

Sony's Battle for Video Game Supremacy

John Sterman, Kahn Jekarl, Cate Reavis

As Sir Howard Stringer, CEO of Sony Corporation, settled in for his flight back to Japan from New York, a number of pressing issues occupied his mind about Sony's future. At the forefront, Sony's next generation video game console, the PlayStation 3 (PS3), was set to launch worldwide on November 17, 2006, a mere week away. Despite PlayStation 2's (PS2) dominance in the last generation of gaming consoles, Stringer understood that past successes were no guarantee of future success in the intensely competitive game industry.

Microsoft had launched the first volley in the last console war by releasing the Xbox 360 in the fall of 2005. Within one year, almost 4 million Xbox 360s had been sold worldwide, giving Microsoft a significant head-start in the race for market dominance. Meanwhile, Nintendo, a competitor thought to be dead due to the lackluster sales of its previous console, the Nintendo Gamecube, had generated significant "buzz" around its new entry, the Nintendo Wii (pronounced "we"). Targeting more of a mainstream audience than Sony and Microsoft, the Wii, scheduled to launch just two days after the PS3, posed a serious threat to Sony's market share, particularly due to its \$249.99 retail price, half the price of the PS3.

Stringer also knew that there was much more at stake than winning the console war. The next generation of the DVD market was at stake as well. In addition to being a gaming console, the PS3 was a Blu-Ray disc player. Blu-Ray was a next-generation optical disc format that held more than five times as much information as DVDs and allowed high-definition television (HDTV) owners to watch movies with an unprecedented level of image quality. The PS3 was, in effect, the "Trojan-horse" for the Blu-Ray format.

This case was prepared by Kahn Jekarl, MBA 2007, and Cate Reavis under the supervision of Professor John Sterman. Professor Sterman is the Jay W. Forrester Professor of Management and Director, MIT System Dynamics Group.

Copyright © 2007, John Sterman. This work is licensed under the Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 Unported License. To view a copy of this license visit <http://creativecommons.org/licenses/by-nc-nd/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

Sony found itself in an intense standards war with Toshiba, a well-established Japanese electronics manufacturer, that, in partnership with Microsoft, had developed its own digital video standard, the HD-DVD that retailed for \$500. The battle lines were being drawn as companies including HBO, New Line, Intel, and Sanyo aligned themselves with HD-DVD and Fox, Disney, MGM, Lionsgate, Apple, Dell, Pioneer, Panasonic, Philips, HP, and Sharp sided with Blu-Ray. Warner Brothers and Paramount were supporting both formats.¹

While winning the digital video format war could prove to be extremely profitable for Sony, the battle would be hard-fought. Sony, meanwhile, had had some disappointments in the past in establishing its own technology formats. In the mid 1970s, it launched the BetaMax, a home videocassette tape recording format which was quickly outmarketed by JVC's VHS format largely due to the fact that VHS tapes held more taping capacity (two hours) compared to Betamax's one hour. In 2003, Sony attempted to establish its own music and movie playing format by introducing the Universal Media Disc (UMD) for its portable gaming device the PlayStation Portable (PSP). Initial PSP units were sold with the UMD version of Spider-Man to highlight the flexibility of the device. But UMD never took hold, in large part due to the lack of UMD titles and the number of other devices that played UMDs.

Stringer was well aware that replicating the PS2's success would not be easy. The price of the PS3 would be a significant barrier to widespread penetration. At \$599, the PS3 could no longer be considered a toy and would not likely be an impulse purchase for the majority of consumers. Although compared to stand-alone Blu-Ray players, which sold for \$900-\$1,000, the PS3 could be considered a bargain since it could play games as well including some older generation PlayStation games.

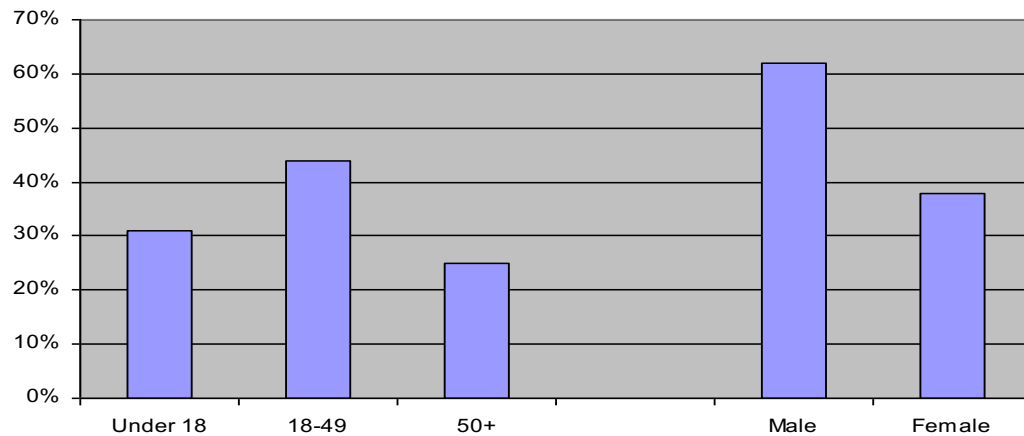
By all accounts, since entering the video game industry in 1994, Sony's ability to capture the attention spans of child and adult gamers had been impressive. However, as technology became more varied and versatile, so did consumer tastes. Stringer knew it was critical that Sony kept consumer appetites at one and the same time satiated and begging for more.

The Evolution of Home Video Games

During the 30-year history of video games, the industry had experienced significant changes not only in who played video games— the average computer and video game player in the United States was 33 years old while the average age of the most frequent video game purchaser was 40 years old—² but in how they were conceived, developed, priced, and ultimately sold, all of which had significant implications for Sony as it prepared for the launch of the PS3 and the competitive response that would inevitably ensue. (**Figure 1** breaks down video game players by age and gender.)

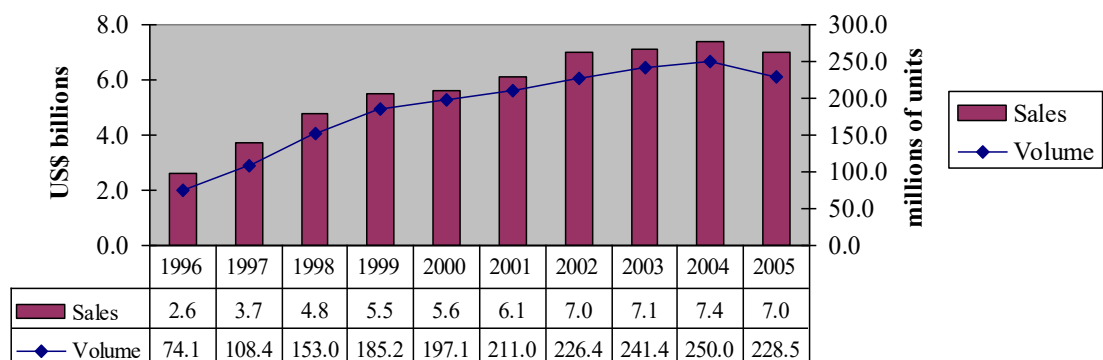
¹ John Wenzel, "The Season's Main Event: Battle of the Digital Decade," *Denver Post*, September 26, 2006.

² Entertainment Software Association, *Essential Facts About the Computer and Video Game Industry* 2006

Figure 1 Video Game Players by Age and Gender, 2005

Source: Entertainment Software Association, *Essential Facts About the Computer and Video Game Industry 2006*.

