From the CIO Office:

Making a Mark:
The Video Gaming Industry
Introduction

This video gaming report contains an overview of the industry and its segments. The report illustrates the industry’s current status, how it has evolved and where it is headed. Trends and changing preferences such as eSports, VR, Mobile Gaming are also elaborated upon.

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The Video Gaming Industry

Video Gaming is a multi-billion industry that is growing exponentially. Video games have transformed remarkably over the years and the market has evolved to reflect this transition. Every year, the industry reaches new peaks as technology evolves, making it possible to develop even more complex and sophisticated consoles and games. In the first half of 2018, video games earned more than double that of the entire US Box Office, with the industry collecting USD 19.5bn in overall sales versus USD 8.1bn collected by 584 movies listed at the Box Office.

According to Newzoo’s latest Global Games Market Report, it is estimated that there are 2.2bn gamers worldwide, and this number is expected to grow to 2.7bn by 2021. Today, China generates over one-quarter of game revenue worldwide and is home to major players such as Tencent, the world’s largest gaming company. The popularity of video games has been recently magnified with the growth of mobile gaming, where Tencent is the leader. Half the global gaming population comes from the Asia-Pacific region, which has nearly 1bn gamers.

Demographics

Though gaming is often associated with younger generations, statistics show that approximately 15% of the gamers worldwide are aged between 51 and 65. Generally, men spend more time playing video games than women, however choices vary based on the genres. For example, women prefer arcade, simulation and puzzle games whereas athletic, shooter, strategy and adventure games are more popular with men. The demographics have dramatically shifted with the proliferation of smartphones. AAA studios might still cater to the male audience aged between18-25 however, more than 50% of the gaming audience is made up of women. Despite the fact that older gamers tend to spend a smaller amount of time on account of increased responsibilities, they continue to play games in some form. The average age of the gamer today is around 35.
Industry Segments

The industry can be split into multiple segments such as Console, PC and Mobile/Tablet gaming. Today, the mobile segment at USD 46bn is 42% of the total video gaming industry revenue. With the adoption of smartphones in the past decade, mobile gaming vs traditional console gaming numbers are growing rapidly (+19.3% YoY).

Console gaming is the second largest segment with revenue of USD 33.5bn. Amongst the most popular consoles are Sony’s PlayStation, Microsoft’s Xbox, and Nintendo’s 3DS/Switch. Today, Sony’s PlayStation has sold 2.5 times as many consoles as Microsoft’s Xbox, and has the largest market share within the console industry.

2018 has been an amazing year for the Video Gaming industry with a lineup of games that rivals some of the best years in the industry’s history. Core gamers continue to be committed to their video game, with increased spending on new content and consoles.

According to Newzoo, revenue for the global games market is currently at USD 121.7bn and is expected to grow to USD 189.1bn by 2021 (2012-2021 CAGR of +11%). As seen in Exhibit 2, mobile gaming is expected to constitute the major share of the market.

According to Newzoo, revenue for the global games market is currently at USD 121.7bn
Digital Transformation

A notable shift in the industry has been witnessed as digital distribution is dominating traditional distribution. Brick-and-mortar shops such as GameStop were hurt the most as digital downloads eroded GameStop’s lucrative used game business, and it continues to get worse. GameStop’s stock fell from USD 47 to USD 13, and the company is currently exploring a sale. The stock once traded over USD 60, as GameStop leveraged on its used game and trading model which attracted consumers. However the company could not tackle the transition to digital downloads as consumers prefer to get the game in digital form and instantly, which deprives GameStop of the initial sale. Moreover, those digital games cannot be traded, depriving GameStop of its used game trading revenue model.

The industry may be headed to almost 99% digital media, eliminating physical media with the remaining group being the niche collector segment. Digital distribution has also made it possible for small developers to launch games in an arena that was previously dominated by just a few publishers. New digital-only platforms such as social and mobile have also grown exponentially. The most popular digital distributors today are Apple and Google on mobile and Steam on PC. A key challenge in covering digital game sales is reconciling this fragmented market. Previously, there was a misconception that the retail-based game sales was a dying industry, however in reality it has been growing with the shift to digital distribution.

The premium PC titles have leaned digitally for some time, however the console market is somewhat slower to adapt to the shift. Emerging markets such as Brazil, India and China have digital markets that are vastly larger than retail. However, digital downloads are available for console gamers to purchase through the PlayStation Store and the Xbox Games Store. One of the first companies to adapt to this change was Activision Blizzard, which has seen tremendous success as it re-evaluated its strategic and operational positioning in digital trends. The company’s financial upside from this shift is significant because direct downloads have 30% higher margins than physical sales.

