

Console Games

A **console game** is a type of video game consisting of images and often sounds generated by a video game console, which are displayed on a television or similar audio-video system, and that can be manipulated by a player. This manipulation usually takes place using a handheld device connected to the console, called a controller. The controller generally contains several buttons and directional controls such as analogue joysticks, each of which has been assigned a purpose for interacting with and controlling the images on the screen. The display, speakers, console, and controls of a console can also be incorporated into one small object known as a handheld game. Console games usually come in the form of an optical disc, ROM cartridge, digital download or, in the case of dedicated consoles, stored on internal memory. The global console games market was valued at about \$26.8 billion in 2018.[1] The differences between consoles create additional challenges and opportunities for game developers, as the console manufacturers (e.g. Nintendo, Microsoft, Sony, Sega, Atari) may provide extra incentives, support and marketing for console exclusive games.[2] To aid development of games for consoles, manufacturers often create game development kits that developers can use for their work.[3][4] The first console games were for the Magnavox Odyssey, released in 1972.[5] and consisted of simple games made of three white dots and a vertical line.[6] These hardware limitations, such as the lack of any audio capability, meant that developers didn't have freedom in the type of games they could create. Some games came packaged with accessories such as cards and dice to enhance the experience and make up for the shortcomings of the hardware.[7] The second generation of consoles introduced more powerful capabilities,[8][9] less hardware limitations than the first generation, and coincided with the golden age of arcade video games. Developers had access to the console's basic graphical capabilities, allowing them to create sprites and more advanced sound capabilities. Controllers were beginning to include more buttons giving developers more freedom in the type of interactions they could provide to the player.[10] Due to the success of arcades, several games were adapted and released on consoles.[11] In many cases, the quality had to be reduced because of the hardware limitations of consoles, but their popularity persisted: Pac-Man for the Atari 2600, a port of the original arcade game of the same name, was the best selling game for the console.[12] The second generation of games introduced a number of notable gaming concepts for the first time. Adventure for the Atari 2600 introduced the concept of a virtual space bigger than the screen for the first time, with the game consisting of multiple rooms the player could visit as opposed to a single static screen.[13] Video Olympics was one of the first console games to have a computer controlled opponent in its "Robot Pong" game mode[14] and genres such as platforming and graphical adventure games emerged.[15] By the end of 1983, consoles had become cheaper to develop and produce, causing a saturation of consoles which in turn led to their libraries becoming saturated too.[16][17] Due to this saturation of the market, the prices of games were low and, despite good sales figures, developers weren't making enough profit from sales to justify staying in the market.[18] Despite heavy marketing, the quality of the games could not back up their claims, causing many companies to go out of business.[19] The effects of the crash were primarily felt in the North American market but it still had an impact, albeit smaller, on the Asian and European markets.[20] In the years following the crash, console development was significantly reduced in the North American and European markets. Personal computers rose in popularity[21] and began to fill the gap in the market that consoles had left. They had become affordable, were technologically superior, and had multiple other functions beyond gaming. The release of new consoles from Nintendo, Sega and Atari signified the start of the third (and fourth) generations, which also saw the introduction of notable franchises such as The Legend of Zelda, Star Fox, Sonic the Hedgehog, Final Fantasy, Metal Gear and Metroid. The console manufacturers took back control of third-party development and regulated the market.[22] Measures were introduced to ensure saturation did not happen again, including limiting the number of games a developer could release a year, controlling the manufacture of game cartridges, demanding payment for cartridges upfront, and ensuring newly developed games adhered to a set of rules set by console manufacturers.[23] This put pressure on publishers and added a risk to development. It meant developers were forced to concentrate on the quality of their games more so than the quantity and speed at which they could be made. Atari and Sega incorporated backward compatibility in the Atari 7800 and Master System respectively, elongating the lifespan of their early console games. Both companies never released another backward compatible console, with the partial exception that Master System games can be played on the Sega Genesis using a separately sold peripheral.[24] During this time, *Metroid* became notable for its open world the player could traverse in all directions, while most similar games were still primarily side-scrolling in a single direction.[25] It also featured a strong female protagonist who is often credited for improving the portrayal of women in gaming.[26] *Star Fox* was Nintendo's first use of polygonal graphics[27] and *Sonic the Hedgehog* introduced a rival to Nintendo's mascot, Mario, who became a long-standing character for Sega in a number of different types of media. The fifth generation of consoles saw the move from 2D to 3D graphics and the change in storage media from cartridges to optical discs. Analogue controllers became popular, allowing for a finer and smoother movement control scheme compared to the directional pad. The use of full motion video became popular for cutscenes as optical discs allowed for the storage of high quality video with pre-rendered graphics that a game couldn't render in real time.[28] Games released during the fifth generation took advantage of the new 3D technology with a number of notable franchises moving from 2D, such as *Metal Gear*, *Final Fantasy*, *Mario* and *The Legend of Zelda*, the latter being considered influential not only to its genre but to video games as a whole.[29] Other games that were released during this generation, such as Crash Bandicoot, GoldenEye 007, Resident Evil, Tomb Raider, and FIFA International Soccer, were influential in their own genres and started their own franchises that would span multiple generations and consoles. *Resident Evil* founded the genre of survival horror,[30] while *Metal Gear Solid* popularised the stealth genre(citation needed) as well as storytelling through cinematic cutscenes rendered in game.[27] *Gran Turismo* and *Sega Rally Championship* popularised realism in the racing genre with different surfaces and realistic features such as tire grip.[31] While earlier consoles did provide online capabilities,[33] it wasn't until the sixth generation that online services became popular. Games introduced online features such as downloadable content, social features, and online multiplayer. Online networks were created by console developers such as PlayStation Network and Xbox Live providing a platform for games to utilise. Online multiplayer allowed players to play together from almost anywhere in the world, the social features of the platforms giving players the means to organise over these long distances. Console games receive commands from the player through the use of an input device, commonly called a *controller*. Unlike a PC which uses a keyboard and mouse or a mobile device that uses a touch interface, console games are limited in their control schemes by the hardware available for the console.[34] They usually include a method to move the player character (joystick, d-pad or analogue stick) and a variation of buttons to perform other in-game actions such as jumping or interacting with the game world.[35] The type of controller available to a game can fundamentally change the style of how a console game will or can be played.[36][37][38] The limitation of the amount of buttons compared to a PC keyboard or a custom arcade cabinet means that controller buttons will commonly perform multiple different actions.[16] For example, The Witcher 3 Xbox One controls uses the same button, the 'A' button, to interact with the world when pressed and sprint when held, whereas the PC control scheme can separate these functions into separate buttons. The limitation of input keys can allow developers to create a more refined and succinct control scheme that can be learned by the player more easily. Different games in the same genre tend to use similar control schemes, allowing players to easily adapt to new games. There are games that require additional accessories to act as alternative ways to control the game and to bypass the limitations of a standard game controller. Such items can include light guns, electronic instruments or racing wheels. Consoles commonly use a television as their visual output device: optimal for viewing at a greater distance by a larger audience. As a result, many video games are designed for local multiplayer play, with all players viewing the same TV set, with the screen divided into several sections and each player using a different controller. Console games have generally had access to less computing power, less flexible computing power, and lower resolution displays, than games played on a PC. However, dedicated consoles were advanced graphically, especially in animation, as video game consoles had dedicated graphics hardware, were able to load data instantly from ROM, and had a low resolution output which would look better on a television, due to it naturally blurring the pixels.



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