1 INTRODUCTION

WATCHING A MOVIE OR A TELEVISION PROGRAM on your iPod is more than just cool. It represents the latest step in the coming together of several streams of development, in both technologies and ways of doing business. This convergence can offer challenging but profitable opportunities for content companies and technology companies to serve consumers and make money in new ways. For companies that are unprepared, it will be Moore's Law meets Murphy's Law. This is because the new technologies are more powerful than the old technologies, and the new technologies are more impatient. They are impatient in that the new (or newly combined) technologies discussed in this book break down the boundaries that separated old technologies and old forms of content and greatly reduce the need for the costly physical assets necessary to be a movie studio or distributor, a television broadcaster, or a record company. This can put more power in more hands or, conversely, multiply the power of consolidating media giants.

Until now, most content and technologies have kept an arm's length from each other. Even when content companies and technology companies were owned by the same parent company, usually they did not work well together or anticipate each other's trajectories well. This will have to change. Because the technologies that will govern the way content is created, distributed, and consumed are changing, more than ever it is crucial that content and technology get to understand each other; in a phrase, get in bed together.

Strange bedfellows may be fun in theory, but can be very difficult to manage in practice, if only because the partners know so little about each other: their interests, goals, and true intentions. While there may be parallels to other aspects of life, this has been particularly true at the intersection where technological change affects existing business models. In particular, some information industries, such as those producing music, movies, and television shows, have been especially uncomfortable at this intersection.

It may seem odd to think of music, movies, and television shows as the product of "information industries," but that is what they are: they are audio and visual information. This information is often referred to as "content." For the past hundred years the products (content) of these industries were consumed separately. Music was about records, movies were about celluloid film, and television was about images broadcast over the air or delivered via cable. As we will see, the intersections of technological change and existing business models proved upsetting to the content owners even when they were still distinct industries. This may be surprising given that these industries themselves were created from technological innovations. But instead of welcoming the change, these industries often tried to strangle the new technologies in their cradles, usually by hiring lawyers or lobbying legislators to put their hands around the young necks.

It's a funny story though: in the end, the industries ended up benefiting from the technological change. It created new channels and new ways for consumers to consume content. Content owners thought the sky was falling, but instead it often rained money. This was because the technologies eventually developed into new and profitable channels for delivering content. Think of how the phonograph and later the compact disc (CD) presented new opportunities to consume music; television and the videocassette recorder (VCR) for consuming movies; and now the iPod and the next device to come down the street for consuming anything that can be digitized.

If content owners were fearful of technological change in the past, well then something truly terrifying to them is coming their way: converged digital technology for entertainment. These industries used to be distinct, their products consumed separately with separate equipment that gave separate experiences, and often governed by the familiar economic forces such as economies of scope and scale. Nowadays, they are becoming less distinct. This loss of distinction in the way content is consumed (and created) is often called *convergence*. Content is becoming more like data, and data are governed by a

whole different set of forces. These forces are far more powerful and move at far faster rates than those that governed audio and visual information in the past. These are the same forces that governed digital computing; the forces that put the processing power of a computer the size of your living room in 1970 into a notebook computer today. (See Appendix A for a discussion of the most important forces.)

Facing another new intersection of technological change and established business models, content owners are again scared. This time, they have good reason to be nervous. This book will show how in the past, technology change ended up altering the environment to the benefit of content owners. Today, the same opportunities for technological changes to benefit content owners exist, but there is less room to get it wrong initially. Analog was patient; digital is as impatient as it is powerful.

