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Epic Games

In 2019, Epic Games was on a roll. Its hit title, *Fortnite*, was one of the fastest growing games in history. The company released a free-to-play, *Battle Royale* version of the game in September 2017.¹ By November 2018, the game boasted 78.3 million monthly active users (MAUs) and 200 million total registered users.² Epic Games was also long well-known for developing and maintaining Unreal Engine for other developers to license. Excluding AAA ("triple-A") developers and publishers such as Activision Blizzard and Electronic Arts (EA) that develop their own game engines in-house, Unreal was widely-cited to be the most-used game engine by developers.³

Yet, Epic Games pushed into a market that many believed was won long ago: a digital storefront for externally-developed PC games. Valve's Steam was the incumbent storefront since its 2003 launch. Steam, known as the "Apple of the PC-gaming market," historically collected 30% of sales of each game and in-game transactions on its platform. On the console front, console OEMs such as Microsoft's Xbox and Sony's PlayStation hosted digital storefronts for games on their platforms and collected similar fees. In December 2018, Epic Games unveiled its PC game storefront, the Epic Games Store. The revenue sharing policy of the new entrant left 88% of games sales for developers. Steam seemingly could see into the future; it had changed its revenue sharing model from a flat, 30/70 split with developers to a more generous tiered one only a few days prior.⁴

The questions for Epic Games was whether it could dethrone an incumbent and for what prize: digital storefront market share or control of the platform for the uncertain future of game streaming. Should Epic Games continue to pursue becoming a platform? Could Epic Games be the first game developer to build a platform for content distributed on consoles? Should it rather continue to focus on being a developer of highly-lucrative, hit titles like *Fortnite* and the Unreal Engine? Was it sensible to do both?

Video Games in 2018

Video games were digital and interactive entertainment software. There was a distinction between console/PC and mobile games; popular games developed for console were usually adapted for PC, or vice versa, and cross-platform play was more often enabled between consoles and PC. Video games had many genres, but two broad categories were single-player campaign and online multi-player. Examples of the former included titles such as Ubisoft's *Assassin's Creed* franchise and Nintendo's *Super*

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Mario Odyssey, whereas the latter included titles such as Activision Blizzard's *Overwatch* and Riot Games' *League of Legends*. Single-player campaign involved solo gameplay and typically didn't require Internet connection for periodic content updates. Online multi-player games catered to multiple users playing against one another and featured live content updates, both requiring Internet connection. Many games featured both single-player campaign and online multi-player modes. But game developers, particularly the largest, had begun to favor the latter.⁵ In 2018, Activision Blizzard released the newest installment of its *Call of Duty* franchise, *Black Ops 4*, which solely contained an online multi-player game mode for the first time in the series' history.⁶

Video Games Supply Chain

The video games supply chain primarily involved game developers, publishers, game console OEMs and manufacturers, and, to a decreasing extent, the video game retailer (see **Exhibit 1** for video games supply chain visual). Game developers could be categorized into triple-A – large developer-publisher hybrids such as Activision Blizzard, EA, and Ubisoft – and independent ("indie") studios: smaller developers such as Supergiant Games and Mojang, before being acquired by Microsoft, that partnered with publishers to distribute their titles. Some developers did not fall into either category. This included studios that partnered with console OEMs, such as 343 Industries with Microsoft, or with triple-A developers, such as Treyarch with Activision Blizzard. The console OEM market was highly consolidated; the dominant console platforms, from most prevalent to least, were Sony's PlayStation, Microsoft's Xbox, and Nintendo's Wii and Switch (see **Exhibit 2** for console market share). The gaming PC OEM market was fragmented, with independent and dedicated gaming PC manufacturers such as Razer and MSI, divisions of PC OEMs such as Alienware within Dell, and other PC manufacturers such as Lenovo competing.

The foundational software packages that developers used to create games were game engines. Engines determined the physics, graphics, sounds, networking, logic, and artificial intelligence within games.⁷ Developers either developed their own engine in-house or licensed one that was developed and maintained by another company. The licensing model typically involved the developer's paying the game engine provider a royalty on sales generated from a game built with the licensed engine. The former included Activision Blizzard and EA, whose proprietary engines saved them the costs from licensing an externally developed game engine. The latter included companies such as Unity Technologies and Epic Games. Epic Games has developed and maintained iterations of its engine, Unreal Engine, for external developers since 1998. Together, Unity Technologies and Epic Games had the lion's share of the licensed engine market of notable games on Steam (see **Exhibit 3** for game engine market share). Parties other than game developers were increasingly using game engines. Some movie producers had begun using engines in their creative processes, and industry experts noted the application of game engines in television production and architecture (see **Exhibit 4** for game engine market forecast).⁸

Digital distribution channels, or sales via Internet download vs. in-box retail sales, comprised a higher percentage of revenues for all game developers by 2019. Digital sales also encompassed the digital distribution of extra downloadable content (DLC) and add-on items to players that had already purchased a game. For example, digital online sales channels comprised 32% of Activision Blizzard's FY2013 net revenues⁹; whereas in FY2017, digital sales accounted for 78% of net revenues.¹⁰ This trend towards digital sales lead to margin expansion for game developers, as digital game sales had lower associated costs of production and distribution. Furthermore, the development of additional content, building on top of an already-developed and already-distributed game, had lower costs than producing an entirely new game. The decline of the game retailer was another effect of this industry trend. GameStop, the largest pureplay game retailer in the world, reported a 16.4% year-over-year

decrease in holiday season sales in 2017. The performance of GME, GameStop's ticker symbol, reflected this struggle and in 2018, the company announced it was reviewing strategic alternatives (see **Exhibit 5** for GME performance).¹¹

Monetization

In the 1990s, developers sold games in physical cassette or CD form. By the early 2000s, home gaming systems were ubiquitous through PCs and consoles such as Microsoft's Xbox, Sony's PlayStation, and Nintendo's GameCube.¹² Publishers continued to use retailers for distributing physical game copies, evidenced by the fact that GME's ticker price reached an all-time high in 2007.¹³ Digital distribution – users' downloading full games online through digital storefronts – became the prominent form of game distribution during the 2010s. Patrice Desilets, a director at Ubisoft, admitted in 2013: "nobody cares about not having CDs anymore... The future is digital, and there's nothing you can do about it."¹⁴ In the mid-2010s, game publishers increasingly monetized games beyond their initial sale through extra content such as DLC composed of new multiplayer maps or campaign plot lines.¹⁵

Besides DLC, extra content included in-game "microtransactions" (MTX). Typical MTX included cosmetic items, without affecting in-game ability, that users could purchase for their in-game avatars: such as "skins" for weapons, emoticons, costumes, dance moves, catchphrases and other sound-based actions. Such items were either purchased with in-game currency earned by the user during gameplay or the user's cash. In the United States, mobile video game developers implemented this model before triple-A console and PC game developers. Mobile games such as Zynga's *Farmville* and Supercell's *Clash of Clans* received credit for bringing "freemium" or "free-to-play" (F2P) games mainstream; these titles monetized solely through MTX.¹⁶ By 2018, triple-A developers incorporated MTX into their model, requiring more frequent game updates and patches. For example, 62% of EA's FY2018 revenues of \$3.538 billion came from "live services", or DLC/MTX in excess of proceeds from full game downloads and other revenue streams (see **Exhibit 6** for FY2018 revenue breakdown).¹⁷

However, many developers received criticism for excessive, "pay-to-win" MTX. Another delivery method of MTX was often targeted: loot boxes, which were in-game transactions that users paid for without knowing beforehand what item they would receive. Its harshest critics equated loot boxes to gambling.¹⁸ Belgium banned loot boxes and an international coalition began investigating loot box practices in 2018.¹⁹ The United States' Federal Trade Commission also claimed it was probing loot boxes' link to gambling that year.²⁰ In 2017, EA faced backlash from users for what was perceived as "pay-to-win" MTX and unfair loot box tactics in beta gameplay of *Star Wars Battlefront II*.²¹ The company responded by initially removing in-game transactions upon release.²²

Video game developers long tried to come up with a monetization model that resembled recurring revenue stream as closely as possible. Commenting on EA's prominent sequels of sports titles in 2005, video games analyst Michael Wedbush said, "It's the closest thing there is to recurring revenue in this business."²³ The monetization of games by the industry's largest developers through MTX and extra DLC embodied an overall industry shift from retail to Games as a Service. While presenting Square Enix's financial results for FY 2017, the game publisher's President Yosuke Matsuda admitted:

Titles that have become global hits recently have tended to be offered via the 'Games as a Service' model, and we believe this is going to be the mainstream model for gaming in the future. In developing future titles, we will approach game design with a mind to generate recurring revenue streams.²⁴

Video games developers also increasingly monetized through esports – competitive video gameplay between both amateurs and professionals – and related revenue streams. Goldman Sachs

analysts forecasted global esports revenue to reach \$3 billion in 2022, up from \$655 million in 2017. Revenue streams primarily included sponsorships, advertising, media rights, and ticket sales (see **Exhibit 7** for breakdown of traditional sports and esports revenues). Esports events were lucrative for professional players as well; the largest-purse tournament was *Dota 2*'s The International event, which boasted \$38 million in prize money for 2017.²⁵

Unlike traditional sports, video game developers were unique in that they owned the "sport" and rights to it: the video game IP. This enabled vertical integration for publishers such as Activision Blizzard, which developed *Overwatch* and launched a corresponding esports league, *Overwatch League*, in January 2018.²⁶ In its second season, the *Overwatch League* featured 20 franchises based in cities in North America, Asia, and Europe. Activision Blizzard charged each team a franchise fee of \$20 - 60 million.²⁷ The *Overwatch League* featured A-list sponsors – such as Coca-Cola, Toyota, T-Mobile, and State Farm – that were not limited to video gaming hardware companies as esports event sponsors traditionally were.²⁸ In terms of media rights, Activision Blizzard signed a \$90 million streaming deal with Twitch.tv, the video-game-focused live video streaming platform, and a broadcasting deal with ESPN networks for the league's inaugural season.²⁹

Streamers

By 2019, video game live streaming remained a quickly-growing form of engagement for the gaming industry. There were 743 million viewers globally of gaming video content in 2019, up from 609 million viewers in 2016.³⁰ Twitch.tv, the live video streaming platform that Amazon acquired for \$970 million in 2014, was the most popular website for video game streamers and their followers with 84% of live-streaming viewership in North America.³¹ Twitch boasted 140 million MAUs and 15 million DAUs as of December 2018.³² Twitch users were especially engaged, as the average viewer watched 95 minutes of gameplay daily.³³ The revenue streams for Twitch and other video game live streaming platforms included banner advertisements, subscriptions to streamers' channels, and merchandise sales through popular streamers.³⁴ Other social media companies, such as YouTube and Facebook, operated their own dedicated game video streaming websites: YouTube Gaming and Facebook Live. Chinese competitors included Huya and Douyu.

Game video streaming sites broadly enabled the meteoric success of individual streamers, also known as "influencers." Twitch boasted 27,000 creator partners – broadcasters who profit from their video content – in 2018.³⁵ The most prominent Twitch influencer was Tyler Blevins: username, "Ninja." Blevins primarily played *Fortnite*. Ninja excelled at streaming his gameplay; he was the first Twitch streamer to surpass 10 million followers on the platform and had 13.6 million followers as of March 2019. Ninja's fame went beyond user count; he became a celebrity for earning over \$500,000 monthly from streaming video game highlights in 2018, being the first video game player to be featured on ESPN's magazine, and for breaking Twitch's most-viewed stream during a match with NFL player JuJu Smith-Schuster and hip-hop artists Drake and Travis Scott.³⁶

Epic Games History

Founder/CEO Tim Sweeney liked to retroactively frame Epic Games' history as a four-phase story: each phase was called Epic 1.0, Epic 2.0, and so on.³⁷ The company had a successful history of reinventing itself to pursue new opportunities in response to broad industry trends.

