



1

What Is a Game?

In this chapter:

- What Is a Game?
- 1960s: The Birth of Games
- 1970s: The Rise of Arcade Games
- 1980s: The Crash and Recovery
- 1990s: The Console Wars
- 2000s: Online Games and Beyond

■ 1.1 Introduction

For well over 4,000 years, games have been a part of the human experience. But given the myriad games and variants that have been designed, how does one define a game? One might describe a game as a play activity defined by interactive challenges, discernible rules, and attainable goals. There will be exceptions to this, of course, but it's a good place to start. Let's look at a classic example: chess.

Chess is a play activity; there is no work involved. It's nothing more than a form of entertainment. The challenges are interactive: In order to participate, the player must move pieces across the board. Chess has clearly defined rules that govern the movement of pieces and the actions of the player, and the game also features an attainable goal: the capture of the opponent's king. So here we have an interactive challenge, well-established rules, and a goal that the player works toward. Video games are also defined by these three principles, but due to their virtual nature, they're far more complex than board games like chess.

■ 1.2 What Is a Game?

The term "video game" originally referred to a specific type of device—a computer system that creates a video display signal for televisions—but it has now become an all-encompassing term. In this chapter, we'll use it as such, except when specifically

referring to computer games, which are played only on the personal computer (not consoles, mobile phones, or arcade devices).

Video games are controlled by computer programs. Through user interaction and audiovisual immersion, video games allow players to respond to challenging situations in fantasy worlds. It's important to note that the term "fantasy" refers to the fact that the world in question is virtual, and not real—for example, the player may be exploring the fantasy of playing major league baseball.

1.2.1 Platform

The three main platform categories for games are personal computer (PC), console, and mobile. The PC platform encompasses games made for computers running the Windows®, Mac®, or Linux® OS. These games can be single-player or multiplayer, and web based or run directly from the computer's hard drive. A console is a piece of proprietary game hardware that hooks up to a television such as a Microsoft® Xbox 360® and a Sony PlayStation 3®. A mobile platform consists of anything portable and handheld, including cell phones, PDAs, iPods®, and handheld game systems such as the Nintendo® DSi™ or the Sony/PSP®. As with consoles, handheld game systems are multiuse and can be used to browse the web, listen to MP3 files, or text. New game platforms emerge about every three to five years in order to keep up with the advances in hardware. Each platform has its strengths and weaknesses in regard to games, so developers need to keep these in mind when creating a game.

Porting is when a game is converted from one platform to another. For games released on multiple platforms, the developers need to change the gameplay slightly so it works with the controller, technology, and other elements of the chosen platform.

For example, a game created for a PC would need changes made to the control scheme and user interface (UI) if it were to be ported to a console. An understanding of the key differences between the platforms is useful for better understanding of how the hardware configurations of each platform can influence the type of game being created.

Personal Computer (PC)

As discussed in a later section in this chapter, the personal computer was the dominant game platform for many years. The PC provides powerful graphics and processing power that allow developers to create games that are on the cutting edge of technology. The keyboard and mouse control configuration also allows designers to create games with more complex user inputs and allows players to micromanage large areas of the game. For example, strategy games and simulations are popular on the PC because the player is given a large degree of control over the game UI with the keyboard and mouse.

The main drawback to the PC is that it can be expensive when compared to game consoles. A good gaming PC needs to have the latest hardware upgrades in order

to provide the best gameplay experience to the player. PC gamers find themselves frequently upgrading their computers in order to keep up with the latest and greatest gaming technology. In addition, the wide variety of PC configurations makes it difficult for developers to test the game to ensure that it works correctly on all computer configurations because there is no standard PC setup that all gamers are guaranteed to have.

Console

Consoles are proprietary hardware manufactured by third parties such as Sony, Microsoft, and Nintendo. A console is hooked up to a television and its primary purpose is for playing games. In recent years, consoles have become multiuse and can be used to view DVDs or listen to music. Examples of multiuse consoles are the Xbox 360 and the PlayStation 3.

Video game consoles are appealing to game developers because they only need to consider one hardware configuration when creating software for a console. By contrast, PCs offer limitless options because of all the various hardware and software options that the user may add to his or her configuration. Consoles feature simplified control schemes, hook up directly to the TV, and offer less power and more limited memory than PCs. However, because of their relative ease of use their multifunction capabilities (CD/MP3/DVD players, for instance), and their lower price point, they have mass-market appeal. Popular console game genres include shooters, driving games, and sports games.

