others to bring UHD images of the US Open golf tournament to FOX Sports viewers—using 5G technology. The objective was to show the use of 5G to stream 4K video with no detectible delays (latency) and no degradation to video quality transmitting at very high speeds (throughput). FOX Sports viewers received UHD views from two 4K cameras on the seventh green and tee box, where the trial network was deployed.

The trial met its objective for a 5G wireless network sending large, UHD video files with no noticeable latency or degradation to throughput. A 5G wireless network eliminates the need to lay miles of event-specific fiber between the cameras and the production compound. Perhaps most importantly, the trial showed that 5G could help meet increasing consumer demand for better picture quality and higher resolution—creating a lifelike experience, even in the viewer's living room.

Cloud, edge computing,
and 5G will be critical
to moving VR forward.

What consumers really want: Embracing immersive media

In addition to receiving better quality streaming, consumers are also enthusiastic about other 5G applications in M&E. They are particularly interested in immersive content (see Figure 3). This encompasses deeply engaging, multisensory, digital experiences using technologies such as VR, AR, 360-degree video, and 3D techniques. Immersive content also includes hologram videos. Current mobile networks cannot meet the bandwidth and latency demands these applications require. However, 5G networks are expected to deliver the required capability.

VR in media and entertainment

Respondents indicate they're excited about future VR entertainment applications, ranking them second only to high quality video streaming. VR is about putting people inside fully immersive computer-simulated environments such as a stadium or rollercoaster, typically through the use of specially constructed headsets.

Current VR applications are still in their infancy. The low-end headsets lack computing power, limiting graphics quality. The higher-end headsets are better but more expensive. And, complex elements in the devices increase their weight. Usually, the headset requires a cable connection to a computer, limiting the player's mobility and hence the VR experience.

Cloud, edge computing, and 5G will be critical to moving VR forward. With the faster speeds and lower latency of 5G, complex processing can be done in the cloud (or on the cloud edge), which provides more computational power. Offloading much of the intensive processing to the cloud means much smaller and more practical, powerful, energy-efficient and cheaper headsets that enable wider VR adoption. VR adoption will be further enhanced with AI—for instance, by including more voice control stemming from natural language processing (NLP).

VR's speed of adoption will coincide with the rollout of 5G networks. ABI Research expects the VR market to hit an inflection point within the next two years and reach nearly USD 22 billion in total market revenue by 2024.[18]

According to the latest PwC Media and Entertainment Outlook, VR will be the fastest growing media segment for the next five years.[19]

