The Wall Street Journal was founded in 1889 by the Dow Jones News Service as a blend of general international and national news, along with in-depth financial reporting. In April 1996, the Journal launched WSJ.com. With more than 700,000 paying subscribers in 2005, the online version of the Wall Street Journal has become one of the very few online newspapers to successfully employ a subscription revenue model. Currently, subscribers to the Wall Street Journal print edition pay $49 a year for access to the online edition; non-subscribers pay $99. There are 400,000 online subscribers who also subscribe to the physical newspaper.

But the Wall Street Journal is different from most newspapers. With the exception of 40 small daily papers, most of the 4,400 online newspapers in the world offer free content. The common view among newspaper publishers is that most online consumers expect information to be free. Switching to subscription fees has resulted in online magazines such as Salon losing 90% of their readers. Since then, Salon's readership has stabilized and grown. As a result, online newspapers typically are supported by advertising and sales of classified ads—just as traditional print newspapers have been for centuries—rather than monthly subscription fees. While newspaper readership is down (especially in the important 18–49-year-old group), the demand for online advertising opportunities is up over 26% in 2005–2006. The demand for online general audiences is so hot that there is a shortage of Web pages. Newspapers—like the Wall Street Journal—are in a good position to provide Web pages. In 2004, Dow Jones bought a leading online business and investment site, MarketWatch.com, which has 7 million monthly unique visitors, in order to greatly increase its advertising pages.

Why has the Wall Street Journal succeeded with a subscription model where others have failed? Brand is certainly one reason. The Wall Street Journal has strong brand recognition among American investors. It is well known for its stock
quotation services and in-depth reporting on business and general news issues. However, many newspapers such as the New York Times, Los Angeles Times, and Washington Post also have strong national brands, but do not charge subscription fees.

Perhaps one key to the Wall Street Journal's success is that a subscription gives users access to premium content in the form of 25,000 in-depth background reports on companies, an archive of news articles going back to 1996, and access to the Dow Jones Publication Library, which features current and past articles from 7,000 newspapers, magazines, and business-news sources. If you are a stock analyst or an individual investor looking for information on a specific company, this archive of material may be well worth the relatively small annual subscription fee. Coupled with a fine-grained search engine, the Wall Street Journal's archives are unique and differentiated from most other online newspaper offerings. The Journal sells access to this premium archival content on a per article basis.

Readers of the Journal are also attracted to its timeliness and Web suitability. Using a structured markup technology provided by OmniMark's Content Engineering system, writers and editors are able to simultaneously author articles for both print and online editions, and then automatically generate Web pages that conform to the Journal's unique print style. This system also permits them to make dynamic changes in news story content, shortening or lengthening stories as needed, without costly page redesign. Writers and editors can post hundreds of up-to-date articles around the clock, and the key page elements—such as size of headlines, space between articles, positioning of navigation buttons, and placement of advertisements—are all generated by the OmniMark system. The same system creates a consistent content archive of news and opinion that can be searched by subscribers. In this sense, Internet distribution technology has led to a convergence in content creation and delivery: news is news, whether it is printed on paper or on a Web page.

The new technology has transformed the newspaper experience for online consumers. Instead of having content trapped on static print pages that are updated daily, the online edition can offer timely breaking news much like a television or radio news show. WSJ.com uses personalization features to make its content even more compelling. Subscribers can create a personalized WSJ.com home page with user-selected columnists, stock portfolio updates, and company news. In addition, along with other online publishers, users can have news stories on topics and subjects they choose pushed to them using a Wall Street Journal RSS feed. The Journal also has added major sections available only online: interactive features walk readers through complex stories, and in-depth reports explore topics such as retirement, mutual fund returns, and pension planning. The Journal has been able to leverage this new functionality into higher subscription fees, raising its fees for print subscribers by $10 and its fees for non-print subscribers by $20.

While many newspaper editors and reporters lament the decline in readership, and the movement of young adults to the Internet as a source of news and entertainment, clearly some newspapers are successfully moving from an older, endearing technology called "print on paper," towards a new technology, "news on-screen." But making this change requires newspaper industry leaders to re-think their business model.