Exhibit 6: Digital & Physical Game Sales in the US

Source: Statista, May 2018

New digital-only platforms such as social and mobile have also grown exponentially.
Video Game Development

Today, billions of dollars are spent on development costs for video games. The magnitude of costs can be related to Hollywood movie production and marketing costs. Major companies continue to partner and acquire video game development studios in order to have exposure to the industry. Companies like Facebook, Microsoft, Softbank are getting into purchasing game studios along with large companies such as Take-Two Interactive, Nintendo and Activision Blizzard, as well as, large conglomerates such as Sony and Konami. Tencent owns stakes in multiple development studios both domestically and overseas. The company owns 100% of Riot Games, 40% of Epic Games (Fortnite developers), 5% in Activision Blizzard and more.

An example of a high development cost game would be Grand Theft Auto 5, which reached USD 1bn in sales within the first three days of launch. Iron Man 3’ box office, which was considered a blockbuster movie, brought in only around USD 372mn in its first weekend. The game, Grand Theft Auto 5, cost around USD 265mn by Take-Two Interactive to develop. Technological advances make it possible to develop better graphics, performance and capabilities. With each new console generation which enables realistic graphics, the cost of pushing the limits grows higher. The financial risk however, is far much bigger than it used to be as it is needed to allocate huge budgets for game development.

Amongst the most popular gaming developers today are Electronic Arts, Activision Blizzard, Take-Two Interactive and Nintendo. The industry has high M&A activity as smaller developers are being bought by larger companies. For example, Activision Blizzard bought King Digital Entertainment (Creator of Candy Crush Saga) for USD 5.8bn. Microsoft bought Mojang for its Minecraft intellectual property for USD 2.5bn in order to capitalise on the game’s success.

Minecraft has become very popular, winning multiple awards and currently has its own convention called the MineCon. To date, the game has sold over 144mn copies across all platforms, which makes it the second bestselling video game of all time. The game has experienced a significant amount of activity on social media and streaming platforms such as YouTube and Twitch. Minecrafter DanTDM accrued around 6bn views by sharing Minecraft content on his YouTube channel. Today, Minecraft is the bestselling PC video game which equates to one game bought every 6 seconds since its launch in 2011.

Technological advances make it possible to develop better graphics, performance and capabilities
Innovation

Technological innovation continues to expand the possibilities within the video gaming industry: such as the race to develop advanced graphics cards (GPUs), within console and PC gaming. Companies such as Nvidia, AMD and Asus compete in developing cutting edge graphics cards which support the industry in upgrading of video game console and PC iterations, ultimately expanding to new boundaries for innovation.

Aside from GPU’s traditional uses, which were meant for video rendering and gaming, today’s GPUs are being used for cryptocurrency mining. Furthermore, GPUs are expected to be extremely essential in developing artificial intelligence algorithms. Companies such as Nvidia, have witnessed a spike in graphics-chips sales and as cryptocurrency mining’s popularity has increased. Nvidia’s share price has gone up 361% over the last two years pursuant to its success in GPU development for gaming and other applications such as artificial intelligence and driverless cars. In 2018, certain GPU prices were pushed up due to cryptocurrency miner’s demand for the powerful cards, which makes us cognizant of the potential of future applications.

Nvidia has unveiled new additions to its graphics card lineup expected to be up to six times more powerful as last generation cards. AMD used to rule the PC gaming market however, those days are over. In 2016, statistics show that only around 25% of gamers on Steam used an AMD graphics card. Nvidia has increased its market share to 76% as of July 2018. The most popular product today by Nvidia is the GTX 1060, and is the top choice for PC gamers.

Companies such as Nvidia, have witnessed a spike in graphics-chips sales

Exhibit 8: Nvidia Graphics Cards Still Top Choice for PC Gamers

Source: Statista, Aug 2018
Mobile Gaming

Growth in the mobile industry segment shows promise. The segment is getting very popular due to the portability aspect of mobile gaming. Today, mobile gaming accounts for more than 50% of the global games market. By 2021, it is expected that the mobile gaming market will hit USD 100bn+. Surprisingly, the segment did not cannibalise PC or console gamers, instead brought in new entrants to the market. Companies such as Konami, Nintendo and other publicly listed companies have talked of the shift towards mobile gaming.

Total mobile games revenue in 2017 worldwide was at USD 46.6mn and mobile gaming apps accounted for more than 80% of all app revenue on the Apple and Google Play Stores. The availability of smartphones is giving access to a whole new class of gamers. It has also driven up the time spent and play frequency.