AR in media and entertainment

Though ranked slightly lower (fourth) by respondents, AR could hit the mainstream earlier. AR refers to the overlay of digital elements onto users' everyday environments and is already embedded in many frequently used applications. Consider how people alter photos with popular Snapchat and Instagram fun filters that include images, stickers, and emojis. And, of course, a very notable example is the renowned Pokémon Go game.
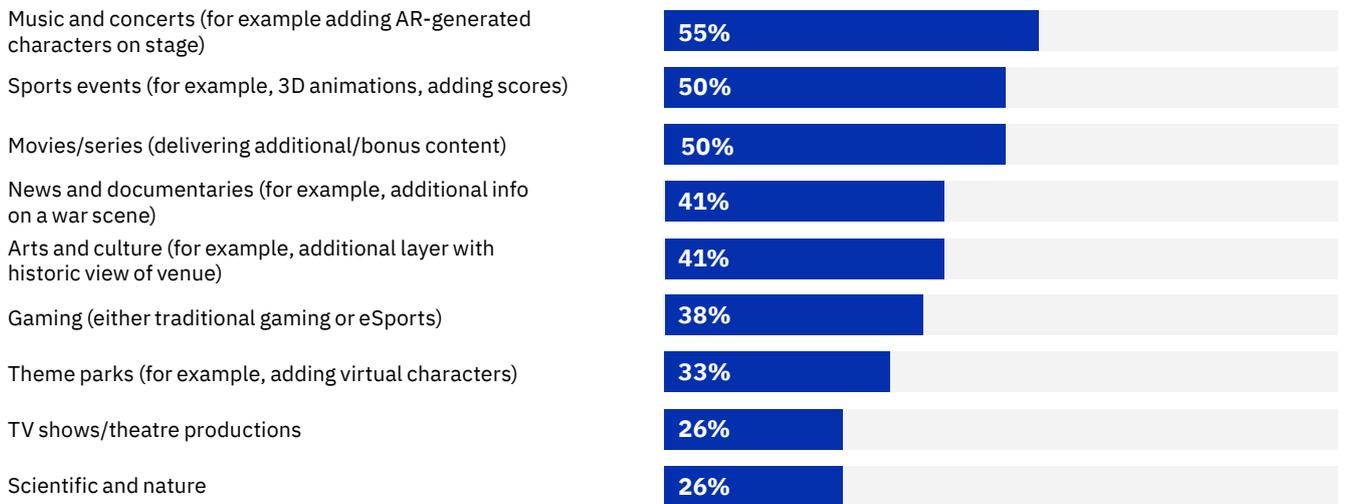
AI technology is expected to be more essential for AR than it is for VR. AI allows computers to understand what they are seeing through cameras, identifying and labeling objects in the user's field of vision. With the continuous advances in AI, these features will become increasingly sophisticated. Together with fully functioning 5G networks, AI could enable a whole new wave of deeply integrated AR experiences. Statista estimates the value of the AR market will rise from USD 5.9 billion in 2018 to almost USD 200 billion in 2025.[20]

Taking music and concerts to new levels

Both AR and VR bring many practical applications to M&E (see Figure 4). Interest varies across age groups and countries. AR applications in music and concerts are very popular among Generation Z (Gen Z) respondents and the younger millennials (ages 26-35). Respectively 63 percent and 58 percent stated these applications bring them the most value. Indeed, in this era of elaborate music festivals, AR is becoming a common feature, adding to the music industry's cutting-edge vibe.

Figure 4

More than just reality—the most-valued 5G-supported AR applications

Music and concerts (for example adding AR-generated characters on stage)	**55%**	
Sports events (for example, 3D animations, adding scores)	**50%**	
Movies/series (delivering additional/bonus content)	**50%**	
News and documentaries (for example, additional info on a war scene)	**41%**	
Arts and culture (for example, additional layer with historic view of venue)	**41%**	
Gaming (either traditional gaming or eSports)	**38%**	
Theme parks (for example, adding virtual characters)	**33%**	
TV shows/theatre productions	**26%**	
Scientific and nature	**26%**	

Q. What kind of immersive AR experiences in media and entertainment would bring the most value to you and you would be willing to pay for?
Select up to 5.

The latest technological advances turn live concerts into high tech experiences that wow the audience. For example, the theatrical element of stage shows can be radically increased by partnering AR-generated characters from songs with real-life artists on stage. Sounds, images, and special effects, as well as the general atmosphere, all play equal parts in entertaining participants.

As could be expected, Gen Z and the younger millennials are intrigued by immersive media in music. In general, this demographic prefers spending on experiences versus material things. They are very enthusiastic about VR applications as well. VR can make music fans feel as if they are actually present at a live concert, and allows them to watch the show from different virtual positions. The music industry is testing many other AR and VR applications and steadily exploring how to incorporate AR/VR technology into innovative experiences.

The enthusiasm for immersive media in sports varies across countries.

New ways to watch sports

Sports is another domain where AR/VR is already being tested and put to use. Think about video assistant referee (VAR) technology in soccer and Hawk-Eye technology in tennis. The way we watch sports is changing and is leading us into the next generation of sports consumption. But the enthusiasm for immersive media in sports varies across countries. Twenty-seven percent of respondents in Germany state that VR in sports brings them the most value, with 68 percent in India reporting the same (see Figure 5). In general, AR/VR in sports is more popular among millennials.

Just as we discussed for music, VR technology can transport a consumer from a living room to a stadium, giving viewers a choice of camera angles and the option to retrieve stats and information about specific players. A VR headset and an app are all that's needed.