Epic 1.0: 1991-1997

Epic Games was founded in 1991 as Potomac Computer Systems in the childhood bedroom of Tim Sweeney. The company originally served as a computer consultancy. But Sweeney's roots were as a game developer wunderkind; an early business of his was individually mailing games to customers he found online. The one-man company was renamed to Epic MegaGames in 1992 to give it a sense of clout, and Sweeney sought an outgoing Mark Rein from competitor id Software to be his business partner. Sweeney and his early team of developers initially developed a series of games, such as *ZZT* and *Jill of the Jungle*, that kept the company operating.

Epic 2.0: 1998-2005

id Software popularized the first 3D first-person shooter games (FPS) with its launch of *Doom* and *Quake*, in 1993 and 1996, respectively. Epic MegaGames turned to focus on the new genre. Sweeney developed the underlying 3D engine of the new FPS titles, the team's early developers created the games, and Rein focused on sales and marketing. The company released a series of FPS games: of which *Unreal* earned critical acclaim in 1998.³⁸ The release also brought the underlying engine, Unreal Engine, to relevance and external developers began to license it. Epic continued to create its own games with Unreal Engine.

The company, which was then a collection of developers and artists across the globe, moved into its first and current office in Cary, NC and was renamed Epic Games in 1999. Later that year, *Unreal Tournament*, which was codeveloped by Epic Games and Digital Extremes, was published. Although it was a sequel to 1998's *Unreal*, *Unreal Tournament* was a milestone itself; it solidified Epic Games' success in developing multiplayer-based games.³⁹ The company also continued to iterate its game engine, releasing Unreal Engine 2 in 2002.

Epic Games noted that successful shareware was a significant part of its early distribution strategy.⁴⁰ Shareware broadly involved distributing software through mail or bulletin board systems free of charge, in hopes that the recipient would pay for it later and provide feedback. The company credited the success of its shareware strategy to distributing fully-capable games and to incentivizing purchase through further and related content. A 1997 Epic MegaGames recruiting packet revealed how much the company prioritized, even in its early days, reducing initial cost barriers and providing add-on content for users:

We sell [customers] something they want to buy: More games, game levels, hint sheets, cheat codes, bonus games ... Many of our games are trilogies – a three-volume series of games. We give away part one as shareware, as we sell parts two and three. Yes, we have to work harder to create three episodes of a game, but it pays off. Customers *love* the episode of our games, and are happy to order the other episodes from us.⁴¹

Epic 3.0: 2006-2011

By 2006, the gaming industry was focused on the new releases of consoles that raised the technological and user experiences: Sony's PlayStation 3 and Microsoft's Xbox 360. Both consoles introduced high definition graphics, networks for online gameplay and sales, and secondary storage for downloaded content. Additionally, software piracy brought uncertainty to developing for the PC games market. Epic Games, which had been focused on PC games up to that point, shifted to developing for consoles. Epic Games' engine was made compatible for consoles with Unreal Engine 3. The company released the first title of the *Gears of War* series in 2006 as an Xbox exclusive, and the game flourished. *Gears of War* became the face of Epic Games. The game's main designer was Cliff Bleszinski,

a star developer who joined Epic Games in 1992 at 17 years old. The success of *Gears of War* brought Bleszinski to fame.⁴²

Of note besides its commercial success, the *Gears of War* franchise was primarily a collection of single-player campaign-centric games. *Bulletstorm*, released in 2011, further displayed Epic Games' focus on that game mode during Epic 3.0. The phase was also one for hardware platform exploration; Epic Games codeveloped a mobile game, *Infinity Blade*, and released it in 2010. With a successful *Infinity Blade*, Epic Games gained competency in developing mobile games and adapted Unreal Engine 3 for a mobile platform for the first time in the engine's history. Foreshadowing the future, Epic Games revealed *FORTnITE* – another concept of Bleszinski's and what would be *Fortnite* - in 2011.⁴³

Epic 4.0: 2012-Present

After releasing *Gears of War 3*, Epic Games confronted a question described by Sweeney: "Do we enter into a new generation of publisher company agreement and continue the way we were?"⁴⁴ The company chose not to. After witnessing the successes of digital distribution in PC games, pioneered by Valve's Steam, and of Games-as-a-Service as a monetization model, modeled by Riot's *League of Legends*, Epic Games focused attention back on PC games with fresh perspective.

The company decided to take external investors for the first time with Tencent's acquisition of a 40% stake in 2012 for \$330 million. Sweeney pointed to, in addition to time and capital, Tencent's expertise in operating "[live] games on the large scale" as reasons for accepting the investment.⁴⁵ Moreover, Epic Games furthered its strategic shift by selling off the *Gears of Wars* IP in 2014.

Epic 4.0 was reminiscent of the company's early strategy behind shareware: give users fully-developed products for free and monetize on further content. The company announced that *Fortnite*, which was still in development, and 2015's *Paragon* would be F2P for users. Unreal Engine 4 originally cost external developers a monthly subscription and 5% royalty on game revenues. In 2015, Epic Games made the engine free to use, leaving the revenue share in place for games that made more than \$3,000 per quarter.⁴⁶ Epic's monetization of Unreal Engine evolved over the years: from an upfront licensing fee, to a monthly subscription, and then finally free-to-use up until a project's revenue threshold. Decisions such as these kept Unreal Engine successful and a "stabilizing factor" for the company; CEO Tim Sweeney admitted, "If we didn't have the engine, we would have died. We would have died three times."⁴⁷

Not everyone at Epic Games agreed with the company's new direction. Bleszinski decided not to renew his contract in 2012, and started an independent studio, Boss Key Productions, in 2013. The list went on with a series of executives and long-time developers and employees leaving the company over the following few years. Sweeney continued the course: "Epic may never release a single-player, campaign driven game like *Gears of War* or *Bulletstorm* again."⁴⁸

Epic Games Present (2017-2019)

By the beginning of 2017, the company was well into its 4.0 phase. Epic Games made Unreal Engine free-to-use for all types of licensees. In 2016, McLaren, the luxury sports car manufacturer, announced a partnership with Epic to incorporate Unreal Engine in auto design.⁴⁹ More recently, Fox Sports began using Unreal Engine for its hyper-realistic, NASCAR virtual studio in October 2018.⁵⁰ Epic also launched F2P games such as *Paragon*. The company constantly responded to hardware and game development trends during its history. In 2017, another example of the latter type of trend emerged: battle royale gameplay. Battle royale was a type of online multi-player, shooter gameplay; it involved

up to a hundred players starting out without weapons on a map, the collecting of weapons and materials, and then players' eliminating others until a final user/team remained. *Players' Unknown Battlegrounds* (PUBG, pronounced "pub-gee" in the gaming community), a game developed by Korean studio, Bluehole, was released as an early access beta in March 2017. PUBG was a fast hit; it broke records for concurrent players on Steam, was known as the archetypal battle royale game, made Bluehole a unicorn company, and brought its creator to fame.⁵¹ It was unequivocally the hottest game in the world: until *Fortnite Battle Royale* came on the scene.

'*Fortnite*'

Fortnite was originally released for PC and console users in March 2017, with just a player-versus-environment game mode. Epic Games quickly took note of PUBG's success and released a F2P *Fortnite Battle Royale* in September 2017.⁵² The new *Fortnite* mode also incorporated "building" abilities for users, akin to *Minecraft* developed by Microsoft Studio, Mojang. The release of its F2P, battle royale game mode brought *Fortnite* to the mainstream; the game had only 1 million registered users in August 2017. Following *Battle Royale*'s release, the game reached 30 million users by December 2017. Epic Games continued to reach as many users as possible by launching *Fortnite* for iOS and Android in March and August 2018, respectively.⁵³ With each additional platform, Epic Games maintained cross-console - across PC, Microsoft/Nintendo/Sony consoles, and mobile - compatibility and play. *Fortnite*'s popularity even made Sony's PlayStation, which had never allowed cross-console compatibility with Microsoft's Xbox before, concede by integrating full cross-console play in September 2018. The subsequent user growth was rapid, with the game's reaching 200 million registered players in November 2018 (see **Exhibit 8a** for *Fortnite* registered user count over time).

Fortnite's reach surpassed just the gaming community. In May 2018, the game featured a crossover event with Marvel Studios' *Avengers: Infinity War* that included a temporary *Fortnite* character based on the film's Thanos.⁵⁴ *Fortnite* featured other mashups with companies such as Samsung, for which Epic Games created in-game items - the "Galaxy" skin and the K-pop star based "iKONIK" skin - that were exclusive for Samsung Galaxy device users.⁵⁵ Celebrity references, front-page articles in the most-circulated publications, and partnerships with organizations such as the NFL made it clear that *Fortnite* was a cultural phenomenon.⁵⁶

Fortnite's success was also evident in its estimated financial results. TechCrunch approximated that Epic Games generated around \$3 billion in net income in 2018.⁵⁷ Because it was F2P, *Fortnite*'s sole revenue stream was in-game MTX. Through that channel, *Fortnite* excelled. *Fortnite* reportedly contributed \$2.4 billion in revenue for 2018 (see **Exhibit 9** for select games' 2018 revenues). A June 2018 survey of 1,000 *Fortnite* users found that 69.9% of the players had purchased MTX before.⁵⁸ Amongst those spending users, the average dollar amount of MTX purchased was \$84.67. Only 39% of U.S. gamers spent more than \$50 on MTX in 2016.⁵⁹ Additionally, 37% of those MTX customers credited *Fortnite* to be the first game they made in-game transactions within. Epic's estimated average revenue per user (ARPU) for 2018 reflected its monetization success; *Fortnite*'s ARPU was \$96, compared to Google's ARPU of \$27 and Facebook's \$19.⁶⁰

Other triple-A developers continuously received criticism for excessive or predatory MTX. Activision Blizzard's competing 2017 FPS, *Call of Duty: WWII*, faced bad press over its implementation of loot box displays that resembled slot machines.⁶¹ Users also condemned *Call of Duty: Black Ops 4*'s addition of MTX a month after the game's release: once Activision had observed user habits within the game and was better-informed to monetize in-game transactions.⁶² Given the game was F2P and a user could play without ever paying, *Fortnite* and its MTX practices stayed relatively clear of such criticism. Projected growth of worldwide in-game transaction sales - from \$22 billion to \$32 billion from 2015 to

2020 - boded well for *Fortnite*'s ability to monetize most of its users and turn the average, casual gamer into an MTX consumer.⁶³

Fortnite's inability to officially generate revenue in China, the world's largest gaming market by revenue, due to a Chinese government freeze on new game licenses made that profit figure even more impressive.⁶⁴ Success on mobile platforms significantly contributed to the game's profit figure; *Fortnite* was the highest grossing iOS game in the U.S. for eight consecutive months as of December 2018.⁶⁵ Additionally, Epic Games sidestepped sharing 30% of the revenue earned on Android devices with Google's Play Store by only allowing Android users to download the game directly from *Fortnite*'s website and own launcher.⁶⁶ *Fortnite*'s and the company's success caught investors' attention; in October 2018, Epic Games raised \$1.25 billion from KKR, Kleiner Perkins, Lightspeed Ventures, and ICONIQ Capital at a \$15 billion valuation, up from \$8 billion only 4 months prior.⁶⁷

The game's success was credited to an amalgam of reasons. The F2P and cross-console play of *Fortnite* made the game extremely accessible and promoted social networks. Popular mobile games found success in the F2P model, but triple-A console developers typically charged users \$30-60 to download their games. *Fortnite* enabled, for the first time, users to interact with peers across all console platforms for no up-front cost. Increasing its wide-spread attraction was the gameplay itself; *Fortnite* was known for, despite being a shooter game, lacking gore and for featuring almost-whimsical graphics. This contrasted with *PUBG* and made the game less "hardcore"; *Fortnite* was the ultimate game for both the casual and more competitive user.

