

Sector Trends

Live Sports - Updated February 2021

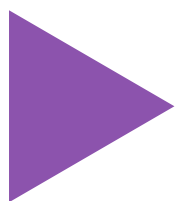


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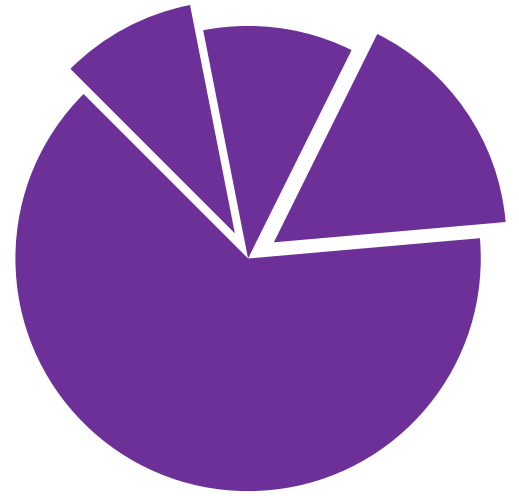
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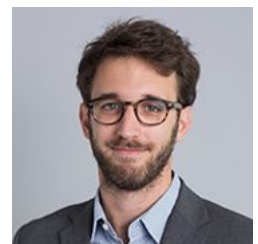


Introduction

IABM Sector Trends Reports track developments in technology adoption, use cases, and workflow models in different sectors of the media industry such as audio, sports, and news. The purpose of these reports is to enable member companies to better understand sector-specific drivers of change. This should provide member companies more tools to better address the challenges lying ahead, from new product development to marketing strategy. These reports contain actionable insights for both suppliers and media companies.



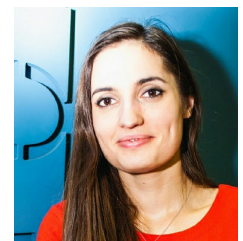
Contact us at:
insight@theiabm.org



Lorenzo Zanni, Head of Insight & Analysis



Riikka Koponen, Principal Analyst



Olga Nevinchana, Senior Analyst

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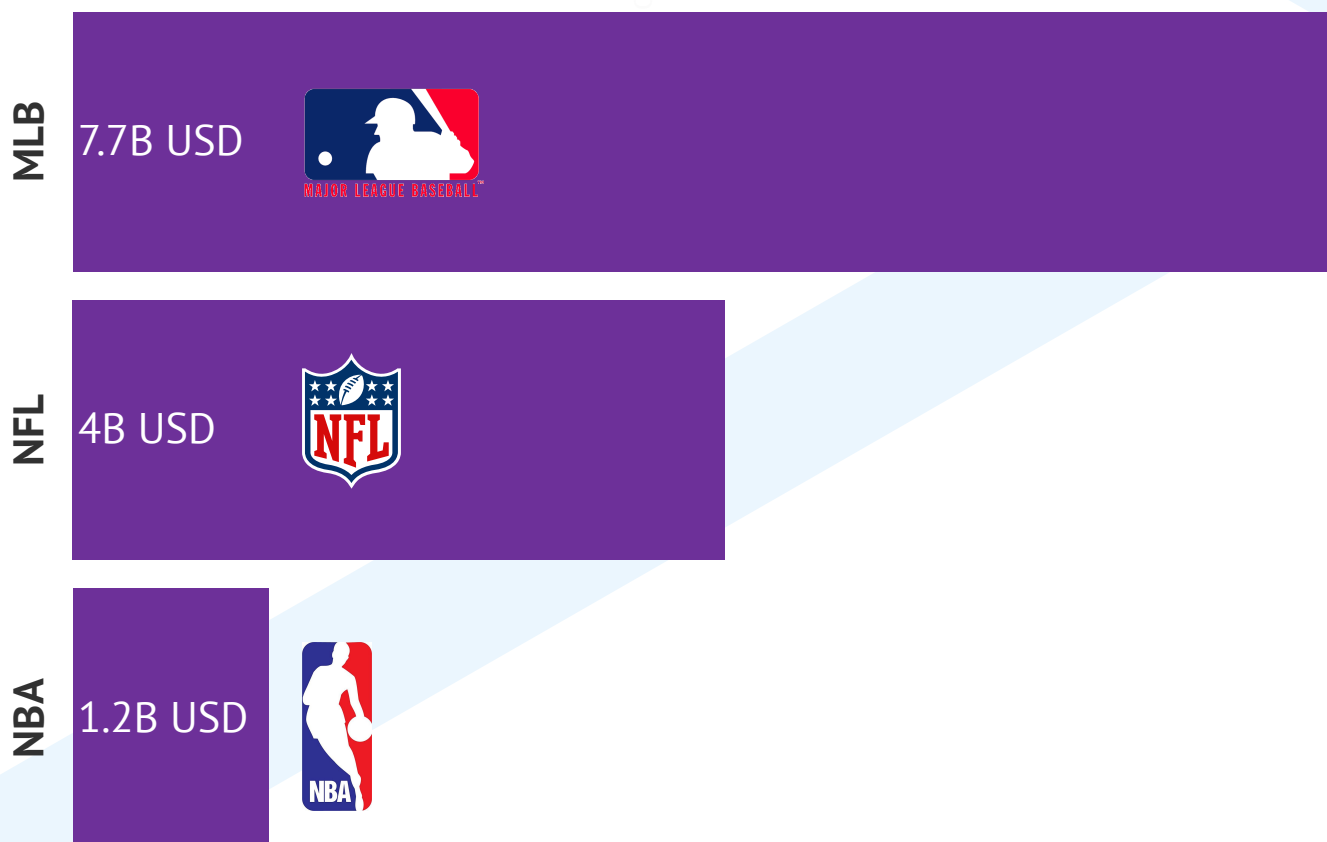
The sports industry was disrupted by the COVID-19 pandemic in 2020 as a plethora of events, including the 2020 Tokyo Summer Games, were cancelled worldwide due to government-mandated lockdowns. Cancellations hit the industry's revenue models, as advertising spending, a major source of funding for the sector, evaporated. Advertising brings billions of dollars to the industry as sports events attract mass audiences, making it a unique medium for advertisers. As an example of this negative revenue effect, NBC lost an estimated \$1.25 billion in advertising revenue due to the postponement of the 2020 Tokyo Summer Games. Pay-TV revenue was also hit, depending on the specific company's reliance on sports content, particularly in the second quarter of 2020. As an example of this, revenues at Rogers Media division stayed relatively flat (declining slightly) in Q1 and Q3 2020 but declined by about 50% in Q2 2020. Some Pay-TV broadcasters decided to suspend rights payments in Q2 due to the cancellation of sports events and the uncertainty that this created for sports broadcasters' financial sustainability. The decline in sports broadcast revenue also needs to be read in conjunction with the direct-to-consumer (DTC) transformation going on at some broadcasters. Disney-owned ESPN laid off 300 employees at the end of 2020, mainly in the broadcast production division, to reallocate resources towards its parent's DTC transformation, for example.

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The cost for sports leagues was also gigantic. A Bloomberg article published in November 2020 estimated this to have been about \$13bn for major professional leagues in the US. The interplay of these trends, along with some of the trends discussed later in this report, begs the question of sustainability in the economics of sports which have survived the impact of COVID-19 in 2020 but may need to adjust to some of the changes brought by the pandemic in the coming years.

Revenue cost due to the COVID-19 pandemic



Sources: ESPN, The Athletic, Wall Street Journal. Note: NFL loss estimate from before the start of the season.

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From an operational perspective, during the first half of 2020, sports broadcasters had to swiftly adapt, creatively filling the holes in their programming schedules caused by the cancellations with archived content, new content formats or immersive events. For example, the Caribbean Premier League (CPL) delivered old cricket matches with live commentary, giving a new reason for cricket fans to watch archived material. COPA90 and EA Sports collaborated and recruited former Manchester United footballer Rio Ferdinand for a series focused on an interactive FIFA tournament between football players during the lockdown period. Broadcasters such as ITV and NASCAR enjoyed record audiences for their virtual events in the first half of 2020. Technology budgets were swiftly reallocated to these use cases, as well as enabling more remote production and virtualization capabilities at sports media companies out of necessity. A share of sports production employees moved to remote working while essential personnel remained on-site in most organizations.

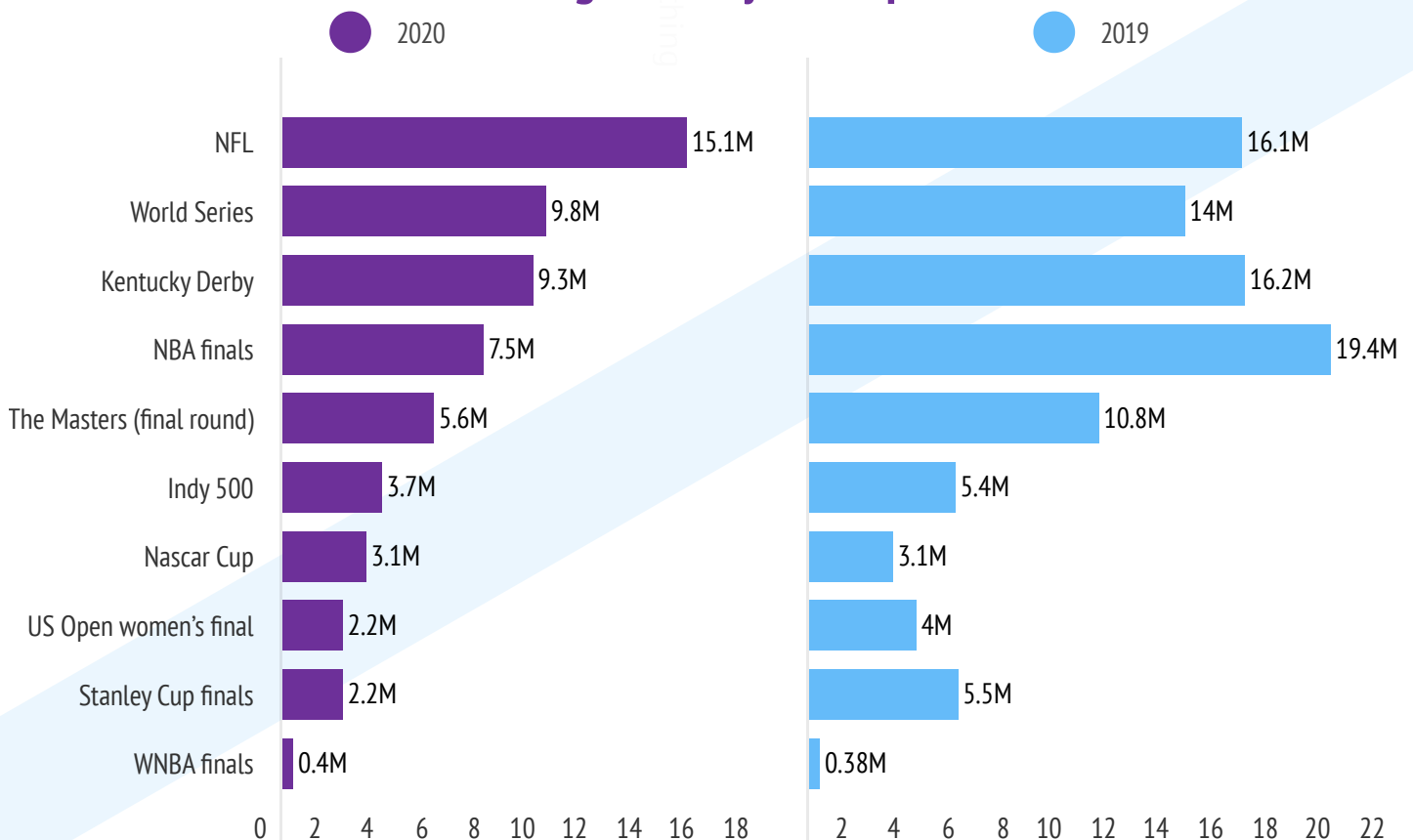


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Sports events gradually made a comeback in the second half of 2020, without fans in the stadiums in most cases. Sports ratings were down according to a variety of news outlets. As an example of this, the audience of the 2020 National Basketball Association (NBA) Playoffs was 37% down year-on-year. Drivers of this decline might include the absence of fans in the stadiums as well as the influence of the pandemic on people's lives making the sports proposition less attractive. Even though sports viewership declined due to the impact of the pandemic, sports audiences remain a large share of overall live broadcasting consumption. However, these viewing trends should not be overlooked as they may conceal long-term implications.

TV ratings for major US sports

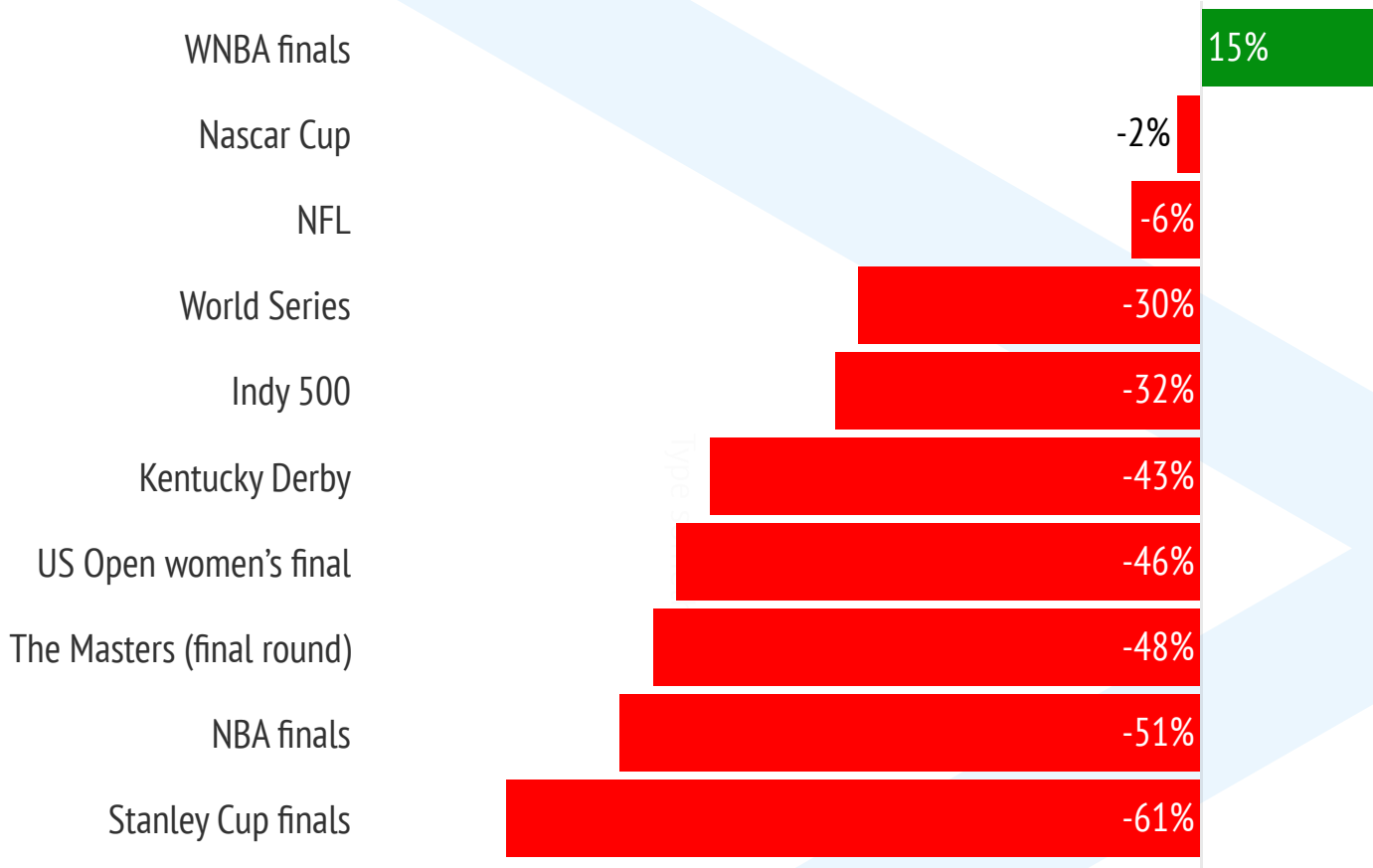


Source: Sports Media Watch

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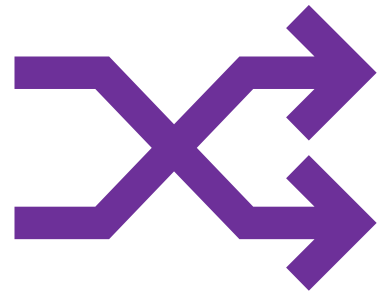
TV ratings for major US sports (% difference between 2020 and 2019)



Source: Sports Media Watch

Despite the impact of the pandemic being a temporary driver of the decline, COVID-19 has accelerated long-standing drivers of innovation and disruption in the sports industry. Innovation in areas such as remote production, cloud-based infrastructure, data analytics, and immersive experiences has been propelled by the constraints posed by the pandemic. However, drivers of disruption including changing viewing habits, the changing sports rights landscape, and the growth of e-sports might have also been accelerated.