Stadium-quality VR viewing is already evolving. For instance, the US wireless provider Verizon hosted a VR Super Bowl stadium experience over a 5G connection to a limited group of employees, and the British Broadcasting Corporation (BBC) offered an app providing a VR FIFA World Cup experience.[21]

Though we are only in the infancy of AR/VR, the technology is quietly revolutionizing live-action sports. Consider on-player camera feeds enabling consumers to view the action through the eyes of the athlete. Many opportunities are yet to be discovered, and we can expect unanticipated possibilities with the rollout of 5G networks. In addition, stadiums themselves can become technological wonders, filled with new technology to enhance the fan experience (see case study "Mercedes-Benz Stadium drives the future" on page 13).

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Figure 5

A new way to enjoy sports: Consumer excitement about VR
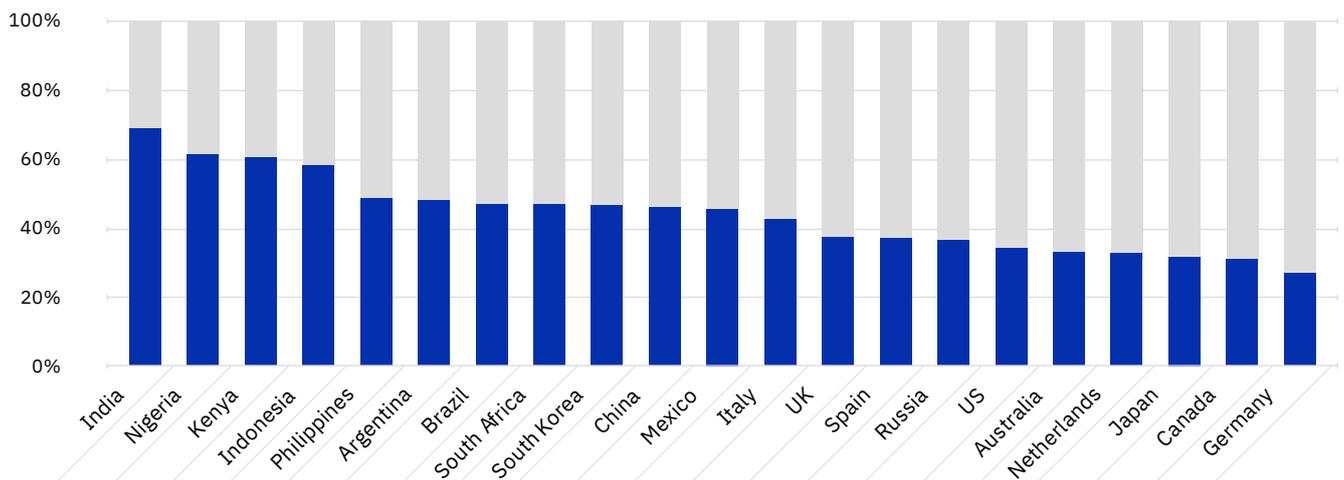
Q. What kind of immersive VR experiences in media and entertainment would bring the most value to you and you would be willing to pay for? Select up to 5. Reflects respondents who selected "sports events."

Mercedes-Benz Stadium drives the future[22]

The Mercedes-Benz Stadium has been a technological marvel since it opened for business in August 2017 as the home of the National Football League's (NFL's) Atlanta Falcons and Major League Soccer's (MLS's) Atlanta United. The stadium also hosts many top-selling musicians and myriad other events. It is packed with 2,500 Internet Protocol TVs (IPTVs); 4,200 speakers; 1,800 Wi-Fi access points; and 4,800 miles of fiber optic cable—all to deliver the immersive audiovisual experience that sports fans expect.

CBS Sports used AR during its coverage of the 2019 Super Bowl. To help enrich the fan experience, the network became the first to use 8K UHD cameras during a live television broadcast and streaming of the US's marquee sporting event. The broadcast included approximately 115 cameras spaced throughout the stadium. Three of those cameras sported Sony 8K lenses. Every angle of the field had high tech coverage, with AR playing a key role in how viewers at home experienced the game. The stadium spectators could watch the AR effects on the stadium's halo display.

