



Digital Rights Management: An Overview of the Public Policy Solutions to Protecting Creative Works in a Digital Age

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ABOUT THE AUTHOR

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ABOUT THE WISE PROGRAM

The Washington Internships for Students of Engineering program was founded in 1980 to introduce engineering students to the public policy process. Each year, fourteen to sixteen outstanding engineering students from across the country are selected to spend ten weeks of the summer in Washington, D.C. During the internship they learn how government officials make decisions on complex technological issues and how engineers can contribute to legislative and regulatory public policy decisions. The students interact with leaders in Congress and the Administration, industry, and prominent non-governmental organizations. Meetings with congressional Committees, executive office departments, and corporate government affairs offices are daily activities. Each student also researches and presents a paper on a current engineering-related public policy issue.

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EXECUTIVE SUMMARY

New digital technology provides unique challenges to protecting the copyrights of creative works. Anyone can digitize copyrighted works and send them around the world easily and efficiently. Copyright holders can also use this same technology to protect their works. Digital rights management (DRM) is the use of passwords, encryption, and watermarks to protect digital content. DRM also provides new means of distribution and payment. It could, however, infringe upon the rights of consumers to use their legally acquired works as they choose. To deal with these issues, the federal government is considering several options.

The Consumer Broadband and Digital Television Promotion Act (CBDTPA; S.2048), introduced in the 107th Congress to the Senate Commerce Committee, requires DRM schemes in all digital electronic devices to protect copyrighted content. If passed, this bill could force the consumer electronics industry to redesign all their products, driving up prices and stifling innovation. In addition, a standard cannot be debated, selected, and implemented in a reasonable period of time, because of the variety of hardware and software in the market. The technology does not exist today to implement this standard, and will not be created in the near future. Furthermore, hackers will attempt to break an encryption standard shortly after its release, and, if successful, will render it unusable.

Congress can rewrite copyright law to address digital technology. This approach might not actually solve any problems. Technological advances may render any new copyright provisions obsolete. The courts will have to settle some disputes. The government can also implement a levy on electronic hardware and media. A commission will collect and distribute the proceeds to copyright holders as a royalty to compensate them for piracy. While this system is used in other countries, resistance to it in the United States is strong. Furthermore, since the majority of users of this hardware do not infringe on copyrights, the levy would effectively punish them for the actions of a few.

After reviewing the various policy proposals, this paper will argue that the United States government should support a market environment where the best DRM solutions can be privately achieved. One DRM scheme will not work for all forms of content. Private competition will create solutions that are reliable and robust. Copyright owners can choose different levels of protection for different kinds of content. Moreover, consumers may accept or reject a market-based solution. The public can decide which restrictions are tolerable. A free market solution will be advantageous to all the parties involved.

I. INTRODUCTION

Copyright is a troublesome area of the law, particularly regarding musical works. In the past, the government has encouraged negotiated settlements when confronted by new, complex issues brought about by technological advancements. But negotiated settlements may not solve the current copyright debates. The characteristics of digital technology provide unique troubles to copyright holders.¹ This same technology also presents new opportunities to conduct business, distribute content, and protect creative works.

The Internet and new digital technology provide the latest challenges to copyright law. At the heart of the digital revolution is the ability to characterize information as a string of ones and zeros: binary bits.² This allows distribution of content without a physical medium. Copyrighted works can be sent along phone lines or as radio waves, without the accompanying paper or plastic. It is inexpensive to pirate copyrighted material; only a computer, Internet access, and electricity are needed.³ Furthermore, digital technology supplies the potential to make perfect copies. Together, these characteristics incite doomsday scenarios among copyright holders.

On the other hand, the Internet and digital technology can give copyright holders new means to protect their intellectual property. These methods, called digital rights management (DRM),⁴ can create new systems to distribute content and collect payments. DRM includes the use of passwords, encryption, watermarks, trusted systems, and firewalls to protect digital content. But DRM may restrict the fair use rights of consumers to use the copyrighted works they have purchased.⁵ Consumers cannot make a backup copy, like they legally can with CDs and audiotapes. Digital versatile discs (DVD) cannot be played on non-approved players, impeding developers of open source software. Despite examples like this, many believe the piracy of copyrighted works will escalate out of control, especially regarding music. Lawmakers are currently considering options to address these issues.

The government can take several courses of action. The first is legislation. A bill sponsored by Senator Ernest Hollings of South Carolina attempts to address the DRM issue. S.2048, known as the Consumer Broadband and Digital Television Promotion Act (CBDTPA), would require onboard DRM measures in certain electronic devices, enforced by federal regulations, to protect digital content. This proposal was met with protest from some lawyers, academics, electronics manufacturers, and consumer advocacy groups. Many copyright holders, however, believe mandatory DRM is a necessary first step to combat piracy of their works.

A second proposal, espoused by free-marketers and many in the electronics industry, is for the government to institute a hands-off approach to DRM, allowing the market to determine which, if any, DRM schemes will flourish. This *laissez-faire* solution has its advantages. First,

¹ This paper will use numerous terms to describe copyright holders. These include content creators, content owners, copyright owners, artists, and rights holders. The terms are used interchangeably.

² Shih Ray Ku, Raymond. *The Creative Destruction of Copyright: Napster and the Economics of Digital Technology*. 69 U. Chi. L. Rev. 263, 270 (2002).