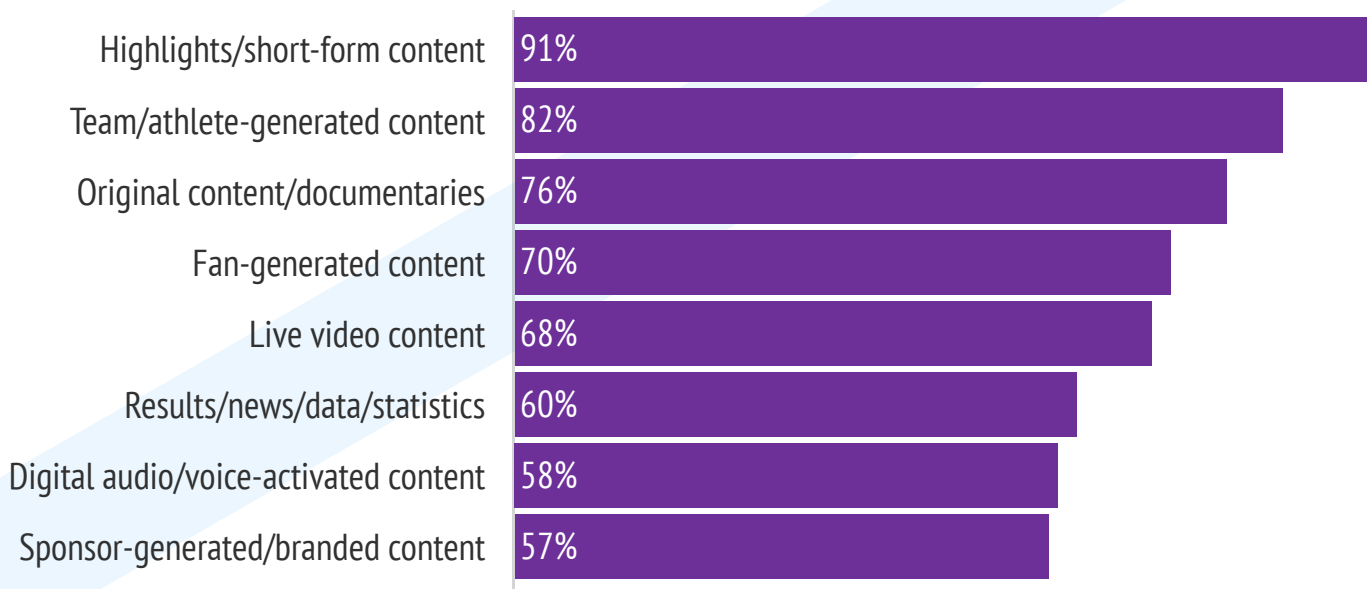
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Sports Viewing Habits

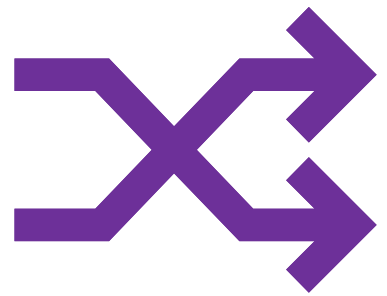
As mentioned earlier, sports viewership declined in the second half of 2020. While we mostly imputed this to the impact of the pandemic on people's lives, there is a long-standing trend of sports viewers relying more on alternative distribution channels to follow sports events – or just to enjoy sports highlights – with this fragmentation having a negative effect on overall sports viewership. More specifically, younger audiences are more likely than older generations to watch less live sports content as well as watch sports events online while interacting with peers on social media channels. Younger audiences are also considered to be less inclined to pay for sports content. Moreover, they are also more likely to watch highlights post-event rather than watch live games.

Expected growth of sports media consumption according to sports industry leaders worldwide

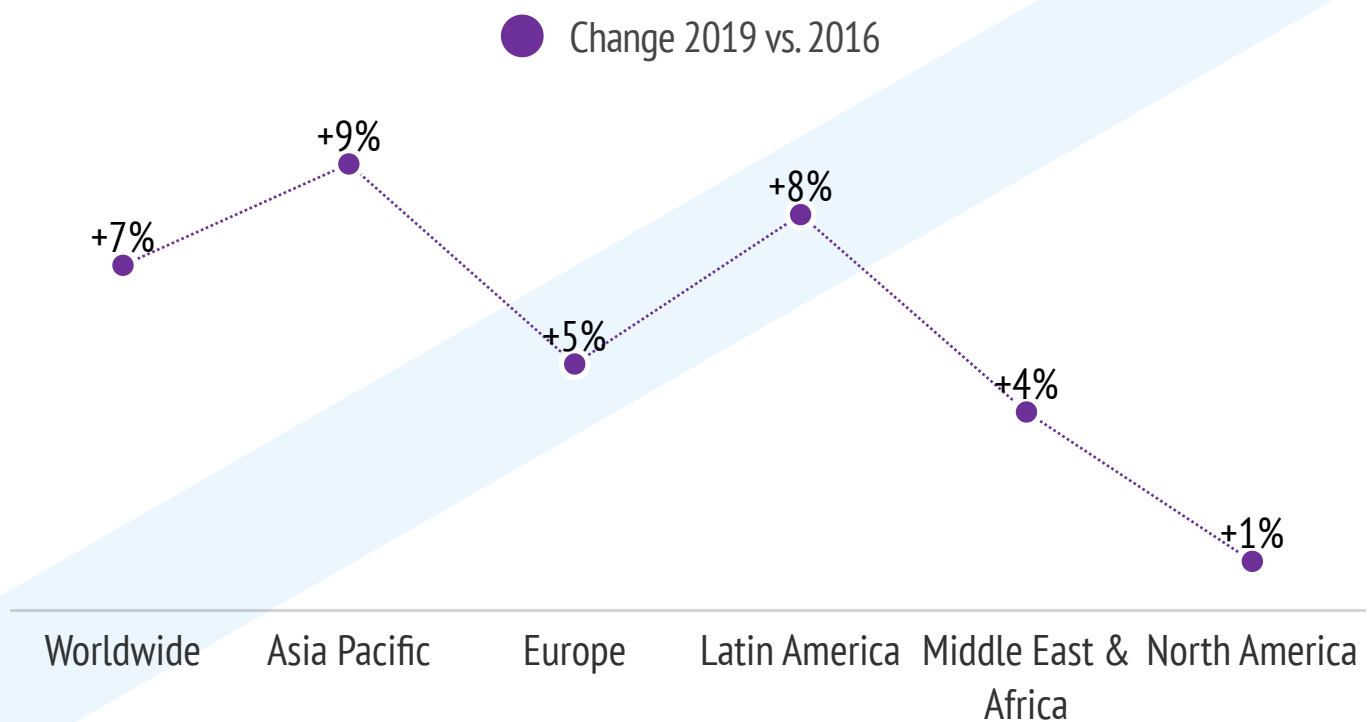
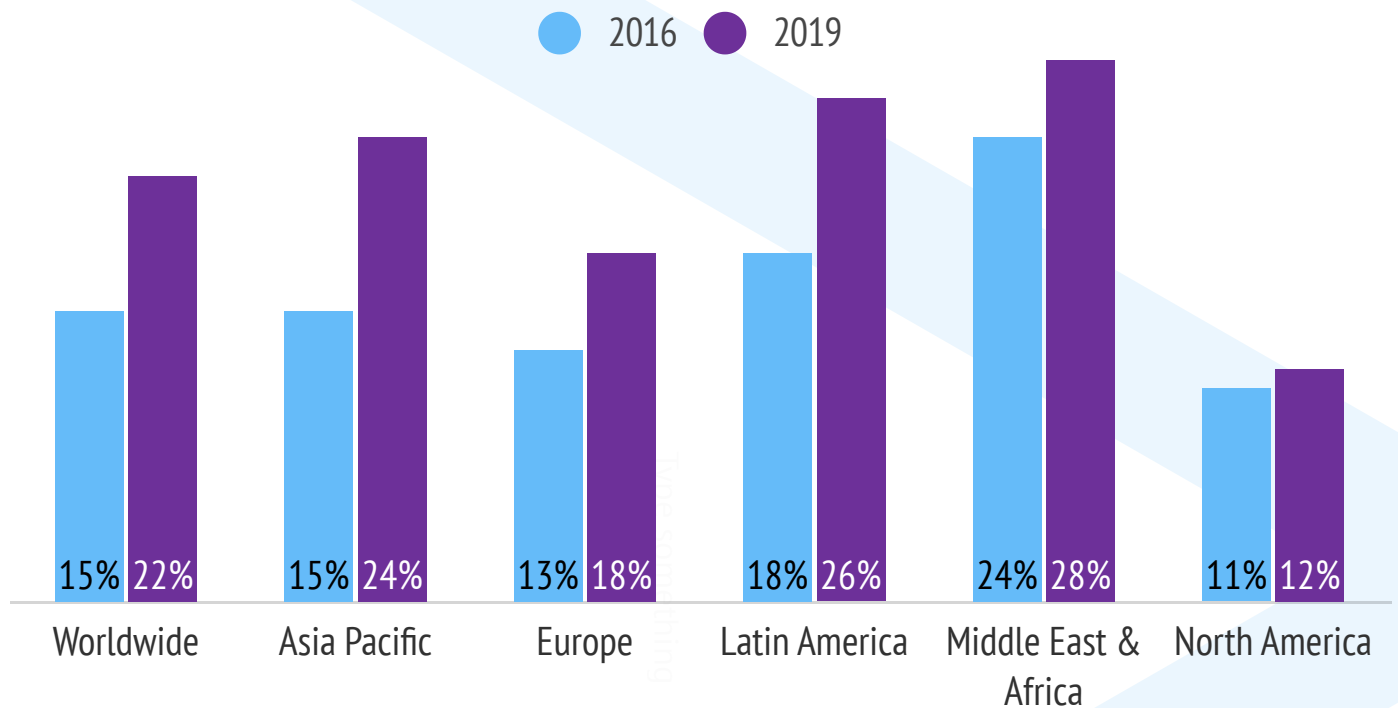


Source: Sports Media Watch

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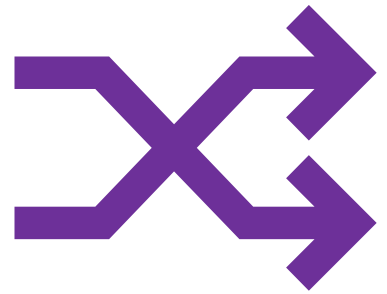


Usage of social media to follow or watch sports events is growing

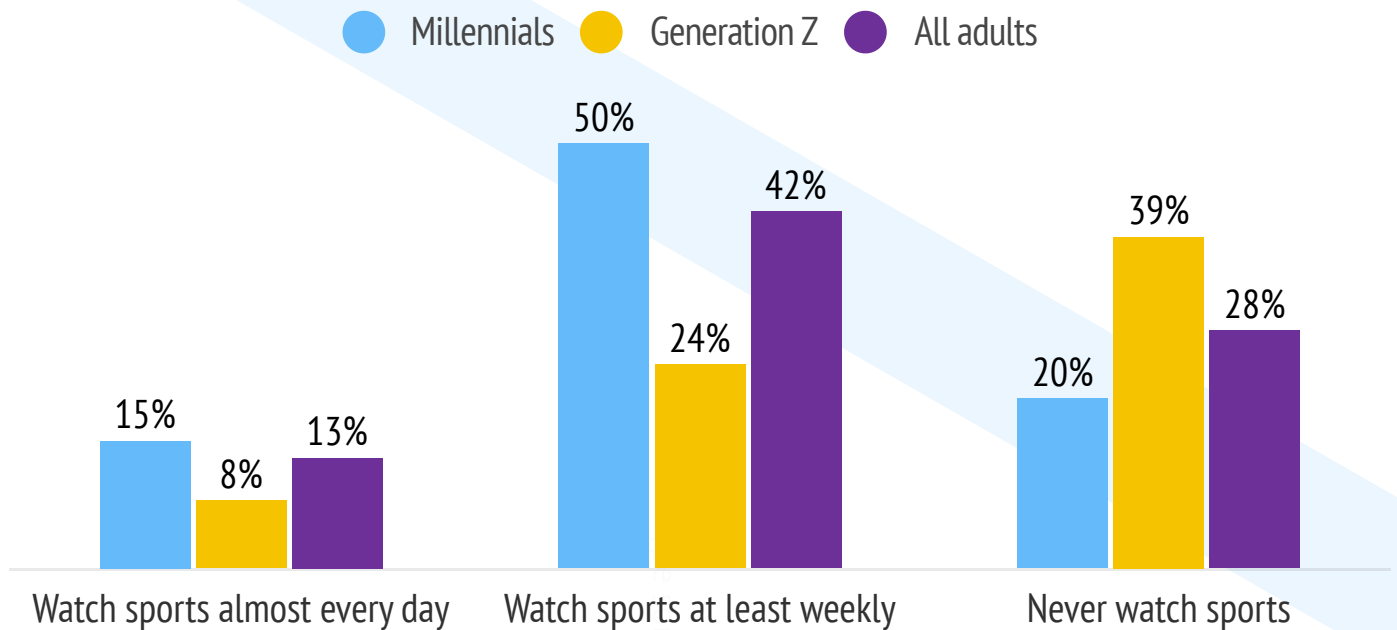


Source: GlobalWebIndex Q4 2016 and Q1 & Q2 2019 Base: 279,055 internet users aged 16-64

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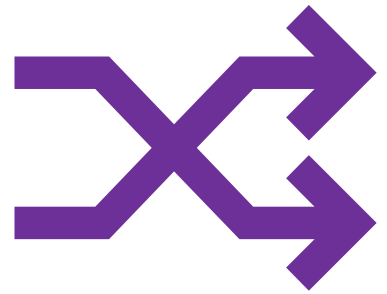
Frequency of watching live sporting events in the US by generation