Time for action

Immersive technology has arrived, with AR and VR set to become mainstream drivers of consumer entertainment applications in the near to midterm future. The immersive market opportunity is still nascent, yet its ultimate promise is great. Media companies should prepare to:

– Make significant investments in these emerging technologies—as well as in related skills—as an extension of their digital strategies.

– Use these emerging technologies to transform customer engagement.

– Evaluate the creative, technical, and business aspects of producing immersive content.

– Partner intensively. Partnering is crucial, because creating AR and VR content is expensive and requires dedicated knowledge.

eSports has especially
gained popularity in
emerging countries.

What consumers really want: Escalating demand for eSports

Similar to traditional sports, eSports features paid players, a vast fan base, full stadiums, sponsorships, and high tournament payouts. The players are watched and followed by millions of fans worldwide. These fans attend live events in arenas or tune in via streamed services such as Twitch and YouTube, which air polished coverage of the tournaments.

In addition to these platforms, the eSports ecosystem has three other key stakeholders: publishers that develop and release the games, organizers of life events in arenas, and professional players or teams. Revenue is generated from media rights, advertising, game publisher fees, tickets, merchandise, and—most importantly—sponsorships. Brands are increasingly keen to sponsor tournaments and tap into eSports for content-led campaigns.

eSports is exploding

eSports has evolved at a pace unrivaled in any other sport. It is emerging as an exciting new market at the intersection of broadcasting, gaming, and sports. Major broadcast networks and prominent sports leagues are getting involved. According to a Newzoo report, the total eSports audience size was 395 million in 2018, expecting to grow to 645 million by 2022.[23]

In 2018, the average year-on-year increase in total revenue was 38.2 percent, resulting in USD 906 million in revenue, 40 percent coming from sponsorships. eSports is expected to generate more than USD 1.65 billion in total revenue by 2021.[24] While North America is by far the largest eSports market in terms of revenue, it's not the largest in terms of audience size. China, for instance, is the second-largest country in terms of eSports revenue, but has two-and-a-half times the audience size in our consumer survey (50 percent versus 20 percent). Indeed, eSports is the fastest-growing segment of China's video game market.[25]

eSports has especially gained popularity in emerging countries. In our survey, the leading countries are India, China, Brazil, and Indonesia (see Figure 6). Compared to mature economies, these countries have youthful populations. For younger demographics—the digital natives—there is little doubt that eSports rivals both broadcast and traditional sports.

