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A report by the Center for Technology, Media & Telecommunications

ESports graduates to the big leagues

Can eSports help media and entertainment companies access a changing audience?

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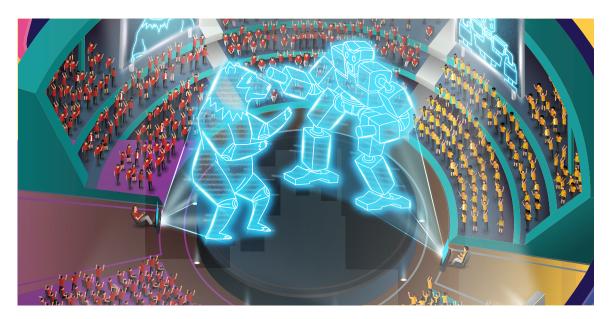
Introduction

IFTEEN THOUSAND PEOPLE are packed into a darkened arena, lit only by the rapid flickering of enormous screens and the glow from glass-walled player rooms set across the stage. A high-energy announcer calls the plays as fans erupt into chants and cheers, encouraging their favorite teams to victory. Five million more viewers watch remotely via streaming services, many chatting and broadcasting their own commentary. Some have paid extra to watch directly through their own games, driving the camera wherever they want, controlling their onscreen experience. For the players, the stakes are high, with \$24 million in cash prizes.¹

Such was the scene at Valve's 2017 International DotA 2 Championships. And this level of spectacle will likely be increasingly common in coming months and years, with more views, sponsorships, and money than ever before.

From team-based battles and first-person arena combat to digital versions of professional sports and mixed martial arts, eSports are drawing large audiences of fans with a passion for competitive video gaming—both as participants and as observers through platforms such as Twitch. And many big companies across the media and entertainment industries are getting involved, vying for access to an audience that's moving beyond the reach of traditional media.

The rapidly maturing eSports industry is already bigger than many realize. Only eight months after its release, Epic Games' shooter game Fortnite: Battle Royale counted 40 million users logging in to play each month.² In addition, Fortnite has swiftly become the most-viewed title on Twitch, with more than 4,500 user channels streaming the games-and an average of over 140,000 viewers at any given time watching players and their commentary.3 Similarly, in just one week in June 2018, viewers on Twitch spent 17.7 million hours watching players compete in League of Legends matches.⁴ The overall numbers of eSports viewers and hours are large and growing, raising the stakes for businesses looking to get involved either in front of or behind all those screens.



The playing field

ROM ARCADE COMPETITIONS in the 1980s⁵ and LAN parties in the early 1990s⁶ to the rise of massively multiplayer online games in the 2000s,⁷ gamers have spent decades building the foundations of eSports. The development of robust

computing and graphics platforms, along with the growth of social media and high-speed internet access, has helped enable designers to introduce highly responsive and deeply immersive shared gaming environments. Now, the market for video games has grown so much that industry revenues are more than double global box-office receipts for films.⁸

Along the way, digital games have evolved from long-form, narrative-

based, single-player experiences to more persistent, social platforms with integrated point-of-sale and real-time communication. This shift to games as a service enables game publishers' sustained engagement with gamers through in-game sales of downloadable content that offers customization, personalization, and new challenges, alongside free content that keeps the game fresh.9 Some gamers also stream their play and commentary, bringing lucrative marketing opportunities to the top accounts.10 Multiplayer games and the networks and computing hardware that sustain them are now typically robust enough to handle both large numbers of players and a global audience of social spectators. This rich ecosystem has created numerous social and economic incentives for stakeholders.

By 2020, the global eSports market is expected to generate \$1.5 billion in annual revenues, primarily from sponsorships and advertising to an estimated global audience of 600 million fans.¹¹ Marketers bestowed more than 600 brand sponsorships on eSport titles and events in 2017 alone.¹² Additional money comes from betting, ticket sales, and merchandise.¹³ Revenues and engagement from eSports are increasingly driving top gaming publishers' valuation and sales. In its Q4 2017 earnings announcement, Electronic Arts reported 18

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> million players engaged in competitive gaming on its FIFA 18 and Madden NFL 18 titles, up 75 percent over the previous year.¹⁴ Ubisoft followed suit in its FY 2017 earnings, citing record eSports viewership with Rainbow Six Siege.¹⁵ More popular game titles are shifting to offer competitive multiplayer experiences.