The segment has attracted new audiences, content creators, franchises and an influx of investments. Mobile games are split into multiple categories: the two main being ad-driven (revenue realised from advertisements) and freemium (a business model in which the game offers free and premium services). Most profitable mobile games today follow the freemium model, such as Candy Crush Saga, which makes around USD 819mn in yearly revenue. The game is free-to-play, however in order to clear more difficult rounds of the game, players have the option of purchasing special actions. Such purchases are called micro transactions, a revolutionary method that boost revenues in the global gaming industry.

Candy Crush Saga owned by King Digital Entertainment, was acquired by Activision Blizzard for USD 5.9bn in 2016. It is reported that the game has been downloaded over 2.7bn times, illustrating the potential for successful mobile gaming production. Despite Candy Crush Saga’s high value, statistics show that 97.7% play the game for free and only 2.3% pay, indicating there is more room for monetisation.

In terms of Intellectual Property, a lot of investors believe that it is the most critical component of a game’s success. However, in reality the fun factor is more important as IP does not guarantee success. This has been witnessed through games with no IP but are considered fun such as Candy Crush and the Clash of Titans, which are the most successful games for mobile. On the other hand, games such as Super Mario Run and Harry Potter Hogwarts Mystery were not as successful despite the well-known brand or IP. A combination of both would almost guarantee success, as seen in many Japanese mobile games that succeeded in providing both fun and a well-known branded game such as Fate/Grand Order and Dragon Ball Z (Top grossing titles in Japan).
Growth in Data

The growth of social and multiplayer games provided an explosion of data intake. Most games today are connected online and require online accounts to play. Publishers have the ability to track consumer behavior by tracking individual’s purchase patterns and preferences. This data provides monetisation and optimisation opportunities with the help of analytical tools, hence companies have to enhance their value capture models. Video gaming companies have been quick to embrace big data analytics. A lot of developers today are considered to be data-driven when it comes to making development decisions on games.

Horizontal Markets

The sophistication of content, character and story creation that goes into developing video games provides future opportunities to expand across other entertainment segments. One of the most popular mobile games called Angry Birds, was released in 2009 and has since grown into a huge entertainment franchise beyond being only a mobile game. The Angry Birds series released an animated movie in 2016 that grossed USD 350mn, an example of video games opportunities to access horizontal segments of the entertainment industry.

11 active Angry Birds theme parks have been built as of March 2016. The parks are currently being operated in the UK, China, Malaysia, Russia, Spain and Finland. Angry Birds is owned by Rovio Entertainment (Rovio FH), based in Finland. Despite the success of Angry Birds, competition within the mobile segment continues to grow as developers test the market with new ideas. As newer entrants gain market share older games get phased out. As new games have emerged Angry Birds has lost popularity. Rovio’s stock fell 45% in February 2018 after the company gave a warning on profits.
eSports (short for electronic sports), which is considered to be any form of competition using video games by professional players, is growing exponentially and is today recognised as an actual form of sports. Over the past decade, eSports has grown significantly, with increased viewership and competition prizes.

The concept of competitive gaming was introduced in 1958, with the first tournament taking place in 1972 with 24 players competing in the Intergalactic Spacewar Olympics at Stanford University’s Laboratory. In 1980, more than 10,000 gamers competed in the Space Invaders Championship which was hosted by Atari across the USA. The growth and promotion of eSports competitions is supported by the increased availability of online streaming platforms such as YouTube and Twitch.tv.

The contemporary eSports market was once only popular in core Asia markets such as Korea, with the Korea eSports association introducing live-streaming of pro gaming competitions across 24-hr cable channels however it has now expanded globally. Global eSports revenue in 2017 was at USD 1.5bn, and is expected to grow by 26% by 2020 as more leagues and eSports games are introduced into the market. It is expected that viewership is set to grow by around 12% each year, with continuous investments for streaming platforms and sponsorships.

The largest global eSports tournaments are the League of Legends World Championship, The International, the Evolution Championship Series and the Intel Extreme Masters. Such events provide a very large pool of prizes due to the large number of viewers that watch the competition as it is broadcast live, supported by advertisers and investors that contribute to the prizes.

Some notable advertisers and brands that made significant financial commitments towards the eSports market include The Kraft Group and Mercedes-Benz.

Specific gaming categories provide that competitive edge to qualify into an eSports tournament. These categories include real-time strategy, first-person shooter, fighting and the multiplayer online battle arena – MOBA. Due to the nature of eSports success, many game developers today design their games to qualify in the professional competitiveness subculture. The most successful games to attract the largest prizes and audience are the League of Legends, Dota 2 and Counter Strike: Global Offensive.