Figure 6

A global phenomenon: Respondents who watch and/or participate in eSports
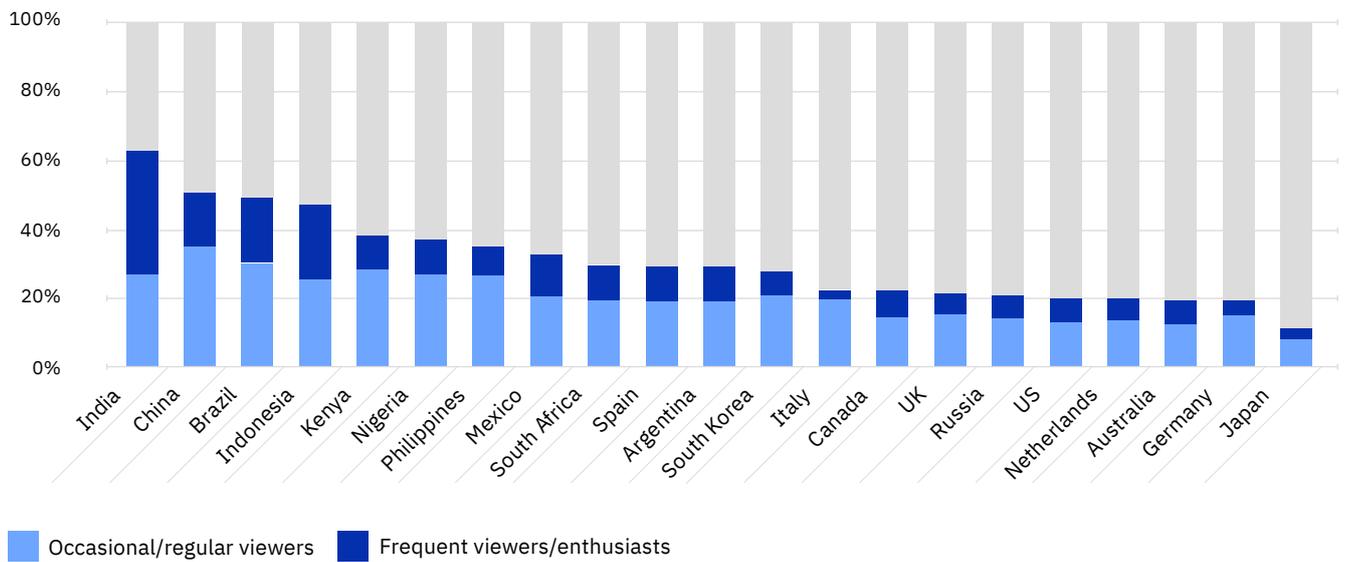
Q. Please indicate the extent to which you agree/disagree with the following statement: "I am regularly or frequently watching and/or participating in eSports."
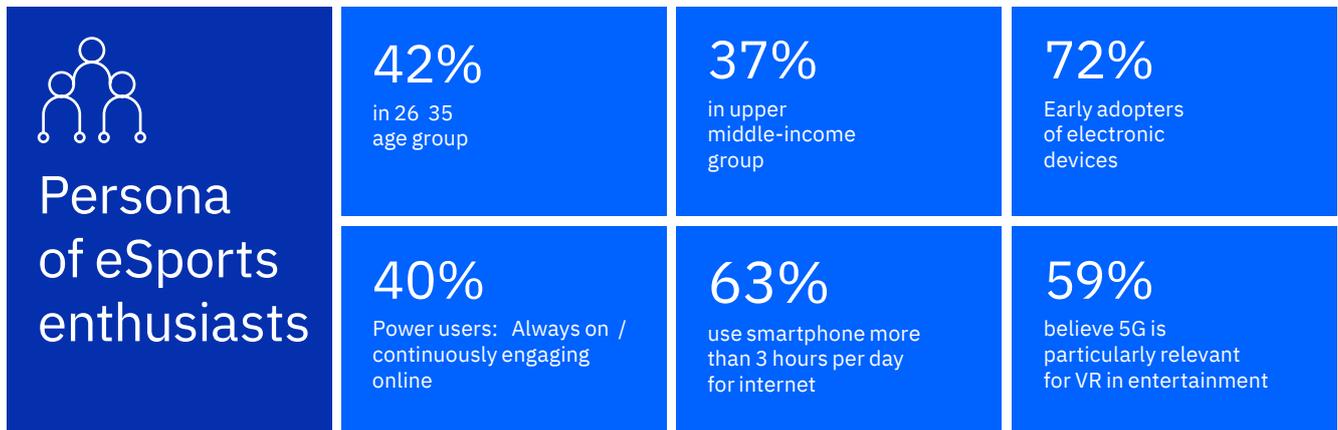Rank 1-5. 4/5 responses.

Who is the eSports enthusiast?

eSports is particularly popular with demographics under 45. The highest percentage of eSports enthusiasts can be found in the younger millennials (26-35) age group.

Seventy-one percent have a middle income, of which more than half are in the upper-middle class (see Figure 7).

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Figure 7

eSports enthusiasts by the numbers

Persona of eSports enthusiasts	42% in 26 35 age group	37% in upper middle-income group	72% Early adopters of electronic devices
	40% Power users: Always on / continuously engaging online	63% use smartphone more than 3 hours per day for internet	59% believe 5G is particularly relevant for VR in entertainment

Q. Please specify your age.
Q. Please specify your income level.
Q. How would you categorize your adoption of consumer electronic devices?
Q. How would you describe your use of your mobile device? Select the option that best fits your behavior.
Q. How much time each day do you use the mobile phone to access the internet?
Q. How relevant might 5G-supported VR in entertainment become for you?
n = 2348 (eSport enthusiasts).