Source: Morning Consult, September 2020

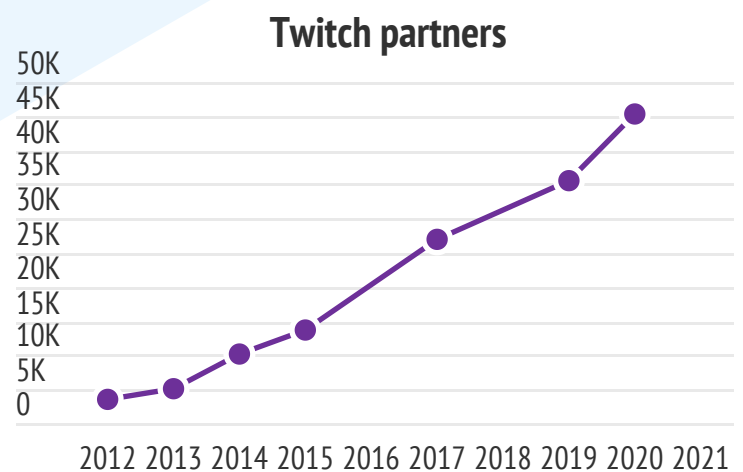
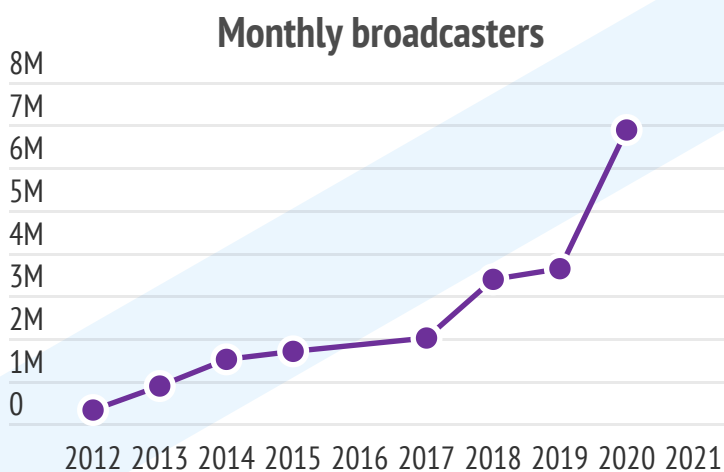
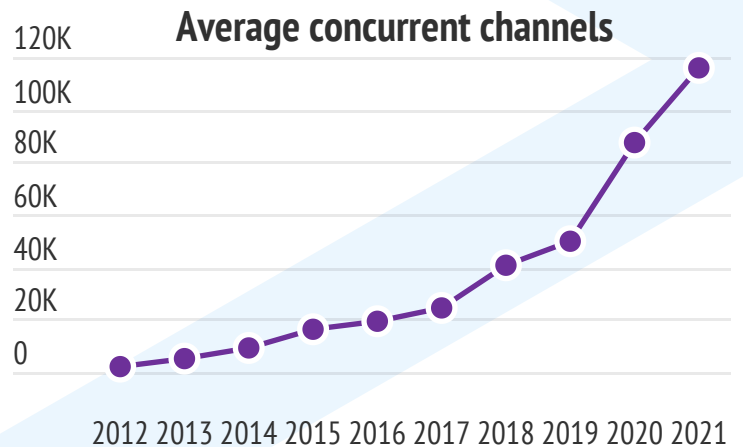
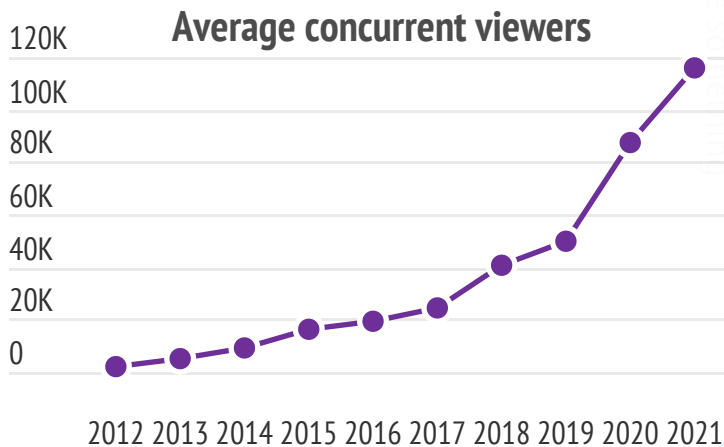
These trends have driven some sports broadcasters to partner with new media distribution outlets well before the arrival of the pandemic. For example, at the beginning of the 2019-20 season of the English Premier League (EPL), Sky Sports partnered with YouTube to make game highlights available on the streaming platform shortly after the end of games. Facebook partnered with MLB in 2019 to produce 26 live games online, attracting 123 million viewers, which was followed by Facebook's partnership with La Liga games in India to live stream the games for free over the next three seasons. This trend continued in 2020. PGA Tour partnered with Twitter to stream nine versions of its live stream of the golf championship to fans. Formula 1 partnered with YouTube to live stream the Eiffel Grand Prix for free, attracting 1.7 million viewers in seven European markets. These partnerships highlight that sports broadcasters have realized the need to leverage digital outlets to reach younger audiences.

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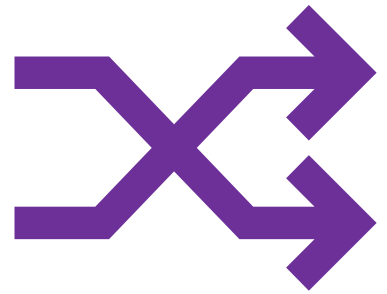
The growth of alternative distribution channels is also reflected by the significant rise of Twitch in 2020. In 2020, Twitch experienced an 83% year-on-year increase in hours watched (from 9 to 17 billion hours), according to a report made by StreamElements and Arsenal.gg. Broadcasters such as Sky Sports have delivered more events on Twitch during 2020 while Amazon Prime Video simulcast four EPL games on the platform; Twitch is owned by Amazon.

Twitch growth



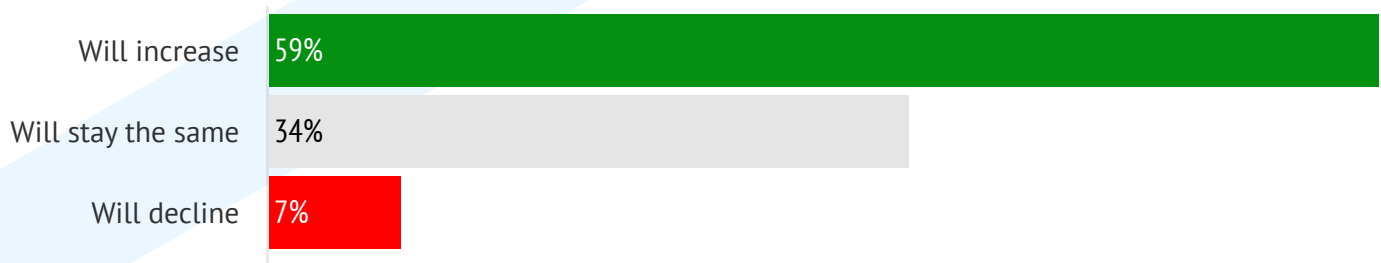
Source: Twitch Tracker

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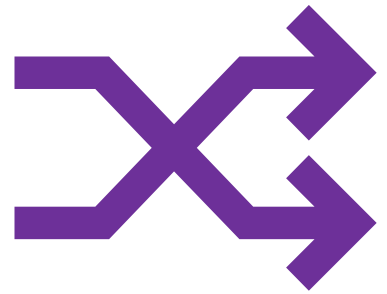
The growth of Twitch also reflects an increasing demand for virtual interactivity in sports experiences which has been accelerated by the absence of (physical) stadium experiences. BT launched a “watch together” feature to enable their subscribers to share the sports viewing experience through chat functionality and a split-screen mode. Sky Sports enabled its subscribers to recreate artificial crowd noise during live broadcasts. NASCAR partnered with Facebook to enable fans to engage with its commentators during live broadcasts through Facebook’s new Venue app. These initiatives are a testament to the innovation in sports experiences that happened in 2020. Most of this innovation happened remotely, with sports experts and commentators contributing to live broadcasts from their homes. Innovation in sports experiences to enable more interactivity represents a strategic area of investment for broadcasters aiming to attract younger audiences, and it is not arguably a temporary spending pattern caused by the pandemic. According to IABM data, 59% of live sports technology media companies plan to grow their investment in Consume, which includes consumer interface systems, while mostly keeping investment in other parts of the content supply chain flat or down.

Consume Investment Outlook



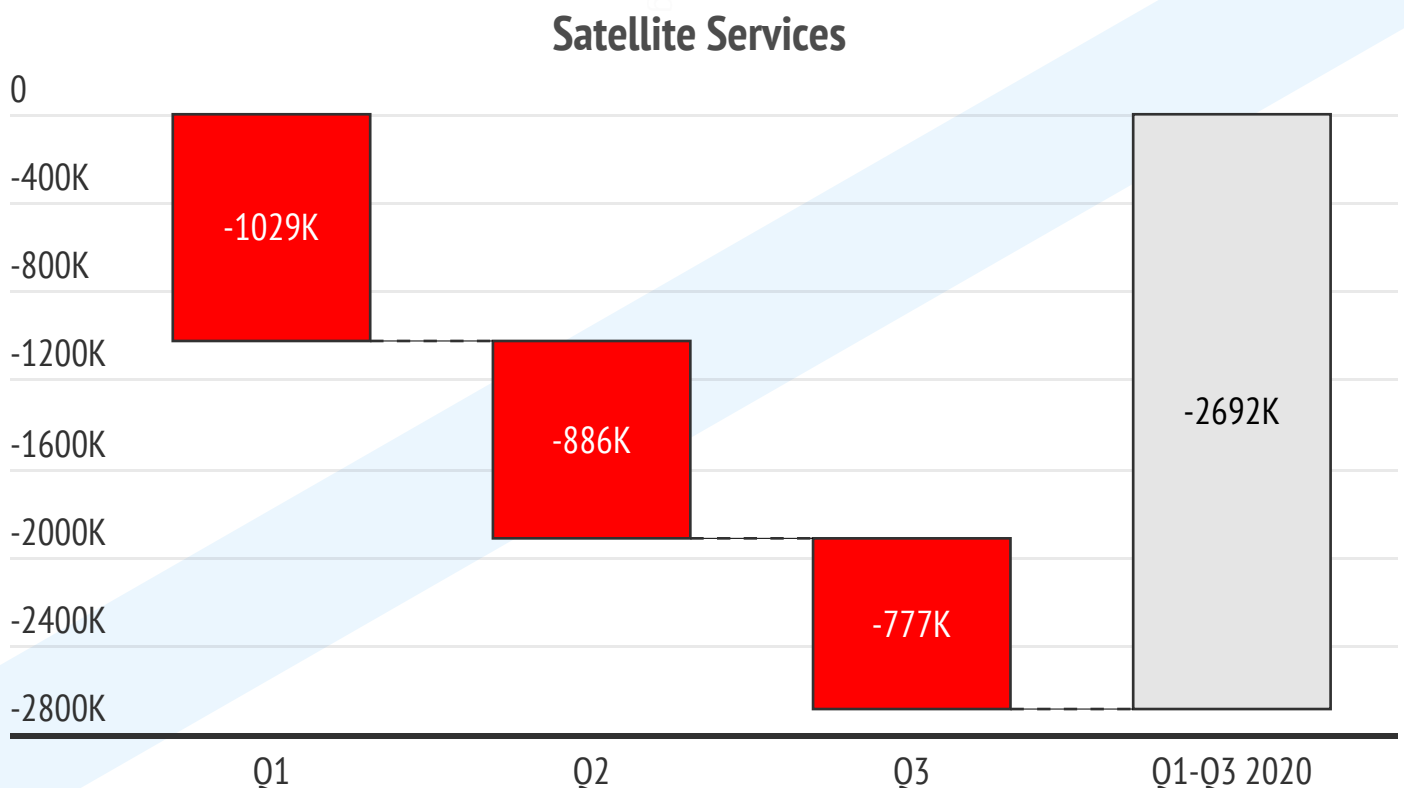
Source: IABM's Media Tech Business Tracker

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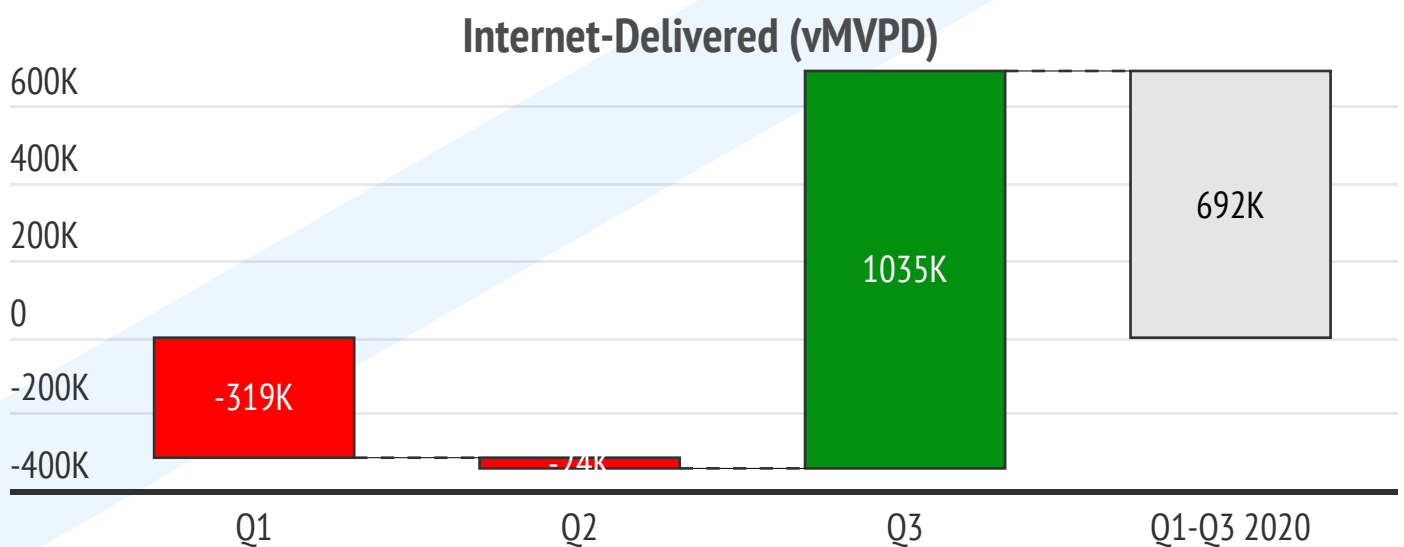
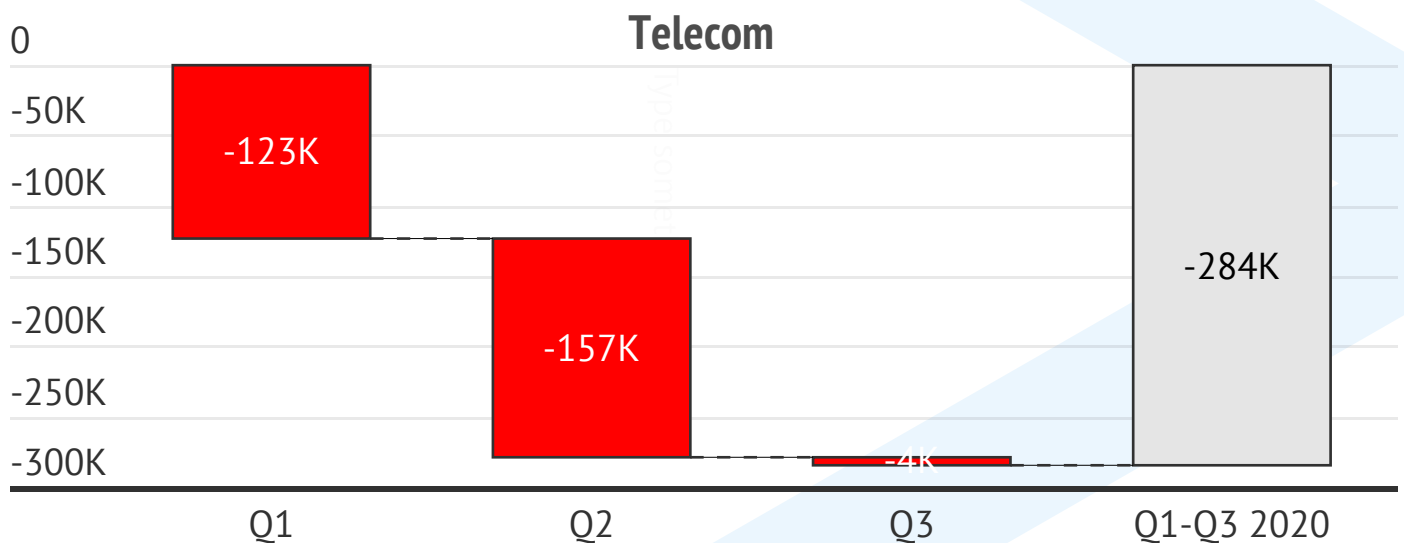
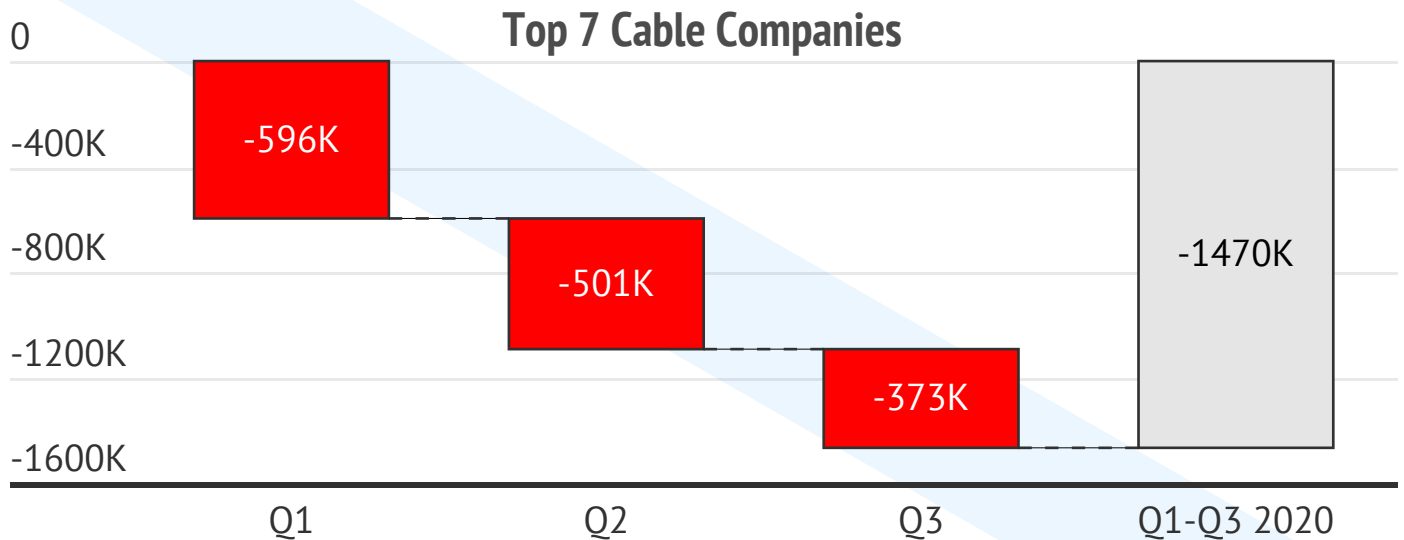
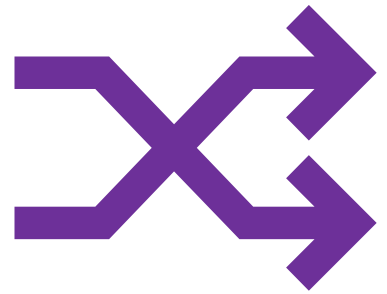
While these initiatives provide broadcasters new tools to engage with younger audiences, their effect on younger generations' propensity to pay for sports still needs to be demonstrated, particularly as sports broadcasting continues to hinge on expensive rights deals – more on this later in this report. Sports' main business models remain linear advertising and the Pay-TV bundle. While we already talked about the temporary hit experienced by the sports advertising industry, the Pay-TV industry, particularly in the US, also went through a tough year due to the acceleration in the cord-cutting phenomenon, which is eroding one of the industry's main sources of revenues.