³ Id, 272.

⁴ DRM is also known as automated rights management.

⁵ "Fair use" is a doctrine that allows the reproduction of copyrighted works for certain purposes, such as criticism, parody, or education.

consumers will let copyright holders know if their DRM is too restrictive by “voting with their dollars.” Second, a market-based resolution will be the most economically efficient. Third, this approach will allow copyright holders themselves to determine the levels of protections they wish to attach to their works. Finally, new methods of creation and distribution will be allowed to blossom without the stranglehold of government regulations. But an economically efficient solution may not be the “best” solution, or even a legal one. Fair use (such as the ability to copy), anti-circumvention punishments⁶, and public domain issues must be addressed.

A third proposal is to re-strike the balance of copyright law. A copyright is a bargain between the rights holder and the public. The author is granted exclusive rights in return for the public distribution of the work, and later, its introduction to the public domain.⁷ In recent years, the advantage in the bargain has shifted to the rights holders, with unilateral benefits like term extensions. To address this and new technologies, Congress can initiate changes in the copyright laws. Negotiations between Congress and the affected industries can clarify and adapt the copyright laws to meet the challenges of new digital technology. The proponents of this solution want the law to adapt to the new technology, not vice versa. Lawmakers can implement compulsory licenses, which allow anyone limited uses of copyrighted works if they pay the copyright holder a predetermined licensing fee.⁸ This solution will involve long and difficult negotiations, and many relevant parties may not have the patience or the means to wait this long. It also will not stop determined, large-scale pirates.

Another course of action is instituting a levy on computer and electronics equipment, Internet access, and recordable media. The rights holders could recoup some of their losses from potential digital thievery. In effect, everyone would pay a little to cover the actions of a few. This type of levy has been used in Europe and Canada with mixed results.

With any of the above solutions, lawmakers or the courts must eventually step in to settle disputes. This paper will focus on the copyright and DRM issues in the music industry, and discuss some current problems with copyright law. An explanation of digital rights management will follow, along with some advantages and disadvantages of using these schemes. The proposals listed above will be discussed further. Finally, a recommended policy proposal that will prove advantageous for the parties involved in the current debate will be offered.

II. COPYRIGHT

A. Copyright has its origins in the United States Constitution.

Article I, Section 8 of the United States Constitution outlines the powers of the Congress. Chief among these are the powers to collect taxes, regulate commerce, and declare war. Clause 8 is commonly known as the Patent and Copyright Clause:

⁶ Circumvention is the act of breaking or working around a security or encryption scheme. Anti-circumvention refers to laws that make the act of circumventing illegal.

⁷ Litman, Jessica. *Digital Copyright* 78 (Prometheus Books, 2001).

⁸ Litman, 197.

[The Congress shall have Power] To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;⁹

These 32 words provide the foundation for copyright law today. Copyright law is detailed in Title 17 of the United States Code.¹⁰ Circular 92, published by the Copyright Office of the United States, contains 237 pages of copyright and related laws.¹¹ This clause has grown immensely, much of that growth coming from negotiations addressing technological advances.

B. Technological innovations provide new challenges to copyright.

One early challenge to copyright law was the piano roll.¹² The Supreme Court ruled that the manufacture of piano rolls did not infringe the copyright of the music.¹³ Congress was left to resolve the issues.¹⁴ Congress and the Copyright Office decided to revise copyright law by using negotiations among interested parties.¹⁵ The first such meeting resulted in the 1909 Copyright Act, which, among other things, established a compulsory license for mechanical reproductions of music, like the piano roll.¹⁶ In later years, photocopying was an issue. Publishers were concerned that copy machines would allow pirating of their books and magazines. They capitalized on this by charging a higher price for library journal subscriptions. Also, photocopying increased the importance of articles and journals in academic research. The ease of copying made academic journals the primary source for research. Photocopying did not harm the copyright owners, but actually helped them by making their products more valuable.¹⁷

Another challenge to copyright law was the Sony Betamax case.¹⁸ The Supreme Court ruled—in a five-to-four vote—that individuals were allowed to make private recordings of television shows with their videocassette recorders (VCRs). Today, selling and renting movies for VCRs has become an enormous industry, generating more revenue than theatrical releases.¹⁹

In the 1980s, audiotaping became an issue for the recording industry. No legislation outlawed personal taping, but Congress considered the issue in the 1992 Audio Home Recording Act,

⁹ The Constitution of the United States, referenced at <http://www.archives.gov/exhibit_hall/charters_of_freedom/constitution/constitution_transcription.html>. Accessed on July 1, 2002.

¹⁰ Copyright Law of the United States of America. <<http://www.copyright.gov/title17/>>. Accessed on June 22, 2002.

¹¹ Circular 92: Copyright Law of the United States of America. <<http://www.copyright.gov/title17/circ92.pdf>>. Accessed on June 22, 2002.

¹² The piano roll is a long sheet (a scroll) with holes in it that activate the keys of a player piano. The issue at stake was whether the scroll infringed the copyright of the song it played.

¹³ Harris, Scott. *The Piano Roll Precedent*. August 14, 2000.

<<http://www.thestandard.com/article/display/0,1151,17416-0,00.html>>. Accessed on June 23, 2002.