Mobile platforms are attracting a bigger gaming audience than other platforms—even more so as mobile platforms seamlessly integrate with social media, enabling new forms of interactive and social media gaming. eSports enthusiasts understand the importance of 5G (see Figure 8). Indeed, 5G connectivity and performance will further fuel the growing eSports industry. In particular, the incredibly low latency is important to the gaming experience overall, and even more so with eSports as it scales to new heights of popularity.

Twitch and YouTube are building a loyal eSports audience. This has also attracted the interest of major broadcast networks such as ESPN, Disney, and ABC, lured by the ad dollars and an opportunity to air eSports programming. In this way, they can offer existing customers extra entertainment services. Traditional sports and sport leagues—such as the National Basketball Association (NBA), Formula 1 car racing, and the International Federation of Association Football (FIFA)—are jumping in the arena. They're embracing eSports, integrating it into the existing sports experience and creating fan engagement and commercial opportunities.

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Figure 8

eSports enthusiasts understand how important 5G is for them

	eSports enthusiasts	All survey respondents
Very familiar with 5G	31%	10%
Very excited about 5G	77%	48%
Find 5G very relevant for them	69%	39%
Will switch to 5G as soon as available, also if not eligible for a phone upgrade	49%	28%
Willing to pay significantly more for a 5G-enabled phone	58%	24%
Willing to pay significantly more for a 5G data plan	54%	22%

■ eSports enthusiasts ■ All survey respondents

From top to bottom.
Q. Do you know what 5G is about?
Q. How excited are you about the new 5G technology?
Q. How relevant will 5G be for you?
Q. If 5G delivers on what appeals to you, when would you switch to a 5G network?
Q. How much extra are you willing to pay for a 5G-enabled phone?
Q. How much extra are you willing to pay for a 5G data plan?
Rank 1-5. 4/5 responses. n = 2348 (eSport enthusiasts).

Mainstream brands are discovering eSports as well, especially as a means to reach the mass audience of young digital streamers—Gen Z and, in particular, the millennials. Companies such as Nike, Mercedes-Benz, and Coca Cola have been making major deals in the eSports space. They're gaining brand exposure to these new audiences, realizing that the two billion millennials, the first generation of digital natives, enjoy the most spending power of any generation.

Emerging technologies and the eSports ecosystem

The importance of 5G to the growth of eSports makes telecom operators a vital component of the eSports ecosystems, with an increasing number organizing eSports tournaments. The major French operator Orange, for example, partnered with e-Ligue 1, the official FIFA tournament for France's professional football league.[26] And Vodafone and ESL recently launched the Vodafone 5G ESL Mobile Open, a mobile gaming tournament. This event featured the first Grand Final in competitive international sports to be played live over a 5G network. [27] Also, AT&T is partnering with ESL for a mobile eSports league.[28]

Improvements in internet connectivity, cloud technology, and online streaming services have fueled the growth of eSports. Furthermore, the eSports market can continue to expand in creative ways as well. AI is one area generating change. For instance, it can drive different insights based on excitement levels, improve player performance, and create a better fan experience overall. (See case study, "Using AI to build the future of eSport casting.")

Using AI to build the future of eSport casting[29]

With sports events migrating from the physical playing field to massive, organized, multiplayer video game competitions, AI technologies in this new domain are advancing as well. AI can be used, for example, to improve player performance in eSports, and to create a better, more sticky fan experience overall. Whether players are physically on the field or controlling virtual avatars in digital settings, AI can help sports fans catch the most breathtaking moments of eSports tournaments. It scans through hundreds of hours of game footage and builds a dynamic highlight reel with AI in real time.