Handheld

Handheld games are portable, and they feature very simple control schemes (particularly when compared to the PC). Many modern handhelds are online capable, even though they're the least powerful platform. It's common to see multiuse handhelds, such as the PlayStation Portable (PSP®), which can also play music and movies.

1.2.2 Player Mode

Developers also need to consider which player mode the game will feature. There are three main player modes, which can be further subcategorized by the advent of online capability:

Single-player mode is for a single participant. The player competes against the program.

Cooperative multiplayer, also known as co-op, allows two or more players to work in tandem against the program. When played online, each gamer sees the other participants on his or her screen. If two people are playing without an online connection, co-op can take the form of split-screen (in which a line divides the screen and each player looks at his or her half of the screen, as in Halo® 3) or full-screen (in which all of the characters are on the screen at once, as in Marvel™: Ultimate Alliance).

Adversarial multiplayer allows two or more players to compete against one another. In many games, this can take the form of teams battling against one another. In a fighting game like the *Mortal Kombat*[®] series, two offline players can face each other on a single screen while sitting side by side on the couch, yelling as they frantically mash buttons. It's possible to play a first-person shooter offline with split-screen (*Call of Duty*[®] 4: *Modern Warfare*[™] allows up to four people to play in this manner), but most games with adversarial multiplayer are online, allowing each player to enjoy a full-screen experience. Some games, like *Quake*[®] 3, allow free-for-all mayhem, but more and more adversarial multiplayer games organize players into teams (Sony's *MAG*[™] features two teams of up to 128 players).

■ 1.3 1960s: The Birth of Games

Until the 1960s, video games consisted of various programs built on computers by hobbyists and enthusiasts, such as William Higinbotham's *Tennis for Two*[™] (1958). Game hardware was not widely available, and attempts to create commercial games were usually not profitable. *Spacewar*[™], which allowed users to control dueling spaceships, is considered the first game to be made available to consumers. Developed by Steve Russell and various MIT students, *Spacewar!* was developed in 1961 and distributed in 1962. Though it wasn't a commercial success, it was the first foray into a new industry.

■ 1.4 1970s: The Rise of Arcade Games

During the early 1970s, video games were played primarily on arcade systems and home computers. However, a number of ventures into console gaming were rewarded with mainstream success.

Magnavox released the *Odyssey* in 1972. The first video game console, the *Odyssey* featured no audio and was sold with plastic overlays that the player attached to the television screen in order to clearly define the gameplay experience. Overpriced and undermarketed, the system didn't sell very well.

The same year, Atari released *Pong*[™], a wildly popular arcade game that replicated the experience of tennis with a ball (represented by a square) bouncing back and forth between two paddles (represented by short lines). The game was so successful that Atari soon began work on a home version.

In 1977, the company released the *Atari 2600*[™], a cartridge-based system. The 2600 soon became a must-buy holiday gift, and over the next few years, the word "Atari" would become synonymous with "video games," in the same way that "Hoover" is used as a generic term for "vacuum cleaner."

In arcades, where players could enjoy a few minutes of gameplay for a quarter, titles like Space Invaders (1978) and Asteroids™ (1979) proved wildly popular. Atari eventually released many of these arcade games, which further broadened the appeal of the 2600.

However, all was not well at the company. Atari's employees were not credited for their work, and many were unhappy with their working conditions. In 1979, Activision was formed by disgruntled employees who had left Atari. The company immediately began work on production of third-party titles (games developed by companies other than the console manufacturer) for the 2600. Atari sued Activision to prevent the games from being released but lost, which paved the way for other companies to begin third-party game development. Soon, the library of available games for the 2600 was massive. The stage was set for the coming crash.

■ 1.5 1980s: The Crash and Recovery

During the early 1980s, arcade games continued to grow in popularity. The decade kicked off with Pac-Man® and Centipede™, two well-received games released in 1980. Pac-Man's eponymous hero, in particular, became an easily identifiable symbol for the burgeoning video game craze.

In 1981, Nintendo released Donkey Kong®, one of the first games in the platformer genre, which featured a mustachioed protagonist (Jumpman) and his nemesis, a violent ape named Donkey Kong. The game was ported to the Atari 2600, the ColecoVision™, the Intellivision®, and several other platforms.