INSIGHT ON BUSINESS

DRM: WHO OWNS YOUR FILES?

A recent report by the market research firm NPD found that only 55% of consumers acquired their music through legal channels. Of those, 51% bought a legal CD, and 4% downloaded music from a legal source. The rest of the consumers (45%) were mostly crooks: they stole music. Over 15% downloaded it from illegal P2P sites, and 29% ripped and burned friends' CDs and put them on their computers and other devices. This situation has caused the entire content industry concern, led by music and film entertainment conglomerates crying “foul” and seeking out technologies that can prevent illegal copying.

It used to be that when you bought a record or tape, you owned it and you could pretty much do what you wanted with it. It was fairly difficult to make a hundred copies of a tape or CD. Copyrighted material was fairly safe from rampant, uncontrolled copying and distribution. Not so in the new digital world: uncontrolled copying and distribution is pretty easy. But it is also true that in this new world that DRM software ensures you can't do pretty much anything you want, but instead only things the owner of the content wants. As a matter of fact, you don't really own the music but just "license" it under terms and conditions specified somewhere (usually in the fine print or on a back page on a Web site).

DRM software is computer code embedded in songs, movies, or e-books that dictate how these files can be used. DRM software is both hated and loved—by different groups of course. For consumers, DRM is generally hated but tolerated in most instances if the bargain is right. DRM places restrictions on how a music track, for instance, can be used. The best known DRM is Apple's FairPlay. FairPlay? FairPlay riggs each song you "buy" for 99 cents so that you can play it on only five computers, and so that you can burn only seven CDs. And just to add a little salt to these wounds, the songs can only be downloaded in the default iPod Apple AAC format and played only on Apple iPod devices and not on competing MP3 devices, which use a marginally inferior sound-compression protocol called MP3. Apple didn't "voluntarily" arrive at this arrangement but instead negotiated it with the real owners of the content, the record label companies. Without these restrictions, the record labels refused to license Apple any content.

DRM software built into Windows Media Player powers other music sites like Yahoo and Rhapsody. These sites rent access to music. DRM ensures that if you don't pay up every month, your entire collection of recorded music will disappear. All this music is in MP3 format, and is not compatible with the iPod. For the most part, you can transfer these songs to any digital device, including your PC, although the transferred copies also will require monthly validation by connecting to the Web sites of the service. Also, different record companies place different restrictions on their music concerning how many transfers can be made. The rental plans are also confusing with a lot of options.

At the wrong end of the fairness scale is the attempt of Sony BMG music to copy-protect its CDs using a new encryption scheme in Fall 2005. It released 19 albums with the new encryption software. When purchasers of the CDs tried to rip the CDs to their PCs, the DRM software often
disabled the computer entirely, or opened the operating system up to exploitation by hackers. The company withdrew the 4 million CDs from the market in one of the most embarrassing efforts at copyright protection in recent memory.

The bottom line is that for consumers, DRM means inconvenience, incompatibility, restrictions, and limitations. But it also means consumers get legal, full-quality music, video, and books.

On the other side are people who love DRM. These are copyright owners of music, videos, and text products who are sick and tired of millions of people on the Internet simply stealing their products and reducing their incomes. Imagine if you parked your car in your driveway and any teenager could just come up and steal it for a joy ride whenever they wanted? Just because you can steal something is no rationale for actually stealing it. Imagine your outrage if you were president of a film studio and read in the morning paper that the Internet offered over 40,000 unique copies of a feature-length film you released last month after spending $20 million to produce it. In fact, there are tens of thousands of variable quality, feature-length copies of films on the Internet for all of the top 50 films available in theaters right now. Your reaction would probably be to apply the strongest copy-protection schemes on films that you make as possible, and sue individuals who are involved in the large-scale mass distribution of feature films.