Microsoft, Nintendo and Sony would all be launching their new generation of video game consoles at a time when the industry was ripe for a new growth spurt. In 2005, the U.S. video game and PC game retail industry—including the sales of portable and console hardware, software and accessories and PC game software—generated nearly \$10.5 billion in revenue in 2005, a 6% increase over 2004 (**Figure 2**). Of this amount, software sales totaled \$7 billion (229 million units), a slight drop from the \$7.4 billion generated in 2004.³

Figure 2 Video Game Software Sales (in US\$ and units)

Source: Entertainment Software Association, *Essential Facts About the Computer and Video Game Industry 2006*.

³ The NPD Group.

The software sales decline was mostly due to the industry's transition to the next generation of gaming hardware. Those consumers interested in purchasing a gaming console were willing to hold off a year until the next generation had arrived, while those with current generation consoles such as the Xbox and PS2 were reluctant to purchase new software for a system that would soon be outdated. Most industry forecasts, however, were very optimistic, with firms such as PricewaterhouseCoopers estimating that the industry would grow to \$46 billion by 2010 (11.4% CAGR).⁴

The industry had traveled leaps and bounds from the days when Atari was providing U.S. households with the newest and greatest inventions in electronic entertainment.

The Rise and Fall of Atari

In 1966, an engineer at Sanders Associates, a small New Hampshire-based electronics company, developed Odyssey, the first home video game system. A ball-and-paddle game that could be played on a TV set, the Odyssey achieved limited commercial success. Its successor Pong, however, did extremely well in arcades and the home market. Nolan Bushnell, founder of Atari, oversaw the development of Pong and introduced the home version in 1975. Atari sold 150,000 copies of Pong in the first year.

Electronics manufacturers quickly saw the benefits of producing a console that could play multiple games. In 1976, Fairchild, a U.S. electronics company, developed the first console of this kind naming it the Fairchild Channel F. Atari quickly followed suit with its 2600 VCS ("video computer system"). In late 1977, Atari released the VCS for \$199 with a library of nine titles. Each cartridge cost \$5-\$10 to manufacture and retailed for \$25-\$30.

By 1979, many other electronics and toy companies were entering the home console market including Mattel, Coleco, RCA, and Philips Electronics. Despite the new entrants, Atari represented two-thirds of the home console market in the United States. Home versions of hit arcade games such as Space Invaders and Asteroids grew the game industry into a \$3 billion business by 1982.⁵

By the end of 1983, however, the industry had collapsed. The market had been saturated with multiple consoles and poor quality software, killing consumer appetite for games altogether. In one notable example, Atari developed E.T., a game based on Steven Spielberg's hit movie by the same name. With only one month to deliver a game in time for the holiday season, the development team created an extremely poor title. Atari took such an enormous loss on E.T. due to unsold inventory and a large licensing fee that it ended up dumping five million of copies into a landfill in New Mexico.⁶ In 1983, Atari posted a \$536 million loss and the company was sold at a substantial

⁴ PricewaterhouseCoopers, Global Entertainment and Media Outlook: 2006-2010

⁵ Mark Mayfield, "What Your Kids Want," *USA Today*, December 2, 1988.

⁶ Ronald Grover and Cliff Edwards, "Game Wars," *Business Week*, February 28, 2005.

discount in 1984. The video game market was moribund for several years after the collapse until Nintendo came and took the U.S. market by storm.

The Rise of Nintendo

Kyoto, Japan-based Nintendo began as a playing-card manufacturing company. After diversifying into various kinds of electronics in the 1970s, Nintendo entered the home video game market in Japan in 1983 with its Famicom system. In an effort to avoid the quality issues that had plagued other game consoles, Nintendo focused on producing fewer, but higher quality games. The Famicom could display 52 colors at a resolution of 256x240 pixels, superior to the competition of the day. Launched at 24,000Y (\$100), the Famicom cost 50% less than the closest competitor.

All games that were produced for the Famicom (known as the Nintendo Entertainment System in the United States) had to go through Nintendo's approval process in order to receive the Nintendo "Seal of Quality." A security chip was installed into every console to ensure that only Nintendo-approved games could be played on the system. Manufacturing of the Famicom was subcontracted out to numerous companies. Wary of giving any one manufacturer too much information about the overall production process, Nintendo used up to 30 different suppliers and completed final assembly of the system at its own production facility.

Due to its popularity, Nintendo licensed out the development of games. Nintendo charged licensees 20% of the 6,000Y (\$30) wholesale price for every game sold. In addition, licensees had to pay the manufacturing costs of the system in advance, with a 10,000 unit minimum order. Once Nintendo entered the U.S. market, in 1985, the minimum order was raised to 30,000 units. Nintendo also added an exclusivity clause that prevented licensees from producing games on competing consoles for two years. Companies such as Namco, one of the first licensees, complained that Nintendo's monopoly over the market was hurting the industry, but eventually backed down and agreed to Nintendo's terms.

Nintendo had a tight grip on retailers as well, requiring them to place orders, take delivery, and pay in a matter of months, as opposed to the year time-frame they were used to. The company also exercised strict inventory management, quickly removing games that were not selling well and, at times, restricting supply to maintain the appearance of scarcity. Atari filed a number of lawsuits against Nintendo contending the company used monopolistic practices to shut out competitors including withholding merchandise from retailers that sold competitors' products or attempted to discount the price of the system.⁷

By 1990, with hit titles such as *Super Mario Bros.* and *The Legend of Zelda*, Nintendo represented more than 90% of the U.S. home console market. Approximately 30 million NES units had been sold, about one for every three American households.

⁷ "Atari Video System to Battle Nintendo," *Houston Chronicle*, November 22, 1989.

Nintendo's next system, the Super Nintendo launched in September 1991, did not capture the market like its predecessor. Super Nintendo's lack of backwards-compatibility prevented Nintendo from taking full advantage of its existing catalog of games. Meanwhile, Sega, another Japanese home console manufacturer, had successfully entered the U.S. market two years earlier with the Sega Genesis console and effectively fought Nintendo to a draw. Strong internal game development at Sega coupled with relatively favorable terms for software licensees (in comparison to Nintendo) paved the way for an extremely competitive library of titles for the Sega Genesis.

By the mid-1990s, Sega was the least of Nintendo's worries as Sony entered the video game market with a bang.

Sony Enters the Arena

Believing that a three-dimensional (3D) game could provide a more immersive experience than a traditional two-dimensional (2D) game, the Sony PlayStation, launched in 1994, was designed as a fully three-dimensional machine. Ken Kutaragi, the lead architect for the PlayStation, believed game players were eager to navigate 3D environments that were more life-like than 2D, side-scrolling games such as Super Mario Brothers. Ready for the jump in complexity, gamers rushed to purchase the PlayStation. Within two years of launch, PlayStation revenues reached \$700 million with profits of \$70 million.⁸

Sony opted for the compact-disc format instead of the traditional cartridge format that Nintendo historically utilized. CDs held up to 20 times more information than a standard cartridge and allowed game developers to create the more intricate characters and environments required for a 3D experience. The potential downside of the CD format was the "seek time" needed for information to be read from the disc, making CDs 50 times slower than a cartridge.⁹ Advanced data formatting, however, minimized disruptions to the game-play experience. CDs were also attractive to Sony and its licensed developers because their production costs were falling below costs for cartridges. By the late 1990s, the manufacturing cost for a CD game was about \$1.50 per unit compared to \$12.00 for a cartridge game.¹⁰

When it came to the library of games that were available for the PlayStation, Sony took a much different approach than Nintendo and was less restrictive about the number of games that were released for the PlayStation. Sony recognized that competing with Nintendo on a game-to-game basis would be difficult. Nintendo had the very best game developers in the world. Sony believed that a greater selection of titles for the consumer would be the best chance to topple Nintendo. While still maintaining a detailed approval process for game developers, Sony succeeded in creating a robust

⁸ Robert Le Franco, "Take That, Nintendo," *Forbes*, June 3, 1996, p. 96.

