8.5: The Influence of New Technology

Learning Objectives

- Identify the impact of home-entertainment technology on the motion picture industry.
- Recognize the role the DVD market plays in the economics of moviemaking.
- Describe the impact of digital cinematography on the film industry.

New technologies have a profound impact, not only on the way films are made, but also on the economic structure of the film industry. When VCR technology made on-demand home movie viewing possible for the first time, filmmakers had to adapt to a changing market. The recent switch to digital technology also represents a turning point for film. In this section, you will learn how these and other technologies have changed the face of cinema.

Effects of Home Entertainment Technology

The first technology for home video recording, Sony’s Betamax cassettes, hit the market in 1975. The device, a combined television set and videocassette recorder (VCR), came with the high price tag of $2,495, making it a luxury still too expensive for the average American home. Two years later, RCA released the vertical helical scan (VHS) system of recording, which would eventually outsell Betamax, though neither device was yet a popular consumer product. Within several years however, the concept of home movie recording and viewing was beginning to catch on. In 1979, Columbia Pictures released 20 films for home viewing, and a year later Disney entered the market with the first authorized video rental plan for retail stores. By 1983, VCRs were still relatively uncommon, found in just 10 percent of American homes, but within 2 years the device had found a place in nearly one-third of U.S. households. Entertainment Merchant Association, “A History of Home Video and Video Game Retailing,” http://www.entmerch.org/industry_history.html.
At the same time, video rental stores began to spring up across the country. In 1985, three major video rental chains—Blockbuster, Hastings, and Movie Gallery—opened their doors. The video rental market took off between 1983 and 1986, reaching $3.37 billion in 1986. Video sales that year came to $1 billion, for total revenue of more than $4 billion, marking the first time in history that video would eclipse box-office revenues ($3.78 billion that year).


Video sales and rentals opened a new mass market in the entertainment industry—the home movie viewer—and offered Hollywood an extended source of income from its films. On the other hand, the VCR also introduced the problem of piracy.

VCRs Legal, Just Barely

In an age when Hollywood was already struggling financially because of increased production costs, Sony’s release of home video recording technology became a major source of anxiety for Hollywood studios. If people could watch movies in their own homes, would they stop going to the movies altogether? In the 1976 case Sony Corp. of America v. Universal City Studios, Universal Studios and the Walt Disney Company sued Sony in the U.S. District Court for the Central District of California. The suit argued that because Sony was manufacturing a technology that could potentially be used to break copyright law, the company was therefore liable for any copyright infringement committed by VCR purchasers. The District Court struggled with the case, eventually ruling against Sony. However, Sony appealed to the Supreme Court, where the case was again highly debated. Part of the struggle was the recognition that the case had wider implications: Does a device with recording capabilities conflict with copyright law? Is an individual guilty of copyright infringement if she records a single movie in her own home for her own private use?

Eventually the Supreme Court ruled that Sony and other VCR manufacturers could not be held liable for copyright infringement. This case represented an important milestone for two reasons. It opened up a new market in the entertainment sector, enabling video rental and home movie sales. Additionally, the case set a standard for determining whether a device with copying or recording capability violated copyright law. The court ruled that because nonprofit, noncommercial home recording did not constitute copyright violation, VCR technology did have legitimate legal uses, and Sony and other companies could not be held liable for any misuse of their devices. Recently, this case has posed interpretive challenges in legal battles and in debates over file sharing through the Internet.


The Optical Disc System

In 1980, around the time when consumers were just beginning to purchase VCRs for home use, Pioneer Electronics introduced another technology, the LaserDisc, an optical storage disc that produced higher quality images than did VHS tapes. Nonetheless, because of its large size (12 inches in diameter) and lack of recording capabilities, this early disc system never became popular in the U.S. market. However, the LaserDisc’s successor, the digital versatile disc (DVD) was a different story. Like LaserDisc, the DVD is an optical storage disc—that is, a device whose encoded information follows a spiral pattern on the disc’s surface and can be read when illuminated by a laser diode. However, unlike the
analog-formatted LaserDisc, the DVD’s information storage is entirely digital, allowing for a smaller, lighter, more compressed medium.