Change in the number of subscribers in the US vs. previous quarter



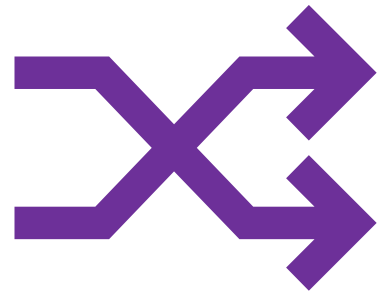
Source: Leichtman Research Group, Inc. (LRG)

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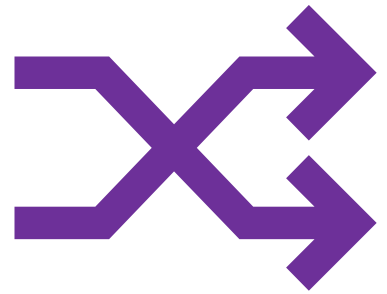


Sports Rights Landscape

Sports broadcasters have spent billions on sports rights in recent years. IABM research reported that the trajectory of sports rights had started to resemble a bubble due to the increased competition for them. This may change as sports broadcasters deal with the financial pressure exerted by the COVID-19 crisis. For example, broadcasters such as Canal+ and beIN Sports suspended rights payments due to the cancellations of events in the first half of 2020. While this was driven by the cancellation of events, it also highlights the potential fragility of the sports economic model, which relies on huge financial inflows to finance expensive sports rights. Therefore, the sports rights market may be radically reshaped by the COVID-19 crisis. Before the pandemic, technology giants such as Facebook, Google, and particularly Amazon had already shown interest in sports rights. This led to a slight fragmentation of sports rights packages in some leagues such as the EPL. However, Pay-TV operators held most of the sports rights pie. After the pandemic ends, factors such as the financial pressure on sports business models, deteriorating household incomes, and big tech resilience in the COVID-19 crisis may produce a further fragmentation of sports rights packages.





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Sports rights data suggests that the impact of the pandemic has been uneven in different geographies. While European rights have experienced a decline in recent deals, data from North America shows the resilience of sports rights' prices.

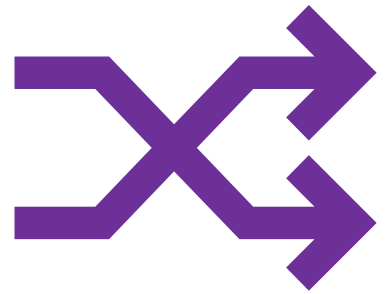
 **The National Football League (NFL)** is expecting a significant increase in rights fees in the upcoming round of negotiations in 2022. According to the NFL commissioner Roger Goodell, NFL's revenue could double as more digital outlets bid for the rights. In Q2 2020, the NFL extended its Thursday Night Football streaming deal with Amazon for three years, including the exclusive rights for one regular game per year. The value of the new deal has not been disclosed but is expected to be significantly higher than the previous deal of \$65 million (i.e., paid annually).

 **The Major League Baseball (MLB)** has three broadcasting partners – Fox, ESPN, and Turner Sports – two of which have already renewed their agreements with MLB that last from 2022 to 2028. Turner Sports finalized its agreement with MLB in September 2020 with a 65% increase versus the previous deal. Fox's agreement renewal for the same period resulted in a 36% increase in value.

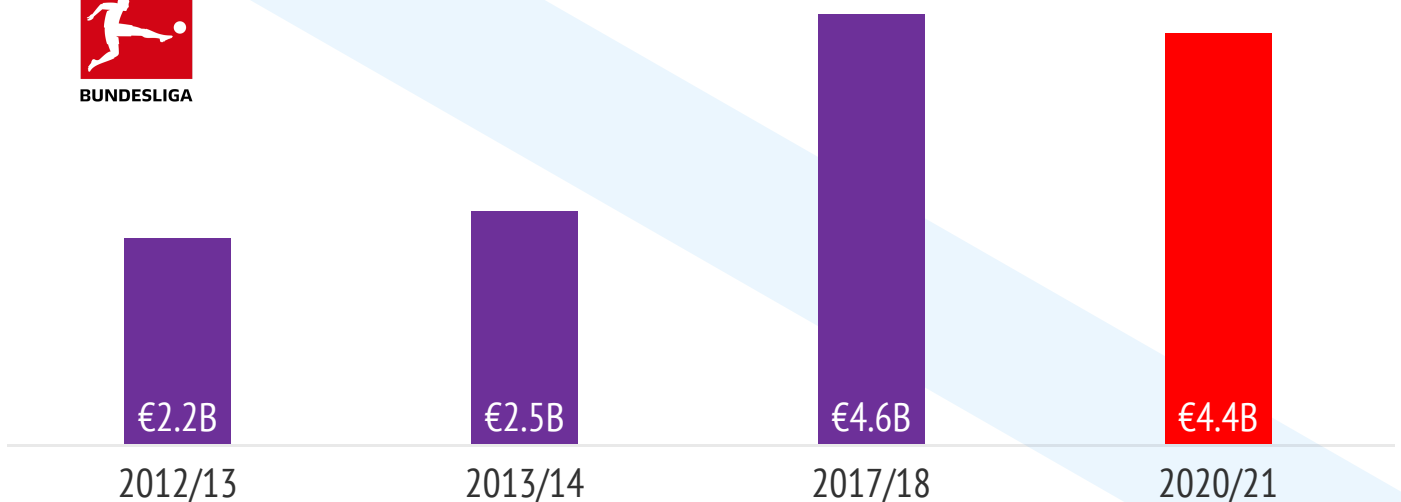
 **The English Premiere League (EPL)** broadcasting rights have been growing steadily and skyrocketed in 2016-19. However, in 2019-22 the value of the rights experienced a decline of -14% versus the previous deal.

 **Bundesliga (DFL)** became the first European league to agree on a new broadcast deal during the COVID-19 crisis. The deal was a 4.3% drop in value on the previous deal, which expired in the summer of 2020. Although this was better than expected given the uncertainty created by COVID-19, it was still a decline in value.

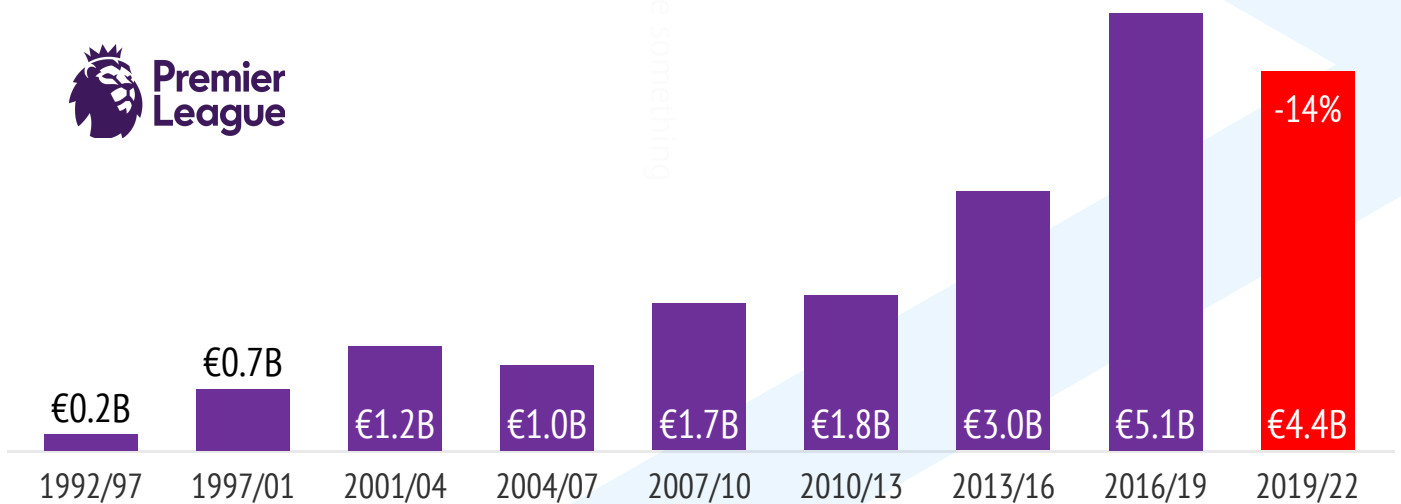
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Sports Rights Value



Source: Deutsche Fußball Liga GmbH

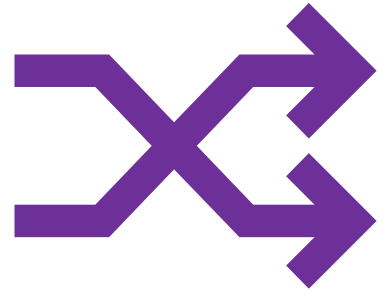


Source: Premier League

As mentioned earlier, digital outlets, and particularly Amazon, have shown increasing interest in sports rights in recent years. Amazon first secured the EPL rights in 2018 after having snapped up the US Open and World Tour tennis rights. In 2020, Amazon's push into sports continued. As mentioned earlier, the NFL deal was renewed, and the tech giant secured its three-season deal with the EPL, reportedly worth 90 million pounds (\$118 million).



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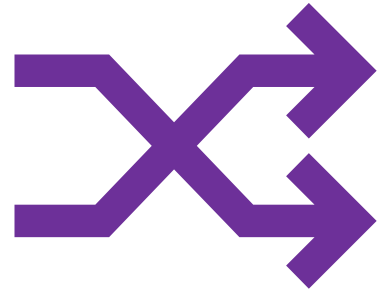


Amazon also secured a deal for the Champions League football tournament in Germany, with DAZN securing the remaining rights, while Sky, the previous holder, withdrew from the auction. Amazon also entered India's sports market by securing the exclusive six-year rights deal for the Indian territory rights for the New Zealand Cricket through 2025-2026, which starts from the 2021/22 season. Amazon's push into sports is arguably driven by the potential of sports content to increase the likelihood of purchase of other goods on its e-commerce platform – as sports content is included in its Prime offering. Amazon said the EPL deal contributed to a record number of new subscribers signing up to Prime Video in the UK in the first week of streaming of the EPL.

With new and large players bidding for rights, the whole landscape might be reshaped in the next few years. While there is much uncertainty about the future value of sports rights, which will be driven by a variety of factors, including geography and cord-cutting, there are reasons to believe that digital competition for them will increase even as broadcasters' propensity to pay for rights may decline. As an example of this, Bloomberg reported that Amazon was set to enter the bidding for the Serie A rights in Italy this year. This may lead to increasing fragmentation of sports rights packages. From a technology investment perspective, sports rights cycles have historically driven technology spending in the sports industry. Therefore, fragmentation of rights packages might lead to fragmentation or rationalization of technology investment as well.



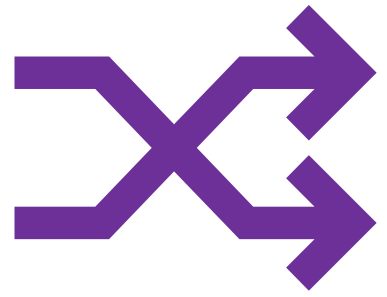
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Sports Monetization Models