> For many businesses in media and entertainment, eSports offers a way to reach a demographic that's been increasingly beyond their grasp. In general, players and fans are younger, less likely to watch linear TV, and often less interested in professional sports than the population as a whole. In 2017, Nielsen Media evaluated the demographics of eSports enthusiasts and found that 70 percent are male, ages 13 to 40, two-thirds said they watch live eSports, and 37 percent have attended live eSports events.¹⁶ Deloitte's own *Digital media trends survey* shows that half of Gen X respondents say they play video games at least once a week, almost as much as millennials and Gen Z respondents, and Gen X leads all generations in

the amount of time they spend playing games on mobile.¹⁷ Older generations might dismiss video games, but their children grew up with them and continue to play on consoles, smartphones, and PCs.

Viewer habits are also shifting. In 2017, pay TV subscriptions fell by 3.6 million as cord-cutting viewers continued to move to streaming and social platforms.¹⁸ Despite these new channels of distribution, providers have generally stuck with their traditional business model: gathering audiences and then selling third parties access to their attention. Facebook has purchased exclusive rights to livestream tournaments of four popular eSports organizations, including Valve's Counter-Strike: Global Offensive Pro League.¹⁹ Amazon's streaming service, Twitch, has acquired exclusive rights to stream Blizzard's Overwatch League games.²⁰

One challenge for the industry—both game publishers and the companies building and maintaining the infrastructure making multiplayer gaming possible—has been metrics, since participants don't necessarily fit into traditional TV-industry buckets. But that is evolving as well—for instance, after Nielsen launched an eSports division, the organization partnered with Activision to bring audience analytics into Overwatch and Call of Duty.²¹ More insight into use can help bring familiarity and clarity to the eSports market while driving advertising revenue to game publishers.

The eSports industry is currently dominated by well-known gaming publishers and a handful of young, fast-moving contenders, but the playing field can shift rapidly: Fortnite's explosion in popularity came largely at the expense of PlayerUnknown's Battlegrounds.²² Popular titles are often on PCs and consoles, with mobile platforms becoming increasingly active. Most titles fall into a handful of distinct categories, each with its own community. Multiplayer online battle arenas—often shown from an overhead perspective—feature team competition, typically focused on capturing the opposing team's base. Fighting games pit two players against each other like a virtual mixed martial art. First-person shooters put the camera behind the player's eyes and are fast-paced "twitch" combat games. Most recently, "battle royale" games drop unarmed players onto a bounded playing field where they must find resources and weapons and then battle to the death, leaving one winner standing. And professional team sports such as basketball, soccer, and football offer a variety of popular competitive video gaming titles.

Unlike in professional sports, which are organized in leagues with independently owned teams, a single publisher controls each eSports game. Centralized ownership typically means that each publisher needs to work closely with leagues, players, advertisers, and broadcasters once a particular game becomes popular enough to create an ecosystem. Developers have plenty of incentives to enhance playability, fairness, engagement, and value—and to maintain their titles' popularity over time with updates and sequels.

The stakes are high: At least 30 major eSports tournaments around the world are scheduled in 2018,²³ with top players signed to multiyear contracts worth up to \$320,000 annually.²⁴ Success in professional eSports demands rigorous teamwork and unflinching commitment to high performance;²⁵ winning teams can earn millions in prize money, with popular teams and players drawing significant income from advertising, merchandise, and royalties. It's no surprise that—as many parents know—many teenagers seriously aspire to be professional gamers.²⁶ Some parents are now taking their kids to live eSports events, sharing an experience that lies at the heart of spectator sports.