The first DVDs were released in stores in 1997, impressing consumers and distributors with their numerous advantages over the VHS tape: sharper-resolution images, compactness, higher durability, interactive special features, and better copy protection. In only a few years, sales of DVD players and discs surpassed those of VCRs and videos, making the DVD the most rapidly adopted consumer electronics product of all time. Entertainment Merchant Association, “History of Home Video”; Tim Dirks, “1990s Film History,” Filmsite, 2010, http://www.filmsite.org

In 1999, the movie rental market was revolutionized by Netflix. Netflix began in 1997 as a video rental store in California. In 1999, the company began offering a subscription service online. Subscribers would select movies that they wanted to see on Netflix’s website, and the movies would arrive in their mailbox a few days later, along with a prepaid return envelope. This allowed users to select from thousands of movies and television shows in the privacy of their own home.

More recently, DVD technology has been surpassed by the Blu-ray Disc format, intended for storing and producing high-definition video. Released in 2006, the Blu-ray Disc technology has the same physical dimensions as DVDs, but because they are encoded to be read by lasers with a shorter wavelength, the discs have more than five times the storage capacity of the DVD. Blu-Ray.com, “Blu-Ray Disc,” http://www.blu-ray.com/info/. By 2009 there were 10.9 million Blu-ray Disc players in U.S. homes. Henning Molbaek, “10.7 Million Blu-Ray Players in U.S. Homes,” DvDTown.com, Jan 9, 2009, http://www.dvdtown.com/news/107-million-blu-ray-players-in-us-homes/6288. However, the technology has yet to replace the DVD in rental stores and among the majority of U.S. consumers.

### DVD Revenues and Decline

DVD rentals and sales make up a major source of revenue for the movie industry, accounting for nearly half of the returns on feature films. In fact, for some time the industry has been exploiting the profitability of releasing some films directly to DVD without ever premiering them in theaters or of releasing films on DVD simultaneously with their theater releases. According to one estimate, for every movie that appears in theaters, there are three that go straight to DVD. Robert W. Court, “Straight to DVD,” New York Times, May 6, 2006, Opinion section, http://www.nytimes.com/2006/05/06/opinion/06cort.html. While direct-to-DVD has become synonymous with poor production values and ill-conceived sequels, there are a number of reasons why a studio might bypass the multiplexes. Prequels and sequels of box-office hits, shot on a lower production budget, are often released this way and can generate considerable income from the niche market of hard-core fans. The fourth American Pie film, Bring It On: In It to Win It, and Ace Ventura Pet Detective, Jr. are all examples of successful direct-to-DVD films. However, in other cases, the costs of theatrical promotion and release may simply be too high for a studio to back. This is especially true among independently produced films that lack the big-studio marketing budgets. Slumdog Millionaire (2009) was almost one of these cases. However, the film did make it to theaters, going on to win eight Academy Award awards in 2009, including Best Picture. Tom Charity. “Review: Why Some Films Go Straight to DVD,” CNN, February 27, 2009, http://www.cnn.com/2009/SHOWBLZ/Movies/02/27/review.humboldt/index.html. Finally, a film may go straight to DVD when its content is too controversial to be released in theaters. For example, almost all porn films are direct-to-DVD releases.

Between 2005 and 2008, the number of direct-to-DVD releases grew 36 percent as studios began to see the profitability of the strategy. Brooks Barnes, “Direct-to-DVD Releases Shed Their Loser Label,” New York Times, January 28, 2008,
After a movie’s success at the box office, a prequel, sequel, or related movie might earn the same profit pound-for-pound at the rental store if filmmakers slash the production budget, often replacing the original celebrity actors with less expensive talent. In 2008, direct-to-DVD brought in around $1 billion in sales.