Additionally, *Fortnite*'s gameplay was known to be exciting and varied game by game. The nature of battle royale games led to unpredictability in the outcome and users were eager to play round after round. *Fortnite* was most engaging among video games; Netflix's Q3 FY2018 investor letter admitted, "We compete (and lose to) *Fortnite* more than HBO" in capturing consumer screen time.⁶⁸ Nearly 50% of surveyed users spent more than 11 hours a week playing, compared to reported average viewing times of Netflix users of 10 hours per week (see **Exhibit 8b** for *Fortnite* user time spent).⁶⁹ Epic Games also significantly updated the game more frequently than developers behind comparable titles, evidencing the company's focus on maintaining "live games" that CEO Sweeney emphasized. Between September 2017 and July 2018, *Fortnite* underwent 34 major game updates, vs. *PUBG*'s and *Overwatch*'s 15 and 11 updates, respectively (See **Exhibit 10** for game updates data). Live services such as updates and patches kept users engaged and the game up-to-date, in terms of both pop cultural and technological references.⁷⁰

Fortnite's prevalence among streamers and Epic Games' commitment to competitive *Fortnite* both evidenced and contributed to the game's popularity. Since March 2018, *Fortnite* was frequently the most-streamed game on Twitch each month (See **Exhibit 11** for Twitch viewership by game). For esports events, Epic Games provided two \$100 million prize pools for competitive *Fortnite* during the 2018 and 2019 seasons.⁷¹ For 2019, \$30 million of the overall prize pool was dedicated to the live *Fortnite* World Cup finals that took place July 2019 in New York City.

As it became more popular, *Fortnite* faced concerns over young user addiction and uncertainty regarding monetization in China. 21% of U.S. users were between ages thirteen and seventeen and 30% were students, according to SuperData research.⁷² Parents worried that their children were not spending enough time on schoolwork or outdoor activities, but conceded that the social aspects of *Fortnite* allowed their children to spend time with friends. Concerns surrounding usage were especially relevant after the World Health Organization first classified video gaming addiction as mental health disorder in June 2018.⁷³ As of January 2019, however, much of the potential *Fortnite* usage concern hadn't materialized in the world's hotbed of gaming addiction and related regulation.⁷⁴

Fortnite was not released in China, home of a \$38 billion dollar video gaming market, via Epic Game's partnership with Tencent due to a Chinese government freeze on new game approvals. The government ended its freeze in December 2018 but left out Tencent's games in new approvals. Analysts expected Tencent and other Chinese developer NetEase, however, to receive the green light later in 2019.⁷⁵

Unreal Engine

On the engine side of the business, Epic began to lead in two areas of growth: VR and film production. For VR, Epic's interests were twofold, both as a developer of VR content and as a provider of Unreal Engine for VR developers. In terms of content, Epic mainly created demos of VR games by adding new features with each iteration. The development of demos culminated into Epic's release of the free game *Robo Recall* for Oculus platform in 2017.⁷⁶ Developing VR-centric games also allowed Epic to improve Unreal Engine for VR developers. Unreal Engine had implemented "VR within VR" or a *Minecraft* – a building-block game – approach to its VR development tools: allowing the developer to add, delete, or scale objects in the game from the perspective of the end user during the creative process. CEO Tim Sweeney emphasized Epic's focus on VR/AR. He claimed that Epic would likely build a bigger VR game in the future. Sweeney also outlined his optimistic, long-term vision for VR/AR:

I think it's a stepping stone to the future of the industry, I believe we're in this long-term transition to augmented reality, that in 10 years we won't be sitting in front of monitors or smartphones or using keyboards or mice at all... That way everything from gaming to computing to professional work is all going to be completely rethought. VR is the stepping stone to that. Right now we're putting on this really big helmet and there's a bunch of really big cables that run to a computer. That's the starting point but, as with the smartphone evolution, the end point is pervasive technology that's in the hands of billions of people.⁷⁷

Epic Game had grand visions for Unreal Engine in film production. By 2019, game engines were primarily used by smaller animated film projects or by film sets in showing actors on set real-time what would be added to the scene in postproduction. But Epic CTO Kim Libreri saw much more interactive applications for the engine:

There's no reason why... an animated movie can't be... rendered on demand and generated on your cellphone with your specific preferences, like the princess dress that you bought for your kid is the one she gets to see in the movie. Her house can be in the background. People will start to see the power of real-time graphics and we'll start to see experiences, more personable, more editable.⁷⁸

Epic Games acquired Cloudgine, a startup that used cloud computing for the demanding physics and animation calculations of high-graphics games, in January 2018 to further enable on-demand rendering for projects developed with Unreal Engine.⁷⁹ Sweeney added to Libreri's vision, claiming that "Right now what you output is a video file or video game, but everything in between is yet to be explored."⁸⁰

Epic Games Store

Aside from *Fortnite* and Unreal Engine, Epic Games had released a new offering indicating the company wanted to be more than a developer. The company launched the Epic Games Store on December 6, 2018, offering a flat 12/88 revenue sharing agreement with external game developers on the platform.⁸¹ Additionally, if the developer used Unreal Engine in the creative process, Epic Games didn't charge the client engine royalties. Sweeney, with origins as a developer, had stated that reducing

costs of development for smaller content creators was a priority. Valve, a digital storefront competitor, caught wind of Epic's move beforehand. It had changed its revenue sharing plan to be more generous to larger developers on November 30, 2018.⁸² Despite Valve's effort to retain larger developers, however, Epic Games Store quickly scored a victory in partnering with triple-A developer/publisher Ubisoft to release *Tom Clancy's The Division 2* in January 2019.⁸³ Although the publisher would also sell *The Division 2* on its own storefront, Ubisoft announced that the game would not be on Steam, despite initially having a product page on Steam that was later taken down.⁸⁴ Additionally, Epic and Ubisoft announced that they would integrate social aspects of their respective digital storefronts and continue to exclusively partner in future PC game releases.

Epic Games Store tallied another victory with Deep Silver's highly-anticipated *Metro Exodus*, which would be released exclusively on the storefront in February 2019.⁸⁵ Notably, the game was listed on Steam for pre-sales until the abrupt Epic Games Store announcement in January 2019. Valve voiced its disappointment shortly after the announcement, claiming the game's delisting from Steam was unfair, "especially after a long pre-sale period."⁸⁶ Consumers also expressed discontent with the decision, claiming Deep Silver misrepresented the product by originally listing it on a different storefront. This initiated a wave of negative comments toward the game on Steam.⁸⁷ Deep Silver's decision, however, led to a cheaper sales price of \$50 in the United States: \$10 lower than *Metro Exodus'* historical price. The CEO of Deep Silver commented on the Epic Games Store exclusive release:

Epic's generous revenue terms are a game changer that will allow publishers to invest more into content creation, or pass on savings to the players. By teaming up with Epic we will be able to invest more into the future of *Metro* and our ongoing partnership with series developer 4A Games, to the benefit of our *Metro* fans.

Epic Games released its storefront with streamer influencers as a significant part of their strategy to help smaller developers. Epic Games already had a broader relationship with influencers or streaming content "creators" through its Support-A-Creator program, which launched in October 2018. The program shared a portion – at least 5% – of in-game MTX with over 10,000 verified creators when a user designated a creator during their purchase.⁸⁸ For the storefront, Epic Games Store provided developers referral links to their games.⁸⁹ This enabled creators to earn a portion of game sales from the link and provided less well-known developers an effective way to advertise new titles. Epic Games Store disallowed developers from communicating with streamers directly through the store's interface; instead, Epic Games Store connected developers with creators.⁹⁰

Despite its early success with Epic Games Store, the company faced a highly competitive environment in the digital storefront and game engine segments of the gaming industry.

Competitive Landscape

Digital Distribution Platforms

There were many competitors in the digital store front race. The market could be bifurcated into console and PC game storefronts. On the mobile front, Apple's App Store and Android's Google Play Store were the dominant platforms. By 2018, the largest game publishers had begun to launch their own PC game storefronts, defecting from incumbents. Console OEMs had also been bulking up their own content development through existing in-house studios and acquisitions.⁹¹ Because the console market was highly-consolidated, external developers were forced to distribute their games through the

console platforms, through which console OEMs collected fees. Thus, there was not yet a developer that had gone direct-to-user in distribution of console games.

Microsoft The second-largest gaming console OEM by user base released the digital storefront Xbox Games Store with the Xbox 360 console in 2005. Since then, Microsoft released Xbox One and renamed the digital storefront Microsoft Store to also support transactions for games played and consumer applications (apps) used across all Windows 10 devices. There was no up-front cost to access the Microsoft store; users paid for games and associated MTX. Xbox users subscribed to the Xbox Live membership in order to access online gameplay. As of Q1 FY2019, Xbox Live had 57 million MAUs.⁹²

Aside from games developed by Microsoft Studios and its partners, Microsoft Store also distributed externally-developed titles. The revenue share agreement between Microsoft and all external developers was a flat 70/30 split, with 70% of game/app purchases and associated in-app transactions going to the developer. In May 2018, Microsoft updated the agreement for only non-game consumer apps. The new revenue share gave developers 95% of app revenues, if the consumer used a deep link to buy the app.⁹³ For other consumer app developers, Microsoft collected 15% of revenues from a user who had subscribed to the app for more than 12 months.⁹⁴

Microsoft introduced a subscription-based membership that gave users untethered access to hundreds of Xbox games with Xbox Game Pass in 2017. Game Pass cost users \$9.99 per month.⁹⁵ Perhaps to increase Xbox One penetration and further prime consumers to monthly payments, Microsoft introduced Xbox All Access in August 2018.⁹⁶ All Access provided users with an Xbox One console and two-year Xbox Game Pass/Xbox Live memberships at either \$21.99 per month. Although the original offer expired into 2019, Microsoft stated there was "an expansion planned" for the following year.⁹⁷

By early 2019, Microsoft's gaming division experienced consistent growth. Microsoft reported a 44% year-over-year increase in overall Gaming revenues for Q1 FY2019.⁹⁸ For Xbox software and services, Microsoft reported 36% growth, "mainly from third-party title strength." This attribution echoed Q3 FY2018 results.⁹⁹ In that quarter, many credited Xbox's in-game transaction sales growth to "the *Fortnite* effect": manic in-game spending by *Fortnite* users.¹⁰⁰

Sony The largest console OEM by user base launched its game storefront, PlayStation Store, with the release of PlayStation 3 in 2006. Like most storefronts, there was no cost for users to access the storefront besides game-related purchases. Contrasted with Microsoft's Xbox Live membership, Sony's online gameplay membership, PlayStation Network, was free for all users. PlayStation network had 80 million MAUs in March 2018, up from 70 million one year prior.¹⁰¹

PlayStation Store, like Microsoft Store, distributed both games developed in-house and those that were not. In 2009, Sony charged external publishers fees based on games' size on top of licensing fees for PlayStation Store distribution rights.¹⁰² The rate was \$0.16 per gigabyte of downloaded content.¹⁰³ By 2018, many assumed Sony had a revenue share agreement with third-party publishers in line with Microsoft's 70/30 split.

