

that year. With declining sales of consoles and oversupply of games, Atari's parent, Warner, incurred massive losses.

### **The Third Generation, 1985–1990: The Nintendo Era**

In 1983, Nintendo, the leading Japanese supplier of arcade video games, released its 8-bit Famicom home video system. In 1985, the Famicom—renamed the Nintendo Entertainment System (NES)—was launched in the US. By 1988, Nintendo held 80% of the \$2.3 billion US video games industry—chiefly as a result of the hugely popular games created by Nintendo's legendary games developer, Sigeru Miyamoto: *Donkey Kong*, *Legend of Zelda*, and *Super Mario Brothers*.

Nintendo's market dominance and huge profits rested upon its careful management of the relationship between hardware and software. Nintendo kept tight control of the supply of games, managing their quality and releases. Developers were required to follow strict rules for the creation and release of games for the NES console. Cartridges incorporated a "security chip" that ensured that only cartridges manufactured by Nintendo could run on the NES. Nintendo charged games publishers a 20% royalty and a manufacturing fee of \$14 per cartridge (the manufacturing cost was \$7). The minimum order—10,000 cartridges for the Japanese market and 50,000 for the US market—had to be paid in advance. Any game developed for the NES could not be released on a competing system for two years.

By 1991, Nintendo's sales exceeded \$4.4 billion, its stock market value exceeded that of Sony, and about one-third of US and Japanese households owned an NES.

### **The Fourth Generation, 1991–1995: Sega vs. Nintendo**

Sega, like Atari and Nintendo, began in arcade games. In October 1988, it launched its 16-bit Genesis home video system in Japan, and in the US in September 1989. With the introduction of *Sonic the Hedgehog* in June 1991 and with strong support from independent games developers, sales of the Genesis took off.

Nintendo launched its 16-bit Super-NES, in September 1991. Its huge strength in its home market allowed it to maintain its leadership in Japan, but in the US and Europe, Sega's bigger library of 16-bit titles (by January 1993 it offered 320 games, compared to 130 for Nintendo) allowed it to rival Nintendo for market leadership.

### **The Fifth Generation, 1995–1998: Sony PlayStation**

With the launch of its 32-bit Saturn console in November 1994, Sega sought to build on the success of its Genesis console. However, a month later Sony introduced its PlayStation console, the result of a six-year development effort led by Ken Kutaragi, Sony's video games guru. Both PlayStation and Saturn used CD-ROMs rather than cartridges. However, PlayStation was launched with an impressive number of new game titles: the result of courting top games developers, financing game development, and providing comprehensive software development tools. Sony also entered with a powerful array of resources: a strong brand reputation, global distribution capability, and content from its movie division. Compared to Sega's ill-coordinated Saturn launch (few game titles and haphazard distribution), the launch of PlayStation was well orchestrated and supported by massive advertising, including cryptic