¹⁴ Lessig, Lawrence. Comments made at The Forum on Technology and Innovation, *Too Much, Too Little, or Just Right? Intellectual Property Protections and Technological Innovation in the Broadband Economy*, Washington, D.C., June 27, 2002. Transcript available at www.tech-forum.org.

¹⁵ Litman, 36. For a detailed history of the evolution of copyright law, see Litman, *Copyright Legislation and Technological Change* at 68 Oregon Law Review 275.

¹⁶ *Id.*, 40.

¹⁷ Liebowitz, Stan. *Policing Pirates in the Networked Age*. Policy Analysis, No. 438, 6-7. May 15, 2002. <<http://www.cato.org/pubs/pas/pa438.pdf>>. Accessed June 2, 2002.

¹⁸ Universal Studios Inc. v. Sony Corporation of America, 464 U.S. 417 (1984).

¹⁹ Liebowitz, 7-8.

which placed regulations on digital audiotapes (DAT).²⁰ The act required devices to prevent second-generation copying, and also issued a tax on the devices and recording media to compensate copyright holders for losses from piracy.²¹ Similar levies are being considered today.

Today's digital technology provides the greatest challenges yet to copyright law. Some argue that the situation will eventually work itself out. Others think that the new technologies represent such a colossal change that content creation, publication, and distribution will be unimaginably different than the past. This issue is important because much is at stake.

C. Copyright and DRM involve numerous stakeholders.

Copyright-related businesses are an important part of the American economy. The International Intellectual Property Alliance (IIPA) commissioned a report to study copyright industries in the United States economy. They consider the copyright industries to include computer software, movies, television programs, DVDs, music, textbooks, trade books, and journals.²² In 2001, the U.S. copyright industries accounted for \$535.1 billion, or 5.24% of gross domestic product (GDP).²³ The music industry alone is a \$40 billion-a-year business.²⁴ Core copyright industries²⁵ employ 4.7 million workers, or 3.5% of the total U.S. workforce.²⁶ The core copyright industry plays a major role in United States foreign trade. Foreign sales from this industry were \$88.97 billion in 2001, much of this from the sale of computer software (\$60.74 billion).²⁷ Sales of prerecorded music accounted for \$9.51 billion in 2001, down from its high in 1999 (\$10.27 billion).²⁸

The stakeholders in the copyright debate are many and varied. Creators of copyrighted works have a stake. Distributors and publishers also have large amounts of money invested in their businesses and supply networks. In the music industry, the five major labels dominate distribution and production: Warner, Sony, EMI, BMG, and Universal.²⁹ Retail stores and online music vendors are also concerned about the future of copyright. They will be deprived of a large source of income if packaged music is eliminated due to direct-to-consumer downloads of new music. Many analysts of this issue ignore the role of the public. Despite the fact that they currently lack a large-scale organized voice, consumers will play a crucial role in the adoption of any DRM schemes. If the DRM on content is too restrictive, or the price is too high, consumers will spend their money elsewhere. Libraries and schools are also concerned with DRM. If works are protected by a pay-per-use scheme, how will libraries lend materials? In the same way, how

²⁰ Id, 8.

²¹ Id, 8.

²² Siwek, Stephen E. *Copyright Industries in the U.S. Economy: The 2002 Report*, 1. Prepared for the International Intellectual Property Alliance by Economists Incorporated. <http://www.iipa.com/pdf/2002_SIWEK_FULL.pdf>. Accessed on July 1, 2002. For original sources of data, see the report.

²³ Id, 1.

²⁴ Love, Courtney. *Courtney Love Does the Math*. June 14, 2000.

<<http://www.salon.com/tech/feature/2000/06/14/love.html>>. Accessed on June 20, 2002.

²⁵ Core copyright industries are those that create copyrighted materials as their primary product.

²⁶ Siwek, 1.

²⁷ Id, 17, 18.

²⁸ Id, 24.

²⁹ Mann, Charles C. *The Heavenly Jukebox*. September 2000.

<<http://www.theatlantic.com/issues/2000/09/mann.htm>>. Accessed on July 2, 2002.

can academics afford to do research if they have to pay to copy or even access protected information? Less visible copyright stakeholders in this issue include promoters, managers, advertisers, radio stations, and support staff in the music industry. They all will be affected by changes to copyright law.

DRM is poised to be one of the largest consumer electronics issues in years. As such, it affects more people than just copyright holders. First and foremost are DRM providers themselves. They will have to comply with any government-mandated scheme. These companies are developing—and in many cases, have already developed—the software and hardware to protect digital works. Microsoft, for example, produces the software-based Windows Media Rights Manager, a DRM solution that gives content owners a broad array of control and delivery options.³⁰ Over 275 companies have licensed this technology.³¹ Microsoft also uses DRM to protect eBooks and its two main products, Windows and Office.³² Adobe uses DRM to protect the content of eBooks. Adobe security measures allow lending, copying, and printing, in accordance with the wishes of the content owner.³³ Others involved in developing DRM include CenterSpan Communications Corporation, and ContentGuard.