With the public eagerly awaiting both the highly anticipated Atari 2600 port of Pac-Man and a major movie tie-in, E.T. the Extra-Terrestrial™, the future of games looked bright indeed. But 1982 proved to be a very dark year for the business.

The Pac-Man port was a failure. Expecting a runaway hit, Atari manufactured millions more cartridges than there were 2600 systems, expecting that Pac-Man's popularity would prompt customers to buy systems just so they could play the game. However, the game itself was programmed on an extremely tight schedule, and the 2600's hardware was unable to replicate the game experience properly. As a result, Pac-Man received terrible reviews, and millions of copies went unsold. Atari's reputation was damaged, which would go on to have serious repercussions.

E.T. the Extra-Terrestrial, based on the hit movie of the same name, was released later that year. Again, the game met with harsh criticism, and again, millions of copies went unsold. Worse, the game was based on an intellectual property, so Atari had to pay licensing fees for the rights to the movie. Consumers, frustrated by what many considered to be an unplayable game, returned it in droves. Retailers, upset with the volume of returns, began to wonder if video games were merely a passing fad.

In 1983, the game industry crashed. The glut of systems and games, coupled with the aforementioned high-profile failures, led retailers to devote less and less shelf space to video games. Customers were also purchasing inexpensive home computers, which featured games in addition to other, more practical programs. Since more games were being released but fewer customers were purchasing them, stores tried to return the product to the publishers; if this failed, they simply marked down the games until they sold, then refused to buy more.

Publishers and developers went out of business, though a few (like Activision) survived by switching their focus from video games to computer games. Retailers stopped carrying games. It seemed that the era of console games had come to an end.

By contrast, computer games were doing quite well. The Commodore 64™, released in 1982, became quite popular as a gaming platform thanks to a low price and good marketing. The IBM PC and the monochrome Apple Macintosh® arrived in 1984. In 1985, Commodore released the Amiga™, which was originally intended as a game platform but was ultimately released as a multipurpose computer (though it boasted a huge library of games and was quite popular with game developers and enthusiasts alike). It appeared that computer gaming would fill the void left by consoles.

However, Nintendo was about to unveil a new system. In 1985, the Nintendo Entertainment System® (NES®) was released. Super Mario Bros.® was the system's flagship title, and also one of the best-selling games of all time. It popularized the platformer genre, and it established Mario (formerly known as Jumpman from Donkey Kong) as Nintendo's mascot. The NES was so popular that over the next few years, "Nintendo" became synonymous with "video game," the way that Atari had previously.

Unlike Atari, Nintendo encouraged third-party development but ensured that only Nintendo-approved developers could create cartridges. As a consequence, Nintendo was able to control the number of games that were released.

In 1986, Sega countered with the Sega® Master System™, an 8-bit system intended to rival the NES. However, Sega was unable to dethrone Nintendo, due in part to Nintendo's established foothold in the market.

More success came Nintendo's way in 1987 with the release of The Legend of Zelda®, the first game in a series that would go on to sell over 50 million units combined. Commonly known as Zelda, the game combined role-playing, action, and adventure elements.

In 1989, Nintendo released the Game Boy®, the first handheld console to attain mainstream success. Rival handhelds followed, and though some were technologically superior, they were never able to surpass Game Boy sales.

Sega tried to dethrone Nintendo once more in 1989 with the release of the Sega Genesis™. This 16-bit system was more powerful than the NES and featured better graphics. It beat the Super Nintendo Entertainment System® to market by two years, and allowed Sega to establish itself as Nintendo's primary rival in the early 1990s.

■ 1.6 1990s: The Console Wars

In the 1990s, video games were changed by the advent of 3D graphics and new genres. Arcades declined, but computer games experienced considerable growth. Nintendo released Super Mario Bros. 3[®] for the NES in 1990 to great critical and commercial success. The most successful nonbundled game ever (meaning that it was not packaged with a console but had to be purchased separately), it sold over 18 million units worldwide.

The company followed this success with the 1991 launch of the Super NES[®], which featured launch titles like Super Mario World[™], F-Zero[™] (a racing game), and Pilotwings[™] (a flight simulator). The console was a hit, despite the release of the Sega Genesis two years before.