COMPLEMENTS IN COMPETITORS' CLOTHING

Lately, movie and television studios and recording companies (let's think of these as Hollywood) have found themselves at odds with technology companies, such as computer companies, microprocessor makers and makers of networking gear (Silicon Valley for short), and even phone and cable companies. These different industries—entertainment and computing and telecommunications—are complements: each makes the other more valuable. Think about the boon that digitization in the 1980s represented to the recording industry, which suddenly found new jugs, that is, compact discs, for the old wine of its back catalog of music, or the value of computer technology in the 1990s to movies, especially the digital animation of the *Toy Story* films or *Finding Nemo*, done completely by computers. The two industries need each other and make each other better. However, relations between these two industries have become chilly if not downright hostile. Former Disney CEO Michael Eisner once compared computer and microprocessor companies to "sword suppliers for pirates."[1] Technology company executives have been similarly unkind about what they perceive as the Luddite tendencies of entertainment companies in their efforts to slow down one of the most exciting and important (and critical to the financial health of technology companies) applications of technology: digital distribution of content.

However, it is not just entertainment and technology company executives and investors who have a stake in the way these strange bedfellows get along.

We all do. Over the past decade, content owners—the movie and television studios, recording companies, and others who produce so much popular intellectual property (IP)—have felt themselves at increasing risk of theft. They think, with some justification, that they are losing billions of dollars through piracy. At the behest of these content owners, laws are being enacted by the United States Congress to protect copyright holders from technological change that can affect the way we consume the products of these companies, now and in the future. Some of these changes may be justified; some may be unnecessary, in their most benign form, or even harmful in the most malign forms. Imagine if the United States Supreme Court had outlawed the VCR, as it nearly did in 1984 at the behest of movie studios (it avoided doing this by one vote): it would have saved studios from a new technology that created a new market that now accounts for around 60 percent of their gross domestic annual revenue.[2]

This book deals with owning, distributing, and getting paid for information. This information can take many forms, for example, a song or a movie, and be expressed as a series of zeros and ones—that is to say, digitized. Even before the advent of digitization, before computers networked to the Internet made swapping songs and other forms of digitized information easy, content owners had difficulties adjusting to new distribution and display technologies. The chapters on radio and movies and the VCR deal with technologies that predate digitization technologies. As you will see, things were exciting then; however, it is after the advent of digitization and networked computers that things get really interesting.

THE NATURE OF INFORMATION

Information is agnostic about how it is expressed. All information conforms to certain economic dynamics that are dual-edged swords for the owners of information. The economic dynamics of information have been explored by economists since the 1970s. When considering the dynamics of content and technology today, it is important to understand a few main concepts of the economics of information.

Most of the headaches experienced by content owners stem from the fact that information is usually costly to produce initially but cheap to reproduce.[3] This has been true for most of the twentieth century, certainly before the age of the computer and the Internet, although these technologies make this rule

even more important. Take as an example the costs involved in producing a record. It costs a lot to discover and record a singer. Often recording companies have to maintain armies of advance teams to frequent clubs around the world looking for talent. These expenses can be thought of as part of a record company's research and development (R&D) costs. Then there is considerable cost involved in recording the singer and marketing the resulting CD. In 2002, one major record label, MCA, spent $2.2 million to produce and market an album by a promising young singer named Carly Hennessy. The CD, *Ultimate High*, sold only 378 units for total revenues of only $4,900.[4] While this example was extreme enough to warrant the attention of the front page of the *Wall Street Journal*, it underscores a reality of any "hit business": there are more failures than winners.

However, after the album is produced and, with lots of luck, a star is born, the cost of printing every additional copy of the CD, the so-called marginal cost, is negligible. The same is true for most forms of information, such as software programs, movies, CDs, and books. The troublesome implication of this dynamic of information is that R&D and other costs associated with creating the first copy of content is often very steep, while the costs of piracy are usually quite cheap. The production cost of bootleg CDs is close to zero after the pirate copying factory has been paid for. And with digitized products, pirated copies can have the same quality as legitimate copies. That is not true of analog technologies, as evidenced by the many poor-quality copies of bootleg cassette tapes of, say, Pink Floyd, which may have proved irksome to the copyright holders but did not really damage sales of legitimate albums, tapes, and CDs.