Sony was historically well-known for having a larger selection of PlayStation-exclusive games on its platform than Microsoft did for Xbox.¹⁰⁴ This balance was shifting by 2019, however, as Microsoft acquired a series of indie game studios for the purpose of bringing content in-house.¹⁰⁵ Through its console exclusivity strategy, Sony built a reputation of being anti-cross-platform integration. The *Fortnite* community's pleas caused Sony to enable cross-platform play with mobile, PC, Nintendo Switch, and archrival Xbox users – for the first time in PlayStation's history – in September 2018.¹⁰⁶

Sony introduced a subscription-based membership for users in 2013. With PlayStation Plus, players enjoyed discounts on Store purchases and access to a periodically-updated selection of games known as the "Instance Game Collection."¹⁰⁷ PlayStation Plus cost users \$9.99 per month.¹⁰⁸ After 2019, only PlayStation 4 users had access to the Plus offering. Sony's other subscription-based membership, PlayStation Now, was launched in 2014 and provided users access to a larger selection of games than PlayStation Plus' for \$19.99 per month.

Valve The Bellevue, Washington-based developer of games such as the *Counter-Strike* series, *Team Fortress 2*, and *Dota 2*, launched **Steam** in September 2003. Steam served as a digital storefront for PC games and game launcher, provided a game ratings system and Early Access for developers to receive pre-launch feedback, and hosted a forum in which users connected with developers to request features. By 2018, the storefront was the largest digital distribution platform for PC games in the world with an estimated 50-70% market share of PC games distribution.¹⁰⁹ In October 2018, Valve disclosed that Steam had over 90 million MAUs and 47 million daily active users (DAUs), up from 67 million and 33 million year-over-year, respectively.¹¹⁰ Steam transactions similarly experienced recent growth; Steam transacted \$4.3 billion in game sales revenue in 2017, up from \$3.5 billion year-over-year. In July 2018, Valve partnered with a Chinese developer, Perfect World, to release Steam in China in an official capacity.¹¹¹ Prior to the partnership, Chinese users had limited access to the Steam and risked government ban.

Steam primarily featured externally-developed games. Under Steam's long-standing revenue share agreement with developers, Valve collected a 30% share of all revenues earned by externally-developed games. In November 2018, Steam updated its flat, 70/30 revenue share agreement to be a tiered one.¹¹² Under the new agreement, games that made over \$10 million in total revenue would have a 75/25 split. Developers of games that made over \$50 million in total revenue would further enjoy an 80/20 split, leaving developers under the \$10 million sales threshold with the old 70/30 agreement. The new tiered system immediately faced backlash from smaller, indie developers.¹¹³ For those developers, who didn't have the large advertising budgets of triple-A publishers, Steam was the best storefront to introduce and popularize their games.

A rising defection from Steam among larger game developers partially caused the updated revenue share agreement. For example, Bethesda Softworks, a long-time Steam partner, announced its highly-anticipated *Fallout 76* would initially be available on console platforms and the company's own digital storefront, Bethesda.net, for PC.¹¹⁴ On the Steam user end, there were reports that the "*Fortnite Effect*" caused a decrease in player activity in 2018 (See **Exhibit 12** for average daily players on Steam).

Despite recent setbacks, the success and high user count of Steam provided it with natural network effects, as articulated by a Polygon reporter:

Buying a game on Steam, for most players, is the path of least resistance. It's an account they have already set up at a place that already houses most of their PC games. A developer or publisher is betting that their game is going to be worth the inconvenience of signing up for another service if they decide not to launch on Steam, and that's assuming they're confident enough to believe players will even know the game exists. Steam isn't just where players go to buy games, it's where many players go to shop for games.¹¹⁵

Xbox Game Studios' March 2019 decision to release six titles from its famed *Halo* series through Steam evidenced the prominence of the platform's brand and network. Prior to their release on Steam, *Halo* titles had been exclusive to Xbox consoles since 2004's *Halo 2*.

Steam attempted to compete in the gaming console market in 2013, when it announced the release of Steam Machine.¹¹⁶ The console combined the benefit of gaming PCs, which allowed modification unlike Microsoft's Xbox and Sony's PlayStation, with the traditional living-room comfort of game consoles. Steam reportedly partnered with twelve gaming PC OEMs such as Dell's Alienware and Origin PC to launch multiple Steam Machines in 2015.¹¹⁷ The company also released the Steam Controller and Steam Link: a gaming controller that combined abilities of gaming console controllers and PC mice and a PC-to-television game streaming device, respectively. However, by April 2018, Valve removed Steam Machine from its website after the console failed to gain traction.¹¹⁸

Activision Blizzard The fifth-largest game publisher by revenue had originally launched Battle.net in 1996.¹¹⁹ It wasn't until 2017 that the PC platform was rebranded as Blizzard Battle.net and served as a digital storefront for games produced across the company's Activision and Blizzard divisions.¹²⁰ Blizzard Battle.net was the desktop launcher for such games and provided social networking capabilities for users as well. The storefront was free to access; users only paid for the games and associated in-game transactions.

Electronic Arts The eighth-largest game publisher by revenue launched its Origin platform for Mac users in 2013. In 2014, it was launched on console exclusively for Xbox users and transactions went through Xbox's billing system.¹²¹ Similarly to Blizzard Battle.net, Origin primarily featured games published by its parent company and EA's partners. At first, cost of access to the Origin client was like that of Blizzard Battle.net; users only incurred the cost of the game and related in-game transactions.

In 2016, however, EA incorporated a subscription-based membership called Origin Access for Xbox and PC users. The membership initially provided unlimited access to a selection of older, EA-published games called "The Vault" and limited access to pre-release titles. Origin Access' price was \$4.99 per month or \$29.99 with an annual subscription.¹²² Origin Access also gave subscribers a 10% discount on associated MTX and purchases of EA games outside of The Vault. Users described on The Vault's selection of games' as outdated, given the fact that they were only available if they had been released roughly nine months before or earlier. EA responded in July 2018 by announcing a new subscription service: Origin Access Premier.¹²³ In addition to the benefits of basic Access membership, Access Premier membership gave users full, unlimited access to all new EA-published games five days ahead of their release dates.¹²⁴ Origin Access Premier cost users \$14.99 per month or \$99.99 annually.

Ubisoft The twelfth-largest game publisher by revenue originally launched Uplay in 2009 as a social network, allowing users to connect with each other and earn rewards within certain Ubisoft games. Uplay's desktop client was launched in 2012. Its newest form served a similar purpose to users as Origin and Blizzard Battle.net did. Additionally, Ubisoft was a client of Epic Games and licensed Unreal Engine until 2017, when Ubisoft decided to develop its own game engine in-house (see **Exhibit 13** for a summary of digital games storefronts).¹²⁵

Game Engines

Unity Technologies The private company released its game engine, Unity, initially for Mac OS X in 2005.¹²⁶ Unity Technologies' original mission was to provide a game development tool for independent developers via the Web. Unity was one of the first game engines adapted for mobile game development in 2008 and was known for its mobile-centric focus thereafter.¹²⁷ 50% of mobile games reportedly used Unity in 2016.¹²⁸ By 2019, Unity supported development on mobile, desktop, Web, and consoles. Unity also supported VR platforms such as Oculus Rift and had established a VR/AR division called Unity Labs in 2016.

Unity was, by some surveys, the most popular game engine among developers (see **Exhibit 14** for game engine market share survey results). These surveys likely included more indie developers, as Unity was long-known as the go-to game engine for smaller and more budget-constrained teams. Whereas Epic Games had originally released Unreal Engine for use by triple-A developers that demanded higher graphics capabilities, Unity entered the market as a more approachable game engine. Unity incorporated features such as its use of higher-level programming languages - compared to C++ in Unreal Engine - and support for 2D game developers.

Unity Technologies offered the engine with three price plans. It was free for beginner, individual developers whose Unity-based project didn't have revenues or funding exceeding \$100 thousand annually.¹²⁹ For more advanced developers, a plan called Unity Plus provided training courses and access to Unity for \$35 per month or \$300 for an annual subscription. For commercial developers, Unity Pro included more personalized engine support and workflow analytics services for \$125 per month. Unity did not take royalties or require a revenue share agreement with developers.

Amazon The E-commerce giant developed Lumberyard, a cross-platform game engine based on Crytek's CryEngine. Lumberyard was released in 2016 but was in beta mode as of January 2019.¹³⁰ Amazon integrated other Amazon Game Studios products for Lumberyard licensees: Amazon Web Services (AWS) cloud hosting for game development, Twitch for game streaming, and GameLift for dedicated game servers for online multi-player games.¹³¹ Amazon notably did not charge developers a licensing fee or share of project revenues. Amazon admitted that it monetized Lumberyard through AWS hosting fees from developers who chose that infrastructure. Lumberyard had not grabbed significant share of the game engine market as of 2019.¹³²

Epic... 5.0?

By 2019, Epic Games made a series of decisions that perhaps signaled a new phase in the firm's history. Epic 4.0 focused on live services to keep the customer engaged by constantly updating *Fortnite/Paragon* and by providing Engine as a free-to-use game engine for developers. With Epic Games Store, however, the company unveiled its aspirations to be a platform. Those aspirations required Epic 4.0, which had built up the largest and most-dedicated user base of gamers and created a critical client base of game developers. On the gamer side, Epic Games had 200 million users from *Fortnite* alone: a group of users that was willing to make F2P triple-A games successful with high MTX purchase rates. On the developer client side, Epic's decision to remove Unreal Engine's subscription fee in 2015 was proving to be a successful one. Sweeney commented in 2018, "last year was our biggest engine year ever, by a significant margin."¹³³

Epic Games Store appeared to have a chance against Steam. The storefront won rights to distribute games from well-known developers such as Ubisoft and Deep Silver. Epic Games' user base boded well for the Epic Games Store, even compared to Steam's. *Fortnite* alone boasted 78.3 million monthly users in August 2018: just shy of Steam's 90 million MAUs in October 2018.¹³⁴ With both sides of the market, Epic Games' viability as a platform, in theory, became reality (see **Exhibit 15** for Epic Games Store in a platform ecosystem visual).

But the company's vision was filled with challenges. During the Game Developers Conference, in 2019, most surveyed developers indicated that they didn't believe Steam deserved its larger cut of revenue.¹³⁵ Epic Games' and CEO Tim Sweeney's origins were as developers; Epic Games Store reflected a vision of benefiting that side of the market. Sweeney, in a December 2018 interview, claimed "stores charging 30 percent [of game revenues] are marking up their costs by 300 to 400 percent" and that Epic "hoped competition between stores means better deals for all developers!"¹³⁶ That said, a

majority of surveyed developers admitted high revenue cuts would not stop them from distributing through Valve's platform: as long as Steam continued hosting the critical mass of gamers it needed to make their games popular.¹³⁷ Thus, despite its recent success on the developer side of the platform through deals with Ubisoft and Deep Silver, Epic Games' real challenge lay in convincing individual gamers to join its platform.

To spur user migration from Steam, Epic signaled, through its exclusivity deal with Deep Silver, a future tendency to host games exclusively on its platform. This caused discontent from users on online forums who felt that being forced to leave their long-time, primary platform in order to purchase a game through Epic Games Store was unfair.¹³⁸ Many claimed that Epic, which had prided itself on being user-centric through distributing content at no upfront cost, used exclusivity as a mean to a profit-centric end. Impassioned users also criticized the relatively limited features of the nascent Epic storefront. Compared to the mature Steam, Epic Games Stores lacked features such as cloud saves, user reviews, forums, account sharing, and others (see **Exhibit 16** for Epic Games Store features as of January 2019).