D. As in the past, copyright law today is a source of dispute and controversy.

1. Does copyright protect creation or distribution?

The argument made by many copyright holders is that they must be compensated in order to create works in the future. But some opponents have pointed out that most of the money that consumers spend on music is used to pay the “middlemen” in the distribution chain: the producers, the recording company, the managers, the advertisers, the manufacturers, the wholesalers, and the retailers. Little of the money a consumer spends on a CD goes directly to the artist—typically \$1.30 per CD sold before deductions.³⁴ So does copyright protect the distributors more than the artists?

In the past, the most significant barrier to distribution was the enormous initial investment required.³⁵ But today, digital technology minimizes distribution costs. Once the fixed costs are taken care of (computer equipment, Internet access), the marginal cost of making digital copies and distributing them worldwide is essentially zero.³⁶ The distributive power of the Internet allows new business models that deal directly with consumers.

³⁰ Poole, Will. Testimony before the Subcommittee on Courts, the Internet, and Intellectual Property, Committee on the Judiciary, United States House of Representatives. Oversight hearing on *DRM: The Consumer Benefits of Today's Digital Rights Management Solutions*. Washington, D.C., June 5, 2002. Available online at <<http://www.house.gov/judiciary/poole060502.htm>>.

³¹ Id.

³² Id.

³³ Alexander, James M. Testimony before the Subcommittee on Courts, the Internet, and Intellectual Property, Committee on the Judiciary, United States House of Representatives. Oversight hearing on *DRM: The Consumer Benefits of Today's Digital Rights Management Solutions*. Washington, D.C., June 5, 2002. Available online at <<http://www.house.gov/judiciary/alexander060502.pdf>>.

³⁴ Mann.

³⁵ Shih Ray Ku, 295.

³⁶ Id, 300.

Does copyright encourage the creation of music, or does it just reward the creator? The tangible, fixed costs of creating music are relatively small and diminish with the advent of new software and hardware.³⁷ The costs that most artists pay to record music are opportunity costs associated with foregoing another career.³⁸ Furthermore, copyright provides few artists with financial dividends. The high costs of manufacturing, marketing, and distributing music eat into an artist's royalties, earning the record company millions before the artist sees any royalties.³⁹ Thus, copyright law actually helps very few musicians. Most earn the majority of their money from secondary sources of income, such as ticket sales, merchandise, and endorsements.⁴⁰

2. Copyright term extensions are another point of debate.

Recently, a controversial point of copyright law has been the term extensions of copyrighted works. Copyrights were extended under the Sonny Bono Copyright Term Extension Act of 1997, adding 20 years to many copyrights.⁴¹ Some consider this a blatant affront to the copyright bargain between the rights holder and the public. Copyright now extends far beyond the life of the artist—70 years, to be exact. Works for hire⁴² are copyrighted for 120 years from the date of creation, or 95 years from first publication, whichever comes first.⁴³

If current copyrighted works fall into the public domain, DRM schemes may be a troublesome issue. When creative works have electronic locks that are illegal to circumvent (because of the Digital Millennium Copyright Act (DMCA)⁴⁴), how can the public gain access when these works become public domain? Do DRM schemes need built-in expirations? These questions will have to be answered for DRM to become widespread.

3. The definition of fair use

The doctrine of fair use is often invoked as a check on the absolute control of copyright. Fair use is generally defined as a legal privilege to make an unauthorized use of a copyrighted work.⁴⁵ Fair use is evaluated on a case-by-case basis. Section 107 of Title 17 of the United States Code guides the courts (and the public). The use of a copyrighted work is not an infringement of copyright if used in the following manners: criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research.⁴⁶ To determine whether the use of a work in a particular case is a fair use, four factors should be considered:

³⁷ Id, 306

³⁸ Id, 306.

³⁹ Id, 307

⁴⁰ Mann.

⁴¹ Copyright Term Extension Act of 1997. <<http://thomas.loc.gov/cgi-bin/query/z?c105:H.R.1621>>. Accessed on June 15, 2002.

⁴² Works for hire are works that are not copyrighted by the creator, but by the person or corporation who hired the creator.

⁴³ Ellis, David Roy. *Copyright Term Extension: Congress Enacts a Mickey Mouse Law and Legislation for the New Millennium*. January 1999. <<http://www.clwbar.org/resipsa/jan99/copyright.html>>. Accessed on July 1, 2002.

⁴⁴ Public Law 105-304: *Digital Millennium Copyright Act*. <<http://judiciary.senate.gov/special/dmca.pdf>>. The DMCA makes it illegal to break an encryption scheme.

⁴⁵ Litman, 199.

⁴⁶ United States Code, Title 17, § 107.

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market for or value of the copyrighted work.⁴⁷

The courts use these factors as guidelines on deciding if the fair use provision applies. Since no hard and fast rules exist, it can be difficult to tell in advance if a certain use is fair use.

III. DIGITAL RIGHTS MANAGEMENT

A. Digital rights management has many forms and definitions.

Digital rights management is commonly thought of as security and encryption used to protect creative works. Other names for the same concept are “automated rights management,” “technical protection measures,” or “content protection schemes.” First generation DRM involves security and encryption to prevent unauthorized copying.⁴⁸ Second generation DRM being developed today can do much more. It can handle identification of users, trading, selling, tracking, and other controls.