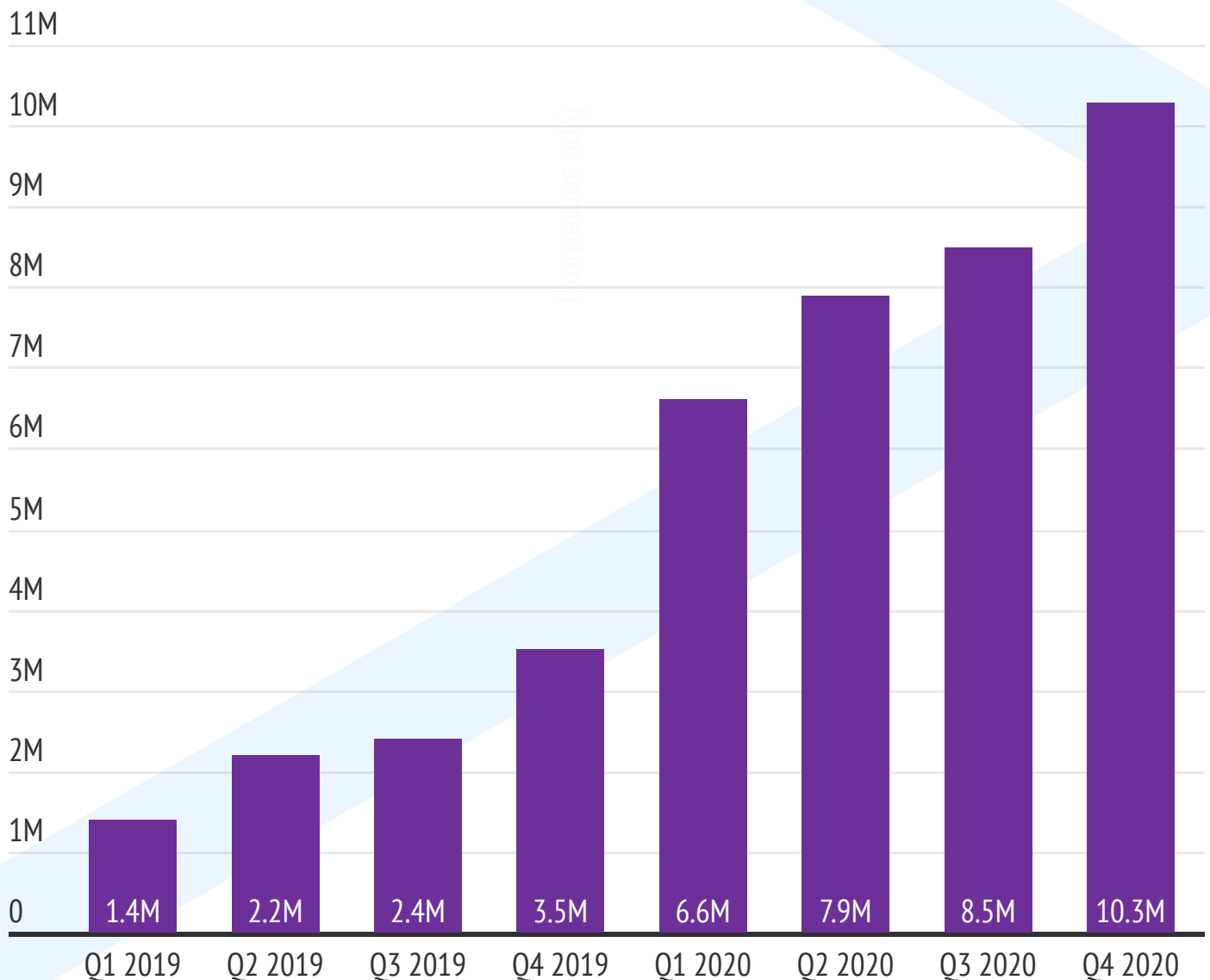
Sports monetization models are changing, although the transition to DTC has not been as pervasive for live content as it has for on-demand. As mentioned earlier, the traditional sports business models are under pressure due to a variety of factors. Aside from the temporary effects of the pandemic on advertising and subscriptions, cord-cutting has eroded sports revenue models in the last few years. ESPN represents the ideal case study for evaluating the gradual erosion of traditional sports revenue models as well as the effects of the transition to DTC models on sports broadcasting. ESPN is still the cash cow for Disney, particularly when it comes to driving its overall operating profit and funding its transition to DTC. However, subscribers and revenues at ESPN have been declining in the last few years due to the decline in Pay-TV subscriptions. As a result, Disney launched its sports streaming service ESPN+ in 2018 as part of its wider DTC transformation, with the OTT outlet reaching the milestone of 10 million subscribers in 2020. However, the turnover brought by the sports streaming service, which is in the millions, accounts for a small fraction of the revenues generated by ESPN through affiliate fees and linear advertising, which range in the billions of dollars. The economics of ESPN+ will not be able to recreate the financial returns guaranteed by the Pay-TV bundle due to the fragmentation of the current media landscape. Disney expects ESPN+ to reach between 20 and 30 million subscribers by 2023, which at the current average revenue per user (ARPU) of \$4.53 would still be a long way from the economics of the Pay-TV bundle. Disney has tried to recreate a bundle that has arguably benefited ESPN+, having combined it with its flagship Disney+ and Hulu.

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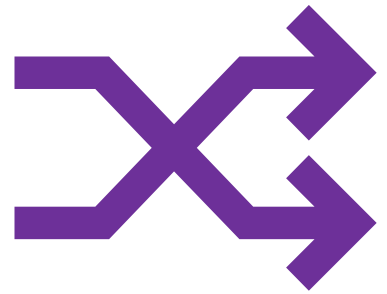
However, the sports streaming business model will not be able to generate the returns of its linear counterpart if taken separately from the overall Disney DTC proposition – i.e., with Disney+ and Hulu.

Number of subscribers to ESPN+ in the US

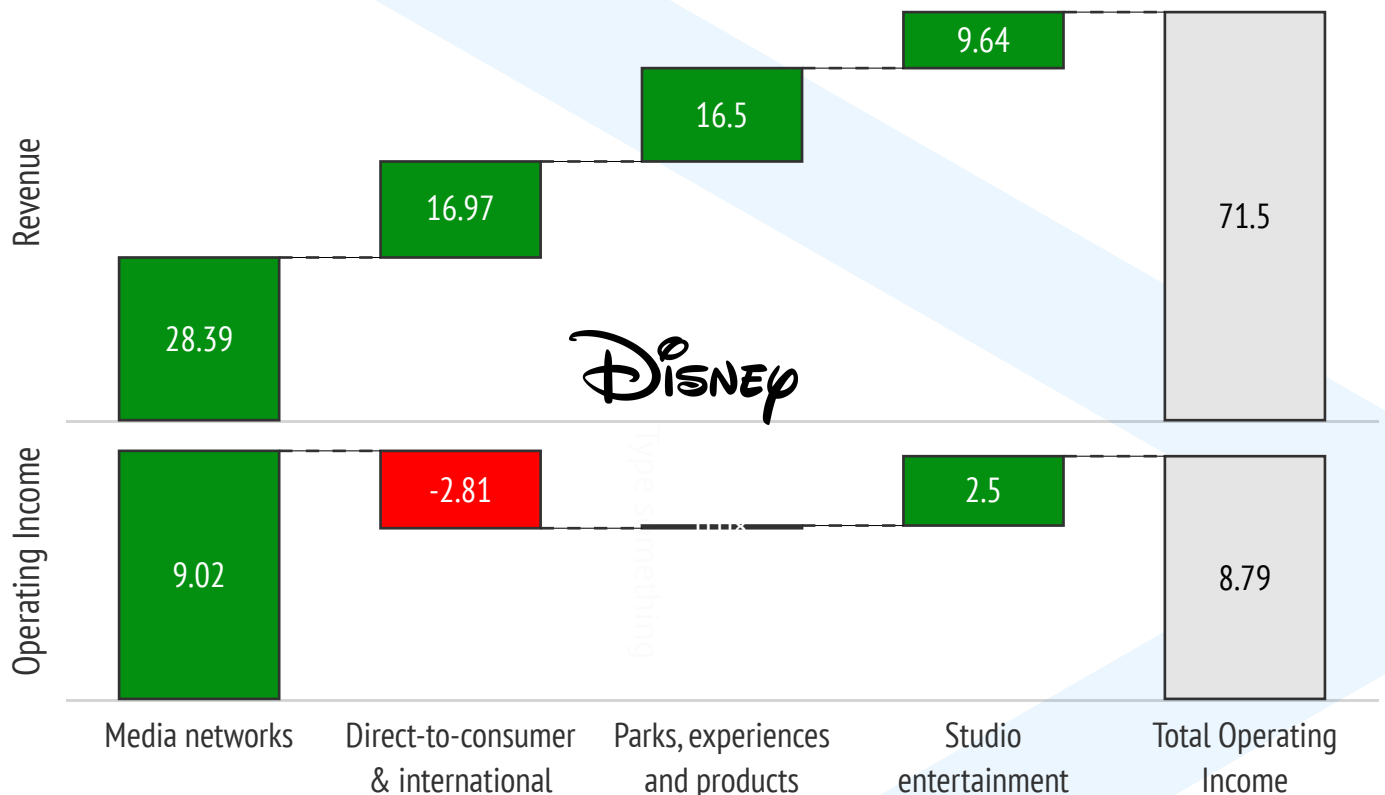


Source: Walt Disney, November 2020

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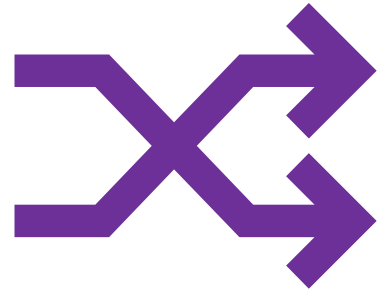
Revenue & Operating income of the Walt Disney Company in 2020, by operating segment



Source: Walt Disney, November 2020

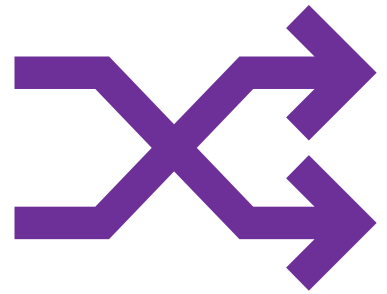
The ESPN case study shows that, even in the sports industry, digital business models cannot replicate the returns of linear sports broadcasting. Digital business models are rather a radically different proposition which relies on volatile and variable economic fundamentals. This is important to highlight as it has a direct effect on media technology investment. As the industry moves to DTC models, investment in technology that fits the variable economic paradigm, such as cloud and consumer experience (CX) technology, is incentivized. Sports DTC services such as DAZN, which has significantly invested in cloud technology in recent years, are a testament to that trend.

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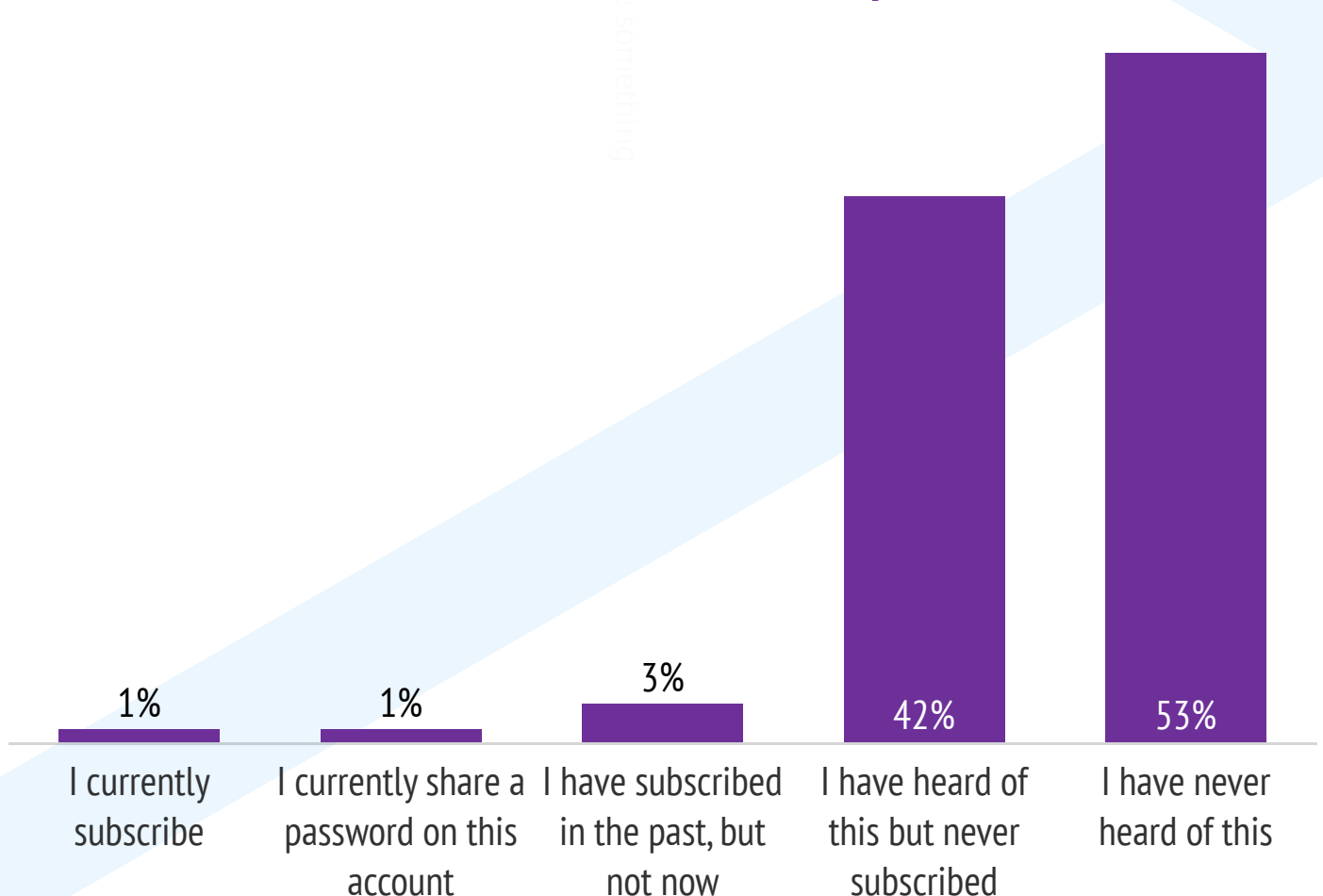
While linear sports delivery remains dominant, there are signs suggesting that this may not be the case in the not too distant future. In January 2021, NBCUniversal announced it would shut down its sports network by the end of 2021 to repurpose programming to the USA Network cable channel and its Peacock streaming service. This is consistent with the rationalization happening at ESPN as well – ESPN announced it would lay off 300 employees at the end of 2020. DTC is sitting at the heart of media companies' future strategies which is why it is reasonable to expect a further transition of audiences towards streaming in the coming years. Moreover, with sports content increasingly disaggregated across many streaming services as leagues such as the NBA invest in their own DTC platforms without ending their relationships with distributors such as Disney. Therefore, there might be also a tendency towards aggregation – through smart TV and streaming devices, for example – in the future. Sports streaming services such as DAZN are for example present on a plethora of smart TVs and streaming devices already. When it comes to aggregation, the sports industry is moving closer to the future of on-demand OTT services, which are also being aggregated in consumer-driven bundles. Therefore, partnerships with aggregators on areas such as catalogue and experience integration will become more relevant to sports streamers too.

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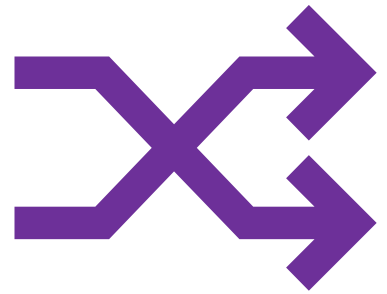
Streaming services such as FuboTV are delivering a sports bundle proposition in an OTT fashion. FuboTV has been growing significantly in recent years – it recently went public – though it appeals to a small share of sports fans who are willing to pay for premium sports content; it has about half a million subscribers. Also, FuboTV's business model is still largely lossmaking as its costs, including distribution rights paid to content owners and technology investment, have soared, particularly during 2020.

Share of adults with a FuboTV subscription in the US

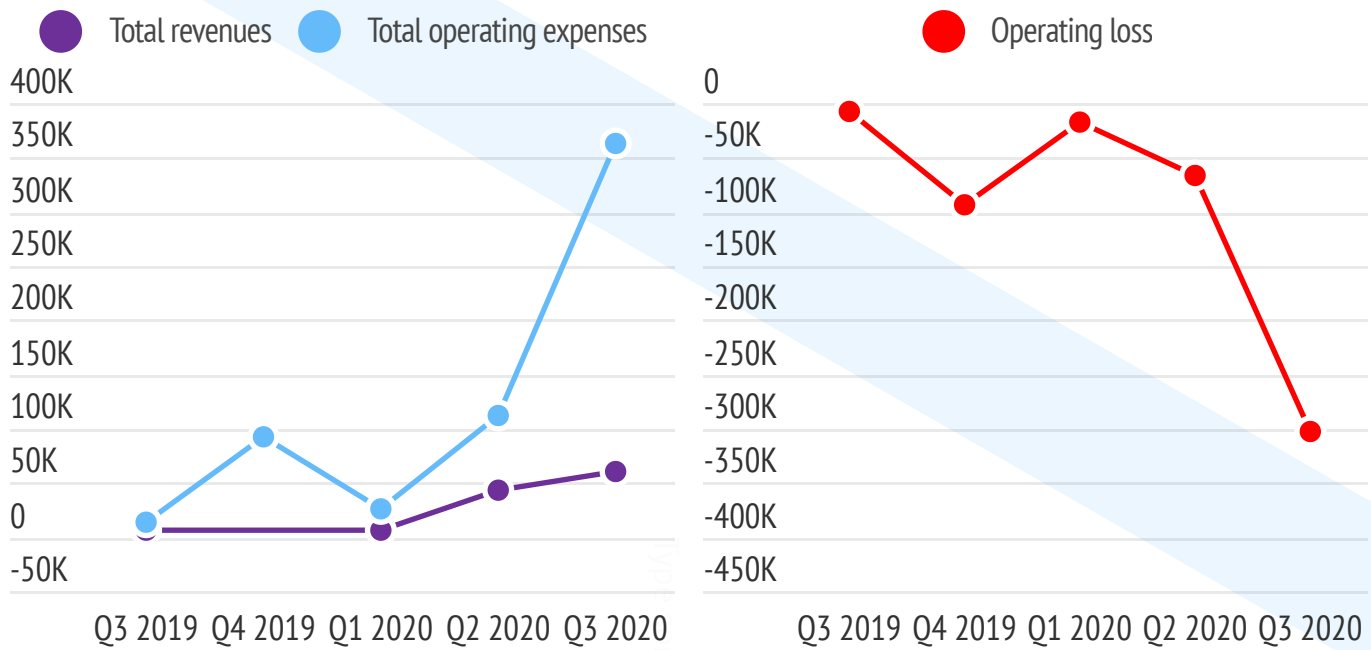


Source: Morning Consult, May 2020

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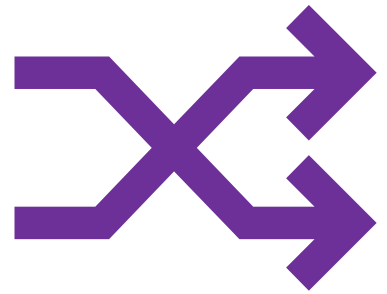
FuboTV quarterly financials (USD)



Source: fuboTV

Aside from the shift to DTC subscriptions, alternative monetization models are also being experimented with recently. One example is a deal between a YouTuber Logan Paul and former boxing star Floyd Mayweather Jr. to fight in a "special exhibition" match in February 2021. The fight will be streamed through a pay-per-view (PPV) payment model on Fanmio, a celebrity-focused platform, with a complex ticket pricing structure starting at \$24.99 (which applies only to the first million e-tickets), rising to \$39.99, then \$59.99 from 29 December, then \$69.99 from 11 February. The last fight of Floyd Mayweather Jr. before his retirement generated more than \$550 million in revenue. The high premium charged on the boxing event is based on the interactive experience promised by Fanmio through its experience platform, which underlines the importance of interactivity in consumer experiences mentioned earlier, as well as the innovative reliance on individual influencers to provide exclusive content.