Despite the profitability of the DVD market, the economic downturn that began in 2007, along with the concurrent release of Blu-ray Disc technology and online digital downloads, have brought about a decline in DVD sales among U.S. consumers. Dianne Garrett, “DVD Sales Down 3.6% in ’07,” January 7, 2008, www.variety.com/article/VR1117978576?refCatId=20. With the rise in digital downloads, Netflix broadened its appeal in 2007 by offering subscribers live-streaming movies and TV shows. This allowed viewers to watch programs on their computers, handheld devices, the Nintendo Wii game system, the Sony PlayStation 3 game system, and the Microsoft Xbox 360 game system without ever having the disc itself.


Hollywood has also suffered major losses from online piracy. Since 2007, studios have been teaming up to turn this potential threat into a source of income. Now, instead of illegally downloading their favorite movies from file-sharing sites, fans can go to legal, commercial-supported sites like Hulu.com, where they can access a selected variety of popular movies and TV shows for the same price as accessing NBC, ABC, and CBS—free. In April 2010, Hulu announced it has already launched this service, the Hulu Plus service, in addition to its free service, for users who want access to even more programs, such as Glee. Reuters, “Hulu Launches Paid Subscription TV Service,” *Fox News*, June 30, 2010, http://www.foxnews.com/scitech/2010/06/30/hulu-starts-paid-subscription-tv-service/. Hulu doesn’t allow viewers to download the films to their home computers, but it does provide a home-viewing experience through online streaming of content. Hulu, “Media Info,” 2010, http://www.hulu.com/about.

**The Industry Goes Digital**

In an industry where technological innovations can transform production or distribution methods over the course of a few years, it’s incredible to think that most movies are still captured on celluloid film, the same material that Thomas Edison used to capture his kinetoscope images well over a century ago. In 2002, George Lucas’s *Star Wars Episode II: Attack of the Clones* became the first major Hollywood movie filmed on high-definition digital video. However, the move to
digitally filmed movies has been gradual; much of the movie industry—including directors, producers, studios, and major movie theater chains—has been slow to embrace this major change in filming technology. At the time that Lucas filmed Attack of the Clones, only 18 theaters in the country were equipped with digital projectors. Scott Kirsner, “Studios Shift to Digital Movies, but Not Without Resistance,” New York Times, July 4, 2006, http://www.nytimes.com/2005/05/22/technology/22iht-movies23.html?scp=15&sq=digital%20movie&st=cse.

However, digital cinematography has become an increasingly attractive, and increasingly popular, option for a number of reasons. For one thing, during production, it eliminates the need to reload film. A scene filmed in the traditional method, requiring multiple takes, can now be filmed in one continuous take because no raw material is being used in the process. Scott Kirsner, “Studios Shift to Digital Movies, but Not Without Resistance,” New York Times, July 4, 2006, http://www.nytimes.com/2005/05/22/technology/22iht-movies23.html?scp=15&sq=digital%20movie&st=cse. The digital format streamlines the editing process as well. Rather than scanning the images into a computer before adding digital special effects and color adjustments, companies with digitally filmed material can send it electronically to the editing suite. Additionally, digital film files aren’t susceptible to scratching or wear over time, and they are capable of producing crystal-clear, high-resolution images. Eric A. Taub. “More Digital Projectors, Coming to a Theater Near You,” Gadgetwise (blog), New York Times, June 18, 2009, http://gadgetwise.blogs.nytimes.com/2009/06/18/its-a-4k-world-after-all/.