Digital rights management technology has been around for years, in one form or another. One format is the DVD Content Scramble System (CSS). CSS is the copy protection system adopted by the movie and consumer electronics industries for DVDs. The DVD Copy Control Association (DVDCCA) licenses CSS to manufacturers of DVD products.⁴⁹ Regional DVD coding is another form of DRM. This assures that DVDs play only on players that match their regional coding. Another form of DRM is used in television broadcasts. Satellite television signals are encrypted, and the receiver, using a decoder chip, decrypts the signal and converts it to a format that the particular TV can read. Satellite TV also uses a DRM scheme to bill customers for pay-per-view events.

Recent attempts at incorporating DRM have been made in the music industry. Charley Pride released the first known copy-protected CD in the United States.⁵⁰ Some players, including Apple computers, would not play the CD. This disc and others like it have embedded software that prevents copying or playing on certain players. It spawned at least one lawsuit from a

⁴⁷ Id.

⁴⁸ Iannella, Renato. *Digital Rights Management (DRM) Architectures*. D-Lib Magazine, June 2001. <<http://www.dlib.org/dlib/june01/iannella/06iannella.html>>. Accessed on July 6, 2002.

⁴⁹ *DVD Frequently Asked Questions*. <http://www.mpa.org/Press/DVD_FAQ.htm>. Accessed on July 8, 2002.

⁵⁰ Mariano, Gwendolyn. *Copy-Protected CDs—Not for Macs*. <<http://zdnet.com.com/2100-1103-912706.html>>. Accessed on July 8, 2002.

consumer, which led to labeling protected CDs.⁵¹ DRM advancements similar to these are continually forthcoming from content providers and electronics manufacturers.

B. DRM schemes can provide numerous advantages.

Despite the controversy associated with them, DRM schemes have valuable uses. First and foremost is copy protection. While no protection is inviolate, rights management can effectively curtail simple piracy attempts.

Digital rights management can enable micropayment schemes, where users only pay for what they consume. The most extreme form of DRM can create “perfect price discrimination,” charging users only what they are willing to pay.⁵² DRM cannot yet charge each user a different price (and probably never will), but it can move towards perfect price discrimination by charging per use (such as each page read or each song heard).⁵³

Another advantage of DRM is the economic efficiency it can facilitate. Consumers not willing to pay the higher (monopoly) price for full access to content can just pay the per-use fee and the work will be inaccessible when they are finished with it. For example, a researcher would no longer need to buy an entire book or journal to read one small section of it. Conversely, if consumers wanted to keep the content indefinitely, or make copies from it, they might have to pay a higher price for that privilege than they pay today.

DRM, in conjunction with micropayments and digital distribution, can lower or even essentially eliminate transaction costs. As mentioned above, the marginal cost of digital distribution is zero (see Section II.D.1). Content creators can distribute their work immediately after production, with low fixed costs. Cutting the distribution chain can reduce prices for consumers. Artists can market and sell directly to their fans without paying the large costs of working with a record (or publishing) company. Once the distribution system is in place, further recordings (or publications) become even cheaper to deliver. Distribution will be much faster than traditional methods. Peer-to-peer technology can facilitate high-speed circulation of new works. All these innovations can be accomplished with digital rights management.

C. DRM schemes also have some disadvantages.

Despite the advantages listed above, digital rights management may not be the best solution for current copyright problems. Several concerns with DRM have been raised. First, DRM may stifle new technological innovations. Had consumers not been able to “rip” songs from CDs to the hard drives of their PCs, the peer-to-peer technology that drives Napster might not have been created. Furthermore, strict control of content may stall the introduction of new consumer electronics products, like portable MP3 players.

Widespread effective digital rights management could allow us to overlook more beneficial solutions to the copyrighting of digital works. The music industry in this country appears set on

⁵¹ Id.

⁵² Liebowitz, 17.

⁵³ Id, 18.

developing DRM schemes for new CDs to combat piracy. If they had negotiated with Napster instead of filing a lawsuit, a different music distribution system might be in place today. Instead, the piracy problem appears to have shifted underground, to the peer-to-peer networks with no central servers.⁵⁴ In fact, they may now be more heavily used than Napster was at its peak, according to data from Webnoize.⁵⁵ A similar situation could arise in other industries if DRM is adopted too quickly without analyzing all possible solutions.

It is arguable that DRM will dramatically curtail commercial piracy. Any scheme used to protect creative works will be bypassed eventually. Someone will figure out how to circumvent the protection, even if it takes a lot of time and money. For large-scale pirates, it is worth the investment to break the security. DRM schemes will most likely just divert, not stop, organized piracy. DRM can, however, frustrate the average user's attempts to engage in unauthorized uses.

The most common complaints against DRM schemes are the infringements upon fair use. In the past, backup copies, time-shifting, and space-shifting were viewed as legitimate uses of copyrighted materials.⁵⁶ DRM schemes can prevent these uses, or allow them only with the payment of a fee. This could have ramifications on libraries. Will patrons continue to use libraries if they have to make small payments for every viewing of a work? What about those who cannot afford to pay? Will browsing in bookstores and previewing music in music stores be subject to a fee? Copying music has even been protected by statute, and preventing that right by DRM schemes appears to be illegal in certain instances.⁵⁷ The home user often copies music in order to space-shift. DRM schemes can prevent this use. Anti-circumvention technologies can be used to gain access to works, but the enactment of the DMCA criminalizes this activity.