The largest live attendance for an eSports tournament took place in 2014, when 40,000 fans crammed into the Seoul World Cup Stadium to watch the League of Legends World Championship final. In 2014, the annual Dota 2 tournament had a USD 10mn prize-pot barrier, bigger than the one at the Super Bowl 2014.

In 1996, Tom Cannon hosted a 40-man Street Fighter competition in California. Six years later his event became one of the largest and most reputable tournament series called the Evolution Championship Series (EVO). A total of 36mn fans saw South Korea’s SKTelecom T1 defeat fellow countrymen KOO Tigers in the final of the 2015 League of Legends World Championship. The match was staged at the Mercedes-Benz Arena in Berlin, Germany in 2015 and was streamed officially on Twitch, YouTube and Azubu.

In 2002, major South Korean companies including Samsung and SK Telecom began sponsoring pro StarCraft teams, and other companies followed with the idea of sponsorship, creating the dynamics of gaming professional’s supply and demand. This injection of big capital into competitive gaming has shaped the lucrative sport as we know it today.

Video gaming developers and publishers, such as Blizzard Entertainment and Take-Two Interactive, have started their own eSports leagues to spur engagement and competition and promote their own games. For example, Blizzard Entertainment started its own league for the popular game, Overwatch, which featured 12 teams. The players that get contracts to play are guaranteed annual salaries, benefits and a share of the team’s prize gains. The first season of Blizzard’s league had a total prize pool of USD 3.5mn. Peter Dager is the highest earning eSports gamer.
He earned USD 2,155,025 by competing in Dota 2 and Heroes of Newerth matches.

A summit by the International Olympic Committee was held in 2017 to discuss the potential recognition of eSports as an Olympic event. The committee acknowledged the growing popularity of eSports and concluded that the category could be considered as a sporting activity, and eSports professionals would be comparable to traditional athletes. Given Japan’s popular reputation in the video gaming industry, leaders are becoming involved in helping include eSports into the 2020 Summer Olympics.

In 2016, Activision Blizzard acquired the assets of Major League Gaming (MLG), which is a professional eSports organisation, for USD 46mn. MLG is part of Activision Blizzard Media Networks division which is led by former ESPN CEO Steve Bornstein. The CEO of Activision Blizzard said in a statement that this acquisition puts the company on track to create the ESPN of eSports. The acquisition also opened doors to Activation Blizzard to strategically get into competitive gaming tournaments as MLG.tv already has the broadcast technology platform and streaming capabilities.

Current and future gaming leagues include titles such as Call of Duty, StarCraft, World of Warcraft, Heroes of the Storm and Overwatch. MLG also has a deal with ESPN to integrate eSports and broadcast content such as the Counter Strike: Global Offensive and Call of Duty summer and winter X games competitions. Game publishers have started to attract online audiences and are actively looking to diversify their efforts across multiple media channels.

Tencent is one of Activision Blizzard’s larger shareholders, early indication of future plans for eSports in China. Tencent, which owns Riot Games, has already invested in China’s top video game livestreaming site which is called Douyu TV. Douyu TV is considered the equivalent of twitch.tv in the US.

In 2014, Amazon anticipated the momentum from eSports and its growth potential. Amazon acquired Twitch for USD 970mn, which bolstered Amazon Web Services. Reactions not positive initially, changed once it was seen that Twitch could expand into a USD 20bn company within Amazon. Despite the lower viewership on Twitch as compared to YouTube, the average viewer on Twitch tends to watch more content as compared to YouTube (7 hours versus 5 hours per month). Users are also more engaged with posting chat messages and questions, buying animated emotes and donating money to Twitch personalities. Active engagement on Twitch can often help boost sales of games that prove popular among live streaming.

Statistics show that around 25% of game sales is attributed to live streaming. Amazon is leveraging on Twitch’s devoted audience to support other Amazon services and products. For example, Amazon streamed some pilot episodes of three original shows to lure viewers to their Prime Video Service. The acquisition of Twitch also spurred competition such as Google’s launch of YouTube Gaming Service – a mix of games, videos and live streaming in one place. Facebook also enabled players of popular Activision Blizzard games to stream through Facebook’s Live service platform.

Microsoft subsequently acquired Beam, which is a startup that is somewhat similar to Twitch. Despite it all being relevant to gaming, first movers usually are at an advantage. In order to diversify and expand the audience, Twitch launched Twitch Creative to stream non-gaming content such as painting and piano playing.

In 2014, Amazon anticipated the momentum from eSports and its growth potential.
Virtual Reality

VR technology, which is sometimes referred to as ‘immersive multimedia’, had existed historically, however it is only recently that technological advances have led to further development of its applications. Virtual reality, as well as augmented reality, can be applied to gaming, data visualisation, prototyping and modelling, 3D-reconstruction, education, simulation and much more. Today, companies are racing towards developing a better VR headset. Companies such as Oculus (Owned by Facebook), Samsung, HTC, Sony, Microsoft are among the popular VR headset providers.