In response to user criticism, CEO Tim Sweeney announced that Epic was working on a review system as of late January 2019.¹³⁹ Sweeney cited Epic Games Store's launching without enabling user reviews to avoid "review bombing": biased and negative comments written for games out of response to unrelated publisher or storefront actions. Deep Silver's *Metro Exodus* quickly faced such review bombing on Steam. Merely 28% of comments written in January for a related Deep Silver title, *Metro 2033 Redux*, were positive and many criticized the publisher's decision to exclusively distribute through Epic's storefront.

Sweeney also addressed user criticism of Epic's exclusivity deals with early content on its storefront, drawing comparisons to video content producers:

Love us or hates us, we are certainly fostering economic competition between stores, out of a firm belief that this will ultimately benefit all developers and gamers... Compared to how Amazon Prime Video, Netflix, HBO, and others fund unique content to provide reasons to use their services. If everyone offers the same exact selection, then the most established store typically stays dominant for decades.¹⁴⁰

Sweeney's primary argument for users to make the shift from Steam to Epic Games Store was that developers, with higher margins through Epic's offering, would be more able to reinvest into development and provide users more content at a lower price. In February 2019, Sweeney also addressed Epic Game Store's relative lack of features, claiming that the company would soon integrate offline store access and an opt-in review system for developers.

Although Epic initially released the storefront for PC and Mac in December 2018, the company quickly voiced ambitions for mobile platforms. Sweeney commented that an Android launch of Epic Games Store was planned for later 2019. On that platform, Epic had successfully avoided Android's distribution cut of in-game revenues by listing *Fortnite* has a sideloaded app.¹⁴¹ Launching on iOS, which had a long-standing policy that listed apps could not distribute third-party game content, was more uncertain.¹⁴² Considering *Fortnite* for iOS had 82.6 million downloads and was the highest grossing app on the App Store, as of and in January 2019, accessing its gamer base on Apple's platform was critical for Epic Games Store.¹⁴³ Tides were shifting, however, in the Apple ecosystem. Netflix, the App Store's top grossing app in the United States in 2018, and music-streaming app Spotify had stopped supporting Apple's in-app payment system for new users by the start of 2019.¹⁴⁴ This bode well for Epic Games Store, which aimed to redistribute revenue cuts collected by platforms such as Steam and Apple to content developers.

Risks, Near and Far

Aside from even a blue-sky scenario for Epic Games Store, a steep challenge in it of itself, the company's vision faced broader uncertainty. Epic 4.0 was defined by providing content at zero upfront cost to expand the user base, enabling Epic to monetize from those users who were willing to spend. However, subscription models gained traction in monetizing video game distribution. Industry experts expected such growth to pick up; Morgan Stanley analysts forecasted game subscriptions would make up 33% of Global Console Game Spend in 2025, up from 3% in 2018.¹⁴⁵ Although *Fortnite* had excelled more than any comparable game with a F2P MTX-centric model, Epic Games showed no intention of monetizing the game or Epic Games Store through subscriptions. Who knew how Epic users would react to such a change?

Beyond subscription-based distribution, the industry was fixated on the potential of cloud gaming: games hosted on and streamed from external servers, enabling users to play from nearly any Internet-connected device. The market for cloud gaming was enormous; it potentially could bring anyone in an Internet-connected region of the world into the new casual gamer segment. By 2019, the largest technology companies, by market capitalization, had each signaled interest in providing game streaming services. Sony and Microsoft, the incumbent console manufacturers most at-risk to disruption by cloud gaming, were early movers. Sony's PlayStation Now already provided video game streaming for years, but featured a very limited selection of games that excluded new releases.¹⁴⁶ Microsoft planned 2019 public trials for its Project xCloud game streaming technology, which supported both PC and mobile.¹⁴⁷

Outside of the video game hardware market, companies such as Google and Amazon had also begun building game streaming services. The former had launched a limited trial for its Project Stream service in November 2018 that allowed users to play Ubisoft's *Assassin's Creed: Odyssey* through the Chrome browser.¹⁴⁸ Amazon was the most recent entrant. Reporters wrote in January 2019 that the company was beginning to ask game developers for rights to distribute their content through a future game streaming service.¹⁴⁹ With the imminent arrival of 5G technology, which would broadly enable the low latency required by online multiplayer games, and such companies' increasing cloud computing capabilities, a future of cloud gaming seemed certain. Yet the role for a digital game storefront such as Epic's was less clear. As the cloud gaming distribution model was not yet tested, the potential relationship between Epic Games Store and a game streaming service was in question. Would Epic have to resort to paying such services a share of revenues to distribute its store's content – a model analogous to the developer/publisher model that the company strove to escape in its Epic 4.0 phase – in the future of cloud gaming?

In the more immediate term, however, Epic also faced the risk of a deteriorating user base. Gamers' interest in content was broadly known to be ephemeral and games to be hit-driven. Industry experts claimed that the video game development industry was increasingly less reliant on hit games, with triple-A developers and publishers monetizing games longer than ever before.¹⁵⁰ Yet, *Fortnite* itself proved game popularity still fragile and prone to disruption. After reporting holiday quarter results in February 2019, Take-Two Interactive Software and EA partially credited *Fortnite* for missing both internal and Wall Street's guidance. The results caused their shares to fall 14%, bringing peers such as Activision Blizzard and Ubisoft down 10% with them that day (see **Exhibit 17** for competitors' stock price histories).¹⁵¹

Although *Fortnite* had garnered 200 million users faster than any game before, its longevity and popularity beyond 2018 were yet to be determined. Competitors were quickly integrating battle royale modes into their games, such as Take Two's *Red Dead Redemption II* did two months after its October

2018 release.¹⁵² Triple-A publishers were beginning to launch F2P games as well; EA suddenly released *Apex Legends*, an F2P battle-royale title, in early February 2019. Further evidencing its copycat strategy, EA also announced intent to make the game cross-platform across PC, console, and mobile platforms.¹⁵³ *Apex Legends* had a successful launch, largely in part due to its surprise release and corresponding Twitch streamer marketing campaign. The Respawn-EA title garnered 50 million players in four weeks; it took *Fortnite* four months to reach 45 million users.¹⁵⁴

Creating the Metaverse

Despite these challenges, Epic Games had proven ability to reinvent itself in response to industry trends across its 25-year history. With such a prolific career in the industry, CEO Tim Sweeney was in a unique position to predict the future of video games. In 2017, he saw the gaming experience accelerating toward the "Metaverse": a concept of digital and social media's future that encompassed all of virtual worlds, augmented reality, and the Internet's social networks.¹⁵⁵ Epic unveiled *Fortnite*'s potential in the theoretical Metaverse; in February 2019, the popular electronic dance music producer, Marshmello, performed in a virtual concert – attended by reportedly 10 million users – within *Fortnite*.¹⁵⁶ In line with Epic's monetization model, the virtual concert was free to attend for *Fortnite* users and Epic sold MTX designed specifically for the event. Epic Games also acquired 3Lateral, a Serbian developer that provided ultra-realistic animation and modelling of humans, in January 2019.¹⁵⁷

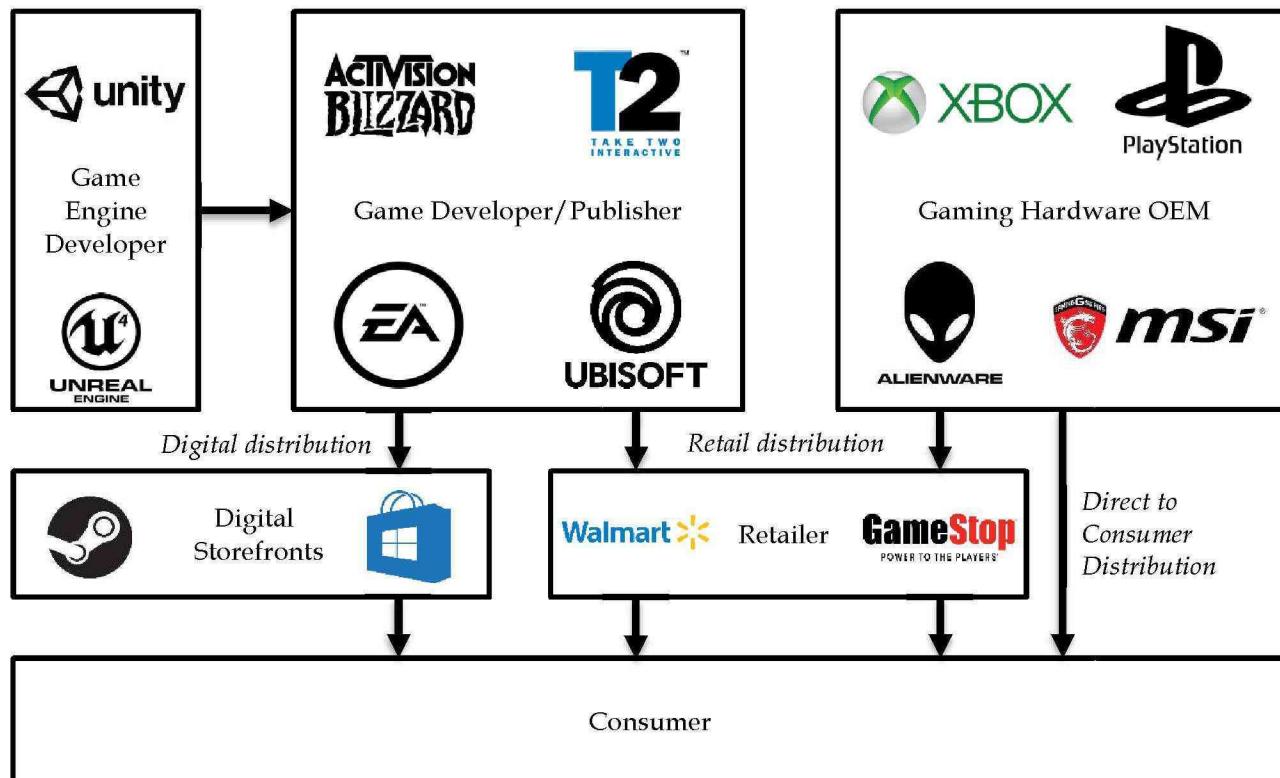
Yet, when he spoke in 2017, Sweeney warned against the potential of the future Metaverse platforms' being locked down by private companies who would have "far more power over our lives, private data, and private interactions with other people than any platform in previous history" to the end of monetization.¹⁵⁸ Sweeney had a vision for the optimal Metaverse of the future:

It should not simply be a means for the developer to suck money out of the users. It should be a bi-directional thing where users participate. Some pay, some sell, some buy, and there's a real economy....in which everybody can be rewarded for participating in many different ways.¹⁵⁹

In the near term, however, with ambitions for Epic Games to become a digital game platform in mind, CEO Sweeney claimed he was "more excited now about the future... [and saw] more opportunities for the company now than ever before."¹⁶⁰