When the popular filesharing services such as Napster emerged in 1999, which allowed users to trade online millions and millions of often perfect digitized music files, music companies became apoplectic, screaming that they were losing millions of dollars each year to pirates. To a large extent they were right. However, technology, in this case, the combination of digitized music, which has been around since the 1980s, and increasingly powerful and increasingly cheaper computers and the other essential ingredient, the network linking these computers provided by the Internet, combined to create a new market for music.

Unfortunately for the music companies, it created a market that they chose not to supply for a few years. The technologies that enabled filesharing to be so popular were not going away, even if the record companies were able to shut

down Napster. Belatedly, the record industry hit upon a twin strategy: sue its potential customers and enter the new market themselves through proxies such as iTunes. Executed early enough, litigation, or better yet, an online distribution channel, might have kept Napster at bay. But the success of Napster (success measured by the millions of users it attracted; the company itself had not been profitable) meant that the filesharing genie was well out of its bottle by 1999. By the end of 2006, there still was no record-company-sanctioned filesharing service that had nearly the range of selection offered by Napster in 1999. Interestingly, the most successful legitimate online music store, iTunes, was created by a computer company looking to sell more computers as well as more iPods.

And filesharing is no longer just about trading music. Because music files are smaller than movie files (a four-minute song can be squeezed into many fewer zeros and ones than can a ninety-minute movie), digital distribution of movies had been slower to catch on. However, with larger bandwidth connections to the Internet becoming more common (think of bandwidth being like a soda straw—the fatter the straw, the easier it is to drink), Hollywood knows it will be next to be "Napsterized." This fear was tellingly expressed in October 2003 when the motion picture industry's main industry group and lobbyist, the powerful Motion Picture Association of America (MPAA), decided to ban the long-established practice of sending free videos and DVDs of movies to members of the Academy of Motion Picture Arts and Sciences, the folks whose votes equal coveted Oscars, due to fears about the risk of piracy, especially for movies that had not yet been released. Independent producers screamed because mailing videos and DVDs was the only way many of them had to reach academy members. In an eleventh-hour compromise, the MPAA decided to allow studios to send only DVDs watermarked to identify the recipient.

The twin forces of digitization and powerful PCs networked through the Internet raise the stakes for content owners, and the immensity of these stakes have doubtlessly influenced their decisions over the past few years. It is hard to blame the recording industry for being up in arms about piracy, but it is easy to find fault with their response. If the popularity of Napster proved anything it was that the recording industry fumbled a golden opportunity—and not just an opportunity to be robbed. The success of Apple Computer's iTunes service demonstrates the demand for legitimate, robust digital distribution of music. But the fear displayed by the recording industry,

for example, in the face of new technological challenges and opportunities in the 1990s and into the 2000s is not a phenomenon that began with the advent of digital distribution. It reaches back to the beginning of the last century and that era's high tech.

OVERVIEW OF THE BUMPY ROAD TO PROSPERITY

For the past one hundred years, information industries exhibited a predictable reaction to technological change:

The Bumpy Road to Prosperity

1. Innovation: A new technology is born.
2. Ascension: The new technology takes root and grows into an industry.
3. Fear: The industry fears and resists technology changes that have an impact on their established models.
4. Prosperity: Innovation creates new markets and channels for existing industries.

This is ironic, not least because these industries began as technological innovations that in turn displaced something before them. This pattern can be seen in the early twentieth century, when music copyright owners resisted the evolution from selling their property via sheet music to the new channels created by player pianos, phonographs, and, later still, radio. The same pattern emerged in other information industries, including movies, television, and back to the again beleaguered music copyright owners.

Each of these industries underwent turmoil while going through the "Bumpy Road to Prosperity," forsaking new channels and markets while they resisted the change, but usually profiting in the end. Why? Mainly because the new technologies were quite apart from the existing technologies and businesses that occupied the established industries. Often the new channels failed to pay for the use of the property until revenue-sharing mechanisms were developed. The existing industries usually did not understand the new technology and initially failed to see how the change could benefit them.