According to Statista, the global VR market size worldwide was around USD 2.2bn in 2017, and is expected to grow to USD 40bn by 2020. Today, the only console VR headset available is the PlayStation VR, of which Sony has sold around 2 million units in 2017. Relative to the PS4 itself, which had 70 million units sold since its adoption, the PSVR has around 3% adoption within the Sony PlayStation community.

The percentage may seem low however, this is due to the high price points and low amount of content being developed for VR. We are still in the early stages of consumer awareness about its attractiveness, however companies continue to campaign to boost consumer interest. Sources show that interest was slow at first and started picking up eight months after the device’s launch, and doubled a few months later after Sony cut the price of the headset.

Sony Interactive Entertainment America president, Shawn Layden, implied to The Verge that it is hard to make predictions about the future of VR, as people will always seek smaller, lighter and wireless headsets. Where technology stands today, making such devices smaller and lighter would be achievable at the expense of reducing quality. Microsoft is also developing its own VR headset for the Xbox, however the current clear challenges for such gaming companies is that console game exclusivity comes at a great cost.

Developers have to make a choice about what console to develop the VR game for, and because of that we do not find many new game releases, and the amount of available games today is relatively very low compared to traditional games. Other popular VR devices that are used on PC are the HTC Vive and the Oculus Rift, which is owned by Facebook. The HTC Vive comes at a higher price point, however has better specifications than the PSVR. Facebook acquired Oculus Rift in 2014 for around USD 2bn, because it believes that VR could be the next big thing after mobile gaming. The Oculus Rift is somewhat different to other known headsets, due to the nature of its applications where it can be used in more than just the gaming arena, such as media, education, social, industrial and professional, television and sports. Today, the AR/VR industry spending worldwide is mostly from consumers, followed by discrete manufacturing, retail, consumer services and process manufacturing.
Electronic Entertainment Expo (E3)

The Electronic Entertainment Expo (E3), is a premier trade event for the video gaming industry. The Expo is used by many developers, publishers and gaming related companies to introduce and advertise upcoming games and game related merchandise to retailers and the public. Previously, E3 was an industry-only event. Since 2017, E3 has become open to the public, issuing 15,000 passes for those who want to attend. The event is considered to be a major catalyst for publishers and developers where they announce and showcase upcoming titles and products.

Video gaming stocks usually go through significant moves throughout the days of the event. In 2018, E3 achieved a record. There were more than 15mn tweets about E3 during the show. More than 4.4mn people watched E3 conferences on Twitch. E3 generated more than 15,000 printed articles and was covered by broadcast media in 19 languages around the world.

The highlight of the year is the word Royale, which is trending amongst developers this year due to the success of the popular game, Fortnite. Fans got most excited by new announcements concerning this Battle Royale mode embedded within popular upcoming games such as the Call of Duty and Battlefield. Battle Royale games is a new video game genre that blends elements such as survival, exploration and gathering items into a last-man standing gameplay. Top analysts were super bullish after the five day event that was filled with press events, meetings and gameplay demos. Further upside is expected for the top companies in the industry as most had showcased strong upcoming titles for H2 2018 and 2019.
Sentiment across the video gaming space is heading towards a revolutionary entertainment mode which is called the Battle Royale mode. Led by the popular game, Fortnite, the Battle Royale mode has caught the eyes of many investors and developers trying to chase the trend with their games.

- The latest statistics shows that there are over 125 million active players in Fortnite and a USD 1bn+ run-rate of in-game spend
- There are more “Fortnite” players than PlayStation 4 and Nintendo Switch owners combined
- Fortnite’s share of all battle royale streaming is around 83%
- The average amount Fortnite players spend playing the game is USD 58.25
- Average amount of time Fortnite players spend playing it per session: 21.6 minutes
- Reported Fortnite revenue for May 2018: USD 318mn

The Battle Royale mode is being implemented in top upcoming games such as Call of Duty: Black Ops 4 by Activision Blizzard and Battlefield V by Electronic Arts, as that is what is currently trending in the industry. This mode’s impact on the industry has led experts to believe that it may be possible that future triple A games would follow the free-to-play model, coupled with such in-game purchase schemes.

In the short term, the disruption by Fortnite has been an apparent headwind to major publishers, but a long-term positive catalyst by adding new players to the broader ecosystem. The video gaming sector is becoming increasingly strategic as sector wide growth has accelerated due to survival based games such as Fortnite.