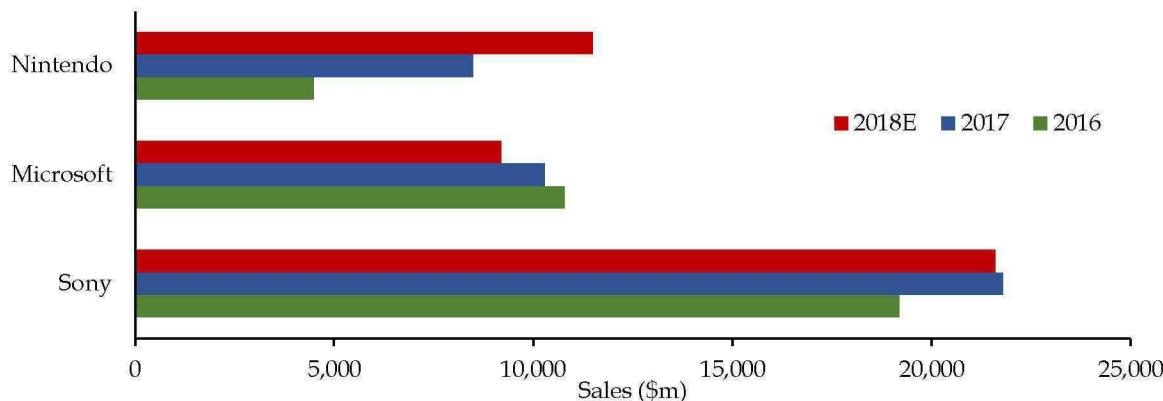
Exhibits

Exhibit 1 Video Game Supply Chain Visual

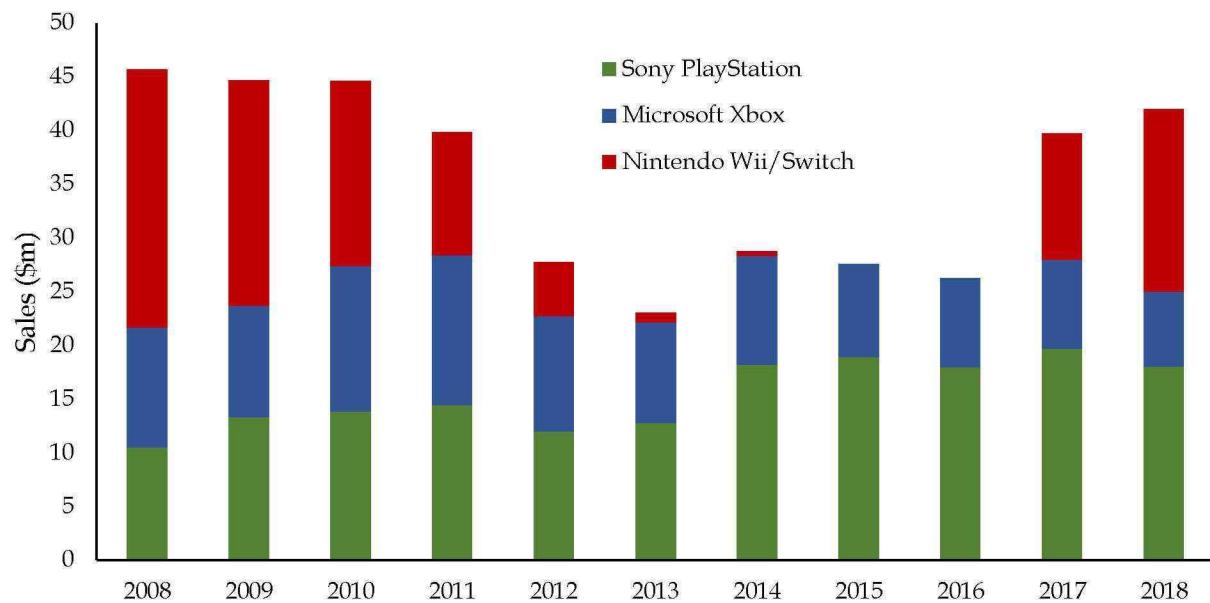


Source: Adapted by casewriter from "Redefining The Value Chain of The Video Games Industry," Kunnskapsverket, January 2017, <https://kunnskapsverket.org/litteraturdatabase/publikasjon/redefining-value-chain-video-games-industry-2017>, accessed February 2019.

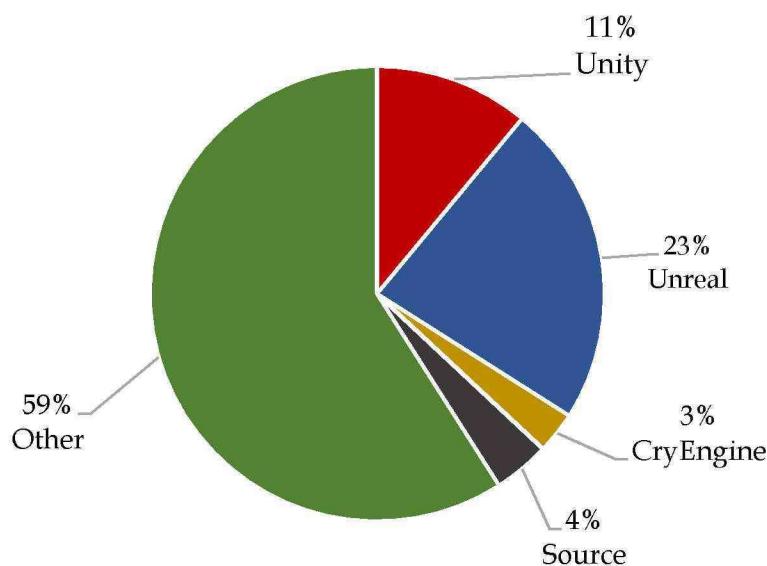
Exhibit 2a Global Game Console Market Share, 2016 – 2018E



Source: Adapted by casewriter from "Games Console Market 2017, Nintendo Drives Market to 18 Percent Growth," IHS Markit, March 7, 2018, <https://technology.ihs.com/600640/games-console-market-2017>, accessed January 2019.

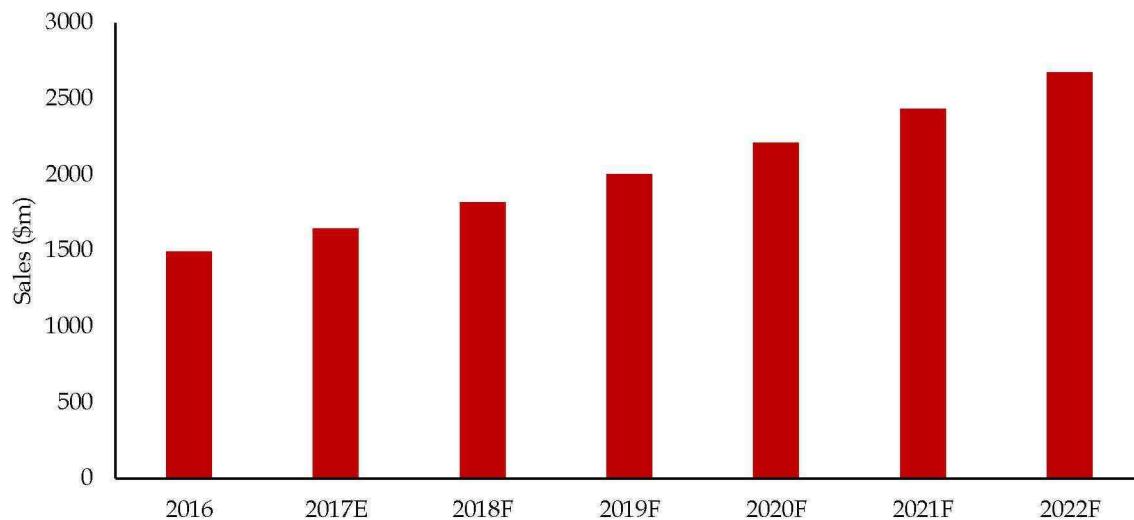
Exhibit 2b Global Game Console Market Share by Units Sold, 2008 - 2018

Source: Adapted by casewriter from "Global Unit Sales of Current Generation Video Game Consoles from 2008 - 2018," Statista, <https://www.statista.com/statistics/276768/global-unit-sales-of-video-game-consoles/>, accessed February 2019.

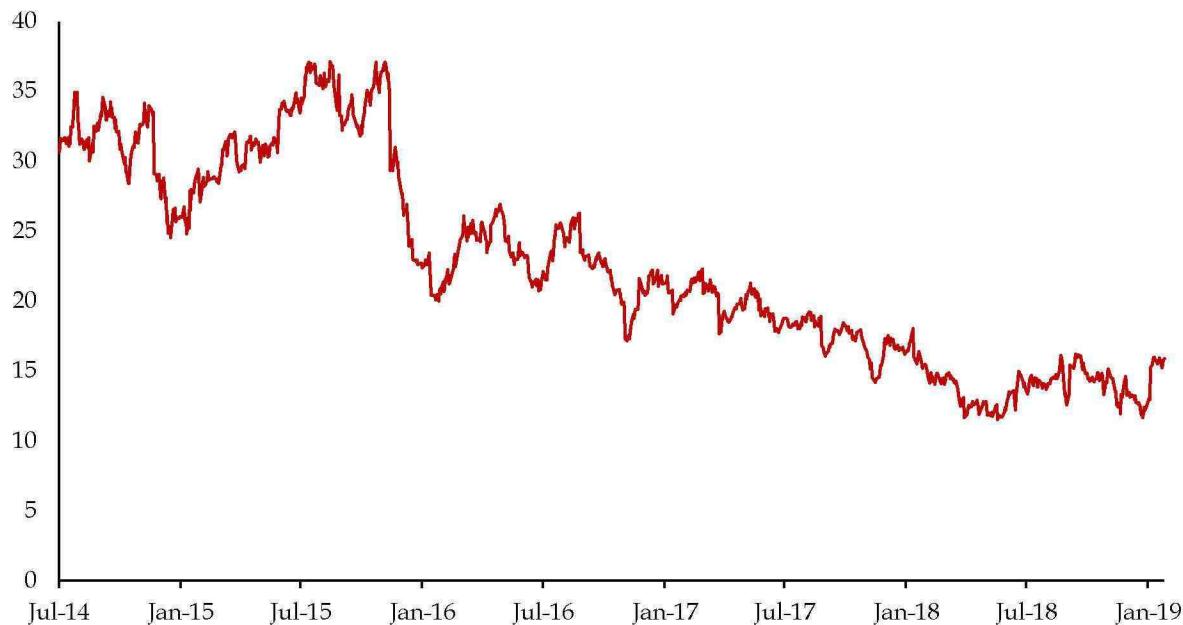
Exhibit 3 Game Engine Market Share on Steam, July 2018

Source: Adapted by casewriter from Reddit user research, July 2018, https://www.reddit.com/r/gamedev/com mnts/8s20q p/i_researched_the_market_share_of_game_engines_on/, accessed January 2019.

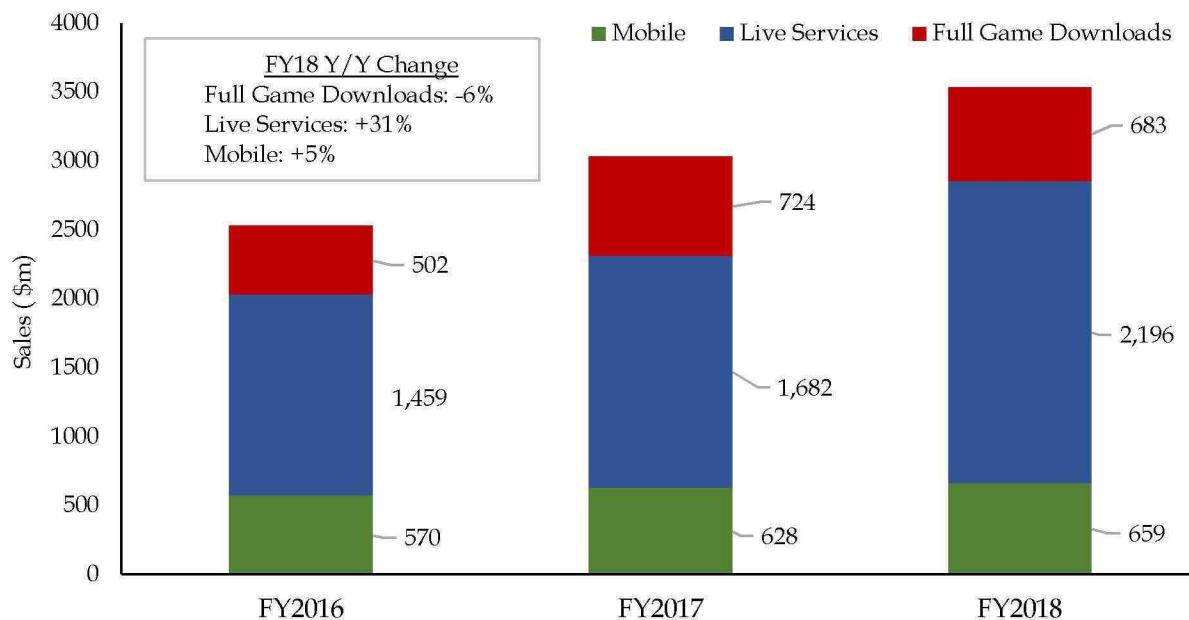
Note: Data compiler identified game engines used to develop notable games on Steam; notable game defined by a game's having a Wikipedia page.