⁹ Peter J. Coughlan, "Note on Home Video Game Technology and Industry Structure," *HBS Case No. 700-107*, June 13, 2001.

¹⁰ *Ibid.*

library of titles. Retailers such as GameStop and Electronics Boutique soon had entire walls dedicated to PlayStation titles.

With the PlayStation, Sony succeeded in capturing 60% of the U.S. market by 1999, dwarfing Nintendo's 30% share and Sega's 5%.¹¹ Kutaragi, now president and CEO of Sony Computer Entertainment Interactive, was charged with improving on the PlayStation's success with its successor, the PlayStation 2 (PS2). With powerful graphics and a loyal following of experienced game development studios, the PS2, launched in October 2000, was again a resounding success. One of the main features responsible for the PS2's success was the additional functionality the console provided for consumers. The first PlayStation's ability to play audio CDs was considered a minor feature as many people already had CD players. But the PS2 had the ability to play DVDs. Launched in 1996, DVD players had yet to become a mainstream device and at the end of 1999 could be found in just 11% of U.S. homes.¹² At \$299, a price on par with DVD players, the PS2 gave users access to this new technology at a reasonable price. The PS2 enabled consumers to upgrade their movie-watching experience while getting a cutting-edge video game console.

By early 2006, Sony's PS2 dominated the video console market with a 55% market share, followed by Microsoft's Xbox with 24%, Nintendo Game Cube with 15%, and the newest entry, Microsoft's Xbox 360 with 6%.¹³ Meanwhile, eight of the top 10 selling video games in 2005 were for the PS2 (Figure 3).

Figure 3 **Top Selling Video Games, 2005**

Rank	Title	Platform	Publisher
1	Madden NFL '06	PS2	Electronic Arts
2	Pokemon Emerald	Nintendo	GBA
3	Gran Turismo 4	PS2	Sony
4	Madden NFL '06	Xbox	Electronic Arts
5	NCAA Football '06	PS2	Electronic Arts
6	Star Wars: Battlefront 2	PS2	Lucasarts
7	MVP Baseball	PS2	Electronic Arts
8	Star Wars Episode 3: Revenge of the Sith	PS2	Lucasarts
9	NBA Live '06	PS2	Electronic Arts
10	Lego Star Wars	PS2	Eidos

Source: NPD Group.

¹¹ "Sega's New Player Fails to Scare Competitors," *The Associated Press*, May 14, 1999.

¹² "DVD Video to Outstrip VHS," *Inside Multimedia*, September 27, 1999.

¹³ Dean Takahashi, "Dean and Nooch on Gaming," *San Jose Mercury News*, January 13, 2006.

Game Development and Publishing

Gaming manufacturers made their money not from the sales of consoles—in fact most consoles were priced below cost— but rather from software. It was widely believed that Microsoft's Xbox console, launched in 2001, was sold at a \$100 loss per unit¹⁴ and estimates indicated that each Xbox 360, launched in 2005, lost close to \$130 per unit.¹⁵ A number of industry analysts believed Sony's PS3, even at \$599 for the premium version, would sell at a loss of \$250 per unit. (In 2006, Sony earned about \$8 on each PS2 sold.¹⁶)

Acting as gatekeepers for developing and selling games on their respective systems, gaming manufacturers typically received between \$5 and \$7 for every unit of software sold for their particular console.¹⁷ On average, video games sold between 200,000 to 300,000 units; a blockbuster was any title that sold over 5 million units.

Over the 30-year history of the video game industry, the role of game developers and publishers had evolved to the point where companies like Microsoft were paying large sums of money to bring the talent in-house.

Fragmentation and Consolidation

When Atari introduced its 2600 VCS in 1977, all games were developed in-house by Atari engineers. Despite Atari's rapid success in the late 1970s, the company did not adequately compensate its engineers. In 1979, four of Atari's top engineers left to form a new company called Activision, which became the first independent developer for the Atari 2600.

The formation of Activision marked the industry's first move towards specialization, whereby independent companies focused solely on software development. The model became increasingly popular during Nintendo's rise in the 1980s. While many of the top titles were developed by Nintendo, independent titles such as Konami's Castlevania and Capcom's Mega Man played a significant role in securing Nintendo's grip on the market. As Nintendo sold more consoles, more independent game companies entered the market while established developers increased staff to handle multiple projects at once.

In time, independent game companies sought greater control and began to self-publish their titles. They funded projects, developed and tested games, built up marketing departments, and negotiated terms with retailers. Independent publishers, including Capcom and Tecmo, which published games for multiple platforms came to be known as 3rd-party publishers, whereas console manufacturers that published games for their own platform were 1st-party publishers.

¹⁴ Matt Richtel, "Xbox Fails to Win Gaming Dominance," *The New York Times*, February 13, 2003.

¹⁵ Paul Sweeting and George T. Chronis, "PlayStation 3 Delay Possible," *Video Business*, February 27, 2006.

¹⁶ Kenji Hall, "The PlayStation 2 Still Rocks," *BusinessWeek Online*, December 29, 2006.

¹⁷ International Development Group. In reality, royalties are based on a sales schedule. As the number of units sold passes certain milestones, the manufacturer's royalty is lowered.

When publishers released a game that struck a chord in the market, they often seized the opportunity to build a franchise around the game. Capcom's Street Fighter, released in 1989, was one such example. While Street Fighter was a moderate success, over the next eight years, Capcom released a series of spinoffs including Street Fighter II, Street Fighter II Champion's Edition, Street Fighter II Turbo, Super Street Fighter II, Street Fighter Alpha, Street Fighter EX, and Street Fighter III. The entire series sold 500,000 coin-operated units and 24 million console games were sold worldwide, generating over \$1 billion in revenues for Capcom.¹⁸

Lucrative franchises like Street Fighter certainly made publishers very happy, but the engineers and staff that produced the titles tired of incremental improvements to existing titles. Many developers entered the industry because they had game concepts of their own to develop, not to spend years making minor changes to an existing product. Teams of developers began to leave publishers to form their own independent development studios. Starting a new company was risky, but talented teams placed a high value on creative freedom and recognized the financial reward that high-quality innovative titles could bring.

By the early to mid-1990s, the software video game industry was largely fragmented. While only a few console manufacturers existed at any one time, there were dozens of 3rd-party publishers and three to four times as many independent game developers. New business models were emerging to reflect the movement of creative resources. Third-party publishers were no longer solely funding internal projects, but were also entering into contracts with independent developers. For the developers, publishers typically funded development (which normally took 12-18 months), obtained approvals from manufacturers to release the game on their console, and handled the sales and marketing of the title. In return, publishers received all revenues of the title upon release (less the retail markup) until the cost of development had been recouped. Once the break-even point was reached, developers received a small royalty per unit sold. The royalty would normally increase as agreed-upon sales milestones were met.

Publishers also insisted on owning the game's brand, or the intellectual property (IP). Owning the IP could be another major source of revenue as a game's brand spread to other markets such as comic books, action figures, and feature films.