Today, the confluence of separate but related forces—digitization, networking, and broadband—can create new avenues for information companies. In the past, the technological change was slow enough and limited enough that industries had the time to go through the pattern and emerge, at

the end, in better shape than when they started. The forces at work today are too powerful to allow content companies that luxury. Now, unless information owners learn to break the pattern that has governed the way they look at new technologies, and instead work proactively to understand the impact (positive and negative) of the technology, they risk being swallowed by it.

The histories of radio, recorded music, movies, and television all show how new technologies that promised to spell a boon for established companies or industries were badly fumbled or outright opposed by those companies or groups that stood to gain the most. Sometimes the problem was a failure to exercise enlightened self-interest with one's property—in the cases discussed here that property is usually protected by copyright. In the 1930s, as radio was into its so-called "Golden Age," the country's only performing rights agency, the American Society of Composers, Authors and Publishers (ASCAP), doubled and then doubled again the rates it charged radio stations to play its copyrighted music. Radio essentially was the only means for introducing new music to the public, aside from motion pictures, which ASCAP subsequently alienated, and jukeboxes, which carried relatively few new tunes. For its efforts, ASCAP opened the door to new competition, after a twenty-five-year monopoly, and also drew the attention of the antitrust division of the Justice Department. Fumbling on an even larger scale by music copyright holders would be repeated by the music industry at the end of the twentieth century as it grappled to deal with another innovative medium, the Internet, even more sweeping in its potential to help exploit copyrights than had been seen with radio.

New technologies almost always initially seem to compete with existing ways of doing business (in a phrase, business models). Incumbents often fail to see new possibilities offered by new technologies because they are worried about the immediate impact on their established business models. Such was the case with movie studios in the late 1940s and their opposition to broadcast television. However, television turned into a gold mine for movie studios, providing an outlet for the studios' libraries of films and a new customer for their production facilities. Soon, television-related income accounted for 60 percent of studio revenue.[5]

In turn, broadcast television and the movie studios ganged up to oppose the videocassette recorder. Beginning in 1976, movie studios tried to ban the nascent home video recording industry. Fearful of the impact that VCRs could have on the studios' ability to control their content, a group of movie and television studios, led by Universal Studios, sued the Sony Corporation,

maker of the Betamax video recorder. An appeals court found in favor of the studios, and the case went to the Supreme Court. The Supreme Court, in a 5 to 4 decision, narrowly reversed the appeals court ruling and found that the ability of VCRs to record broadcast television for private viewing at a more convenient time represented a legitimate use for the technology.

In the end, radio proved to be an important complement to recorded music, television proved to be a cash machine for movie studios, and as for that evil device, the VCR, around 60 percent of the annual revenue of major studios now comes from home video sales.

THE PLAN OF THIS BOOK

In considering the intersection of entertainment and technology, it is helpful to look at how our selected industries got to where they are today. This is not just because these stories are interesting but because often the seeds of our behavior are sown in our past formative experiences. This is true for individuals and it is true for industries, which after all are just collections of individuals. Each of the four stages (Innovation, Ascension, Fear, and Prosperity) is discussed in its own respective chapter using examples of different technologies and content industries.

Chapter 2 looks at the Innovation stage and shows how radio, the recording industry, movies, and television came about and made it through this initial stage. We see how innovation can come from anywhere (from the individual genius to corporate programs) but how each must be given room to grow and must have a business model capable of pushing the technology into the next stage.

Chapter 3 examines the Ascension stage and shows the importance of factors such as "network effects," "lock-in," and complementarity (in other words, two things making each other better) on our technologies over the course of the past century, and how they can propel a technology through the Ascension stage. We see how radio, records, movies, and television became big industries and how peer-to-peer technology may be poised for similar success. We also look at why some industries failed to graduate from the Ascension stage.