Exhibit 4 Predicted Growth in Global 3D Game Engine Market, 2016 - 2022

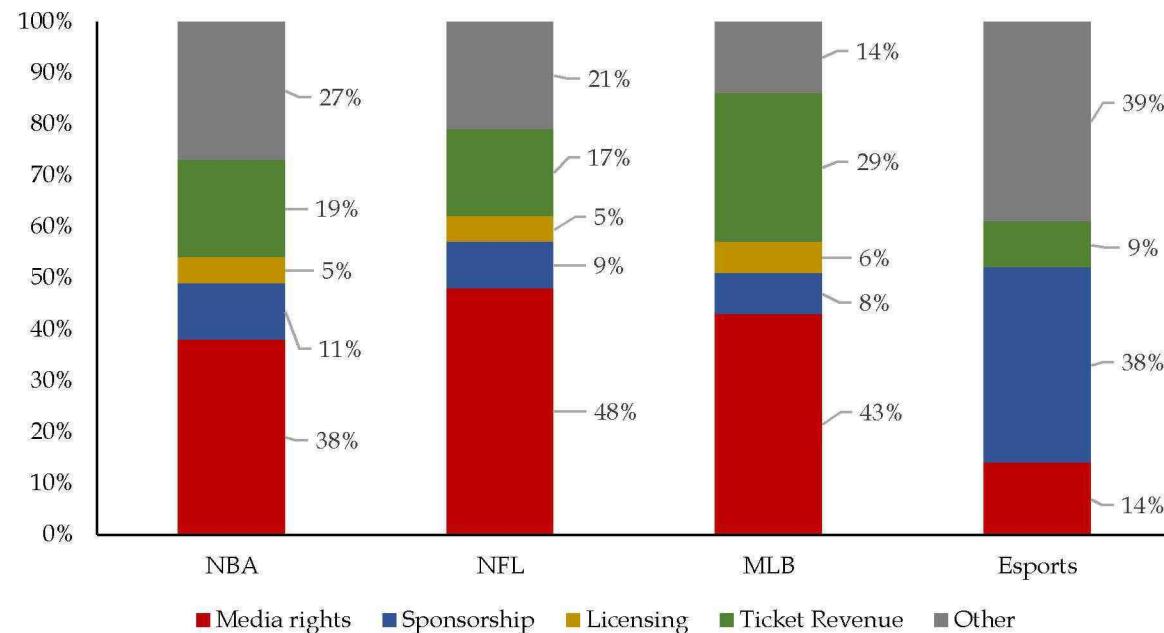
Source: Adapted by casewriter from "Game Engines Market Is Expected to Reach USD 3 Billion by 2022, Growing at a CAGR of 10%," Digital Journal, <http://www.digitaljournal.com/pr/3520776>, accessed January 2019.

Exhibit 5 Performance of GameStop's stock (NYSE: GME), January 2014 - January 2019

Source: Adapted by casewriter from Yahoo! Finance data, accessed January 2019.

Exhibit 6 Electronic Arts Digital Net Revenues by Type

Source: Adapted by casewriter from "Electronic Arts Inc." Q4 FY18 Results Investor Slides, p. 5.

Exhibit 7 Revenue Breakdown for Traditional Sports and Esports, 2017

Source: Adapted by casewriter from "eSports: from Wild West to Mainstream," Goldman Sachs Equity Research, October 12, 2018, <https://www.goldmansachs.com/insights/pages/infographics/e-sports/report.pdf>, accessed March, 2019.

Exhibit 8a Fortnite Registered User Count, August 2017 - November 2018

	August 2017	December 2017	January 2018	June 2018	November 2018
Registered Users (in millions)	1	30	45	125	200

Source: Adapted by casewriter from "Number of Registered Users of Fortnite Worldwide from August 2017 to August 2018," Statista, <https://www.statista.com/statistics/746230/fortnite-players/>, accessed January 2019

Exhibit 8b Fortnite User's Surveyed Time Spent In-Game, November 2018

	Spent 0-5 hours/week	Spent 6-10 hours/week	Spent 11-15 hours/week	Spent 15-20 hours/week	Spent over 21 hours/week
Percentage of Surveyed Users	29%	33%	17%	13%	8%

Source: Adapted by casewriter from "Fortnite By the Numbers: How Many Hours Are You Playing Each Week?" PCMag.com, October 2, 2018, <https://www.pc当地新闻/364107/fortnite-by-the-numbers-how-many-hours-are-you-playing-each>, accessed January 2019.

Exhibit 9 Top Earning Free-to-Play (F2P) and Premium Games (Revenue in billions USD)

Free-to-Play (F2P) Category			Premium Category		
Game	Developer	Revenue	Game	Developer	Revenue
<i>Fortnite</i>	Epic Games	2.4	<i>PUBG</i>	Bluehole	1.0
<i>Dungeon Fighter Online</i>	Nexon	1.5	<i>FIFA 18</i>	Electronic Arts	0.8
<i>League of Legends</i>	Riot Games	1.4	<i>Grand Theft Auto V</i>	Take-Two Interactive	0.6
<i>Pokemon GO</i>	Niantic	1.3	<i>Call of Duty: Black Ops IIII</i>	Activision Blizzard	0.6
<i>Crossfire</i>	Neowiz Games	1.3	<i>Red Dead Redemption 2</i>	Take-Two Interactive	0.5
<i>Honour of Kings</i>	Tencent	1.3	<i>Call of Duty: WWII</i>	Activision Blizzard	0.5
<i>Fate/Grand Order</i>	Aniplex	1.2	<i>FIFA 19</i>	Electronic Arts	0.5
<i>Candy Crush Saga</i>	King	1.1	<i>Monster Hunter: World</i>	Capcom	0.5
<i>Monster Strike</i>	Mixi	1.0	<i>Rainbow Six Siege</i>	Ubisoft	0.4
<i>Clash Royale</i>	Supercell	0.9	<i>Overwatch</i>	Activision Blizzard	0.4

Source: Adapted by casewriter from Tom Hoggins, "Fortnite Earned Record \$2.4bn in 2018, the 'Most Annual Revenue of Any Game in History,'" The Guardian, January 17, 2019, <https://www.telegraph.co.uk/gaming/news/fortnite-earned-annual-revenue-game-history-2018/>, accessed March 2019.

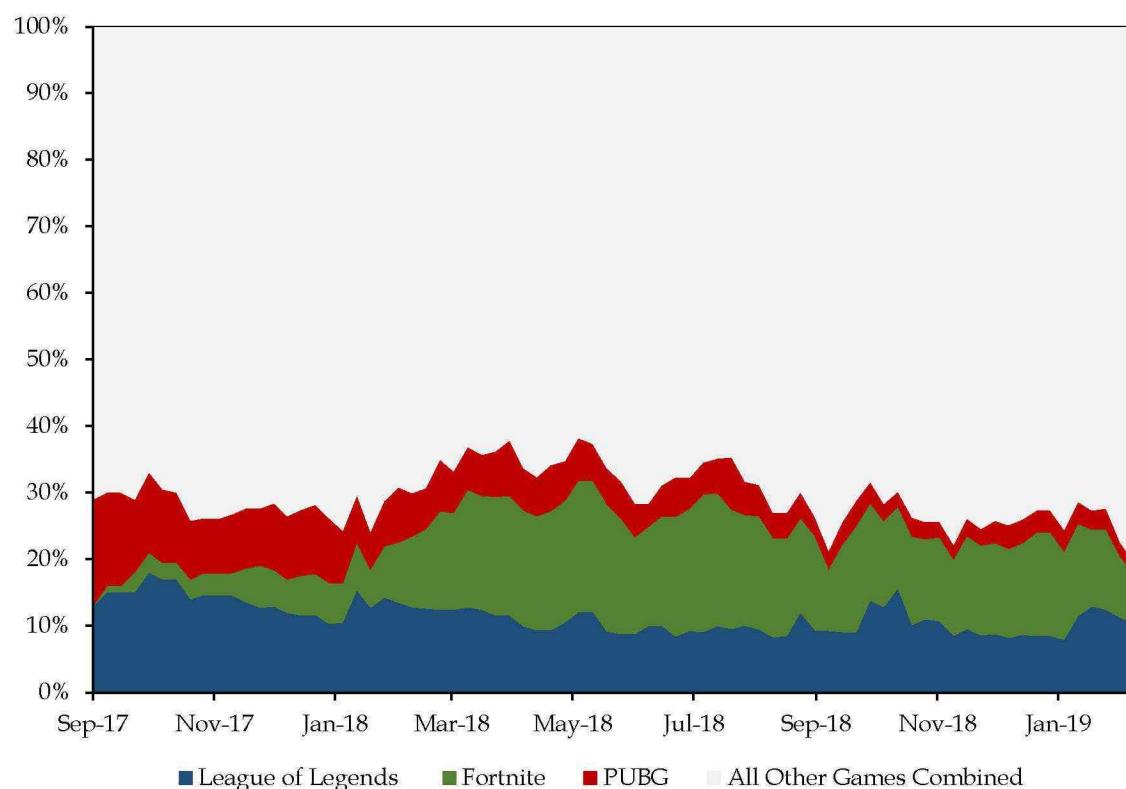
Exhibit 10 Game Update Frequency of *Fortnite*, *PUBG*, and *Overwatch* from September 2017 - October 2018

	<i>Fortnite BR</i>	<i>PUBG</i>	<i>Overwatch</i>
Weeks in operation	43	43	43
Total updates	41	64	26
Major updates	34	15	11
Major / total	83%	23%	42%
Total updates / week	1.0	1.4	0.6
Major updates / week	0.8	0.3	0.3