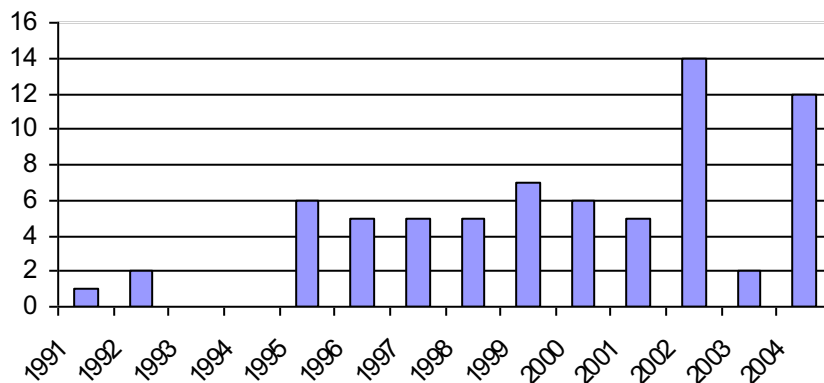
¹⁸ Capcom Corporate Background: <http://www.capcom.com/corporate/>

By 2001, sales of video games topped \$6 billion in the United States.¹⁹ While the retail cost of games had stayed the same, development budgets were increasing, schedules were lengthening, and production values were at their highest level. On average, 20 to 30 people worked for 18 months to develop a game for the PS2 and each game cost upwards of \$5 million to develop.²⁰ The industry was becoming a blockbuster-driven market. The top three selling games in 2001 (Grand Theft Auto 3, Madden NFL 2002, and Metal Gear Solid 2) totaled over \$240 million in sales.²¹

As more hit titles were created by independent developers, publishers found themselves paying royalty fees that ranged from 10% to 40% of the retail price of software once development costs were recouped.²² In an effort to avoid paying royalties, publishers began acquiring talented development studios. In 2001, UbiSoft, acquired Red Storm Entertainment, the developer of Tom Clancy's Rainbow Six games, for \$43 million and a year later Microsoft purchased Rare Ltd, known for its James Bond titles, for a sizable \$375 million. As publishers' pockets got deeper, acquisitions became more commonplace (**Figure 3**). In time, purchasing talented development studios became a defensive measure for publishers to prevent competitors from acquiring top talent. By 2006, the largest publishers owned several studios including Activision (11 studios) and THQ (14 studios).

Figure 3

Game Developer Acquisitions 1991-2004 (2003 data reflects Jan-Mar)



Source: Dan Lee Rogers, "The End Game: How Top Developers Sold Their Studios, Part 1," http://gamasutra.com/features/20040303/rogers_o1.shtml

¹⁹ Susan Stellin, "Brisk Sales for Video Games," *The New York Times*, November 25, 2002.

²⁰ Felix Vihman, "Back from the Brink," *National Post*, September 1, 2002.

²¹ International Development Group

²² Peter J. Coughlan, "Note on Home Video Game Technology and Industry Structure," *HBS Case No. 700-107*, June 13, 2001.

Console Wars Re-Ignite

The launch of the Xbox 360 in November 2005 marked the beginning of the first console war in which Internet connectivity was a core component of all the major hardware manufacturers' strategies. Prior to Internet gaming, a major reason to purchase the most popular console was that it made it easier to trade games with friends. Internet gaming created the opportunity for a much deeper experience among owners of the same console. Users could now play together online, create groups of friends with whom they enjoyed playing, and monitor friends' progress through various games. Social networks on game consoles had never been stronger.

Although PC gamers could play multiplayer games online throughout the 1990s, console gamers did not have an opportunity to play with each other online until the year 2000 when Sega released Phantasy Star Online, the first "massively multiplayer" online game for consoles. One year earlier Sega had launched the Sega Dreamcast with a built-in modem. This marked the first time thousands of console gamers could meet online, chat, and complete game objectives with each other.

Sega also made a play into one of the most popular video game genres, releasing NFL 2K1, the first football title with online play. NFL 2K1 featured real players and teams licensed from the National Football League. Despite Sega's best attempts to highlight connectivity as the reason for gamers to choose Dreamcast, hardware sales lagged as a mediocre software library and the impending release of the PS2 in 2000 dissuaded gamers from switching. By early 2001, Sega announced that it would be exiting the hardware business, Dreamcast production would stop, and the company would focus purely on software development.

Sony and Nintendo made efforts to establish online play on their respective consoles, the PS2 and GameCube, but moved hesitantly due to limited broadband penetration in key markets such as the United States where it was about 24% in 2001.²³ Broadband Internet connectivity was the obvious choice for game companies as it allowed developers to reliably transmit more information across the network in comparison to dial-up connections. Dependable data transmission reduced the likelihood of lag or disruptions to gameplay caused when game machines needed to synchronize game data, a key attribute particularly for games involving sports or a lot of physical movement. A Nintendo executive stated in 2001 that the company was more focused on providing a good gaming experience and reaching a broad audience than being first to offer a state of the art online experience: "We still see online as a small number (of gamers). There's still lots of questions about online. For kids who are 13, 14, 15, are their parents ready to set up a broadband or modem connection? There are costs and hurdles involved."²⁴

For PS2 owners, Sony released a network adapter, sold separately for \$39.95, which allowed users to connect via dial-up or broadband. It was then up to individual game developers to provide a seamless

²³ "Digital Cable Rollout to Slow in U.S.," *Total Telecom*, December 18, 2001.

²⁴ Omar Gallaga, "Mano a Mano, Xbox a Xbox," *Austin American-Statesman*, November 21, 2002.

online experience for players despite significant variation in connection speeds. Sony gave developers enormous freedom in shaping the online experience as they saw fit. Developers could integrate online play as much, or as little, as they wanted and could implement their own pricing models (although few charged users for online play). However, with great freedom came great responsibility, and for many developers designing the online components of their game was just one more substantial task that needed to be accomplished in order to complete the title.

Microsoft, which released the Xbox in the fall of 2001, adopted a much different approach. The company wanted to unify the online experience for developers and players alike by providing a consistent experience with the service Microsoft named Xbox Live. Microsoft actively encouraged developers to incorporate online features into games to show off the features of Xbox Live. Microsoft distributed code libraries to developers, hosted online games on its own servers, and created a uniform online interface that focused on allowing users to easily build a community of “friends.” Two highlights of Xbox Live were the microphone headset that enabled real-time voice communication among gamers and the ability for friends to contact one another even if they were playing different Live-enabled games. The headset was part of the retail Xbox Live package that sold for \$49.99 and gave gamers a one-year subscription to the service.

In addition to providing a unified online experience, Microsoft made the controversial decision to require broadband connectivity for the Xbox. While this decision improved online play for those with broadband Internet service, it also severely limited the number of potential users for Xbox Live. The commonly held belief, however, was that Xbox was part of Microsoft’s long-term strategy to gain significant knowledge about the game industry.

Xbox Live introduced new revenue streams for Microsoft and its partner companies. While some content could be downloaded for free, including demonstrations of new games, and stored on the Xbox hard drive, premium content such as extra levels and characters for games could be purchased for \$5 to \$15. A set of new multiplayer maps for Call of Duty 2, a World War II title, was priced at \$15 and was one of the most popular downloads on Xbox Live in 2005.

Companies such as Cadillac took advantage of the marketing opportunities that the Xbox Live Marketplace provided. In an effort to target the male 25-35 year old demographic, the company developed video game versions of its cars for the hit racing game, Project Gotham Racing 3. The site included a message that read: “If you’re a fan of Cadillac and Project Gotham Racing 3, it’s time to break out of your dancing shoes to celebrate the arrival of the new Cadillac V-Series downloadable content.”

In an attempt to appeal to more casual game players, Microsoft created Xbox Live Arcade, an area of the Marketplace where simpler games such as Pac-Man and Uno could be downloaded and played.

Adopting a popular model from the PC casual game industry,²⁵ demos of Xbox Live Arcade games could be downloaded for free with the full version available if purchased. In addition to nostalgic titles such as Frogger and Galaxian, new titles such as Geometry Wars were very popular as well. The game development community praised Arcade and were hopeful that it would hearken a return to the days of innovative, smaller, and less financially risky games. Microsoft, however, was very selective and restrictive in releasing games on Arcade, so it was unlikely that many developers could be sustained by the Xbox Live Arcade alone.