In April, Tencent announced the release the mega-popular game, Fortnite in China. The game producer plans to spend around USD 15.8mn on marketing, eSports and infrastructure for the game, including regional and global professional leagues. The company now has two IP’s based on the Battle Royale mode (Fortnite and PUBG), however licenses are yet to commence for monetisation. China introduced new licensing procedures and a freeze on some new video games approvals which had somewhat slowed the market. However, it is still not known as to how long that freeze will last.

Another major change in the industry is how in-game purchases implementation represent an initial fault line. Increased scrutiny has grown at both, the consumer and government level, towards micro transactions within games, to the point that many companies started removing them from their games. The general trend has been that in-game purchases have made major publishers more profitable and predictable in terms of cash flows. Some developers even generate more money from in-game purchases rather than the sales of the actual games themselves. For example, Activision generated around USD 4bn in revenue from micro-transactions in 2017, which is 57% of its sales. Nearly all of Tencent Holding’s online games segment comes from micro-transactions, despite providing these games as free-to-play.

There has been tremendous controversy and government intervention attempts into the “loot box” element, which is basically a design that presents players with the option of purchasing a digital package using real money to get random content. Governments are raising concerns that loot boxes may be related to some form of gambling or a manifestation of predatory business practices. Belgium has officially ruled that at least three video games are violating gambling legislation with their use of loot boxes. Games that the commission has looked closely into include Star Wars Battlefront II (EA), Overwatch (Activision Blizzard), FIFA 18 (EA) and Counter Strike: Global Offensive, where the majority were found in violation. Penalties for such violations include a prison sentence of up to five years and a fine of up to EUR 800k. Despite such apparent risks to video gaming companies, some developers have found a remedy to this problem with great success.

Fortnite, a free to play game, is witnessing global success in its micro-transaction mode, in which in-game purchases are based on items that are available for a limited amount of time with a rollover to a new set of purchasable items every week or so. This makes it transparent as to what players are purchasing rather than a randomised outcome, which no longer hints of any form of gambling relevance. Therefore, the narrative has somewhat changed towards micro-transactions and developers are starting to follow this model.
Investing in the Video Gaming Industry

The video gaming industry continues to grow steadily driven by technological evolution and continuous investment into the market. Game revenues continue to increase as companies explore new and attractive models for consumers to enjoy video games, as well as spend money. China is expected to continue to be the largest video gaming market in the world, surpassing the US in gaming revenue in October 2017.

The Battle Royale mode is clearly a game-changer and a trend in which companies such as Activision Blizzard and Electronic Arts are deeply invested in. Chinese companies such as Tencent have a very huge opportunity within this gaming mode, recently announcing the launch of the Chinese version of Fortnite, leveraging into the Battle Royale system.

Other areas of interest would be the virtual reality segment. Investors are keeping a close eye on which company would ultimately capture the market with their VR technology. Today, Oculus and HTC may be leading the market with their high-end products. However, venture capitalists are always on the lookout for smaller companies with potential, and M&A activity is particularly high in this segment.

Mobile gaming continues to grow with increased spending per consumer, due to the rising adoption of smartphones and the success of the mobile gaming monetisation models. Going forward, companies such as Tencent continue to invest deeply into this segment in order to gain further market share. This expected to dominate all other sectors of gaming. Mobile gaming’s dominance of the entire global industry is a trend very well noted by marketers, brands and advertisers.
### Interesting Facts

<table>
<thead>
<tr>
<th>The entire population of Mexico is about equivalent to the number of people playing “Fortnite”</th>
<th>Percentage of Fortnite players that are students that have skipped class to play it: 35%</th>
<th>80% of Pokemon Go players do in-app purchases</th>
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<td>Pokemon Go has around 20+ million users</td>
<td>China alone accounts for more than a quarter of all global games revenue</td>
<td>The top 25 public companies by game revenues captured 77% of the USD 121.7bn market in 2017</td>
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<td>PlayerUnknown Battlegrounds (PUBG) needed just 16 days to reach sales measured in seven figures making it the fastest early access game to sell one million copies on Steam</td>
<td>The most followed game publisher on Twitter is Rockstar Games (Owned by Take-Two Interactive), with a total of 9mn followers as of Feb 2018</td>
<td>PlayStation 2, which was released in 2000, is all-time best selling console, with 157.2mn sold worldwide. PlayStation 4, which was released in 2013, only sold 75.6mn consoles</td>
</tr>
<tr>
<td>The top 5 public companies by game revenues held their position from 2016 to 2017 (Tencent, Sony, Apple, Microsoft, Activision Blizzard)</td>
<td>The majority of eSports players today come from China, the United States and South Korea</td>
<td>SK is a top eSports organisation and one of the most recognised brands in competitive gaming, winning 10 awards of around USD 800mn</td>
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Companies in the Video Gaming Sector

CONSOLE:

Sony
Sony offers various kinds of electronic equipment for consumer, professional and industrial markets, and has grown its business domain from the core electronics business to entertainment businesses including pictures and music, and also offers financial services. Further accelerating the development of new businesses, such as AI x Robotics. Sony Interactive Entertainment is the video game and digital entertainment arm of Sony Corporation. The company handles the PlayStation brand – research, development, production of both hardware and software for the PlayStation video game systems.