An essential component of watching e-games is the live commentary that goes with it. The live commentators—called shoutcasters—are people who, just like any other sportscaster, have in-depth knowledge of the game, strategies, and players. AI capabilities can feed AI-curated data to shoutcasters' tablets during the broadcast to help keep on-air conversation lively and relevant.

Time for action

The world of eSports is beginning to rival real-life sports in terms of viewership, audience interest, and ad spend. This new genre is creating the same advantages for media companies as traditional sports events—especially with attractive advertising opportunities. Media companies should:

– Make eSports a key element in their marketing strategies as a means to engage with the younger online audience—one that barely has a relationship with traditional television.

– Partner with eSports ecosystem stakeholders and evaluate roles to play, such as eSports content distributor or eSports events organizer.

– Evaluate which business model is most suitable. eSports enables a variety of revenue streams, including sponsorships, advertising, media rights, game publisher fees, merchandise, tickets, and more.

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Are you ready to adapt your business and revenue models to profit from the 5G era?

Like past revolutions in content delivery, the rewards of the 5G era are expected to flow to those organizations most capable of embracing its opportunities. Forward-thinking media companies plan their market strategies and anticipate new competition.

The following questions can help M&E companies prioritize the actions necessary to prepare for the future:

– To what extent have you made providing your customers with a high quality video experience central to your content production and delivery strategy?

– Are you investing enough funds in immersive media, such as VR, AR, and 360-degree video? Which use cases and applications do you expect to be most promising, possibly in combination with AI, cloud, and edge computing?

– How will the immersive market opportunity change your business model? What will be your new revenue streams?

– How are you capitalizing on the growth and coverage of the eSports industry that is bound to attract a younger viewership across a global scale?

– To what extent are you partnering in the areas of UHD video streaming, immersive media, and eSports?

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Methodology

In the spring of 2019, the IBM IBV surveyed nearly 12,500 consumers in 21 countries: Argentina, Australia, Brazil, Canada, China, Germany, India, Indonesia, Italy, Japan, Kenya, Mexico, Netherlands, Nigeria, Russia, Philippines, South Africa, South Korea, Spain, the UK, and the US. For each country, the consumer panel was representative in terms of gender, age, and income distribution and balanced across the country geography. Global weighting took place on the basis of country population and GDP.
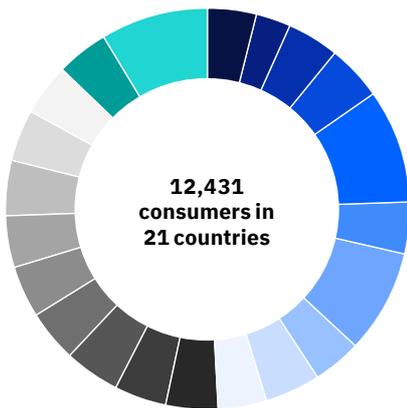
12,431 consumers in 21 countries

- Argentina (516)
- Australia (315)
- Brazil (535)
- Canada (549)
- China (1141)
- Germany (531)
- India (1019)
- Indonesia (503)
- Italy (522)
- Japan (505)
- Kenya (510)
- Mexico (527)
- Netherlands (537)
- Nigeria (524)
- Russia (522)
- Philippines (532)
- South Africa (524)
- South Korea (516)
- Spain (526)
- UK (513)
- US (1064)

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How IBM can help

IBM helps media and entertainment companies across the globe transform themselves into agile enterprises that serve the connected customer. From production workflow and audience analytics to mobile platforms and cloud solutions, IBM helps clients with content production, content distribution, sales and services, marketing, and business systems. The new solutions increasingly rely on cognitive computing for audience insight, advertising intelligence, cognitive customer care, and personalized content recommendations. IBM continues to invest significantly in research—such as in 5G, AI, and immersive technologies—and key acquisitions to add expertise and capabilities that enable clients in this industry.

Learn how IBM M&E solutions can personalize customer experiences, speed delivery of innovative services and products, and build an optimized enterprise enabling core business agility. See ibm.com/industries/telecom-media-entertainment.

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