Figure 8.9


The Resurgence of 3-D

After World War II, as movie attendance began to decline, the motion picture industry experimented with new technologies to entice audiences back into increasingly empty theaters. One such gimmick, the 3-D picture, offered the novel experience of increased audience “participation” as monsters, flying objects, and obstacles appeared to invade the theater space, threatening to collide with spectators. The effect was achieved by manipulating filming equipment to work like a pair of human eyes, mimicking the depth of field produced through binocular vision. By joining two cameras together and spacing them slightly apart with their lenses angled fractionally toward one another, filmmakers could achieve an effect similar to that created by the overlapping fields of vision of the right and left eye. In theaters, the resulting images were played simultaneously on two separate projectors. The 3-D glasses spectators wore were polarized to filter the images so that the left eye received only “left eye” projections and the right eye received only “right eye” projections. Matt Buchanan, “Giz Explains 3D Technologies,” *Gizmodo* (blog), November 12, 2008, [http://gizmodo.com/5084121/giz-explains-3d-technologies](http://gizmodo.com/5084121/giz-explains-3d-technologies).

3-D was an instant sensation. *House of Wax*, the first big-budget 3-D movie, released in 1953, brought in over $1 million during its first 3 weeks in theaters, making it one of the most successful films of the year. Best of all for investors, 3-D could be created with fairly inexpensive equipment. For this reason, a boom of 3-D development soon occurred nationwide. Forty-six 3-D movies were filmed in a span of 2 years. However, 3-D proved to be a brief success, with its popularity already beginning to wane by the end of 1953. John Hayes, “‘You See Them WITH Glasses!’ A Short History of 3D Movies,” *Wide Screen Movies Magazine*, 2009, [http://widescreenmovies.org/wsm11/3D.htm](http://widescreenmovies.org/wsm11/3D.htm).
3-D soon migrated from the realm of common popular entertainment to novelty attraction, appearing in IMAX cinemas, as an occasional marketing draw for kids’ movies, and in theme-park classics like Captain Eo and Honey, I Shrunk the Audience. Captain Eo, a Disneyland attraction from 1986 to 1993, featured pop sensation Michael Jackson in his heyday. Following Jackson’s death, the film was rereleased for a limited time in 2010. Heather Hust Rivera, “Captain EO Returns to Disneyland Resort.” Disney Parks Blog, December 18, 2009. http://disneyparks.disney.go.com/blog/2009/12/
Despite the marginal role 3-D has played since the midcentury fad died out, new technologies have brought about a resurgence in the trend, and the contemporary 3-D experience seems less like a gimmick and more like a serious development in the industry. DreamWorks animation CEO Jeffrey Katzenberg, for one, likened the new 3-D to the introduction of color. Erin McCarthy, “The Tech Behind 3D’s Big Revival,” *Popular Mechanics*, April 1, 2009, [http://www.popularmechanics.com/technology/digital/3d/4310810](http://www.popularmechanics.com/technology/digital/3d/4310810). One of the downfalls that lead to the decline of 3-D in the 1950s was the “3-D headache” phenomenon audiences began to experience as a result of technical problems with filming. John Hayes, “You See Them WITH Glasses! A Short History of 3D Movies,” *Wide Screen Movies Magazine*, 2009, [http://widescreenmovies.org/wsm11/3D.htm](http://widescreenmovies.org/wsm11/3D.htm). To create the 3-D effect, filmmakers need to calculate the point where the overlapping images converge, an alignment that had to be performed by hand in those early years. And for the resulting image to come through clearly, the parallel cameras must run in perfect sync with one another—an impossibility with 35-millimeter film, which causes some distortion by the very fact of its motion through the filming camera.

Today the 3-D headache is a thing of the past, as computerized calibration makes perfect camera alignment a reality and as the digital recording format eliminates the celluloid-produced distortion. Finally, a single digital projector equipped with a photo-optical device can now perform the work of the two synchronized projectors of the past. For the theater chains, 3-D provides the first real incentive to make the conversion to digital. Not only do audiences turn out in greater numbers for an experience they can’t reproduce at home, even on their HD television sets, but theaters are also able to charge more for tickets to see 3-D films. In 2008, for example, *Journey to the Center of the Earth*, which grossed $102 million, earned 60 percent of that money through 3-D ticket sales, even though it played in 3-D on only 30 percent of its screens. Erin McCarthy, “The Tech Behind 3D’s Big Revival,” *Popular Mechanics*, April 1, 2009, [http://www.popularmechanics.com/technology/digital/3d/4310810](http://www.popularmechanics.com/technology/digital/3d/4310810). Two of the top-grossing movies of all time, *Avatar* (2009) and *Alice in Wonderland* (2010), were both released in 3-D.