Microsoft
Microsoft is a technology company that generates revenue by licensing and supporting an array of software products, offering a wide range of cloud-based and other services and delivering relevant online advertising to a global audience. Microsoft Studios is the video game production wing for Microsoft which is responsible for developing and publishing games for the Xbox consoles (A Microsoft manufactured console) and PC.

Nintendo
Nintendo is a Japanese home entertainment company, the dedicated video game platforms include hardware and software for the handheld systems and home consoles available in Japanese and overseas markets. The company is known for its top-selling video game franchises such as Mario, The Legend of Zelda and Pokemon.

SOFTWARE:

Activision Blizzard
Activision Blizzard is a standalone interactive entertainment company, with c. 500mn monthly active users across 196 countries. Operates through five operating units - Activision Publishing, Blizzard Entertainment, King Digital Entertainment, Activision Blizzard Studios and Major League Gaming. Portfolio includes strong franchises including Activision's Call of Duty, Destiny and Skylanders, Blizzard Entertainment's World of Warcraft, Overwatch, and Heroes of the Storm, and King's Candy Crush and Farm Heroes.

Take-Two Interactive
US based developer, publisher and marketer of interactive entertainment for consumers. Designs products for console gaming systems such as Sony’s PlayStation 4 and PlayStation 3, Microsoft’s Xbox One and Xbox 360, the Nintendo Switch, and personal computers, including smartphones and tablets. Develops and publishes products through two wholly-owned labels Rockstar Games (Developers of GTA V) and 2K Games and through Private Division label and Social Point, a leading developer of mobile games.

Electronic Arts
A digital interactive entertainment company with more than 300 million registered players globally, Electronic Arts develops and delivers games, content and online services for Internet-connected consoles, mobile devices and personal computers. Portfolio includes brands such as The Sims, Madden NFL, EA SPORTS FIFA, Battlefield, Need for Speed, Dragon Age and Plants vs. Zombies.

Ubisoft
France based producer of video games for consoles, PC, smartphones and tablets in both physical and digital formats. Develops new brands organically and owns its brands along with the technologies and knowhow needed to develop them, thus offering long-term visibility on the Company’s growth. The company is known for its brands such as Assassin's Creed, Watch Dogs, Far Cry and Tom Clancy's series of games.

Square Enix
Headquartered in Japan, offers a diverse range of content and service businesses. Publishes, distributes and licenses entertainment content around the world under its internationally renowned brands including SQUARE ENIX and TAITO, and operates a global network of leading development studios located in North America, Europe and Japan. Popular for its well-known brands such as Final Fantasy, Dragon Quest, and Tomb Raider.

Konami Holdings Corporation
Headquartered in Japan, Konami is engaged in the entertainment and health fitness industries, offering digital gaming related products, health and fitness related machines, gaming machines and pachinko machines and pachinko slot machines.
Companies in the Video Gaming Sector

**Bandai Namco Holdings**
The Group develops entertainment-related products and services in a wide range of fields, including toys, network content, home video games, arcade games, amusement facilities, and visual and music content. Provide a diverse range of entertainment in Japan and overseas through its five key operating units and affiliated business companies. Bandai Namco Entertainment Inc. is a Japanese video game development company and publisher owned by Bandai Namco Holdings. Popular brands the company develops/publishes include Dragon Ball, Naruto, Dark Souls and Tekken.

**Nexon**
Headquartered in Japan, Nexon is a global Entertainment Company with over 100 differentiated and high-quality online games in more than 190 countries. Has developed and serviced more than 80 PC online and mobile games, including MapleStory and Dungeon & Fighter, Durango: Wild Lands and OVERHIT.

**GREE Inc.**
Originally founded as the operator of a social network, GREE today operates as a technology company with a range of businesses including mobile games, live entertainment, digital media, advertising, and investments. The company has the development of the world’s first mobile social game to its credit.

**DeNA**
Founded in 1999, DeNA develops and operates a broad range of mobile and online services including games, e-commerce, entertainment, healthcare, automotive and other diversified offerings. Headquartered in Tokyo with over 2,000 employees, Dena aims to impact the world through the use of the internet and AI.