Others argue that fair use exists only because it was difficult to match rights holders with consumers in the past, creating a market failure. With certain DRM payment schemes, a method exists to conduct the transaction. The courts have discussed this market failure in decisions, reasoning that "a particular unauthorized use should be considered 'more fair' when there is no ready market or means to pay for the use, while such an unauthorized use should be considered 'less fair' when there is a ready market or means to pay for the use."⁵⁸ This ruling will become more important if DRM is adopted on a large scale. Fair use must be considered when discussing digital rights management.

Micropayments may not be readily available either. The system used by credit card companies is too costly right now to charge users fractions of a cent. A new, cheaper billing system will have to be installed, or the DRM scheme will have to incorporate the pricing within, billing the customer when they reach a preset spending level.

⁵⁴ Id, 15.

⁵⁵ Id, 15.

⁵⁶ Time-shifting means copying a work so it can be utilized at a later time, like recording a TV show to watch the next day. Space-shifting means making a copy of the work so it can be used on a different device or a different medium, like copying a CD to cassette so it can be played in an automobile.

⁵⁷ Boucher, Rick. Letter to the Recording Industry Association of America. January 4, 2002.

<<http://www.house.gov/boucher/docs/riaaletter.htm>>. Accessed on June 20, 2002. Congressman Boucher points out to the RIAA that first-generation copies on compliant media are allowed under the Audio Home Recording Act of 1992. Copy-protected CDs might preclude this type of copying.

⁵⁸ American Geophysical Union v. Texaco Inc., 60 F.3d 913, 931 (2d Cir. 1994).

IV. PUBLIC POLICY OPTIONS

A. Congress can mandate a digital rights management scheme.

Senator Ernest Hollings of South Carolina introduced S.2048 in the second session of the 107th Congress, to the Committee on Commerce, Science, and Transportation. This bill, known as The Consumer Broadband and Digital Television Promotion Act, would require a DRM scheme in all electronic devices:

To regulate interstate commerce in certain devices by providing for private sector development of technological protection measures to be implemented and enforced by Federal regulations to protect digital content and promote broadband as well as the transition to digital television, and for other purposes.⁵⁹

This bill was introduced to address some perceived problems with digital technology. First, it was noted that digital content owners are reluctant to release their products digitally for fears of piracy. The bill noted that industry was not moving towards protecting digital works and that the further manufacture of non-compliant devices would render moot any protections. The bill also points out that digital television and broadband technology are currently stalled because of the piracy threat, and because of the lack of available content. All of these findings are debatable, but they provide the justification for the bill. To combat the problems, the CBDTPA requires government action to ensure the swift adoption of an industry-wide security standard to protect creative works.

The CBDTPA requires the Federal Communications Commission (FCC) to oversee the security standards creation, which would be established by digital media device manufacturers, consumer groups, and copyright owners.⁶⁰ The Act mandates that the standard protect fair use provisions, like personal copies.⁶¹ The Act also prohibits the sale of nonconforming digital media devices.⁶² Like the DMCA, this bill contains prohibitions on removing or altering the security standard. It also states that no person shall introduce a security standard in violation of the rules in the Act.⁶³

The initial reactions were strongly against the bill. The United States Senate Judiciary Committee provided a method for public comment, and the comments archived are overwhelmingly critical of the bill.⁶⁴ Many consumer organizations and industry representatives came out against the CBDTPA. The bill is stalled and will not be passed during this session, but could be a precursor for future legislative action. The intent of the bill may have been to spur talks between electronics manufacturers and copyright holders to develop DRM systems, and those are occurring.

⁵⁹ S.2048, The Consumer Broadband and Digital Television Promotion Act, 107th Congress, 2d session. See <<http://judiciary.senate.gov/special/cbdtpa.pdf>> for full text of the bill.

⁶⁰ S.2048, § 3.

⁶¹ Id.

⁶² S.2048, § 5.

⁶³ S.2048, § 6.

⁶⁴ *Protecting Creative Works in a Digital Age: User Comments*. Web page of the Senate Judiciary Committee. <http://judiciary.senate.gov/special/input_form.cfm>. Accessed on June 2, 2002.

Despite the outcry, the CBDTPA does have some advantages. For one, implementing a security system could resolve some of the current disputes concerning copyright in a digital world. A government-mandated standard would ensure interoperability between differing consumer electronics devices. Consumers would be more aware of what they can and cannot do with creative content. Their rights would be defined by the protection systems. Small-scale piracy would be slowed, or possibly eliminated, although it is arguable that this causes great economic harm.

But the CBDTPA has too many downsides. Mandating a standard will impose extra costs on the developers of electronic devices. Compliance will drive up prices. Setting a time limit for a resolution might induce the implementation of a sub-par standard. And if one standard is adopted, that security scheme immediately becomes the target of hackers worldwide. With this focus, the security offered by an onboard DRM scheme will only last a few months at best. If an easy circumvention is found and publicized, the standard becomes worthless and a new one must be implemented. It is unlikely that a new standard could be deployed quickly enough to prevent infringement. And, even if it were, it would have to be technologically compatible with the current software and hardware in the hands of consumers. Furthermore, adopting new standards every year would place strenuous demands on electronics manufacturers to redesign their products with the new technology. An endless cycle results.