Key Takeaways

- The introduction of the VCR in the late 1970s made home movie viewing easy. The VCR was replaced by DVD technology in the late 1990s, which is currently being replaced by Blu-ray Disc technology.
- DVD sales and rentals account for about a third of film revenues. Some films are released straight to DVD without ever appearing in theaters.
- *Star Wars Episode II: Attack of the Clones* (2002) was the first big-budget film to be recorded digitally. Since then, many more films have been made with digital cinematography. However a full-scale industry change has been gradual, mainly because of the costs of conversion.
- Three-dimensional movies were a fad in the 1950s. In recent years, because of improved technologies, 3-D movies have seen a resurgence.

Exercise \(\PageIndex{1}\)

Imagine you work for a major Hollywood studio and you are negotiating a contract with a large theater chain to switch to a digital projection system. Consider the following:

1. What are the pros and cons of this switch?
2. How have digital projection systems affected the motion picture industry?
3. How has digital film affected the DVD market?

End-of-Chapter Assessment

Review Questions

1. Questions for Section 8.1 "The History of Movies"
   1. Explain the importance of Georges Méliès' work in the development of cinematography?
   2. Why was the MPPC formed?
   3. What caused the movie industry to move to Hollywood?
   4. Describe the factors that led to the rise and fall of the Hollywood studio system.
   5. What impact did the HUAC investigations have on Hollywood?

2. Questions for Section 8.2 "Movies and Culture"
   1. Explain audience reactions to *The Birth of a Nation*. How did this film reflect the culture of its time?
   2. Explain the role Frank Capra’s *Why We Fight* films played in World War II cinema.
   3. What does *The Graduate* reflect about the culture of the late 1960s?
   4. Explain how American individualism is reinforced in popular films.
   5. Name some films that have had an impact on social issues.

3. Questions for Section 8.3 "Issues and Trends in Film"
   1. Why might studios invest nearly half of their budgets in marketing efforts?
   2. List the six major Hollywood studios today and explain their influence on the film industry.
   3. What economic factors have led to the blockbuster standard?
   4. Explain the influence of foreign films on American cinema.
   5. What factors have led to the increase of film piracy?

4. Questions for Section 8.4 "The Influence of New Technology"
   1. Explain the significance of the *Sony Corp. of America v. Universal City Studios* case.
   2. Why are some movies released direct to DVD?
   3. Explain the reluctance of major theater chains to switch to the digital system.
   4. What are some advantages of digital cinematography?
   5. Why did the 3-D movie trend fizzle out in the 1950s?

Critical Thinking Questions

1. Imagine you are a film studies teacher and you choose to show excerpts from *The Birth of a Nation* in your class to illustrate its significance in film history. One student is highly offended by the film and stops to voice her concerns to you after class. Taking into consideration the things you have learned about the history of cinema and the relationship between film and culture, how would you explain your choice to this student?

2. Assume you want to create a documentary to raise awareness about a social issue that concerns you. What issue would you address and what would you choose to document? Whom would you interview, where would you go, and so on?
3. How would you respond to a visitor from another country who accuses the United States of cultural imperialism through the export of American movies?

4. Imagine you want to produce a remake of a movie from the 1980s. Choose a movie that you think would be a blockbuster. Create a marketing plan that includes merchandise tie-ins and sources of revenue beyond the box office.

5. After its decline in the 1950s, 3-D experienced a brief comeback in the 1980s. Based on what you know about the movie industry of the time and the culture of the 1980s, why might this have occurred?

Career Connection

Research the career of a Hollywood producer. In this career, identify the different types of producers involved in a production. What tasks are these producers expected to perform? Do people in this career specialize in a certain genre of film? If so, which genre would you specialize in and why?