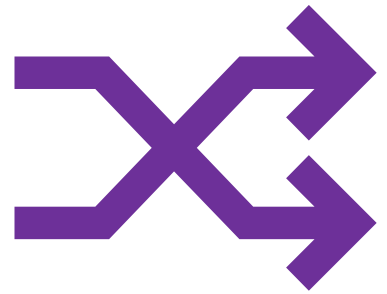
Drivers of Change



As another example of this, Spanish football league LaLiga started a multi-year partnership with the mobile technology company Mondia at the end of 2020 to launch a mobile subscription app relying on exclusive content and interactive user experiences, such as the opportunity for subscribers to participate in a live chat with a league ambassador.

The examples above highlight that monetization models in the sports industry may become more “liquid” than ever before with a higher reliance on interactive consumer experiences as well as e-commerce features. The growth of the sports betting industry in recent years is another example of this trend. In January 2021, FuboTV acquired Vigtory, a sports betting and interactive gaming platform, to blend both betting and gaming functionalities into its OTT experience. David Gandler, FuboTV’s co-founder and CEO, said of the acquisition: “We believe online sports wagering is a highly complementary business to our sports-first live TV streaming platform. We do not see wagering as simply an add-on product to FuboTV. Instead, we believe there is a real flywheel opportunity with streaming video content and interactivity. We not only expect sports wagering to become a new line of business and source of revenue, but we also expect that it will increase user engagement on FuboTV resulting in higher ad monetization, better subscriber retention and reduced subscriber acquisition costs.” This brings us back to the transition to DTC as well as the importance of CX and monetization in DTC models. Technology investment is following this trend, consistent with the wider reallocation of resources in the media technology market mentioned earlier in this report.

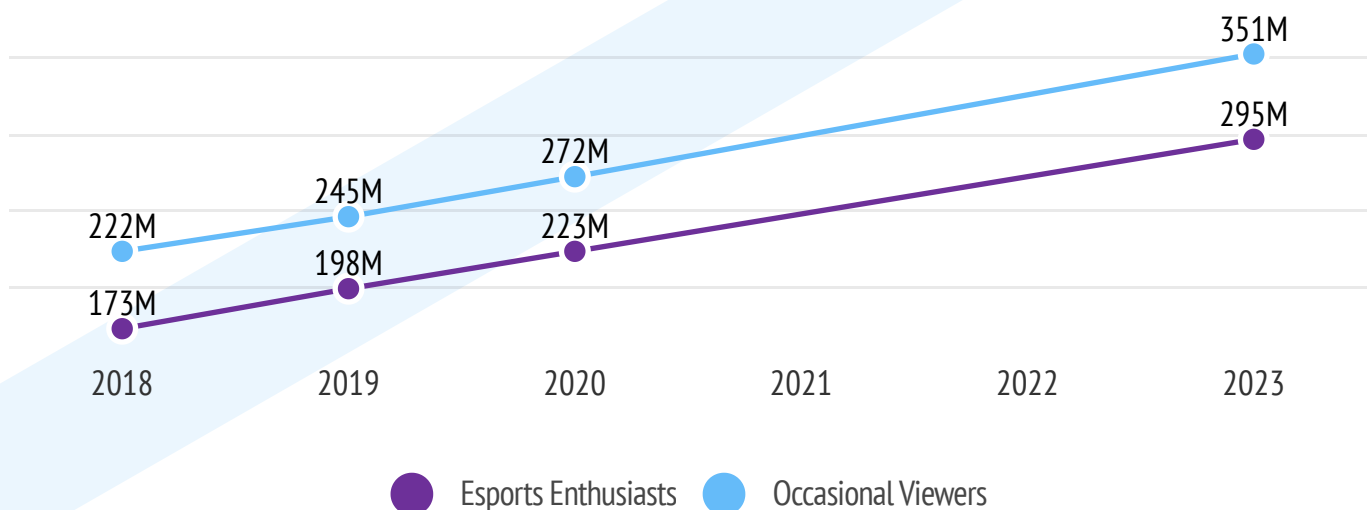
Drivers of Change



The growth of Esports

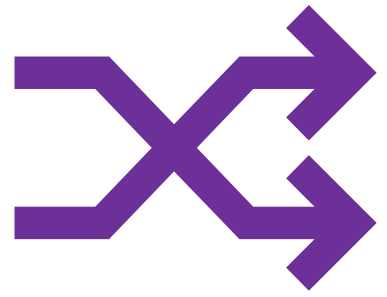
The growth of Esports in recent years is consistent with the demographic change in sports audiences and the increasing demand for interactivity associated with it. Esports are multiplayer video games played competitively in front of an audience. Advances in technology have accelerated the growth in Esports, even allowing gamers to compete remotely during the COVID-19 lockdowns. Esports, and more generally gaming, has been particularly resilient during the lockdowns as players stuck inside their homes turned to more Esports playing and viewing. However, cancellations of Esports events also hit this sector, which also relies on stadium experiences and tickets to drive its revenues. The net effect was mostly positive for the industry as physical events represent a small portion of its revenues. According to data from Newzoo, at the beginning of 2021, there were more than 495m Esports viewers. Esports surpassed USD 1.1b revenues in 2020 - a year on year growth of 16%.

Esports audience growth worldwide



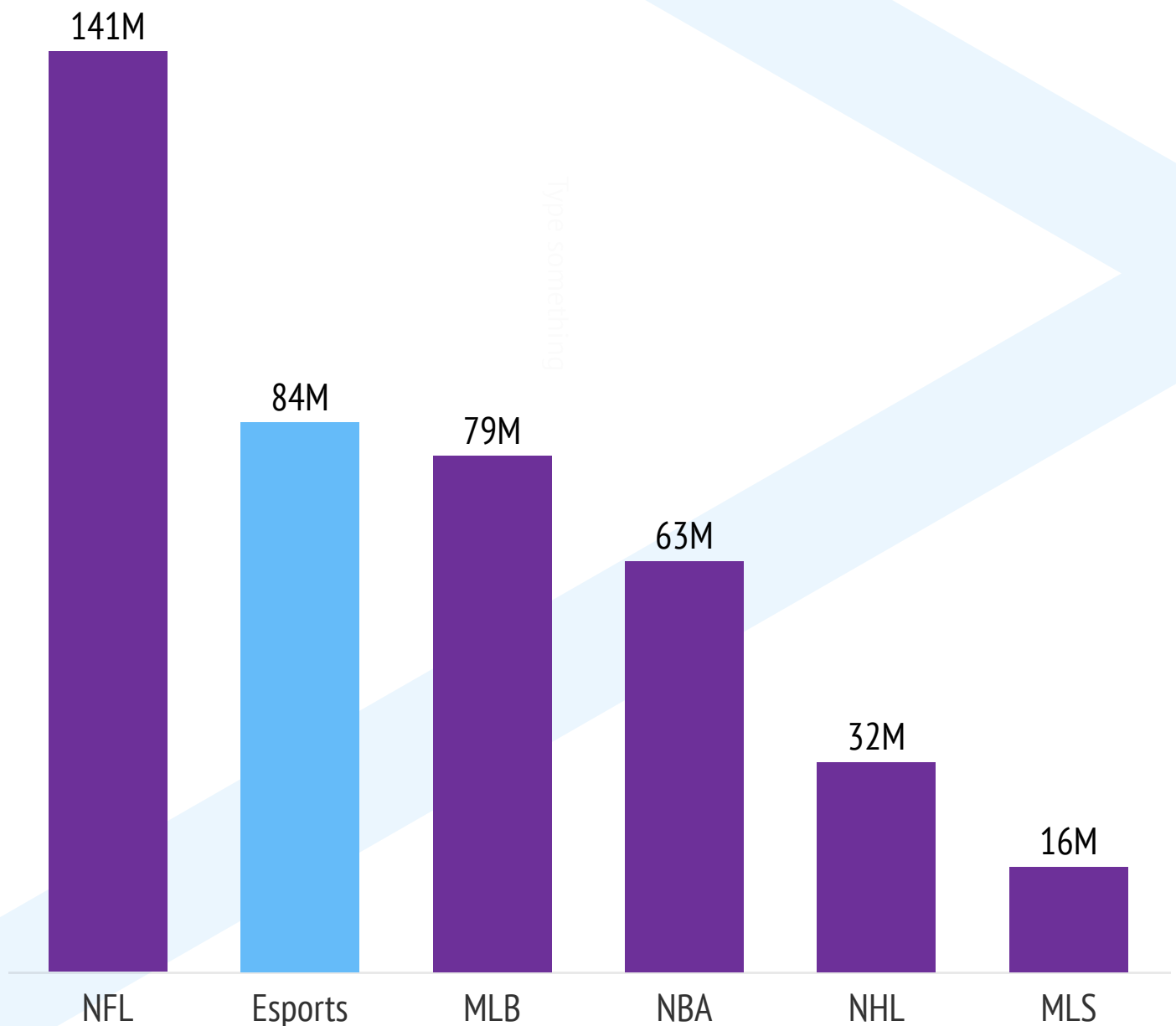
Source: Newzoo - 2020 Global Esports Market Report

Drivers of Change



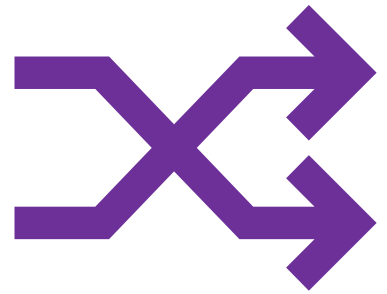
According to data from Syracuse University, Esports will have more viewers than every professional sports league but the NFL by 2021.

Esports viewers in the US (in millions)



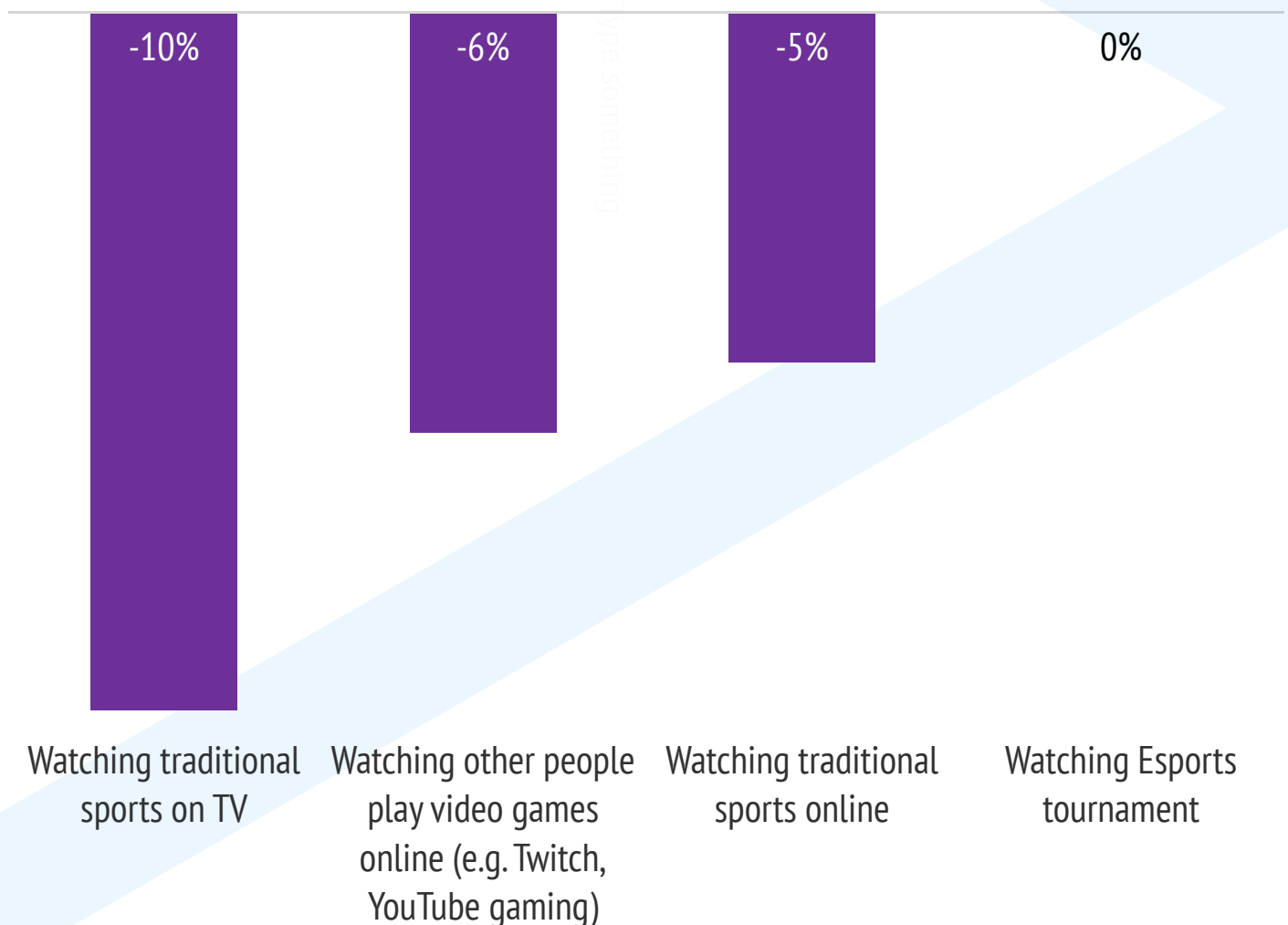
Source: Syracuse University

Drivers of Change



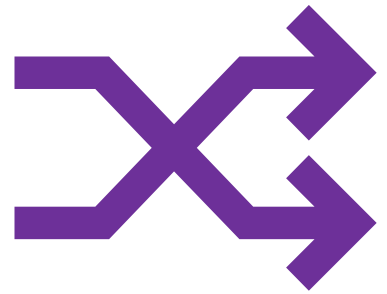
People who play video games are spending less time watching traditional sports, both online and on traditional broadcast TV, according to recent research from Limelight. This highlights that Esports can be a driver of the decline in traditional sports viewership as well, underlining its importance for broadcasters. While traditional sports viewing, both on TV and online, went down in 2020, Esports viewing retained its popularity during the COVID-19 pandemic.