The mandated adoption of a DRM system raises interesting public policy questions. Should the government be mandating technological standards? Congress and federal agencies do set guidelines for other industries, but the scope, depth, and rapidly changing nature of the electronics industry provide a challenge for uniformity. Many people in the government do not have the personal knowledge of technology to ascertain whether a particular solution is adequate. There exists the possibility that a superior solution or a better technology will not be realized because of the standards and restrictions set by legislation. These problems overwhelm the advantages of mandating a DRM scheme, necessitating a more advantageous solution.

B. The government can take a “hands-off” approach to digital rights management, allowing a market solution to present itself.

The solution touted by free-marketers and many leaders in the technology industry is to let individual content creators, device manufacturers, and DRM developers adopt digital rights management. As discussed above, DRM solutions can lower transaction costs and facilitate economic efficiency. Market-based solutions will allow for a variety of rights management schemes to emerge. Consumers will ultimately decide which content they wish to purchase and with which restrictions attached. The economic efficiency discussed above can be achieved only by allowing content sellers to adjust their prices according to demand. To do this, content creators must independently determine how to best protect their products.

Allowing copyright holders to adopt their own DRM schemes creates an atmosphere of competition and innovation among DRM developers. This situation promotes unique solutions and business models that would otherwise be unrealized.⁶⁵ Allowing DRM to develop privately

⁶⁵ Crews, Wayne, and Thierer, Adam. *When Rights Collide: Principles to Guide the Intellectual Property Debate*. TechKnowledge, Issue #10. June 4, 2001. <<http://www.cato.org/tech/tk/010604-tk.html>>. Accessed on July 1, 2002.

removes the decisions about rights management from the lawmakers' hands and puts them in the hands of consumers and providers—where the best information for the decisions exists.⁶⁶

Industry leaders often propose a free market solution to the current digital rights management debate. Will Poole, Corporate Vice President in charge of Microsoft's New Media Platforms Division, testified before the House Judiciary Subcommittee on Courts, the Internet, and Intellectual Property on June 5, 2002. He encouraged the Subcommittee to promote private-sector solutions of content protection schemes.⁶⁷ Adobe's James Alexander echoed the sentiments, stating that everyone needs to trust the marketplace and consumers to determine the proper amount of protection.⁶⁸ SunnComm's Peter Jacobs stated that technology and cooperation could provide a solution for the music industry. He proposed informal meetings between the stakeholders instead of new regulations.⁶⁹ This snapshot provides an overview of the feelings of many in the tech industry.

Despite the power of the market in addressing this debate, some issues must be resolved by other means. Courts will have to continue to settle disagreements. Artists may refuse to license their works to certain users, or charge an extremely high price; the users may have to exercise fair use to gain access to the work.⁷⁰ Like in the past, new technology may blur the lines of copyright protection, and the courts will again have to solve some disputes. Narrow legislation in the future can address unforeseen issues that arise.

Second, courts and lawmakers will have to deal with circumvention. A detailed discussion of the DMCA and anti-circumvention penalties are beyond the scope of this paper, but the issues must be resolved. The DMCA becomes relevant when a user tries to circumvent the DRM scheme to gain access to a public domain work, or to exercise a fair use.

Third, privacy must be addressed. If a DRM scheme can manage digital rights and handle payment systems, it can also track habits and preferences and match them to users. Privacy concerns are also beyond the scope of this paper, but consumers and content creators will have to address the privacy implications of any new technology.

⁶⁶ Bell, Tom. *Fair Use vs. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine*. 76 N. Carolina L. Rev. 557, 592 (1998). <<http://www.tomwbell.com/writings/FullFared.html>>. Accessed on June 12, 2002. Mr. Bell argues that automated rights management will lower opportunity and transaction costs for consumers, in exchange for a fee for accessing creative works.

⁶⁷ Poole, written testimony. See note 30.

⁶⁸ Alexander, written testimony. See note 33.

⁶⁹ Jacobs, Peter. Testimony before the Subcommittee on Courts, the Internet, and Intellectual Property, Committee on the Judiciary, United States House of Representatives. Oversight hearing on *DRM: The Consumer Benefits of Today's Digital Rights Management Solutions*. Washington, D.C., June 5, 2002. Available online at <<http://www.house.gov/judiciary/jacobs060502.htm>>.

⁷⁰ Bell, p. 594-5. This refers to a copyright holder not allowing a critic to reproduce the copyrighted work in a review. The fair use provisions allow the critic to use the work in this manner.

C. The government can enact changes to copyright laws and explore other possible solutions.

Many problems with copyright law arise from its evolution as a series of bartered settlements between interested parties. Consumers have not been involved in past negotiations. Congress can call another meeting and let consumer representatives work with content owners to address copyright issues in a digital environment. But this process has some downsides. Consumers are not easily classified like some other groups; consequentially, their interests may be hard to assess. The bargaining process is also long and tedious and results in copyright law filled with narrow exception and provisions.

Another solution is to radically simplify the laws. This proposal fails because the use of copyrighted material is varied, and a one-size-fits-all approach will offer too much protection to some content and not enough to others. Simplifying the law would result in shifting the conflicts to the courts. Thus, the statutes would be replaced by common law, which might become more complicated than the codes.