**GungHo Online Entertainment, Inc.**
Established in July 1998, GungHo Online Entertainment is a developer of smartphone applications, console games and online computer games. As of Jun 2018, the company had 8 new products for smartphones and consoles in its pipeline.

**NCSoft**
Established in 1997, NCSoft is a South Korean publisher and developer of massively multiplayer online games. Has online and mobile game development studios in Korea and in North America and well organised publishing arms in major market such as US, Taiwan, Japan and Europe. Has introduced major massively multiplayer online role-playing games on a regular basis to drive constant growth over the past 20 years.

**Sega Sammy Holdings**
Sega Sammy Group was established in 2004 through an integration of game publisher Sega Corp. and pachislot and pachinko machine manufacturer Sammy Corp. Offerings include Sammy’s pachislot and pachinko machines, entertainment contents through SEGA’s digital game business, and resort business represented by the development and operation of hotels.

**Rovio Entertainment**
A Finnish, games-first entertainment company, Rovio Entertainment creates, develops and publishes mobile games, and acts as a brand licensor in various entertainment and consumer product categories. The Company is best known for the global Angry Birds brand, which started from a popular mobile game in 2009. Has operations in US, UK, Sweden and China.

**Zynga**
Headquartered in San Francisco, Zynga is a leading provider of social game services. Develops, markets and operates social games as live services played on iOS and Android mobile platforms and social networking sites such as Facebook. In 2017, the Company had 80 million monthly active users 89% of which were mobile users. Portfolio of popular social games include CSR Racing 2, FarmVille, Words With Friends and Zynga Poker.

**Changyou.com**
A leading developer and operator of online games in China. The flagship PC game, TLBB, has a user base of c.300 million in over ten years of its operation. The Company owns and operates the 17173.com website, an online game information portal in China, covering over 95% of PC and VR games, as well as more than 30,000 mobile games. Also focuses on cinema advertising through its wholly owned subsidiary, Jingmao.
Companies in the Video Gaming Sector

VIRTUAL REALITY:

**Facebook**
Facebook enables people to connect and share with friends and family through a social networking platform and other platforms including Instagram, Messenger, WhatsApp and Oculus. Has c. 1.5bn daily active users and generates substantially all of its revenue from selling advertising to marketers. Focuses on investing in longer-term initiatives, such as connectivity efforts, artificial intelligence research, and augmented and virtual reality. Facebook recently entered the gaming live-stream market as the company launched Fb.gg. The platform will also feature creators, eSports competitions and gaming conference events.

**HTC**
Headquartered in Taiwan, HTC designs and manufactures personal computing devices in various form factors, with smartphones being the primary device over the last fifteen years. Offers PDA phones, smartphones, and handheld and virtual reality devices. In the VR market in 2017, HTC VIVE had a market share in high-end virtual reality devices of 47.26%, ranking number 1 in the world. The HTC Vive is a VR headset developed by HTC and Valve Corporation. It is considered to be one of the top VR headsets in the market in terms of specifications.

**Samsung Electronics**
Headquartered in Korea, Samsung Electronics manufactures a wide range of consumer and industrial electronic equipment and products. In collaboration with Oculus, Samsung developed the Gear VR which is a virtual reality headset that is compatible with Samsung’s flagship smartphones.

**CHINA/HK:**

**Tencent**
Tencent is a provider of internet value-added services to users in China. Offers a digital content catalogue that includes games, video, music and books, and proprietary targeting technology for advertisers to connect with consumers in China. The infrastructure services include payment, security, cloud and artificial intelligence. Tencent Games is the video game holding/publishing division of Tencent Holdings. As of March 2018, it is the largest video game company in the world.

**NetEase**
NetEase operates a leading interactive online community in China. It is a major provider of Chinese language content and services through online games, e-commerce, Internet media, e-mail and other businesses, and leverages its Internet media traffic to generate revenues in each of these segments. NetEase produces online PC games and operates some international online games in China such as World of Warcraft, Overwatch, Diablo III and more.

**SPECIALISED RETAILERS:**

**GameStop**
GameStop is a global, multichannel video game, consumer electronics and wireless services retailer. Operates as the world’s largest omnichannel video game retailer, the largest AT&T authorised retailer, the largest Apple certified products reseller, and the owner of www.thinkgeek.com, one of the world’s largest sellers of collectible pop-culture themed products. Headquartered in the US, operates over 7,100 stores across 14 countries.

These are not recommendations. Please refer to the CIO Office for advisory ideas.
Exhibit 12: 1 Year Return

Source: Bloomberg as of 20 Sep 2018
## Wealth Management CIO Office

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