Nintendo, with its new Wii console, looked forward to launching the first Nintendo console with well-integrated online functionality that, among other things, provided Wii owners with weather updates and email and web browsing services. Named the Virtual Console, the online service's most compelling feature was access to the enormous library of high-quality Nintendo titles dating back to 1984. Classic games for the original Nintendo, the Super Nintendo, the Nintendo 64, and the GameCube would be available for download at prices ranging from \$4 to \$8. Nintendo hoped that the pull of nostalgia would bring older gamers back to Nintendo.

Sony would be entering the online video game arena with the PlayStation Network Platform, described as an "ecosystem" comparable to Microsoft's Xbox live which would be launched simultaneously with the PS3. The platform would allow players to connect to the Internet so that they could play against each other online as well as communicate through email and live voice chat.²⁶ PS3 owners would also be able to purchase games although it was not known if the back catalog of PlayStation and PS2 games would be available for download. Unlike the Xbox 360, the PlayStation Network Platform would allow licensees to connect their own game servers to the network.²⁷ As one analyst opined, "Sony sees online as more of a loyalty builder for their audience rather than a money making strategy. Microsoft sees it as both."²⁸

Many industry analysts speculated that the new generation of video game consoles— the Xbox 360, the Nintendo Wii, and the Sony PS3—would overshadow the role of the PC in many homes. As one technology analyst pointed out, the games console was becoming the focus of breakthrough technology: "It suggests the platform of growth (in home computing) is shifting away from the PC to the games machine."²⁹ As the CFO of video game publisher Electronic Arts put it, "The stakes for next generation hardware leadership are enormous. It's about owning the set-top box that may ultimately connect the living room to the Internet."³⁰

²⁵ The term casual game refers to a category of electronic or computer games targeted at a mass audience. They typically have very simple rules or play techniques making them easy to learn and play. They require no long-term time commitment or special skills to play, and there are comparatively low production and distribution costs for the producer.

²⁶ Daniel Terdiman, "Sony's PlayStation 3 Race," *CNET News.com*, March 22, 2006.

²⁷ Hirohiko Niizumi and Tor Thorsen, "PlayStation Network Platform Details," *GameSpot*, March 15, 2006.

²⁸ Kim Peterson, "Sony Online Gaming to Debut with PS3," *The Seattle Times*, March 23, 2006.

²⁹ Chris Nuttall and Richard Waters, "All to Play For: Microsoft and Sony Take the Video Game Battle to the Next Level," *The Financial Times*, May 11, 2005.

³⁰ Ibid.

Different Strategies for Different Audiences

Up until the 1990s, video games were thought to be toys primarily for children and teenagers and the goal for console manufacturers was simple: target children. Eventually the popularity of games grew to the point where entire generations were labeled the Atari or Nintendo generation. But by the late 1990s, the first generation of video game players was graduating from university, entering the workforce, and spending its income on video games. Sony owed much of the PlayStation's success to an effective campaign that targeted maturing gamers looking for edgier, more sophisticated games that tested their gaming skills. As Sony claimed industry dominance, a new mantra spread over the industry: target the core gamers – males in their 20s. The strategy worked extremely well for Sony which sold over 100 million of its PS2 units worldwide. This would continue to be the strategy for Sony and Microsoft as both heavyweights rolled out powerful hardware in 2005 and 2006.

Meanwhile, Nintendo had not kept up with shifting consumer tastes and its games were viewed as too “kiddy” for older gamers. In 2001, Nintendo's Game Cube accounted for 18% of the console market in the United States, behind Microsoft's Xbox with 24% and Sony's PS2 with 55%.³¹ Nintendo found itself in a difficult position as the company wanted to continue to create fun, simple, kid-friendly games, but saw older gamers moving on to different types of games. Many wondered if Nintendo's time had passed and questioned its ability to compete against companies like Sony and Microsoft. But when asked if Nintendo would leave the hardware business, the company's CEO responded, “When we withdraw from the home game console, that's when we withdraw from the video game business.”³²

As GameCube sales leveled off just two years after the system's launch, Nintendo began to reformulate its strategy. Willing to let Sony and Microsoft battle it out for the core gamer demographic, Nintendo adopted a strategy to expand the market believing that simple, fun games with intuitive control schemes would appeal to people of all ages and genders. Nintendo first attempted this strategy with its portable gaming device, the Nintendo DS (Dual-Screen), which was launched in 2004. The DS had a clamshell design with two screens, one on top of the other. The bottom screen was touch-sensitive and could be pressed by either finger or stylus. The first breakout title for the DS, *Nintendogs*, proved Nintendo's intuition about the market correct, and was a runaway success. *Nintendogs* was a game where owners could care for a virtual puppy by using touch-screen controls or voice commands. By fall of 2006, Nintendo had sold over 4 million copies of *Nintendogs* in the United States.

Confident that its strategy was sound, Nintendo moved forward in developing its next home console, the Nintendo Wii, bringing to market a new type of controller that could detect three-dimensional motion and acceleration. In a tennis game, for example, players no longer pushed a button to swing the racquet, but swung the controller like a real racquet to hit the ball. Consumer anticipation was

³¹ “Wii: Power Rests in the Palm of Your Hand,” *TWICE*, January 8, 2007.

³² Yuka Obayashi and Keiko Kanai, “Nintendo Eyes Next Generation Console Launch,” *Reuters News*, January 23, 2003.

very high as the Wii's launch date approached. What was thought to be a two-company battle between Sony and Microsoft was shaping up to be a hard-fought three-way struggle for the hearts and wallets of gamers the world over.

Public Backlash

In addition to competing head-on with Nintendo and Microsoft, Sony, as did all video game manufacturers, faced a public relations challenge that, although not new, was not showing signs of subsiding any time soon. The issue was violence.

As gaming hardware became more sophisticated, so did video game characters and their surrounding environments. By the mid-1990s, game players were navigating characters through three-dimensional worlds with a true sense of depth. Game developers strove to create the most immersive, realistic experience possible. Environments were becoming more detailed, the play between light and shadow more subtle, and character animations increasingly life-like.

Violence in early video games was often quite comical as players had to use their imaginations to figure out how a particular attack actually caused damage to an enemy. But as game environments became more real with the help of 3D technology, characters' attacks became more life-like. Eventually, gamers were taking careful aim with sniper rifles at the heads of Nazi soldiers and using piano-wire to strangle uncooperative mobsters. Bestseller *Grand Auto Theft 3* involved stealing cars, killing cops, and beating up prostitutes.

Certain groups, particularly politicians and parents of gamers, began to raise questions about violence in video games: Did playing violent video games desensitize children to real-world violence? Did children become more violent after playing violent video games? Were comparisons to violence in movies inappropriate since game players were participants in violence instead of spectators to it?

The furor over video games peaked after it was discovered that the 1999 Columbine High School shootings, which took the lives of 12 students and 1 teacher, were carried out by two students who were frequent players of *Doom* and *Wolfenstein 3D*, first-person shooting games. Some argued that constant exposure to violent imagery in these games desensitized the shooters to violence. Families of victims filed a lawsuit against game makers stating that "absent the combination of extremely violent video games...and the boys' basic personalities, these murders and this massacre would not have occurred."³³ U.S. District Judge Lewis Babcock said that there was no way the makers of violent games (including *Doom*) could have reasonably foreseen that their products would cause the Columbine shooting or any other violent acts.³⁴ The lawsuit was dismissed.