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Welcome to the big leagues

HE ESPORTS PLAYING field continues to widen, offering opportunities-and wake-up calls-to media and entertainment companies looking to grow in this new digital landscape. In 2018, game publishers launched three new North American franchise leagues: the NBA 2K League, the North American League of Legends Championship Series, and the Overwatch League. As with traditional sports leagues, the franchise model allows investors to buy team slots-for as much as \$20 million27-with territorial rights. Typically, franchises establish revenue sharing among games, events, merchandising, and players, as well as minimum pay, benefits, and training facilities. These commitments commonly reinforce the incentives for investors and stakeholders to stay in the game and create a framework for players' associations and independent governance.

The franchise model signals a big shift into the mainstream and a concerted effort by the eSports ecosystem to become a full-fledged industry. With league franchises can come a reasonable expectation of longevity, more distributed risk, and larger—and broader—revenue opportunities. Game publishers, with major franchise investments, have more incentive to keep existing titles alive and vital—imagine the economic fallout if the National Basketball Association decided to stop supporting professional basketball. Spending \$20 million for a team slot in a new eSports league assumes the

league will be around long enough to recoup the investment, and sufficiently popular that players and viewers will stick with it.

Franchise leagues can also advance the efforts of governance bodies tasked with enforcing behavioral norms, advocating for protections, ensuring integrity, and fighting fraud. Cybersecurity will likely need further prioritization to protect teams and players, secure data and analytics, and prevent vulnerabilities and intrusion.28 Authorities should consider aggressively rooting out cheating, doping, and hacking to defend matches' fairness and credibility. As the economics expand along with the ecosystem's complexity, the attack surfaces and the incentives for criminal activity will likely do so as well. Likewise, businesses engaged with eSports will likely face tax and risk complications as the field grows geographically as well as demographically.

From buying and sponsoring teams to securing broadcast rights, advertising channels, and M&A, savvy businesses can access lucrative investment opportunities while there's still room for the market to grow. Chinese conglomerate Tencent has emerged as a strong player in the game, leveraging its chat and payment platforms to drive engagement around its video gaming portfolio. In 2017, Tencent announced a plan to spend \$15 billion developing the Chinese eSports market.²⁹ Many other businesses are jumping in.

Take the shot

In April 2018, NBA commissioner Adam Silver took the stage at Madison Square Garden's Hulu Theater to announce a list of new draft picks.³⁰ Silver spoke of their "combination of physical and mental skills," the NBA's commitment to their personal

welfare, and referred to them as "NBA players." But none of the people who excitedly joined Silver on stage as he called their names had won championships NCAA or spent years perfecting their jump shots-they were professional eSports competitors, now certified by pro basketball's highest authority. Their contracts would entitle them to housing, relocation fees,

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in competitive gaming. The NBA may have taken the biggest step toward legitimizing and partnering with eSports. But other leagues, and other sports-professional and collegiate-are commonly following suit. In October 2017, the New York Yankees partnered with Vision Esports, a holding company for eSports investments.32 Five months later, Vision closed a \$32 million funding round

insurance, a retirement fund, and a guaranteed salary.

The 2018 NBA 2K draft established the roster for 17 teams in the inaugural season of its NBA 2K League—what Silver calls the association's "fourth league"³¹—thus formalizing the NBA's relationship with eSports and signaling its intention to widen its audience. As the first professional sports organization to form a franchise league, the NBA is testing the market, establishing leading practices, and that included investment from football star Odell Beckham and basketball star Kevin Durant.³³ In May 2018, New England Patriots owner Robert Kraft paid \$20 million to secure a team spot in the new Overwatch League.³⁴ The Big Ten Network and Riot Games recently extended their partnership with a new two-year contract.³⁵ Teams from the Big Ten Conference schools compete in Riot Games' League of Legends, concluding the season with an eight-team playoff tournament.³⁶

highlighting the challenges, making it easier for others to get involved. ESports is now an official part

of pro basketball's future. Many NBA officials see similarities that align with their existing business,

as well as new pathways to younger audiences on

digital platforms and global opportunities opening

A field of dreams

N MANY WAYS, the development of eSports represents a natural evolution. Over the last two decades, multiplayer competitive video gaming has globalized and spread across the internet and social media, aggregating large audiences of digital natives who have grown up in these virtual environments. As online access minimizes physical differences between individuals

in a growing number of settings. the fantastic and aspirational world of eSports allows anyone to become a player, a broadcaster, a benefactor, and even a champion. Evolving the definition of *sport* only makes it that much more inclusive.