Esports viewing habits YoY change (decline)



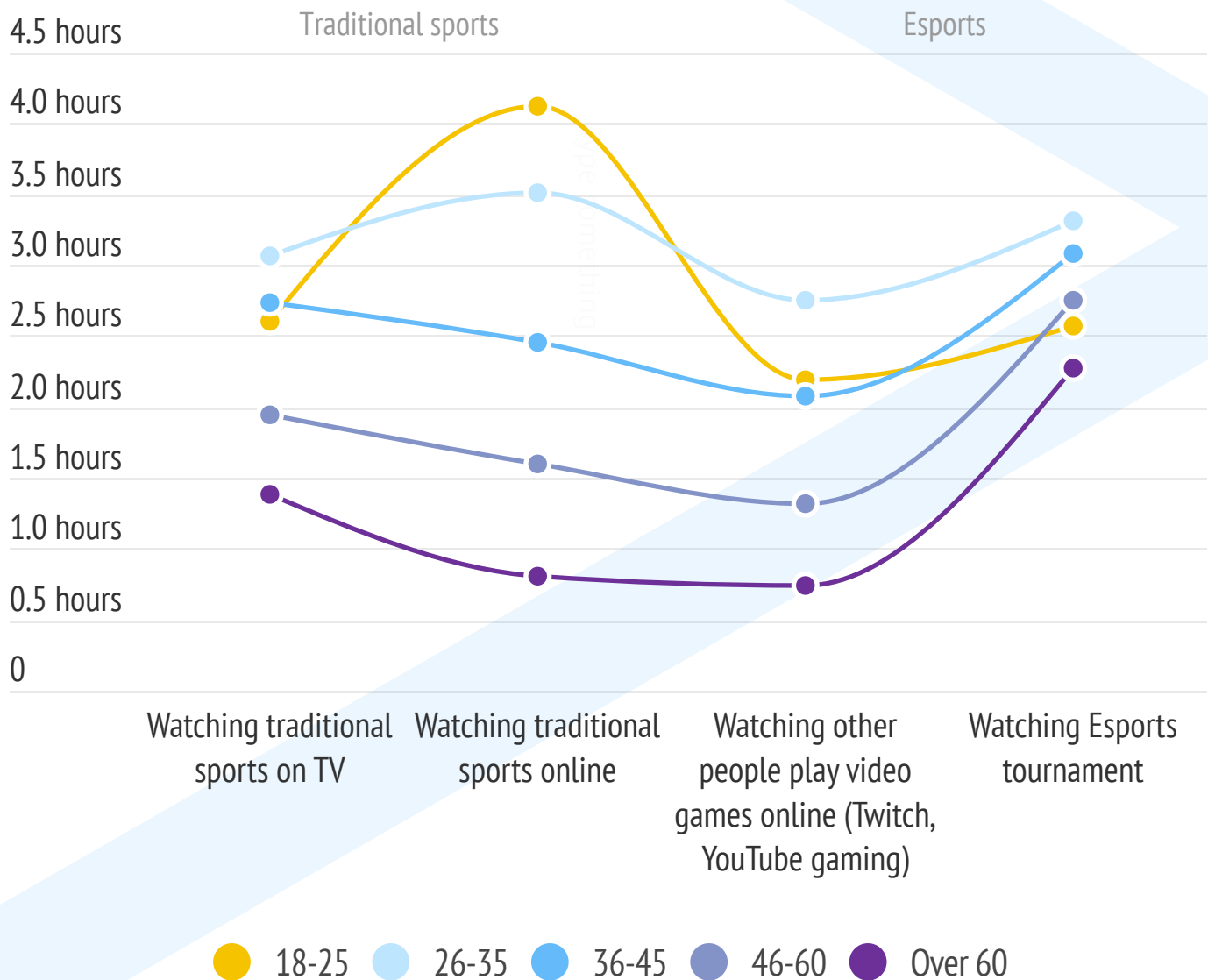
Source: Limelight

Drivers of Change



Younger gamers are moving away from watching traditional sports on television. At the same time, gamers over 60 years old spend more hours watching Esports tournaments than watching traditional sports or other people playing video games.

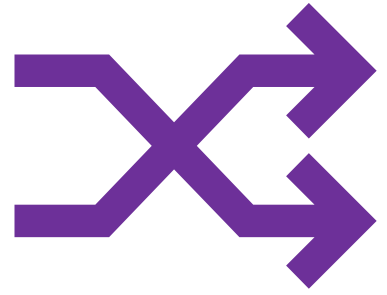
Hours per week spent on each activity



Source: Limelight



Drivers of Change

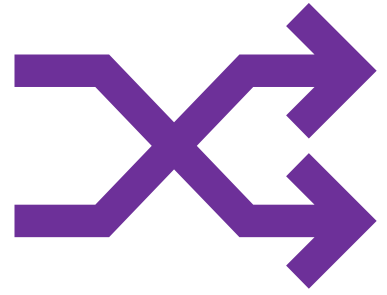


In 2020, Esports partnerships featuring Esports organizations, sports leagues, teams and broadcasters have continued to flourish. For example, the 2018 NFL Champions Philadelphia Eagles entered a multi-year partnership with Esports Entertainment Group, which became the first Esports tournament provider for an NFL team.

Moreover, as evidenced earlier, broadcasters turned to virtual events and Esports to fill the holes in their programming schedules left by the cancellations of events. The BBC renewed its interest in Esports in 2020 by securing broadcast deals for League of Legends, Rocket League, and women's motorsport championship W Series Esports. ITV's audience for the Virtual Grand National in April 2020 grew six-fold due to the pandemic. NASCAR's virtual race attracted a record 1.3 million viewers in April 2020. Sports leagues such as Formula 1 also reached record audiences through virtual racing events during 2020.

Esports is becoming an important market for media technology. The rising budgets of Esports organizations have been targeted by media technology suppliers although most of them are just entering this sector. Production technology suppliers have particularly targeted this sector with new offerings in product categories such as cameras, switchers, or audio systems. According to IABM research, media technology buyers and suppliers rank gaming and Esports as the seventh most important trend in the industry's technology roadmap.

Drivers of Change

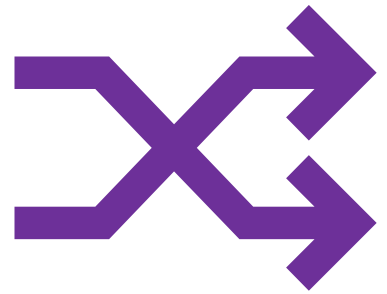


The Esports sector is mostly described as very similar to broadcasting in terms of the level of quality demanded – or even more so, considering the “techie” nature of gamers that make up Esports audiences. However, as these organizations’ skills are skewed towards software and digital, a high level of support in terms of quality and broadcast workflows is needed when providing technology to them. As often argued by IABM research, digital-native buyers are generally more inclined to risk-taking and innovation compared to traditional broadcast.

The COVID-19 pandemic forced Esports production outlets to move to remote production, akin to broadcasters. Blizzard, one of the largest gaming publishers in the world, had to ship cameras to players as well as migrate its infrastructure to a cloud-based environment, as explained by Corey Smith, Blizzard’s director of live operations, at an SMPTE 2020 panel. As in traditional sports applications, metrics such as (low) latency were of critical importance in this deployment and in Esports production in general.



Drivers of Change



COVID-19 Impact on Tech Investment

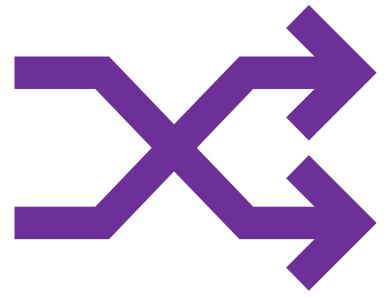
According to IABM research, 32% of sports media companies are planning to increase investment in media technology, with 22% remaining flat and 35% reducing investment – the rest do not know. COVID-19 has certainly impacted budgets in the sports industry, with media companies having to cut budgets due to lower revenue and reallocate spending to priorities such as business continuity, remote production, social media engagement and digital archiving. As an example of this, some live production services were re-purposed to digital archiving solutions in a sudden business shift. VISTA Worldlink told IABM that most of its services had been repurposed away from sports production and towards creative digital archiving solutions. As argued before in this report, the sports industry is affected both by general media technology trends such as cloud, AI/ML, and remote production, as well as trends that are more specific to the industry such as the convergence of entertainment with gaming and e-commerce experiences discussed before. IABM research shows that live sports priorities resemble those of the general media and technology industry.

Media Technology Investment Outlook



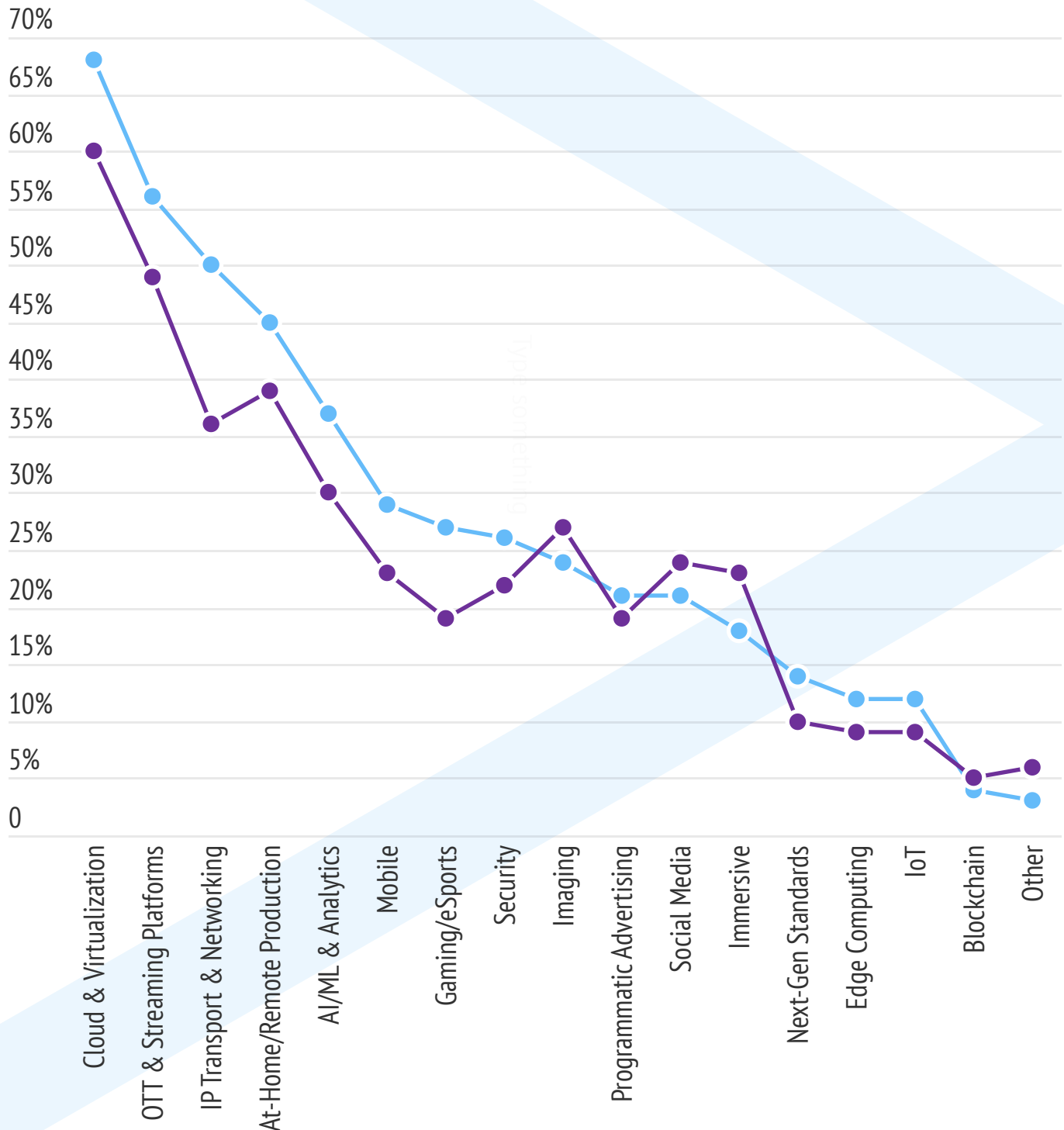
Source: IABM's Media Tech Business Tracker

Drivers of Change



Technology priorities

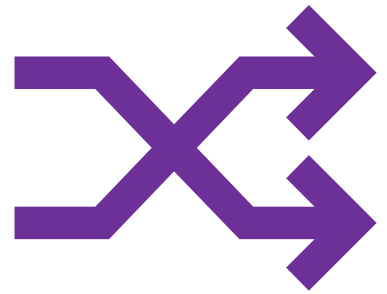
● Live Sports ● Broadcast & Media Industry



Source: IABM's Media Tech Business Tracker



Drivers of Change



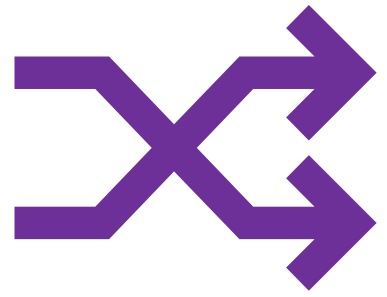
From a content supply chain perspective, IABM data shows that **sports production** technology buyers are more focused on real-time production graphics, an area where arguably they are continuing to lead innovation. Real-time production graphics and remote production were the fastest-growing areas of production investment for sports buyers according to IABM data.

In **content management**, sports technology buyers' recent focus on archive management and cloud archive shown by IABM data backs up the increasing interest in digital archiving argued above. When it comes to infrastructures, IABM data shows that most of them invested in IP technology as well as internet or IP connectivity, which is arguably a proxy for increasing remote production deployments in this period.

In **content distribution**, most sports buyers have focused on areas such as internet distribution and data analytics according to IABM data. This is consistent with the growth in streaming argued before in this report as well as the increasing importance of data in monetization models and consumer experiences. The following is a review of the selected major areas of technology investment for sports media companies according to IABM research.



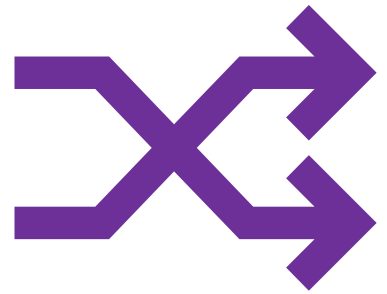
Drivers of Change



Remote Production

According to IABM research, the COVID-19 pandemic has accelerated the transition to remote production - a trend that was already underway at sports media companies - shifting technology investment priorities out of pure necessity. Remote production deployments were often constrained by risk-aversion in the sports industry, as sports events typically drive a high level of revenues. With some revenue sources evaporating due to the cancellations of events, the risk-aversion disappeared, spurring innovation. The IABM Coronavirus Impact Tracker showed that remote production and virtualization were among the chief beneficiaries of the COVID-19 crisis in Q2 2020. According to IABM research, the main benefit of remote production lies in asset centralization in one facility, which in turn enables increased content coverage, increased resource productivity, and cost savings in terms of reduced travel expenses. Interviews with media companies underline that, in most cases, increased coverage is the primary objective behind remote production deployments. From a logistical perspective, the pandemic has forced media companies to quickly deploy decentralized, remote production models. As an example of this, BT Sport moved its entire production operation out of its studio and turned it into a decentralized, remote operation, with technology such as mixing consoles, graphics systems, and cameras being sent to employees' homes.

Drivers of Change

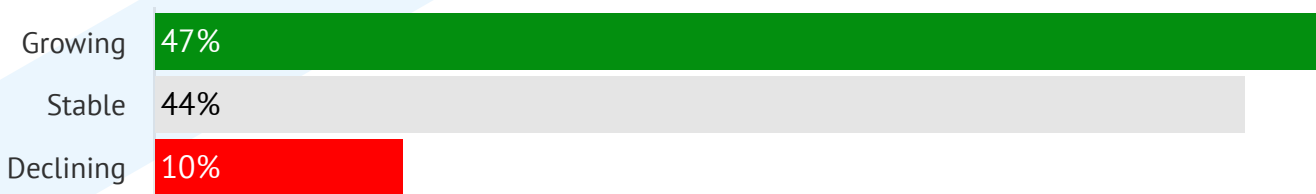


The BT Sport deployment conveys the level of innovation which has happened in such a short time span. Despite the dispersion of physical equipment across homes, the logistical benefits of remote production, including the virtualization and centralization of resources, still applied.