³³ Mark Ward, "Columbine families sue computer game makers," <http://news.bbc.co.uk/2/hi/science/nature/1295920.stm>

³⁴ "Columbine lawsuit against makers of video games, movies thrown out," *Associated Press*, <http://www.freedomforum.org/templates/document.asp?documentID=15820>

Still, many felt that games had become too violent and laws should be passed to ban the sale of violent video games. To preempt federal regulation, the Entertainment Software Ratings Board (ESRB) was established in 1994 to assign ratings to inform consumers about the content in games. Similar to the Motion Picture Association of America, which rated films, the ESRB described itself as an independent, self-regulatory body whose goal was to help consumers make educated decisions about purchasing games. Funded by game makers, the ESRB had slowly but steadily gained momentum; sales associates at game retailers such as GameStop and Electronics Boutique were well-versed with the ratings system and quick to educate consumers about the system.³⁵

Yet the ESRB had its critics. Confidence in the rating system was undermined when it was discovered that a sex mini-game (nicknamed “Hot Coffee”) was uncovered in Rockstar Games’ *Grand Theft Auto: San Andreas*. Although special hardware was needed to access the game for the console versions, the mini-game highlighted the ease with which unrated content could be published. The “Mature 17+” title was re-assigned an “Adults Only” rating until Rockstar Games removed the content.

Dr. Kimberly Thompson of Harvard University’s School of Public Health was a vocal critic of the ESRB’s rating process.³⁶ In 2004 Thompson published the results of a study she had conducted analyzing the relationship between game content and ESRB content descriptors. She discovered that ESRB raters did not actually play the games they were rating. Instead, game publishers sent video clips of the game and ESRB raters determined rating and content description based on those brief excerpts. Thompson’s assessments based on actual game play indicated games in the initial E, E-10+, and T categories were much more violent than the ratings suggested, with an average of one death per minute in T-rated games.³⁷ The study concluded that “a significant amount of content in T-rated video games that might surprise adolescent players and their parents given the presence of this content in games without ESRB content descriptors.”³⁸ Thompson pushed the ESRB to require that raters play the games they rated in an effort to improve rating accuracy. The ESRB had taken some of Dr. Thompson’s recommendations into account. In 2005, the ESRB introduced the “Everyone 10+” rating to fill the gap between children and teen-rated titles.³⁹

A number of states had attempted to introduce laws that banned the sale of violent video games. Michigan claimed that the interactive nature of video games made them less entitled to First Amendment protection. Illinois attempted to fine stores that did not add warning labels to mature-rated games (despite already having ESRB ratings on the box). However, all attempts had been deemed violations of the First Amendment.

³⁵ Interviews with sales associates at GameStop, Electronics Boutique, and Wal-Mart.

³⁶ Dr. Thompson’s testimony on the ESRB to the U.S. House of Representatives can be found at: <http://energycommerce.house.gov/108/Hearings/06142006hearing1921/Thompson.pdf>

³⁷ Thompson KM. Kids and Media: Learning Happens. <http://doctor.medscape.com/viewarticle/505766>

³⁸ “Kevin Haninger and Kimberly M. Thompson, Content and Ratings of Teen-Rated Video Games, *The Journal of the American Medical Association*, February 18, 2004.

³⁹ ESRB website, <http://www.esrb.org/about/chronology.jsp>

At the federal level, Senators Hillary Rodham Clinton and Joseph Lieberman introduced the Family Entertainment Protection Act in November 2005. The bill sought to prohibit the selling of “Mature” or “Adults Only”-rated games to anyone under 17. Retailers would be fined for violations. The bill would also allow private citizens to file complaints against the ESRB if ratings or content descriptions failed to accurately describe a game’s content. The bill was in the first stages of the legislation process and would likely undergo significant changes in subsequent legislative sessions.⁴⁰

Reason for Optimism?

As the launch date approached, Stringer recognized that the holiday season of 2006 would be critical to PS3’s success. He hoped that the enormous popularity of the PS2 would help the PS3 in its early days.

Some industry analysts believed the PS3 would put Sony on top of the video game market for the foreseeable future. In-Stat, a communications services research and analyst firm, predicted that through 2010, the Sony PS3 would account for just over 50% of the installed base of next-generation consoles, while the Microsoft Xbox 360 would have 28.6%, and the Nintendo Wii, 21.2%.⁴¹

But getting there would not necessarily be easy. As one industry analyst opined, “Microsoft has driven a stake in the ground. They will have 10 million units by the time Sony ships the PS3. Sony is going to have to respond in a big way.”⁴²

In October, just one month before the public unveiling of the PS3, 235,000 PS2s were sold in the United States compared to 217,000 Xbox 360s.

⁴⁰ To check the status of the Family Entertainment Protection Act, please visit <http://www.govtrack.us/congress/bill.xpd?bill=s109-2126>

⁴¹ Sumner Lemon, “Will PlayStation 3 Outsell Xbox 360,” *PCWorld*, March 22, 2006.

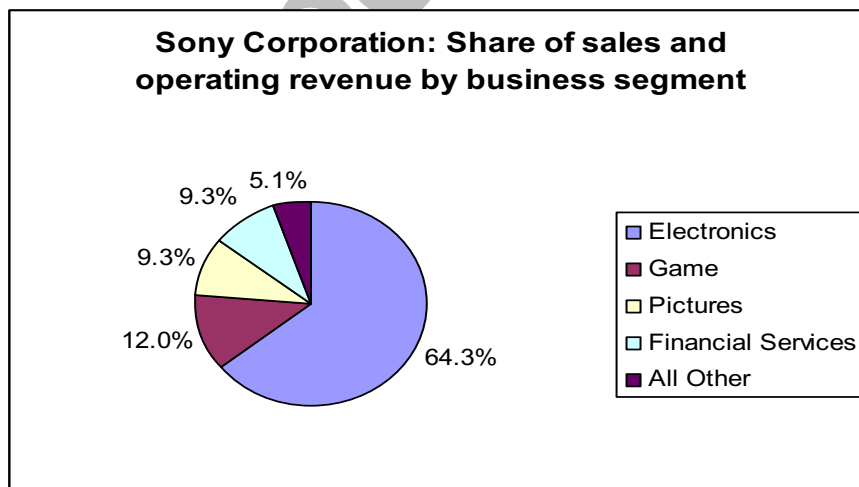
⁴² Ryan Kim, “Keeping Players in the Game,” *The San Francisco Chronicle*, May 8, 2006.

Exhibit 1a Sony Corporation Operating Performance by Business Segment 2005-2006

USD in millions			Percent
Sales and operating revenue	2005	2006	change
Electronics	43,306	44,021	1.7%
Game	6,238	8,193	31.4%
Pictures	6,271	6,375	1.7%
Financial Services	4,791	6,352	32.6%
All other	3,931	3,495	-11.1%
Elimination	(3,343)	(4,544)	
Consolidated	61,194	63,893	4.4%
Operating income (loss)			
Electronics	(293)	(264)	
Game	369	74	-79.7%
Pictures	546	234	-57.1%
Financial Services	474	1,609	239.4%
All other	36	138	286.4%
Sub-Total	1,132	1,792	58.3%
Elimination and unallocated corporate expenses	(159)	(158)	
Consolidated	974	1,634	67.9%

Source: Sony Annual Report 2006. <http://www.sony.net/SonyInfo/IR/financial/ar/2006/index.html>.

Exhibit 1b Sony Corporation Operating Revenue by Business Segment



Source: Sony Annual Report 2006. <http://www.sony.net/SonyInfo/IR/financial/ar/2006/index.html>.

Exhibit 1c Sony Corporation Game Business Operating Performance 2004-2006

USD in millions	2004	2005	2006
Sales	\$6,668.4	\$6,237.6	\$8,193.2
Operating Income	\$577.8	\$369.2	\$74.4
Operating Margin	\$74.4	\$50.4	\$7.7
Assets	\$5,847.9	\$4,119.7	\$4,447.9

Source: Sony Annual Report 2006. <http://www.sony.net/SonyInfo/IR/financial/ar/2006/qfhh7c00000aksyu-att/qfhh7c00000aksx9.pdf>.