For executives, embracing the opportunities and challenges in eSports

can help their businesses evolve with the audience and transform to meet changes brought about by digital disruption. Investors and executives can see that modern storytelling includes a video game market that's competitive with Hollywood, that audiences are being drawn to more interactive and immersive narrative experiences, that physical sport has a viable digital complement, and that today's viewers are broadcasters and fans are players. The eSports industry can offer access to each of these.

But businesses should understand the nuances before moving into the eSports arena, whether as sponsors, investors, service providers, security consultants, or in other roles. To bring a sponsored message into these communities, a company should work to understand its audience and exhibit its own authentic interest in the games. Businesses can partner with teams, players, and leagues as well as with leading streamers and streaming networks. At the edge of advertising, data analytics may move into the gaming world. And while analytics allows for service and product innovations, businesses should be vigilant of the risk that such innovations can tread directly onto gamers' turf.

> With audiences spread across social networks, streaming platforms, and game worlds, success can pay dividends if and when it goes viral. However, these audiences are often highly media-aware; they respond to perceived authenticity, and they expect brands to offer something of value. Entering the eSports world demands a light touch and rapid-response marketing. In late 2017, a large automaker sponsored a tournament at an eSports venue,37 parking cars out front and splashing its logo across stage and screen. Fans photographed and "meme-ified" the pictures, mocking the brand and sharing it out across their digital

networks. The carmaker quickly responded by making its own memes that lightheartedly mocked itself as well as the fans. People embraced the titfor-tat, and the brand conversation turned positive.

The eSports demographic may be suspicious of advertising, but there's a hunger for merchandise and content. Many teams sell branded "skins"—alternate visual appearances, including virtual team jerseys, that individual gamers can give their onscreen avatars—as downloadable content through the game platform.³⁸ Just as with traditional sports, merchandise can be physical and digital, generic or unique, and utilized to extend the franchise and its personalities. Gaming platforms are also storefronts that can offer co-branded content, digital accessories, and access to secondary experiences and stories. Another sign of eSports' growing mainstream legitimacy: Prominent cable TV channels are developing content around the many human-

interest stories behind the screens, following teams on the road to the championship.³⁹ As in any grand competitive arena, there's typically no end of personal drama to deepen audience engagement.

Many fans also enjoy watching eSports together in stadiums, with players on location and massive screens tracking the action; championship games easily fill 15,000-seat

arenas, and gaming hardware manufacturers are signing deals with venues to be the exclusive providers of PCs and peripherals. Developers are breaking ground on new eSports venues, training facilities, and living spaces for teams. Super League Gaming repurposes underused movie theaters as eSports arenas and has raised more than \$28 million from investors, leading some to envision an eSports future for declining shopping malls.⁴⁰

At the bleeding edge, engagement can look quite different to fans of traditional team sports. Many eSport games don't involve a ball or puck, making it challenging for viewers to focus attention on the play. Indeed, broadcast media may find it difficult to keep up with many games' frenetic pace and multiple viewpoints; coordinating 30 in-game

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camera views into a cohesive broadcast is already conscripting heavy lifting by machine learning technology.⁴¹ Viewers are also often players as well, with copies of the game already installed on their home systems. Some publishers let these viewers pay to watch a championship through their own game, driving the camera wherever they like across the playing field, following their favorite champions and

streaming their views to their own audience.

Media and entertainment companies should pay special attention to such innovations that empower viewers to more freely interact with and create content, moving through worlds independently. Whether AI or human, broadcast is becoming more social, decentralized, and interactive.