In response, Sega debuted Sonic The Hedgehog[™] in 1991. Sonic was intended as a rival to Mario, and was presented as faster, cooler, and edgier than his counterpart. This competition between the two companies escalated into what some called “the console wars.” The battle between the two companies raged for years, but despite their head start and their lower price point, Sega couldn’t seem to pull ahead. Eventually, Nintendo won the war, selling nearly twice as many Super NES consoles as the Sega Genesis.

Other companies attempted to enter the battle. NEC released the TurboGrafx-16 in 1989, and both the Atari Jaguar and the 3DO Interactive Multiplayer (published by 3DO) were released in 1993. Despite Atari’s return to the fray, all three consoles were casualties of the war, unable to establish a direct rivalry with the two industry titans.

Home computers continued to flourish as a gaming platform. Myst[®] and Doom were released in 1993. The former, a puzzle game, enjoyed mainstream success. The latter, a first-person shooter, proved wildly popular, due in part to the shareware method of distribution—users could purchase part of the game for a small amount, then pay to play the rest of the game. Furthermore, the burgeoning mod (modification) community helped to keep the game popular, as players created their own levels for Doom and shared them online. This process would be repeated later in the decade with games like Half-Life[®], which spawned an extremely popular fan-created mod called Counter-Strike[™].

In 1995, the fifth generation of game consoles began with the release of the Sega Saturn and the Sony PlayStation. Originally designed as a CD drive for the Super NES, the PlayStation was reworked into a stand-alone console by Sony when Nintendo canceled the deal.

The following year, the Nintendo 64[™] was released. Though the other two consoles played discs, the N64 used cartridges. When the Sega Saturn eventually bowed out of the console war due to mediocre sales, the battle came down to the PlayStation and the N64.

The N64 boasted some well-received titles, such as the first-person shooter *GoldenEye 007*. However, Nintendo's choice to keep using cartridges instead of pursuing disc media was a costly one; consumers saw cartridges as archaic, and Sony's game lineup was extremely robust. Nintendo's console was easily defeated, and "PlayStation" became the new generic term for "video game." Ironically, Nintendo's decision to sever ties with Sony created a rival that would eventually win the fifth-generation war, with console sales of over 100 million (nearly three times that of the N64).

In 1996, a new first-person shooter called *Quake* was released for PCs. Though it was hardly the first game to feature online gameplay, it was so successful that many gamers considered online multiplayer to be a feature requirement in subsequent shooters.

Final Fantasy® VII, the critically acclaimed seventh installment in a series that had historically been exclusive to Nintendo, was released in 1997. The game's release on the PlayStation cemented the console's reputation and introduced western audiences to Japanese role-playing games.

Sega tried once again with the Sega Dreamcast™ in 1999. Despite some innovations, such as a built-in modem, the system was a failure, and Sega withdrew from console development thereafter, choosing instead to focus on third-party software development. The time had come for the fastest-selling console in history to take the stage.

■ 1.7 2000s: Online Games and Beyond

Despite numerous successes, PC game sales began to decline. Genres such as adventure games had all but vanished. Massively multiplayer online games (MMOGs) and certain flagship titles continued to sell, but ultimately, console gaming became the standard. During this decade, Sony solidified its lead, Microsoft threw its hat into the ring, and Nintendo started weak and finished strong. The decade opened with a new console-war landscape, as the "big three" were established.

The PlayStation 2 (PS2™) was released in 2000. It featured backward compatibility with the PlayStation, which meant that people could still play their old games on the PS2. Sporting an impressive library of new games, the PS2 was extremely well received and became the fastest-selling console in history.

Microsoft made its entry into console gaming in 2001. The Xbox® featured Xbox Live™, a subscription-based service that streamlined the process of online gaming. Xbox Live was a significant step forward for console users, who finally had access to a growing library of online-enabled games, and it provided a base for Microsoft to dominate online console play in the next generation. *Halo*®: *Combat Evolved*, regarded as a "killer app" for the Xbox, drove sales, but Microsoft was unable to close the gap with the PS2.

Nintendo countered with the GameCube™ that same year. The system featured mini-discs, which meant that it couldn't play DVDs, CDs, or previous Nintendo games.

Since both of its rivals played CDs and DVDs, and the PS2 featured backward compatibility, this hurt the GameCube's image. Worse, the system only provided a handful of online-capable games, and it was perceived as more family-friendly and less "edgy" than the other two. This perception helped establish the Xbox, by contrast, as an online-focused console for the mature, tech-savvy gamer. However, that didn't help Microsoft's sales.