There is an entire social movement of lawyers, professors, and Internet aficionados who fervently believe that any restrictions on copying files of any sort will result in the demise of innovation, the end of the Internet as we know it, and even the end of "fair use" of copyrighted material. In response, copyright owners like the head of the MPAA have said "Malarkey!" The music industry has finally gotten behind Internet delivery platforms like iPod and Rhapsody that make legal music affordable and convenient. The film industry, trying to avoid the mistakes made by the music industry, has been an early and timid supporter of legitimate Internet download sites CinemaNow and Movielink which, like the music sites, have their own DRM rules and restrictions.

Is there a middle ground between these two opposing camps? Is it possible to make DRM more palatable, convenient, and compatible? Can the content industry ever overcome its competing standards? Clearly consumers have accepted Apple's iPod and others' DRM compromise as basically fair—the restrictions constitute a reasonable speed bump in using copyrighted music for the price paid. In June 2005, for the first time in history, the number of people using legitimate music-downloading sites like Apple's Music Store, Rhapsody, and Napster exceeded the number of users of P2P illegal services. While illegal sites still attract a majority of Internet consumers who are under the age of 25, the time people are 30 and older, only 4% are still downloading music from illegal sites.

THE EVOLVING E-BOOK

In the mid-1990s, the e-book was a stunning idea: individuals reading popular books on the Internet, maybe even paying for them. But this idea of the e-book is dated. Think about the first automobiles. Everyone knew in 1900 what an automobile should look like: It would have three or four wheels, use a tiller for steering, leaf-springs for cushioning, and a carriage to hold the people. It would be a horseless carriage!

But just as the horseless carriage evolved over a hundred years into what we now see as a proper automobile, so also will the e-book evolve. In fact, it already has evolved. Some parts of this evolution involve changing the entire delivery platform for e-books. Another involves changing the concept of a book.

Recall the iPod. Before the iPod, there were music stores selling CDs, and of course millions of people downloading illegal copies of music from P2P sites. There were sites where you could subscribe for a monthly fee, and if you stopped paying monthly, your entire collection of music would disappear from your player. Apple’s iPod created a new music delivery system which was based on an incredibly handy and handsome player (the iPod) and an online music store where you could pay 99 cents a song that you could keep forever, make five to nine copies, and even move to different devices with a little know-how.

Imagine an online book store where you could download just about any book, or actually 1,500 books, and store them on a handy, attractive reader that needed charging after 7,500 pages were turned. You would be able to download all the books you needed for college and graduate school, with plenty of room left over, and at a fraction of the cost (say 50% less) than printed college texts. This is the future envisaged by electronic device maker Sony. The Sony Reader is the precursor of many new e-book readers that involve an entirely new platform for delivering book content.

But the e-book is evolving in other ways as well. The future direction of e-books is evident today by looking at online content sites as diverse as CNN.com and Amazon.com, as well as efforts by open source and smaller publishers to develop Web-unique experiences.

Why, for instance, should a book have just a single author or a few authors, and why should books be read alone? Sagas—lengthy stories of an entire people shared through an oral tradition—had multiple authors. It is possible on the Internet to have a community of readers contribute to both the authorship of the online e-book and the experience of reading the book. For instance, Prentice Hall, a Pearson PLC higher education publisher, has developed a product called “Active Books.” Active Books have both a text and a Web component. The text component is a short, inexpensive, black-and-white version of the larger four-color, full-priced textbook. The four-color graphics, tables, and cases that support the textbook are placed on the book’s Web site. Users of the Active Book—students and professors alike—are encouraged to contribute content, feedback, and queries to the Web site. This community content could be in the form of new case material, news, views, and reviews of related events. When a student “uses” the book, more than reading text on-screen is involved, and more than one author will contribute to the learning experience. Also, when students use the Active Book, they will be interacting with students and professors at other schools who are using the book that semester.
But let's take e-books one step further, say out to 2010. E-books most likely will evolve into much richer learning environments with substantial audio, video, and community participation than is true of today's text-only e-books. Since the late 1970s, the Perseus Project at Yale has developed e-book matters on ancient societies that includes extensive bibliographies, art albums, and related articles. Voyager Corporation in New York pioneered the first CD-ROM-based e-books that included interviews, bibliographies, and video that transformed the old notion of a book into a multimedia experience. The Web site for this book contains summaries of recent research, news, career information, and business planning information. In the future, full-length lectures might be available to everyone using the book. Community feedback could be organized as a part of the streaming lecture, with students submitting e-mail to the lecturer and sharing instant messages with one another about the content of the lecture. A subject such as e-commerce is so broad that other scholars might contribute sections of the learning experience, making the project more of a joint effort of scholars across the world rather than the product of just a single author team.