Exhibit 2 Nintendo Income Statement, 2001-2006 (in US\$ millions)

	2006	2005	2004	2003	2002	2001
Net Sales	\$4,349	\$4,813	\$4,899	\$4,798	\$4,169	\$3,475
Cost of Sales	\$2,511	\$2,781	\$2,923	\$2,935	\$2,513	\$2,091
Gross Margin	\$1,834	\$2,031	\$1,977	\$1,863	\$1,656	\$1,384
SG&A	\$1,058	\$971	\$927	\$908	\$757	\$746
Operating Income	\$780	\$1,060	\$1,050	\$955	\$899	\$638
Other income	\$643	\$299	(\$546)	\$124	\$477	\$630
Income before tax and minority interests	\$1,423	\$1,359	\$504	\$1,079	\$1,376	\$1,268
Total income taxes	\$582	\$542	\$188	\$438	\$577	\$544
Minority interests	(\$0)	\$0	\$1	\$1	(\$2)	(\$2)
Net income	\$841	\$817	\$316	\$640	\$800	\$726
Cash dividends per share	\$3	\$3	\$1	\$1	\$1	\$1

Source: Nintendo Annual Financial Report. http://www.nintendo.com/corp/annual_report.jsp.

**Exhibit 3a Microsoft Home and Entertainment Division
Revenues and Operating Losses, 2002-2006 (includes Xbox division)**

(In millions)	2006	2005	2004	2003	2002
Revenues	\$4,256	\$3,140	\$2,737	\$2,748	\$2,453
Operating Losses	(\$1,262)	(\$485)	(\$1,337)	(\$1,191)	(\$1,135)

Exhibit 3b Microsoft Revenue and Income Statement by Business Division, FY 2006

(In millions)	For the quarter ended					For the quarter ended				
	Fiscal Year 2006	June 30, 2006	March 31, 2006	Dec. 31, 2005	Sept. 30, 2005	Fiscal Year 2005	June 30, 2005	March 31, 2005	Dec. 31, 2004	Sept. 30, 2004
Segments										
Client	\$13,209	\$3,376	\$3,187	\$3,459	\$3,187	\$12,151	\$3,014	\$2,964	\$3,193	\$2,980
Server and Tools	9,653	2,690	2,398	2,438	2,127	8,370	2,245	2,058	2,161	1,906
Online Services										
Business	2,299	580	561	594	564	2,344	598	581	606	559
Microsoft Business Division	14,488	3,908	3,608	3,689	3,283	13,520	3,637	3,384	3,413	3,086
Entertainment and Devices	4,633	1,250	1,146	1,657	580	3,403	667	633	1,445	658
Total revenue	\$44,282	\$11,804	\$10,900	\$11,837	\$9,741	\$39,788	\$10,161	\$9,620	\$10,818	\$9,189
(In millions)	For the quarter ended					For the quarter ended				
	Fiscal Year 2006	June 30, 2006	March 31, 2006	Dec. 31, 2005	Sept. 30, 2005	Fiscal Year 2005	June 30, 2005	March 31, 2005	Dec. 31, 2004	Sept. 30, 2004
Segments										
Client	\$10,182	\$2,504	\$2,471	\$2,638	\$2,569	\$9,403	\$2,172	\$2,331	\$2,513	\$2,387
Server and Tools	3,017	903	746	762	606	2,109	479	515	660	455
Online Services										
Business	(77)	(190)	(26)	58	81	411	101	101	130	79
Microsoft Business Division	9,675	2,544	2,414	2,466	2,251	9,116	2,285	2,316	2,355	2,160
Entertainment and Devices	(1,337)	(437)	(422)	(296)	(182)	(607)	(235)	(198)	28	(202)
Corporate-Level Activity	(4,988)	(1,443)	(1,295)	(971)	(1,279)	(5,871)	(1,813)	(1,736)	(937)	(1,385)
Total operating income	\$16,472	\$3,881	\$3,888	\$4,657	\$4,046	\$14,561	\$2,989	\$3,329	\$4,749	\$3,494

Source: Microsoft Corporation Annual Report 2006.

SONY'S BATTLE FOR VIDEO GAME SUPREMACY

John Sterman, Kahn Jekarl, Cate Reavis

Exhibit 4a Developer Acquisitions (1991 - 2003)

DATE	COMPANY	PRODUCTS	ACQUIRER	TERMS
1991	Distinctive	4D Boxing, Hardball, Test Drive	Electronic Arts	\$11 million (\$785K in cash)*
1992	Origin	Wing Commander, Ultima	Electronic Arts	\$35 million stock (estimate)*
1992	Westwood	Kyrandia	Virgin	\$5 million value (estimate)*
1994	SONY PLAYSTATION LAUNCHES			
1995	Iguana	Turok	Acclaim	\$5 million cash + undisclosed stock
Oct 95	Sculptured Software	Star Wars, Mortal Kombat, Jack Nicklaus Golf	Acclaim	\$30 million in stock
Oct 95	Probe	Die Hard, Back to the Future, X Men	Acclaim	\$30 million in stock (estimate)*
1995	Papyrus	NASCAR	Sierra	\$40 million stock (approx.)*
1995	Impressions	Cesar II, Lords of the Realm	Sierra	\$8 million stock (approx.)*
1995	Bullfrog	Populous, Syndicate, Magic Carpet	Electronic Arts	\$25 million (estimate)*
1996	NINTENDO N64 LAUNCHES			
Apr 96	Headgate	PGA Championship Golf	Sierra	\$8-10 million stock*
Sep-96	Mission Studios	Jet Fighter	Take Two	\$1,674,478 cash, 182,923 stock (value \$440,000). Promissory note value
Jun-96	Formgen	Duke Nukem	GT Interactive	1,030,000 shares GT stock
Jul-96	Humongous	Freddie Fish, Putt Putt	GT Interactive	3,458,000 shares GT stock
Dec-96	DMA	Lemmings	Gremlin	£4.2 million
Apr-97	Berkley Systems	You Don't Know Jack	Sierra	\$25 million stock (approx.)
Jul-97	Maxis	Sim City	Electronic Arts	\$125 million value stock
Sep-97	Raven	Soldier of Fortune	Activision	Value \$13 million, 1,040,000 shares
Sep-97	Odd World	Abe's Oddysee	GT Interactive	\$7 million (TCI portion) (estimate)
Oct-97	SingleTrac	JetMoto, Twisted Metal, Twisted Metal II and WarHawk	GT Interactive	\$5.4 million in cash and 700,000 shares of stock valued at \$7.2 million, (total value of \$12.6M)
Aug-98	Westwood	Command and Conquer, Lands of Lore	Electronic Arts	\$122.6 million (majority to Westwood)
Sep-98	Crystal Dynamics	Gex, Soul Reaver	Eidos	\$47.5 million US (Â£28.4)
Dec-98	Talonsoft	Battleground, Art of War	Take Two	1,033,336 shares (accounted as a pooling of interest)
Dec-98	Reflections	Driver, Destruction Derby	GT Interactive	2.28 million shares of common stock
Dec-98	FASA	MechWarrior	Microsoft	Undisclosed