As more businesses look to eSports for op-

portunities, broadcasters and event promoters can offer subscription services for physical and virtual events, game streams, and access to teams. Ticketing can explore VIP, hospitality, and experiential innovation for eSports events just as promoters offer for concerts. Some are investigating blockchain to track the entire customer journey of a ticket holder, as well as league- or venue-based tokens that can be issued to fans and redeemed for physical and digital merchandise. With changes to gambling laws, others are eyeing blockchain solutions to immutably track wagers and execute smart contracts to reconcile bets.42 Indeed, just as artificial intelligence and video games have co-evolved, many more technologies will likely shape and be shaped by the evolution of competitive video gaming.

Inclusive, interactive, immersive

In the rapidly evolving eSports landscape, companies in media, entertainment, and professional sports have an opportunity to access a valuable global audience, unlock advertising potential, develop new entertainment and hospitality of-

Whether AI or human, broadcast is becoming more social, decentralized, and interactive.

ferings, and empower their franchises to grow in the modern media environment. Businesses can capitalize on this fundamental shift in media and sport that's being shaped by social entertainment, livestreaming, and high-intensity competition in digital worlds. And by highlighting their own passion for sport and digital gaming, companies can help cocreate a more inclusive global future of interactive and immersive entertainment. Executives across media and entertainment should start thinking carefully about eSports and the media and technology that make it possible. How can companies build relationships with players, leagues, and the millions of spectators watching them? How can advertisers better reach an audience that's been moving away from linear and broadcast channels and onto social media,

> streaming, and game worlds? What are some of the new merchandising opportunities with digital downloadable content, and how do they cross over to physical promotions? How can broadcast media companies bring a more enhanced viewing experience to the eSports audience? How can venues

and ticketing develop new physical experiences for the eSports fan base? And likely most important for those directly investing in particular teams and games: What does it take to build a team and drive it to the championships? Just as social media, video platforms, and messaging tools have expanded our physical behaviors into the digital world, eSports offers another way for us to exercise our competitive nature and celebrate our champions.

Endnotes

- 1. Arthur Gies, "Here are the winners of Valve's \$24 million 2017 International Dota 2 Championships," Polygon, August 12, 2017.
- Max A. Cherney, "Fortnite' more important than cryptocurrency to large companies during earnings season," MarketWatch, June 6, 2018.
- 3. Blake Hester, "Fortnite' is currently Twitch's most-watched game," *Rolling Stone*, March 6, 2018.
- 4. Graham Ashton, "Top 10 Twitch content of the week, June 11–June 17, 2018," *Esports Observer*, June 21, 2018.
- 5. Ed Lion, "Space Invaders Superbowl—'I've heard of a guy with an \$80-a-night habit," UPI, November 9, 1980; Keith Smith, "The Atari \$50,000 Centipede fiasco," Golden Age Arcade Historian, November 12, 2012.
- 6. Ben Kuchera, "Gaming has left the LAN party behind," Polygon, January 29, 2015.
- 7. Ed McGlone, "Top 15 best and most influential MMORPGs of all-time," Twinfinite, December 27, 2017.
- 8. Chet Chetterson, "How games overtook the movie industry," Geekadelphia, June 29, 2017.
- 9. Jeff Grubb, "Ubisoft plans to make fewer games after a decade of annual releases," VentureBeat, February 12, 2018.
- 10. Taylor Clark, "How to get rich playing video games online," New Yorker, November 20, 2017.
- 11. Newzoo, "2018 global esports market report," February 21, 2018.
- 12. Patrick Garren, "Nielsen report: Over 600 sponsorship deals in Esports, fans mostly positive towards brands," *Esports Observer*, October 4, 2017.
- 13. Statista, "eSports market revenue worldwide in 2017, by segment," 2018.
- 14. Dean Takahashi, "FIFA 18 and Madden esports hits 18 million players, up 75%," VentureBeat, May 8, 2018.
- 15. Ubisoft Entertainment, "Ubisoft reports full-year 2017–18 sales and earnings figures," May 17, 2018.
- 16. Nielsen, "The esports playbook: Maximizing investment through understanding the fans," October 3, 2017.
- 17. Kevin Westcott, Jeff Loucks, Kevin Downs, and Jeanette Watson, *Digital media trends survey*, Deloitte Insights, March 19, 2018. These three cohorts demonstrate so many similarities in how they interact with digital media that we call them *MilleXZials*.
- 18. Stephen Battaglio and Meg James, "As streaming video grows, TV networks fight to keep their share of upfront ad dollars," *Los Angeles Times*, May 13, 2018.
- 19. Graham Ashton, "Facebook secures another Esports exclusive with Gfinity Elite series," *Esports Observer*, March 12, 2018.
- 20. Jen Booton, "Twitch celebrates Overwatch League viewership debut after \$90M bet," SportTechie, January 17, 2018.
- 21. Trent Murray, "Activision Blizzard announces partnership with Nielsen to measure esports brand value," *Esports Observer*, April 16, 2018.
- 22. Paul Tassi, "In six months, 'Fortnite: Battle Royale' has cut PUBG's PC playerbase in half," Forbes, June 1, 2018.
- 23. Roar, "eSports tournament schedule," January 20, 2018.