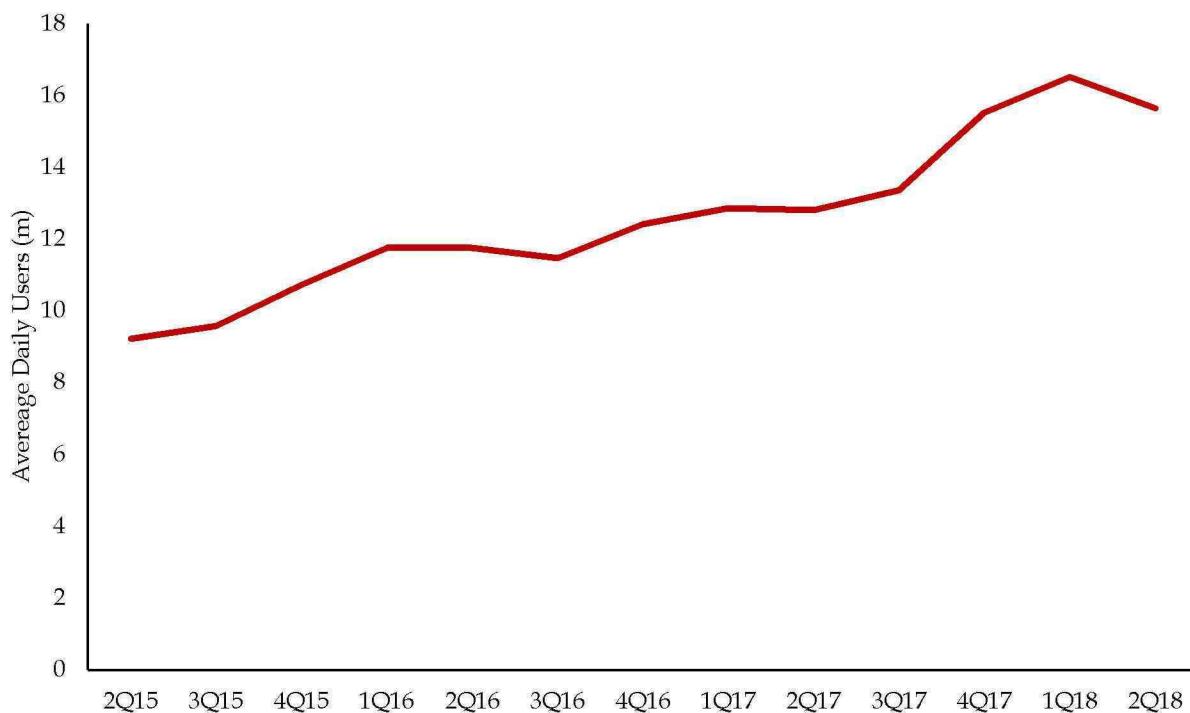
Source: Adapted by casewriter from analysis by Martin Yang and Andrew Uerkwitz, Oppenheimer & Co. Equity Research

Note: "Major update" according to Oppenheimer & Co. methodology

Exhibit 11 Twitch Viewership by Game, November 2016 - February 2019



Source: Adapted by casewriter from "Top Games Through History By Week," TwitchTracker.com, <https://twitchtracker.com/statistics/games>, accessed February 2019.

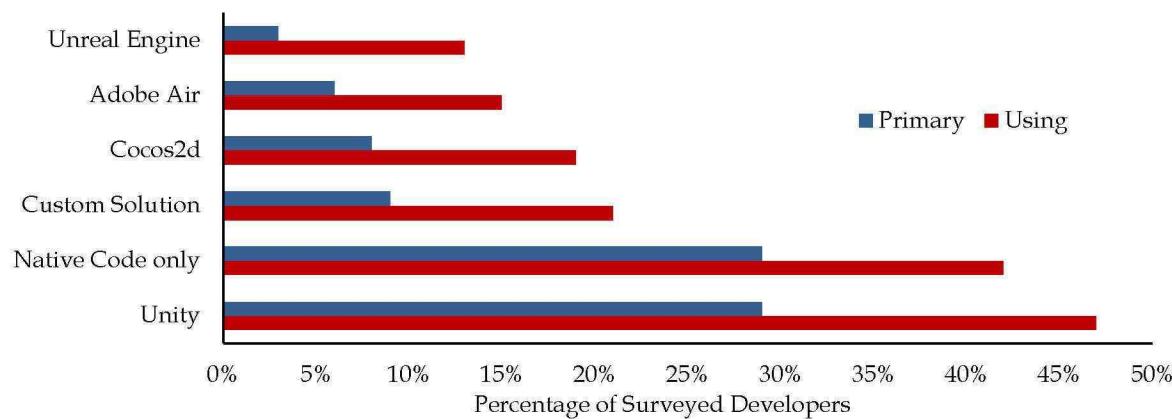
Exhibit 12 Average Daily Players on Steam by Quarter, Q2 2015 - Q2 2018

Source: Adapted by casewriter from "Steam Sees Surprising, Significant Usage Dip in 2018," Ars Technica, August 1, 2018, <https://arstechnica.com/gaming/2018/08/is-fortnite-to-blame-for-steams-falling-user-numbers-this-year/>, accessed January 2019.

Exhibit 13 Summary of Digital Games Storefronts

Company	Storefront	Developer Revenue Share	Price (for applicable service)
Activision Blizzard	Battle.net	N/A	Free
Electronic Arts	Origin	N/A	Access Premier: \$14.99/month
Microsoft	Windows Store	70/30	Game Pass: \$9.99/month
Sony	PlayStation Store	70/30	PlayStation Now: \$19.99/month
Ubisoft	Uplay	N/A	Free
Valve	Steam	70/30, 75/25, or 80/20	Free

Source: Adapted by casewriter from "Digital Distribution Platforms" section.

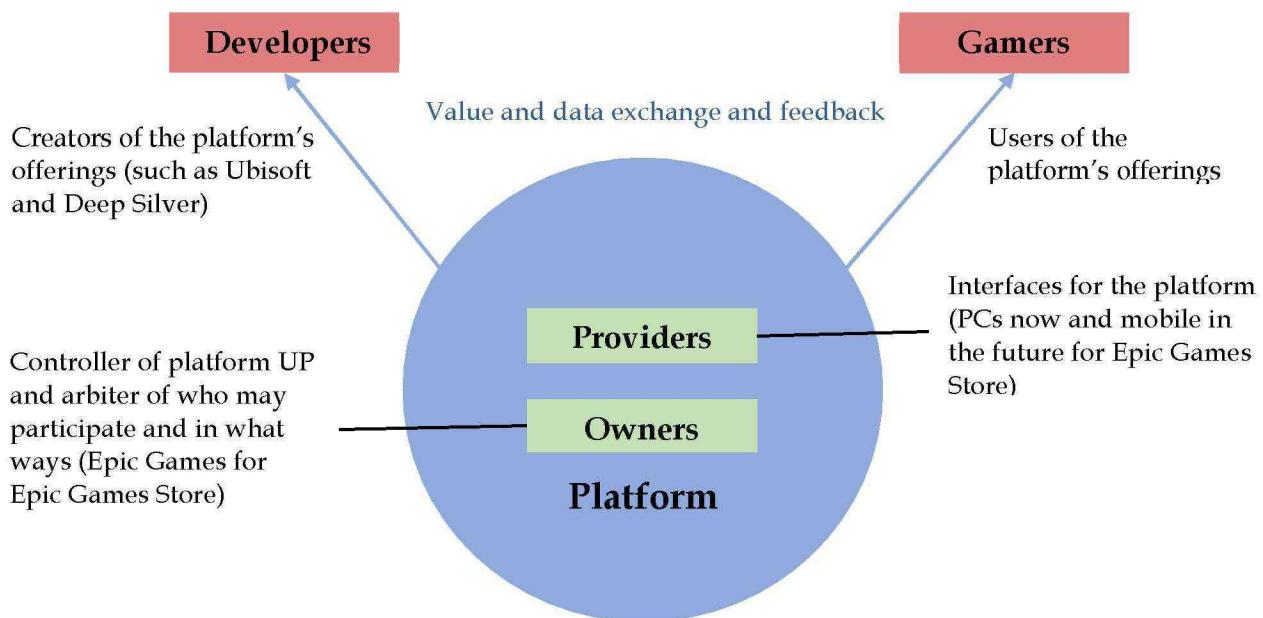
Exhibit 14 Primary Game Engine Development Tool (2015)

Source: Adapted by casewriter from "The Unreal Platform for Game Developers," HBS Digital Initiative, February 24, 2017, <https://digit.hbs.org/submission/the-unreal-platform-for-game-developers/>, accessed January 2019.

Note: Results of game engine market share survey of 10,000 developers.

Exhibit 15 Epic Games Store in a Platform Ecosystem

A platform provides the infrastructure and rules for a marketplace that brings together producers and consumers. The players in the ecosystem fill four main roles but may shift rapidly from one role to another. Understanding the relationships both within and outside the ecosystem is central to platform strategy.

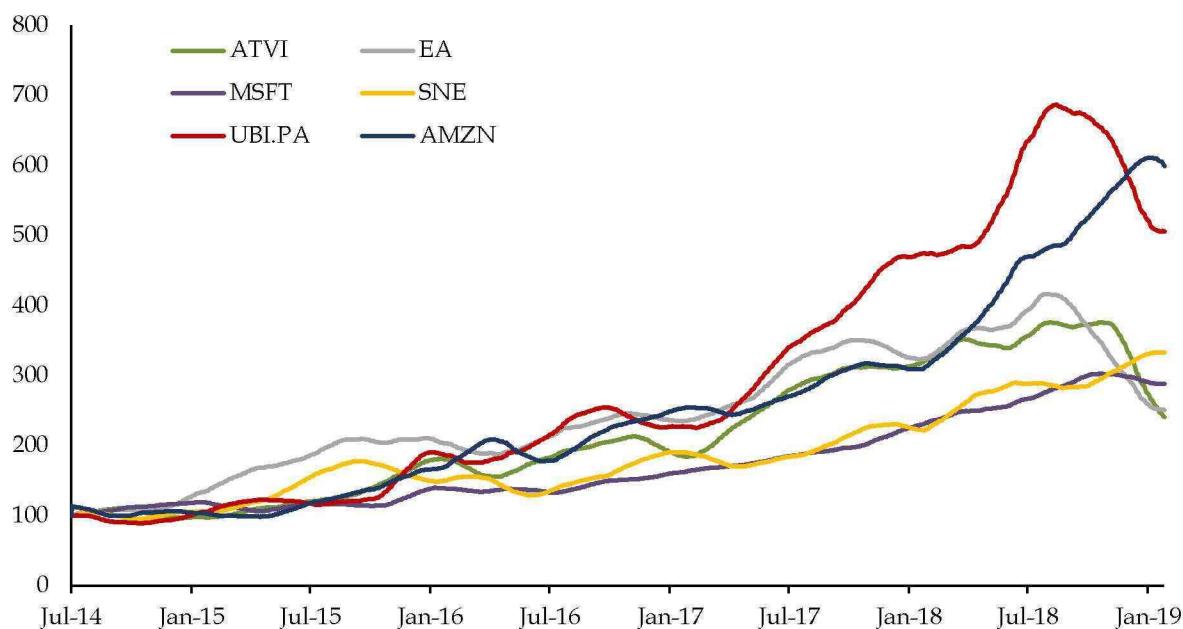


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Exhibit 16 Epic Games Store vs. Steam Features, January 2019

Feature	Epic Games Store	Steam	Steam Feature
User reviews	No	Yes	
User profiles	No	Yes	
Forums	No	Yes	
Groups	No	Yes	
Friends list and chat	Yes	Yes	
User-create guides	No	Yes	
Account sharing	No	Yes	Family Sharing
Streaming to other devices	No	Yes	Steam In-Home Streaming
Screenshot capture/sharing	No	Yes	
Broadcasting	No	Yes	
Cloud saves	No	Yes	
Modification distribution	No	Yes	Steam Workshop
Item trading	No	Yes	Steam Marketplace
Library sorting	No	Yes	
Wish lists	No	Yes	

Source: Adapted by casewriter from "How the Epic Games Store Compares to Steam Right Now," PCGamer.com, January 17, 2019, <https://www.pcgamer.com/how-the-epic-games-store-compares-to-steam-right-now/>, accessed February 2019.

Exhibit 17 Competitor Stock Prices, July 2014 - January 2019

Source: Adapted by casewriter from Yahoo! Finance data, accessed January 2019.

Note: 50 Day, Simple Moving Average. ATVI is Activision Blizzard Inc, EA is Electronic Arts Inc, MSFT is Microsoft Corporation, SNE is Sony Corporation, UBI.PA is Ubisoft Entertainment SA, and AMZN is Amazon.com Inc.

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