A solution to the ambiguity of fair use is to clarify the doctrine. Users of content would know exactly what they could and could not do with acquired content. But the size and scope of content available renders a simplified solution unusable. Should Congress mandate how many backup copies can be made? Should they set a limit on how many people can listen to a piece of music at the same time? Fair use in digital media compounds the problem further. The United States Register of Copyrights, Marybeth Peters, has argued against legislative attempts to update fair use in a digital world.⁷¹

A different solution to the piracy problem is to impose a levy on the purchase of equipment or media that might be used for piracy. This is standard practice in some European countries, and the European Union has considered it. For example, Germany imposes a levy of 30 Euros (approx. \$30 US today) on every PC sold.⁷² Switzerland and Greece also have levies on certain types of hardware. France imposes a tax on CD-Rs, DVDs, minidisks, and MP3 players.⁷³ Other European nations are considering or have recently enacted levies. Canada imposes a levy on CD-Rs, minidisks, and certain audiotapes, and is considering a tax on flash memory, micro hard drives, and DVD-Rs.⁷⁴ While opposition to these proposals in the United States would stop any legislation, the levies raise some interesting questions. By charging a levy, are consumers assumed guilty before they have committed a crime? If you pay the levy on the media, are you given the liberty to “pirate” copyrighted works? Finally, is this just a subsidy for the entertainment industry? Should the United States government subsidize industries that cannot or will not adapt to new technological innovations? Furthermore, much of this hardware and media will not be used to infringe upon copyrights; why should every consumer pay for the illegal

⁷¹ Id, p. 614-5.

⁷² *Business Alert—EU*. February 16, 2001. <www.tdctrade.com/alert/eu0104a.htm>. Accessed on July 3, 2002. For a detailed analysis of the German levy, see http://www.gema.de/engl/communication/yearbook/jahr_01_02/themadesjahres.shtml.

⁷³ Essick, Kristi. *Presumed Guilty*. February 5, 2001.

<<http://www.thestandard.com/article/display/0,1151,21671,00.html?mail>>. Accessed on July 3, 2002.

⁷⁴ Gray, Malcolm, webmaster. <<http://www.sycorp.com/levy/>>. Accessed on July 9, 2002.

actions of a few? The answers to these questions provide a clear and convincing argument against levies imposed on hardware and media.

V. RECOMMENDATIONS

In light of the evidence presented and analyzed in this paper, the federal government should let content owners, distributors, electronics manufacturers, and consumers determine the levels of protection they want through private licenses and contracts. Public policy should promote private-sector solutions to digital rights management. Allowing the stakeholders to personally address the problems and propose solutions will benefit all parties in the long run.

The Consumer Broadband and Digital Television Promotion Act is a rash proposal that does not fully consider all its consequences. The technology is not yet available to fully implement DRM features that are reliable, robust, cheap, and acceptable to consumers. Setting a deadline for adoption of such a standard will result in an inferior protection scheme that is too costly for inexpensive digital electronics products and ineffective in halting piracy of copyrighted works. Furthermore, a standard DRM scheme is much more difficult to achieve than it is to propose. Because of the variety of products on the market and the variety of content available, a standard might be too inflexible to deal with circumvention attempts, changes in the marketplace, and new business models. An arbitrarily selected standard⁷⁵ will not have the robustness, efficiency, or trustworthiness that a free market solution will provide.

The problems addressed above associated with a market solution to the DRM debate can be overcome. The courts will continue addressing disputes over intellectual property, but no more than they do today. Mechanisms are in place to deal with monopoly issues and restriction of trade. The anti-circumvention provisions of the Digital Millennium Copyright Act must be reviewed and possibly altered. These problems exist with or without market-based DRM solutions. Ultimately, if DRM schemes introduced in the marketplace do not please consumers of content, they will not succeed. The free market will react quickest to the demands of content providers and consumers.

VI. CONCLUSION

The Internet and new digital technology provide new challenges to copyright law. But these same technologies also provide solutions to some of the current problems. These methods, known as digital rights management, provide copyright holders new tools for protection, distribution, and payment.

DRM mandates, such as those proposed by the Consumer Broadband and Digital Television Promotion Act, are premature and misguided attempts at solving the digital copyright debate. The government should instead let the free market produce the DRM schemes that will protect creative works. Innovation and competition, along with consumer feedback, will provide

⁷⁵ And any standard chosen will be arbitrary. Even if its selection is supported by scientific evidence and research, its effects will not be known until the marketplace is allowed to test and evaluate the standard. A problem with the chosen DRM scheme could set back the introduction of new content and products by month—or even years—if the stakeholders do not trust the system.

numerous solutions, and the best ones will survive. These solutions will not be perfect, but they will foster a more dynamic intellectual property protection system that can better adapt to new technologies and business models in the future.

APPENDIX A
ACRONYMS AND ABBREVIATIONS

AHRA	Audio Home Recording Act
CBDTPA	Consumer Broadband and Digital Television Promotion Act
CD	Compact Disc
CD-R	Compact Disc-Recordable
CSS	Content Scramble System
DAT	Digital Audio Tape
DMCA	Digital Millennium Copyright Act
DRM	Digital Rights Management
DVD	Digital Versatile Disc
DVD-R	Digital Versatile Disc-Recordable
DVDCCA	DVD Copy Control Association
FCC	Federal Communications Commission
GDP	Gross Domestic Product
IIPA	International Intellectual Property Association
VCR	Videocassette Recorder

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