- 24. Derek Heitner, "A look inside Riot Games, from \$320,000 player salaries to using esports as a catalyst for sales," *Forbes*, May 2, 2018.
- 25. John Hagel, John Seely Brown, Maggie Wooll, and Andrew de Maar, *League of Legends: Team SoloMid*, Deloitte Insights, March 7, 2018.
- 26. ABC 13, "How video gaming is becoming part of the American dream," June 2, 2018; Bryan Lufkin, "How video games turn teenagers into millionaires," BBC, March 23, 2018.
- 27. Kurt Badenhausen, "Esports leagues set to level up with permanent franchises," Forbes, October 3, 2017.
- 28. Doctor Chaos, "Cybersecurity issues affecting the burgeoning eSports industry," October 19, 2017.
- Graham Ashton, "Tencent details \$15 billion esports investment plan, spanning the next five years," *Esports Observer*, June 19, 2017; also note Jacob Wolf, "Tencent to invest \$15 million in Fortnite esports in China," ESPN, April 24, 2018.
- Ohm Youngmisuk and Jacob Wolf, "How Adam Silver made his mark on esports in North America," ESPN, April 3, 2018.
- 31. Imad Khan, "Adam Silver vows to develop esports entity as 'fourth league in our family," ESPN, April 5, 2018.
- 32. Tom Huddleston Jr., "The New York Yankees are investing in competitive video gaming with Vision Esports," *Fortune*, October 19, 2017.
- 33. Todd Spangler, "Vision Esports raises \$38 million led by CAA-backed Evolution Media," Variety, February 22, 2018.
- 34. Roger Groves, "Robert Kraft investment in esports telling about millennial disaffection with traditional sports," *Forbes*, July 17, 2017.
- 35. Big Ten Network, "Big Ten Network, Riot Games extend College League of Legends partnership through 2019," January 2018.
- 36. Ibid.
- 37. Graham Ashton, "Three things Mercedes-Benz did right in communicating with the Dota 2 audience," *Esports Observer*, November 2, 2017.
- 38. For example, see Matt Cox, "Dress as your favorite esports team in Overwatch," Rock Paper Shotgun, December 5, 2017.
- 39. R/GA, "Growing eSports culture," January 3, 2018.
- Todd Spangler, "Super League Gaming raises \$15 million from Nickelodeon, DMG, others for amateur eSports," Variety, June 29, 2017.
- 41. Dean Takahashi, "Esports One will use AI to help viewers make sense of esports events," VentureBeat, January 23, 2018.
- 42. Noah Smith, "Esports bookmaking? Globally, it's already a billion-dollar gambling industry," *Washington Post*, April 6, 2018.

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