Other major sports broadcasters have said that they are investing more in remote production deployments. As an example of this, ESPN reported that its remote production capabilities will support 50% of its basketball coverage in 2021. We expect this percentage to grow next year, particularly at larger sports organizations and in geographies where pandemic-induced restrictions are more stringent – which is a driver of remote production.

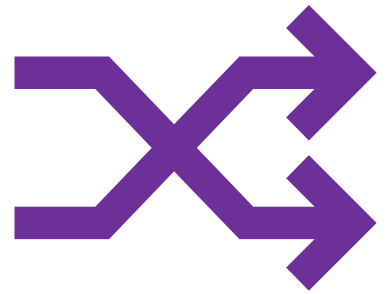
IABM data on the increasing investment in connectivity resources, as well as areas such as bonded cellular, reflects the rising interest of sectors such as news and sports in remote production. The fortunes of companies such as Zixi, Dejero, and Bebo Technology in this period are examples of this rising investment as well. Increasing interest in remote production has also driven acquisitions such as LTN Global's acquisition of DTAGS and Sony's acquisition of Nevion in 2020. Cloud investment has grown due to increasing remote production deployments as well, as demonstrated by Blizzard's move to a cloud-based infrastructure.

Connect Investment Outlook

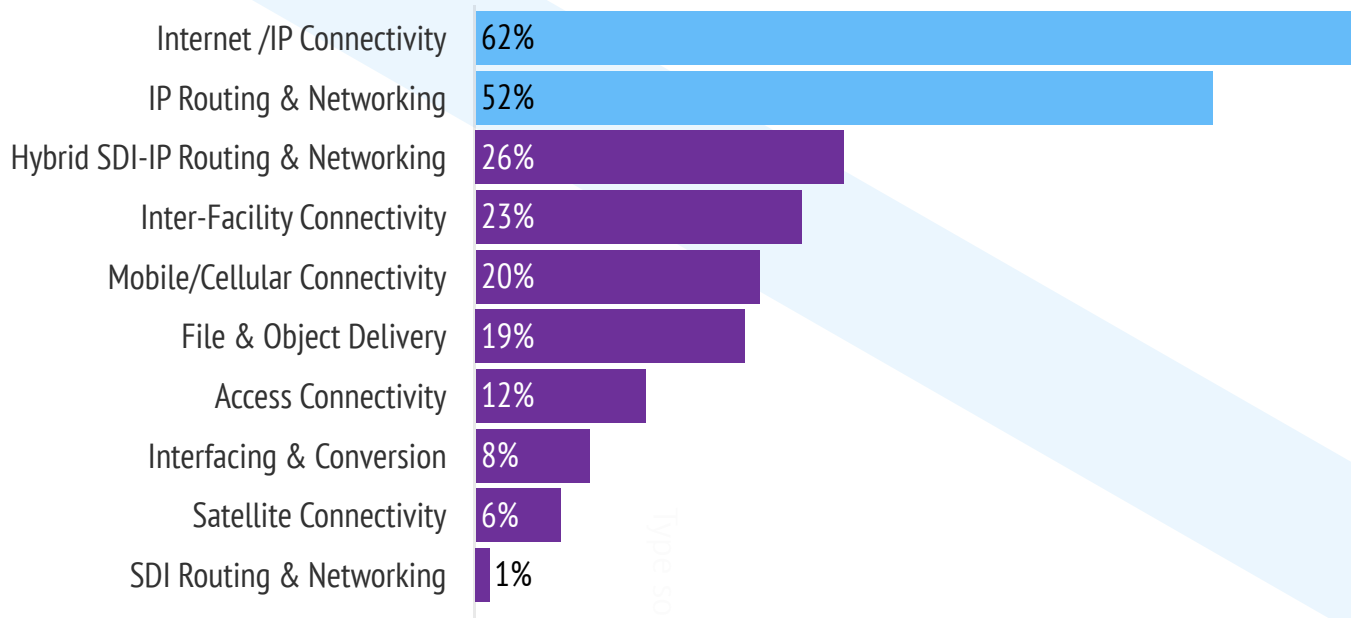


Source: IABM's Media Tech Business Tracker

Drivers of Change



Fastest-Growing Technology Categories in Connect



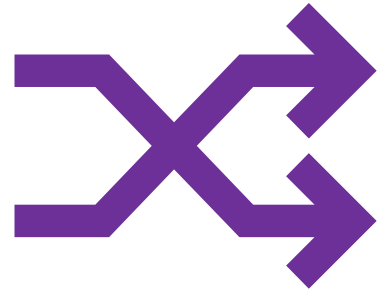
Source: IABM's Media Tech Business Tracker

According to IABM research, many of the remote production models implemented in this period were the result of quick decision-making to deal with business continuity issues. We expect companies to re-evaluate these models and optimize the configuration of remote workflows in 2021. This entails the enablement of collaborative workflows while optimizing metrics and areas such as user interfaces, latency, connectivity, and resource allocation in a hybrid fashion.

This is particularly true as some production personnel continue to work from home and as some specific sports workflows had been historically linked to specialized hardware used on-site. There is a wide array of practical challenges related to virtualizing access to sports production tools as well as dealing with individual connectivity issues. We also expect companies to continue to experiment with emerging technologies such as 5G for mobile remote production, which is just starting to emerge.



Drivers of Change



Cloud & Virtualization

As for remote production, investment in cloud and virtualization has been accelerated by the pandemic in 2020 out of necessity. It is important to note that cloud is often a means for enabling other activities such as remote production or data-driven workflows, where it is married with AI/ML technology.

In April 2020, the NFL partnered with AWS to produce the NFL Draft remotely. The NFL sent smartphones to participants such as coaches and teams to enable the production. The event gained 55 million viewers – a 37% increase YoY. Other organizations were forced to produce live events remotely, particularly in the first months of the pandemic.

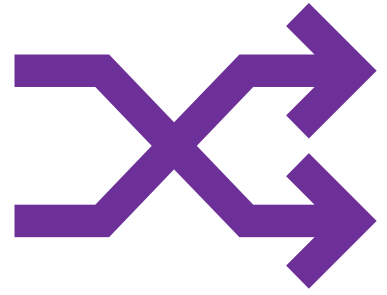
When it comes to AI/ML workflows, companies such as NASCAR have moved to cloud-based archiving to enable this. NASCAR migrated its 18-petabyte archive to AWS in June 2019 for increased asset tagging and video analytics in the cloud, mostly to automate routine processes – more on this below. Aside from remote production and AI/ML, cloud investment in sports has been driven by the need for digital archiving mentioned earlier in this report, as well as the need for increase content sharing.

In 2020, cloud investment has particularly continued in the low-hanging fruit of content distribution though IABM research shows that cloud-based production in sports is still in its infancy despite the pandemic-induced innovation in this area.

In December 2020, ViacomCBS migrated its entire broadcast infrastructure to AWS, including 425 linear TV channels and 40 global data and media centres. ViacomCBS' transition follows Fox's at the end of 2019 and Discovery's well before then. Large broadcasters are migrating large



Drivers of Change

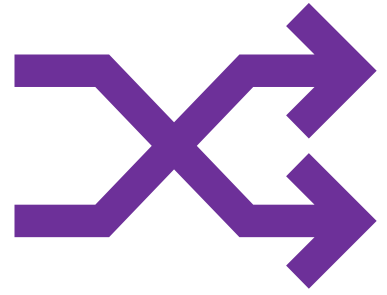


portions of their operations to the cloud to leverage their AI/ML capabilities as well as simplify their multi-platform distribution. Fox's transition in 2019 was particularly interesting as it enabled the broadcaster to leverage AWS Outposts to run critical media workflows such as editing and graphics on-prem at Fox's facilities, a paradigm that resembles the idea of edge computing. Leveraging edge computing services for enabling distributed at-home productions could be an interesting area of development when it comes to dealing with some of the practical challenges of remote working.

Eurosport is currently undergoing a major technology transformation, which includes utilizing cloud and remote technology within a unified production ecosystem to allow it to create and deliver its content to different platforms. Eurosport partnered with Grass Valley for the deployment. Gordon Castle, Eurosport's SVP of Technology, said in the press release: "Eurosport's technology transformation is a fundamental part of the evolution of Eurosport business and delivery across both linear and digital platforms, helping us to unify and streamline all our operations. Many of these were previously disparate legacy systems, but now we can leverage content so much more effectively and across the organization, from whichever location our teams operate." This highlights that one of the main drivers of cloud adoption, even in the sports sector, is moving away from the siloed nature of legacy broadcast infrastructure to a more unified and holistic view of these operations.



Drivers of Change



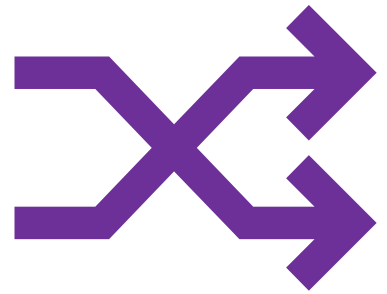
AI/ML & Analytics

According to IABM research, sports investment in AI/ML and analytics has focused on streamlining production, gathering more granular content data, and gaining increasing insights into audiences. IABM research also shows that most media companies deploying AI/ML do it through the reliance on cloud service providers' capabilities.

In sports production, a major use case has been workflow automation. This has ranged from automating highlights production to automating routine elements of sports content creation. In terms of highlights production, this has been a popular use case with broadcasters working on linking this with increased social media engagement, particularly during the pandemic. Automation of camera systems has been trialed by some broadcasters with a similar objective to remote production: covering more content through deploying automated production tools, particularly in niche sports or lower-tier events. Solutions such as those offered by Pixellot or EVS target this need.

In content management, the NASCAR case study highlights the major benefit of AI/ML, which is increased data granularity through automated tagging. In 2020, Fox Sports partnered with Google Cloud to enable a similar use case. The press release states: "Fox Sports announced it is working with Google Cloud to automate one of the most manual processes in media and entertainment - logging, discovering and storing video assets," with the main use case being: "applying Google's machine-learning models to automatically identify and label clips across hundreds of categories, from player jerseys and key plays and interviews, to on-field celebrations."

Drivers of Change

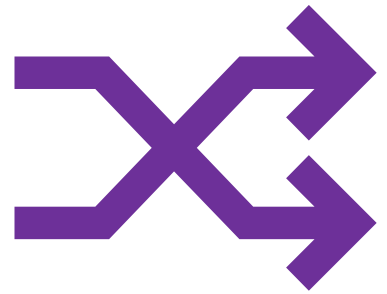


This is an illustrative case study; partnerships between cloud service providers and sports organizations have flourished in 2020. The data gathered on content can be leveraged for monetization, as AI/ML can be used in a plethora of activities such as advertising sales analytics.

It is worth highlighting the linkage between analytics and immersive experiences which is particularly relevant to the sports industry. Sports consist of data-heavy events that can be turned into data-driven graphics by broadcasters. As an example of this, Formula 1 has worked with AWS to build an ML pipeline to process, analyze and predict racing trends. The use case for this is providing increasing insights to sports fans, who highly appreciate sports statistics. According to the case study: “During each race, 120 sensors on each car generate 3 GB of data, and 1,500 data points are generated each second.” Other examples of sports leagues using AWS for this use case include the NFL, the Bundesliga, and the Guinness Six Nations. Other organizations have worked with Microsoft Azure and Google Cloud on similar use cases.



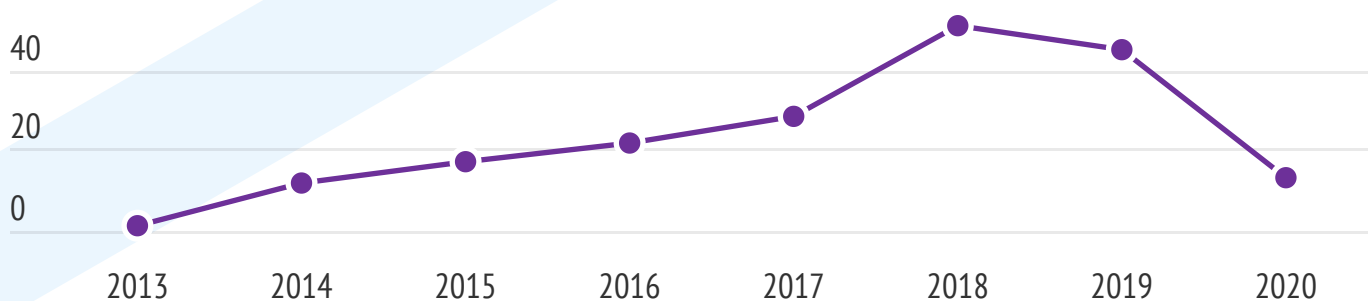
Drivers of Change



Imaging & Immersive

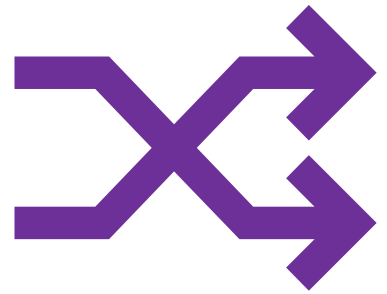
The COVID-19 pandemic has impaired investment in imaging, particularly when it comes to distribution. The sports industry had been a major pioneer of launching new imaging formats such as 4K/UHD in concurrence with major events such as the Summer Games. The cancellation of these events has certainly taken its toll on imaging investment although broadcasters have also deprioritized this to focus on more pressing issues such as business continuity and digital transformation. While formats such as 4K/UHD are now commonplace in sports production as well as in premium streaming, the number of UHD channels has fallen significantly in 2020. UHD Forum data shows a sharp decline in the number of UHD channels between 2019 and 2020 which can be imputed to the reasons mentioned earlier. We do see this as continuing in 2021 aside from the standalone innovation that could be happening at major events such as the Summer Games. Aside from 4K/UHD, we see little interest in 8K as well as broadcasters continue to prioritize their digital transformations. According to interviews carried out by IABM, quality is now a broad concept encapsulating not only image quality but also consumer convenience and personalization.

Number of UHD channels worldwide



Source: UHD forum

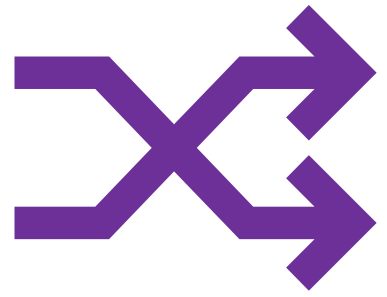
Drivers of Change



Immersive in sports is instead a strategic area of investment. The absence of fans in the stadium has driven some broadcasters such as Sky to experiment with artificial crowd noise to augment the consumer experience. Immersive audio has therefore become a tool to recreate the stadium experience. Although IABM research shows that immersive audio deployments are still in the emerging phase, the COVID-19 pandemic may have swung the pendulum in favor of audio quality – vis-à-vis image quality. Consumers have certainly realized the importance of audio quality due to the pandemic-induced disruptions to this.

The major area of investment growth in immersive remains augmented reality (AR) graphics, which are being increasingly used in conjunction with sports data and relied on to augment the sports experience. Sports broadcasters have been investing in AR-powered virtual sets, often using specialized solutions that make use of Unreal Engine, to increasingly engage with their fans. IABM research reported that this investment gained traction in 2018 in concurrence with major sporting events such as the World Cup. Therefore, this was a strategic area of investment well before the pandemic hit though COVID-19 has incentivized sports broadcasters to look at AR technology more and in different ways. BT Sport launched its new Match Day Experience on the BT Sport app, delivered in collaboration with EE's new 5G network, to overlay AR features such as match statistics, during its EPL coverage. This experience was only available for 5G subscribers of mobile operator EE using an iPhone 12. The deployment featured a 360-degree experiences for fans to leverage the cameras in the stadium for a virtual visit.

Drivers of Change



As argued earlier in this report, the pandemic has also incentivized broadcasters to create more immersive experiences through interactivity. With the return of Premier League behind closed doors in June 2020, Sky Sports and BT Sport launched shared watching services for second screens. Sky's Fanzone is available on the Sky Sports website and as an app while BT's Watch Together is available on the BT Sports app (through iOS devices only). Both services enable viewers to interact with each other while watching live matches, among other features such as chatting. This area, along with the initiatives launched by broadcasters to partner with new media distribution outlets, should grow as well.