SONY'S BATTLE FOR VIDEO GAME SUPREMACY

John Stermann, Kahn Jekarl, Cate Reavis

1999	SEGA DREAMCAST LAUNCHES			
Jan-99	Legend	Mission Critical, Death Gate	GT Interactive	\$13.5 million stock
Mar-99	Gremlin	Grand Theft Auto, Realms of the Haunting, Loaded	Infogames	\$36.8 million cash
Sep-99	DMA (Owned by Infogames)	Grand Theft Auto, Realms of the Haunting, Loaded	Take Two	\$11 million cash (assumed DMA debt)
Apr-99	Access Software	Links	Microsoft	Undisclosed
May 99	Pacific Coast & Power	Activision	THQ	\$10M in stock (estimate)
Oct-99	Neversoft	AMDK, Tony Hawk Pro Skater	Activision	700,000 shares stock (est. value 10M)
Nov-99	Bungie	Myth	Take Two	\$5 million cash for 19%
2000	SONY PS2 LAUNCHES			
Jun-00	Bungie	Oni, Myth, Halo	Microsoft	Est. value \$20-\$40 million (based on Take Two sale of 19% @ 5M cash, 5.8 sale of Bungie assets)*
Jul-00	Pop Top	Railroad Tycoon II, Tropico	Take Two	559,100 shares (est. value \$5.8M)
Jul-00	LTStudios	Startup with multiplayer concepts	Argonaut	Â£300K for 30%, 9.5% bond, remaining 70% purchased 9-2001 for a nominal sum
Aug-00	Volition	Freespace, Red Faction	THQ	890,100 shares common stock + 109,900 shares common (options) + 500K debt assumed (est value \$21.25M)
Oct-00	Just Add Monsters	Kung Fu Chaos	Argonaut	Â£200,000 cash and 400,000 stock plus a deferred Â£210,000 in Loan Notes
Dec-00	Digital Anvil	Freelancer	Microsoft	Undisclosed
2001	MICROSOFT XBOX LAUNCHES			
Jan-01	Red Zone	NFL Gameday	Sony	Undisclosed
Jan-01	Naughty Dog	Crash Bandicoot, Jak and Daxter	Sony	Undisclosed
Feb-01	Blue Byte	The Settlers	Ubi Soft	Value 13 million Euros (\$8.2 M US)
May-01	Ensemble Studios	Age of Empires	Microsoft	926,077 shares common stock (est. value \$83M)
Jul-01	Red Storm	Rainbow Six	Ubi Soft	\$43 million value
Jan-01	Particle Systems	Powerdrome, SubWar 2050	Argonaut	Â£2.4 million in total plus 3.5M in Argonaut shares
Jan-02	Gray Matter	Return to Castle Wolfenstein	Activision	\$3.2 million in stock
Jan-02	Rainbow Studios	Motocross Madness, Splashdown	THQ	Total value est. \$44.6M (1,287,000 shares of stock plus performance incentives)
Apr-02	42-Bit	Rally Championship 7	Warthog	Value Â£400,000 (in Warthog shares), father 700K shares based on performance
Mar-07	Shaba Games	Wipeout, Big Hurt Baseball, Magic: The Gathering	Activision	387,932 shares of common stock. Value \$7.4 million

SONY'S BATTLE FOR VIDEO GAME SUPREMACY

John Stermann, Kahn Jekarl, Cate Reavis

Apr-02	Shiny	MDK, Matrix	Infogrames	\$47 million (31M cash, 16.2 promissory notes)
May-02	Outrage	Decent PC	THQ	Undisclosed
May-02	Z-Axis	Dave Mirra Freestyle BMX	Activision	\$12.5 million in cash and 373,385 shares of stock. Total value \$20.9 million
Jun-02	Black Box	NHL Hits, Need for Speed, Sega Soccer	Electronic Arts	14M rumored value*
Aug-02	Barking Dog	Global Operations, Homeworld: Cataclysm, Treasure Planet	Take Two	\$3 million cash, 242,450 shares restricted stock (total est. value \$9M)
Sep-02	Rare	StarFox, Donkey Kong	Microsoft	Total \$375 million cash, \$100m of which to Nintendo
Oct-02	Luxoflux	True Crime, Vigilante, Streets of LA	Activision	\$9 million cash
Oct-02	Treyarch Invention	Tony Hawk, Spider-Man	Activision	1,228,442 shares common stock. Total value \$18.2 million
Oct-02	Massive Entertainment	Ground Control	Vivendi Universal	Undisclosed
Jan-03	Infinity Ward	Call of Duty	Activision	Undisclosed
Nov-02	Angel Studios	Smuggler's Run, Midnight Club, Red Dead Revolver, Transworld Surf	Take Two	\$28 million cash, 235,679 shares restricted stock (total est. value \$38M)
Dec-02	Zed Two	Pillage	Warthog	£1.5 Million over 3 years, contingent on performance*
2003	Fever Pitch	Starlancer (former Digital Avil developers)	Warthog	Value \$ 300,000 Warthog shares
Sep-03	Pivotal Games	Conflict Desert Storm	SCi	Value £2.4 million (Sci already owned 10%)*

Exhibit 4b Developer Acquisitions (2003 - 2005)

DATE	DEVELOPER	PRODUCTS	ACQUIRING COMPANY	TERMS
3/1/2004	Wolfpack	Shadowbane - MMO	Ubisoft	Undisclosed
3/1/2004	Mobius	Max Payne GBA, High Heat Baseball GBA	Take Two	\$4.5 million, of which \$3.6 million was paid in cash, \$920K due in March 2005. T2 recognized identifiable intangibles of \$960K (non-competition agreements) and goodwill of 4.6 million. \$2 million more based on delivery of products.
3/4/2004	IO Interactive	Freedom Fighters, Hitman	Eidos	£36 million (\$68 million) in cash and stock, along with a payment of up to £5 million linked to the four-year performance of the studio.
3/9/2004	Surreal Software	The Suffering	Midway	All-stock transaction: 540,317 common shares with an additional 137,199 restricted shares

SONY'S BATTLE FOR VIDEO GAME SUPREMACY

John Stermann, Kahn Jekarl, Cate Reavis

				issued to key employees.
4/29/2004	Relic	Homeworld, Warhammer: Dawn Of War	THQ	\$6 million in cash and \$4 million over the next two years.
8/9/2004	Criterion	Burnout, Renderware	Electronic Arts	According to a 10-Q form filed with the SEC, Electronic Arts spent somewhere in the range of \$48 million to buy Criterion Studios.
8/9/2004	ARUSH	Hunting Unlimited	Hip Interactive	871,312 common shares of which 55,607 are being held in escrow for a period of up to one year. Under the terms of the escrow agreement, the principal shareholder of ARUSH is entitled to purchase the escrowed shares from Hip at a price of \$1.50 per share.
8/11/2004	Monolith	Tron 2.0, No One Lives Forever, Aliens vs. Predator 2	Warner Brothers	Undisclosed
8/26/2004	Inevitable	The Hobbit, Defender, Tribes: Aerial Assault	Midway	All-stock transaction: 218,421 common shares with an additional 152,824 restricted shares issued to key employees.
9/1/2004	Venom	Rocky Boxing	Take Two	\$1.2 million in cash, recording identifiable intangibles of \$750K and goodwill of \$620K
11/16/2004	Digital Illusions	Battlefield 1942	Electronic Arts	EA now controls approximately 67.3% of DICE, and all the 2,329,102 outstanding company warrants.
12/1/2004	Paradox	Mortal Kombat, Backyard Wrestling	Midway	All-stock transaction: 333,334 Midway common shares, with 261,906 restricted shares issued by key employees.
12/4/2005	Indie Built	Microsoft's former sports team, Top Spin, Links, Amped	Take Two	\$18.5 million in cash, recording \$5.8 million in identifiable intangible assets, \$11.5 million of goodwill, \$280K of fixed assets, and \$820K of accounts receivable.
1/20/2005	Vicarious Visions	Shrek 2, Spider-Man 2 DS, PSP	Activision	Undisclosed
1/25/2005	Visual Concepts / Kush Games	ESPN 2K sports	Take Two	\$24 million in cash with rights to all intellectual property associated with the sports titles, as well as rights to the 2K brand.

Source: Dan Lee Rogers. *The End Game: 2005 Acquisition Activity Update*. <http://www.gamasutra.com/features/20050225/r>.