This open-ended, community-based and authored model for textbooks is currently being applied by Wikimania in its Wikibooks and Wikipedia projects. As we see throughout this chapter, the Internet is changing the consumer's sense of entertainment and even education. Heightened expectations for participation, involvement, engagement, and self-control are driving consumers toward Web sites and content providers that can provide these kinds of experiences, creating new opportunities for innovative publishers.

No group of publishers is more aware of the opportunities and threats posed to traditional publishing than the textbook industry. College textbooks now sell for an eye-popping $125 and more. Publishers are under pressure from students, faculty, and even governments who want to broaden access to higher education. A smaller number of college publishers remain in business due to industry consolidation. Professors can complicate matters by selecting chapters from various textbooks, combining them with articles, and producing lengthy reading packets which themselves are not inexpensive; indeed, they can even be more expensive than a single textbook. The question is: Will electronic textbooks replace printed textbooks and will the price be much lower? Rod Brustow, president of Pearson Education UK, one of the largest publishers of textbooks in the world, believes there will be no diminution of the physical textbook. "It's very hard to deliver what you get in a textbook more effectively in other ways. Textbooks are extremely convenient," he says. Pearson lost over $160 million on its e-learning project Learning Network, but continues to develop electronic libraries in which students can read around their subject, look up relevant articles, update material, and work interactively with simulations to enhance the learning material in a textbook. The result may be a variety of media being used in the future rather than any single medium replacing all others. Radio, cinema, video, television, and now computing are all supportive of learning, but they did not replace books.

HOLLYWOOD NEEDS A NEW SCRIPT

It's been a tough year for the motion picture industry. Sales are down at the box office and at the DVD rental store. While 2005 total industry revenues were fairly healthy at around $60 billion, up around 10% from 2004, box office revenues were flat around around $10 billion, and DVD sales of new pictures were up a puny 1%-2%, down from the much healthier 5%-7% growth in previous years. Growth has come from selling the older movies on DVDs, the backlist, and extending the revenue life of its products. This can't go on forever. The problem is that Hollywood has come to count on the DVD platform for an increasing share of its revenue, using the box office release of films mostly as a marketing ploy to get word of mouth working for its films. The profit margins on DVDs are alleged to be over 45%. The champagne has stopped flowing in Tinseltown and industry leaders are pointing fingers at the Internet as one cause of their problems. It couldn't be the poor quality and high cost of its recent movies.

In 2005, there were an estimated 50,000 digital videos on the Web available for illegal downloading, including all the top feature films of the last five years, and about 400,000 illegal downloads per day worldwide. You can easily find these illegal copies by entering the title of any recent movie in Google to find a site to download it from without charge. It may take a couple of hours to download, but you end up with a movie that's usually of fair quality (although sometimes of awful quality because it was shot with a camcorder in a theater). To make matters worse, new technologies like a protocol called BitTorrent can increase the large file down loading capacity of a single server by several thousand times. Briefly, the movie industry never counted on a young American programmer named Bram Cohen.

Cohen's BitTorrent protocol breaks large video files down into smaller fragments, called "seeds," typically a quarter of a megabyte (256 KB) in size. These fragments are distributed to all clients in the network depending on their bandwidth connections. Clients that want to download the entire file first obtain a list of all the clients who have fragments of the file, and then they query each client for the fragment, establishing a "bit storm" network for a few moments. After the fragments arrive, they are re-assembled into a single large file. Each client is both a downloader and uploader of the fragments it keeps, so that each client starts uploading its fragments before it has pulled down all the fragment files itself. In this way, the entire network is never over-taxed, and in fact as more and more clients come into the network to share "seeds" or fragments, the total throughput of the network increases. In a traditional server environment, where thousands of clients simultaneously request a file, the single server can easily be overloaded. In a traditional environment, the more people requesting large files, the slower the throughput and response time.