The PS2 emerged as the clear victor in this console war, with over 120 million consoles sold, as opposed to the roughly 20 million sold by each of its two competitors.

On the PC gaming front, massively multiplayer online role-playing games (MMORPGs) continued to thrive. Continuing a trend from the 1990s, these sprawling virtual worlds enticed players to participate, often requiring a monthly subscription fee. The most successful of these was World of Warcraft® (2004), which boasted over 11 million subscribers by the end of 2009.

Handheld games made significant process, as Sony released the PlayStation Portable (PSP®) in 2004, featuring a movie player, an MP3 player, and online connectivity; it sold over 50 million units. The Nintendo Double Screen (DS™) was released that same year, and boasted an innovative touch-sensitive screen that the user interacted with via a plastic stylus. The DS was the clear winner in the competition, selling over 110 million units. The Nintendo DSi, which features two built-in cameras and connection to an online store, was released in 2008.

The seventh generation of consoles began with the Xbox 360, which was released in 2005. With an upgraded version of the Xbox Live service, media-streaming technology, and well-received games like Halo 3 (8 million sold) and Gears of War® (5 million sold), the Xbox 360 took the initial lead in the console wars, selling over 30 million units by the end of 2009.

Sony responded with the release of the PlayStation 3 in 2006. The system offered the PlayStation Network, an online gaming service with free access (in contrast to Microsoft's Xbox Live, which players had to pay for in order to enjoy all of the benefits). In addition, the PS3™ featured connectivity with the PlayStation Portable, a built-in Blu-ray DISC™ player, and games like Gran Turismo® 5 Prologue (4 million sold) and MotorStorm™ (3 million sold). It was unable to match the success of the Xbox 360, however, and ended 2009 with over 25 million units sold.

The Nintendo Wii™ was the least powerful system of the "big three" during the seventh generation. It focused on family-friendly games and casual games, leading to a perception that Nintendo had abandoned the hard-core audience that made it a success during the 1980s. Furthermore, instead of the traditional handheld controllers, the Wii sported motion-sensitive controllers that resembled TV remote controls. For these reasons, there was much speculation that the system would be trounced by its competitors. Instead, the Wii dominated the market, selling over 50 million consoles. Its top-selling game, Wii Sports™, sold as many copies, because it was bundled with the system.

Other successful releases included *Wii Play*[™] (20 million sold) and *Wii Fit*[™] (20 million sold). The Wii emerged as the clear victor, prompting Microsoft and Sony to begin development of motion-sensitive peripherals that could compete with the Wii. Microsoft's first venture into motion-sensitive controls is called *Project Natal*[™]; using an add-on peripheral for the Xbox 360, it allows users to interact with voice or hand gestures. Sony has announced that it will unveil its motion controller in 2010.

The decade closed with the introduction of a new handheld system: Apple's iPod touch[®], a device featuring a touch-sensitive screen and a digital store offering over 100,000 applications. With over 20 million units sold, the system isn't going to topple the PSP or DS as a dedicated handheld gaming system, but the figures are impressive nonetheless. The sales are even more impressive when one considers that Apple also released the iPhone[®], a smartphone with similar functionality and access to the App StoreSM. Since the iPhone sold over 20 million units, that means developers of applications have a target audience of over 40 million users to cater to. Given the ease of distribution through Apple's digital store, developers have rushed to take advantage of the opportunity, creating over 20,000 games available for purchase. The challenge for those developers is to find a way to get their games into the hands of consumers, which is difficult when one considers the sheer volume of the competition.

■ 1.8 Chapter Summary

Video games are available in a wide variety of formats, and developers must consider these differences carefully when creating games. Also, being knowledgeable about the history of games allows developers to learn from the past and avoid the same mistakes. It also helps them think about new and innovative ways to utilize technology in games.

The next chapter provides an overview of the game industry and discusses how a game evolves from a concept to a retail product. Information is provided about developers and publishers and how they rely on each other to create compelling games.

■ 1.9 Questions and Exercises

1. What are the basic components of a game?
2. What are the differences between the PC, console, and handheld platforms?
3. What are some factors that led to the game crash in the 1980s?
4. How has the Internet impacted the way we play games?
5. If you were to port a game from one platform to another, what are some things that would need to be changed?