Chapter 4 looks at the Fear stage. The technological forces that drive so much progress today, especially in information industries, simultaneously affect different entrenched industries. This is why today the journey from the

Innovation to Fear stages and the resistance that goes with Fear is so quick. In the grip of the Fear stage, executives often see new complements only as competitors and fail to make the leap to envision new channels and businesses that can benefit them. This is why the recording industry spent so much energy shutting down Napster and so little energy trying to create a legal alternative. Fear is also the reason that the movie industry objected to television and tried to sue the VCR out of existence, even though both of these technologies ended up making the movie industry tons of money. For established industries in the Fear mode, their weapon of choice is usually copyright law, so we also look at the recent changes in legislation concerning intellectual property and explore how IP laws can play a more positive role for consumers and content industries.

Chapter 5 looks at the Prosperity stage. To get to Prosperity, movie studios had to think a little bit differently about their businesses and their relationships with customers. That usually is a prerequisite for incumbent industries to enter the Prosperity stage with a new technology. For example, both television and the VCR weakened the roles of movie theaters (exhibitors) in the long-established and cozy movie industry value chain. (The phrase *value chain* describes the steps taken to transform raw material into a product consumed by an end user. In the movie industry, the story idea might be the first link in the value chain and exhibitors and home viewers the final link.) Movie studios had to accommodate new value chains that these technologies thrust upon them.

Chapter 6 looks at how today's technologies have the ability to focus or atomize (choose your word) the traditional value proposition offered by content companies and provides lessons that executives and other stakeholders can learn to propel their companies into or stay in the Prosperity stage. I discuss specific steps that executives should take and that shareholders and other stakeholders should look for in companies that seek to operate at the intersection of entertainment and technology, and offer five rules for success for content companies and technology companies in a converged world.

The two appendices take a closer look at the technological forces that will drive today's convergence of content and technology and offer a brief background of important elements of IP protection. If you have ever uttered the phrase *Moore's Law* or would like a little more information on important IP concepts, it will be worth your time to dip into the appendices.

WHY TODAY'S THREATS AND OPPORTUNITIES ARE SO PROFOUND

In the past, the information industries had time to, paraphrasing Winston Churchill, do the right thing after they exhausted all the other options. The new forces, however, are fundamentally different from the forces that information companies feared but ultimately benefited from in the past.

Technology changed this. Consumers already had digitized music at their fingertips, thanks to the millions of CDs that turned the languishing back catalogs of record companies into gold mines in the 1980s and 1990s. But, mix CDs with computers networked to the Internet, and stir in software that can copy a CD and convert its songs into a compressed MP3 file, and—this is another very important ingredient—absent any fundamental change in business model, you have a poisonous brew for record companies. If any lesson can be drawn from "the Noble Experiment" of Prohibition in the 1920s and 1930s, it is this: without a legal way to do it, people still will drink. In this case, people download music (fileshare), because they can and because it is a terrific way to consume content. Even a twelve-year-old honor student living in public housing and a seventy-one-year old grandmother, both targets of the Recording Industry Association of America (RIAA) (the trade lobby that represents the world's largest record companies) lawyers in a legal action really did—illegally—download over a thousand songs each. And it's not just the beleaguered record industry that is losing sleep. They may be canaries in coal mines for their bigger cousins. Movie studios feel, with justification, that they are next to be affected by the forces that roiled record companies. In addition to the MPAA's action described earlier, witness the ads that run during movie previews featuring hardworking movie crew members, ordinary folks, not the high-flying stars, directors, and producers, telling you how piracy will hurt their livelihood. They are right of course, but they are spitting in the wind.

This wind, more of a typhoon really, has picked up speed in the past ten years. PC functionality in terms of speed, memory, graphics, and display technology grew rapidly through the 1990s. Technology advances combined with cheaper broadband access, innovations in consumer electronics devices, and improved Internet interactivity during this period enabled the desktop PC to become a powerful multimedia tool. Amidst this technology and Internet development, entertainment emerged as one of the most popular categories on

the Internet—after search engines and portals, entertainment domains were more in demand than both "news" and "information" as well as finance and investment-related Websites.