The movie industry was successful in converting the BitTorrent site into a legitimate site after the Grokster v. MGM decision in 2005. In 2005, Cohen made a deal with the Motion Picture Association of America (MPAA) to remove all links to illegal content on the official Bit torrent Web site. Cohen hopes BitTorrent and his site will become a legitimate legal service for the motion picture industry. The deal was with the seven largest studios in America. The agreement means BitTorrent.com will comply with procedures outlined in the Digital Millennium Copyright Act. But the code for the protocol is freely available to all, and most illegal movie download
sites still use the BitTorrent protocol for distributing movies.

In another brush with new technology, the MPAA (along with the Recording Industry Association of America (RIAA)) sued 635 users of a file-sharing application called i2hub. I2hub is a service that runs on Internet2, but also is available through the regular Internet. The Internet2 is a multi-gigabit network that connects 200 colleges and computer science departments in the United States and is supposed to exchange academic data. The i2hub service was created by some Internet2 users to exchange movie and music files. It can download a movie in less than five minutes. According to MPAA President Dan Gillman, there are 7,000 users of i2hub and they are swapping enough material to fill an entire video store, with the top user sharing 328 movies. Wayne Chang, who launched the i2hub last year at the University of Massachusetts, shut down the site in November 2005 because of “illegal concerns.”

Hollywood’s response to the widespread looting of its treasure chest has been heated, but only barely more effective than the record industry response to Napster, Kazaa, and other file-sharing systems. Hollywood has created a sort of Entertainment Police force hired by the MPAA that trolls the Internet looking for free copies of the latest blockbusters. When found, they mail infringement notices to the owners of the IP address, warning them of potential liability. They also inform the Internet Service Provider. When they find an operation larger than a single P2P user, such as a constellation of IP addresses sharing video files, they get law enforcement agencies involved. The MPAA has sent thousands of letters to colleges, universities, and business networks urging them to prevent copyright infringement by students and employees. They have also sent letters to CEOs of all Fortune 1000 companies to ensure that high-speed corporate networks are not used to download or store infringing content.

The MPAA approach to new technologies has been to sue, threaten to sue, and establish research programs that build new technologies for destroying illegal copying and sharing. MPAA and six major studios have established the Motion Pictures Laboratories Inc. to develop ways to jam camcorders used inside movie theaters; develop network management technology to detect and block illegal file transfers on campus and business networks; develop traffic analysis tools to detect illegal content sharing on P2P networks; develop ways to allow legitimate customers to send wireless copies of movies around the house to various machines without interception by unauthorized users. One possibility for the Motion Pictures Lab is to exploit a recent patent issued to Professor John Hale at the University of Tulsa and a graduate student for a technique that distributes flawed decoy copies of copyrighted material over P2P networks. Called the “Gotcha” solution, these flawed files look and behave just like legitimate copies but when played have a buzzing sound, white noise, or announcements urging viewers of illegal films “Next time pay for what you take!”

But the long-term hope of the industry is that new technologies will allow them to confidently release films in digital formats on customer accessible networks without losing control of the content.

To avoid allegations that the industry provides no legitimate alternative to pirated downloads, five movie studios—MGM, Paramount Pictures, Sony Pictures, Warner Brothers, and Universal Pictures—have banded together to form an Internet movie rental site called Movielen.com. The site allows fans to download movies and play them for a 30-day period, after which they self-destruct. Alternatively, users can purchase the movies for under
$10 and keep them forever, even cut DVDs for backup. Nearly a thousand films are available, but only after they have been in video stores for a year or more. Sony is releasing 500 films this year, and Vivendi about 250 films. Critics of the film industry point out that people increasingly want access to any movie they desire, when they desire, and on a platform they desire, from Wi-Fi-enabled PCs used in airports to tiny screen PDAs used in public parks. Unless Hollywood can come up with a digital script—a business model that fits the new emerging technological realities—it will likely suffer the same fate as the music industry.