The ability of digitized content (in the form of the PC) to move out of the home office and into the living room—along the way breaking down established value chains and ways of creating, distributing, and getting paid for content—has been much talked about, although little has happened until now. As is being played out in the headlines today, television studios are grappling with threats and opportunities represented by upstart Internet companies such as YouTube. Seemingly overnight this former garage startup has attracted millions of viewers to videos posted on its site. Some of this content was copyrighted segments of broadcast television shows: for example, a funny sketch from NBC's *Saturday Night Live*. Some SNL segments recorded from the televised broadcast and posted by users on YouTube reached many millions more viewers than SNL ever did even in its heyday. At first, NBC made YouTube remove the videos because they infringed on NBC's copyright. But within months, the network did an about face and announced an advertising deal with the site. It was catching on to the requirement for Prosperity; it was thinking differently about itself and its business.

The surest ticket to the Prosperity stage has always been to give consumers new and profitable ways to enjoy content. This is often what new technologies do. However, as we have seen in the past it has not always been immediately clear to content owners how they would prosper from the new technologies. Technology companies either because they were too nascent to have clout or disinterested did not compel content owners to come along. Content owners usually lacked sufficient insight into new technologies (regrettable but understandable) and sufficient imagination (far less forgivable) until somebody showed them the way to Prosperity. Even having content and technology exist within the same company does not guarantee success. In these cases, the technology and content sides of the business do not seem to communicate with each other and might as well be separate.

CONCLUSION

This book looks broadly at examples within the entertainment industry of the twentieth century and into the twenty-first century. This is not to pick on one

industry or even American entertainment moguls, who by and large make products that are in demand all over the world. Rather, because their products are so successful and so familiar to us all, the foibles and failures of these content owners affect us all, and not just in how we consume their products.

The ability to fashion successful new business models for distributing and consuming information has powerful knock-on effects for important complementary industries such as telecommunications and computing. The salutary effects of wider penetration of consumer broadband, and in turn the dependence of higher broadband penetration upon the wider availability of digital content, has been described by many researchers.

A better marriage of technology and content will have powerful benefits for consumers and shareholders of companies that produce the content and the technology used to consume it. Many economists point to networking as the crucial link between increased IT performance and productivity gains. Networks, essentially any connection between two or more computers, are made far more robust by broadband.

Broadband is an important potential catalyst for general economic growth in the United States. A Brookings Institution study conducted in July 2001 estimated that broadband could add $500 billion per year to the United States economy.[6] The study found that consumers would benefit from enhanced online home shopping and entertainment services as well as from a variety of additional services. The researchers estimated that $400 billion per year could be derived from such services while an additional $50 billion to $100 billion per year could be added to the economy from broadband-related gains experienced by manufacturers of computers, software, and entertainment products.

Indeed, e-commerce annual revenue in the United States grew from nothing in the early 1990s to around $12 billion in 2001 and exceeded $80 billion in 2005.[7] A May 1999 survey by Mercer Management Consulting in Washington, D.C., showed that people with high-speed access search for information and make purchases online at approximately double the rate of those who access the Internet with a dial-up connection.[8] According to the Pew Internet and American Life Project, by 2005, 53 percent of home Internet users had broadband.[9] However, the rate of broadband adoption was actually slowing in the United States due to the high cost of broadband service and a lack of content on the Internet compelling enough to entice dial-up Internet users.

For the millions who socialize online via MySpace, watch videos on YouTube, shop at Amazon, and make their phone calls over the Internet, there are many, many more who do none of these things and will not until there is more compelling content online. Fear prevents executives from making the leap to prosperity. Consumers lose out, and so do shareholders.