



**PROMOTING INNOVATION AND ECONOMIC GROWTH:
THE SPECIAL PROBLEM OF DIGITAL INTELLECTUAL
PROPERTY**

A Report by the Digital Connections Council
of the Committee for Economic Development

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RESPONSIBILITY FOR CED STATEMENTS ON NATIONAL POLICY

The Committee for Economic Development is an independent research and policy organization of some 250 business leaders and educators. CED is non-profit, non-partisan, and non-political. Its purpose is to propose policies that bring about steady economic growth at high employment and reasonably stable prices, increased productivity and living standards, greater and more equal opportunity for every citizen, and an improved quality of life for all.

All CED policy recommendations must have the approval of trustees on the Research and Policy Committee. This committee is directed under the bylaws, which emphasize that “all research is to be thoroughly objective in character, and the approach in each instance is to be from the standpoint of the general welfare and not from that of any special political or economic group.” The committee is aided by a Research Advisory Board of leading social scientists and by a small permanent professional staff.

The Research and Policy Committee does not attempt to pass judgment on any pending specific

legislative proposals; its purpose is to urge careful consideration of the objectives set forth in this statement and of the best means of accomplishing those objectives.

Each statement is preceded by extensive discussions, meetings, and exchange of memoranda. The research is undertaken by a subcommittee, assisted by advisors chosen for their competence in the field under study.

The full Research and Policy Committee participates in the drafting of recommendations. Likewise, the trustees on the drafting subcommittee vote to approve or disapprove a policy statement, and they share with the Research and Policy Committee the privilege of submitting individual comments for publication.

The recommendations presented herein are those of the trustee members of the Research and Policy Committee and the responsible subcommittee. They are not necessarily endorsed by other trustees or by non-trustee subcommittee members, advisors, contributors, staff members, or others associated with CED.

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PREFACE BY THE CED RESEARCH AND POLICY COMMITTEE

After the publication of CED's policy statement, *The Digital Economy: Promoting Competition, Innovation, and Opportunity* in 2001, the Research and Policy Committee created CED's Digital Connections Council, a group of information technology experts from CED trustee-affiliated companies. The DCC was established to advise CED on the policy issues associated with cutting-edge technologies. This report, concerning the relationship between digital intellectual property and economic growth, is the first of its products.

CED appreciates greatly the efforts of the members of the Committee, and in particular, the work of Paul Horn, Senior Vice President for Research of IBM Corporation and Chair of the DCC, for his leadership in bringing this report to completion.

The DCC report is accompanied by a brief introduction by the CED Research and Policy Committee. Since this report is the work of the DCC rather than CED Trustees, it is not an official CED policy statement. The Research and Policy Committee, however, on behalf of CED's Trustees, welcomes this report and recommends it to readers as an excellent analysis of the issue of balancing intellectual property rights and the incentives for long-term growth in the digital age.

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INTRODUCTION AND STATEMENT BY THE CED RESEARCH AND POLICY COMMITTEE

Digital piracy -- the theft of entertainment products in digital form from the Internet -- has become a fast-growing activity and, for many, a pressing economic and social concern. Easy access to copyrighted works through file-sharing programs has allowed many users almost unlimited access to recorded music and, over time, other types of entertainment in digital form. Along with this access has come a regrettable change in public ethos that has made it acceptable or trivial in the eyes of many to pirate creative works.

Piracy is claimed to have imposed severe losses on content producers, but the real damages arising from piracy are hard to measure. Music industry sales of CDs are down, but not necessarily outside the range of variation they have shown in the past. Moreover, comparable technological challenges have always been met by claims of imminent disaster: the VCR was said to be the end of the movie industry; the player piano was predicted to ruin sales of sheet music; and radio was expected by many to end live attendance at baseball games. But in all of these cases, the technological advance proved to expand, rather than reduce, the growth of the service in question, as the businesses involved developed new models that incorporated the new technology into their product design and marketing. This may well be the case for the network-based provision of music and other services, but the transition is still a distant one and the immediate problem of piracy remains.

The many analyses of the piracy issue have taken one of two focuses -- either the effect of piracy on specific economic interests (such as the music industry) or the moral or ethical implications of digital theft. While these are reasonable perspectives, the lens through which CED traditionally views these issues is that of economic growth and productivity. That is, what is the affect of digital piracy on growth, productivity, and our future standard of living, and what would be the effects of alternative policies to curb it? That is the perspective of the DCC report and, in the midst of what is often a passionate debate, it is an important starting point.

The purpose of the institution of intellectual property, as the DCC report makes clear, is to provide incentives to innovators to produce new creations. But the reason why these incentives are in order is not because of a concern with the prosperity of innovators, but because of a larger desire to provide to society a steady stream of innovations that lead to further gains

and enhancements of the standard of living. “If I see further,” Newton once remarked, “it is because I stand on the shoulders of giants.” Like Newton, every innovator in some crucial way owes a substantial debt to the innovators who went before her or him. The purpose of protection for intellectual property, therefore, is to keep this virtuous cycle of innovation going -- to keep new innovations flowing to those who improve upon them so that those innovations, in turn, can be used by still others. This process lies at the heart of long-term economic growth.*

This process, therefore, requires that intellectual property law and policy strike a fine balance between the rights of innovators (creators) and the right of subsequent imitators and users (disseminators) who turn those creations into new economic activity. In order to help create this balance, intellectual property law and custom have established a “public domain,” that is, a class of intellectual property to which the public has some right. The copyrights to some works may expire after a fixed time period. In addition, the purchasers of an intellectual work like a book or record are allowed to let a friend borrow it for their own enjoyment (the right of “first sale”); and regardless of copyright, some uses -- like copies for use in a school room (“fair use”) -- are often legal. This balance has been built into law to reflect two facts: first, that the incentives afforded to innovators do not have to be absolute in order to convey adequate incentives, and second, that once intellectual creations have been created, the public has a strong interest in their dissemination.

The social value of a public domain, the balance between imitators and innovators, and the historic deference given to the rights of first sale and fair use are of great importance when considering what to do about digital piracy. There can be no question that prosecuting those who break the law is both valid and important, but many anti-piracy proposals go much further than that. Many of the proposals would require consumers to add hardware or software to their computing devices that would add to cost and reduce interoperability regardless of the machine’s use. This would slow the use of digital technology and its contribution to long-term innovation. Moreover, many proposed outright prohibitions on access to digital material explicitly denies users the prerogatives they have traditionally enjoyed under the doctrines of first sale and fair

* See, CED, *How Economies Grow: The CED Perspective on Raising the Long-Term Standard of Living* (Washington, DC: May 2003) for an explanation of this relationship.

use. Thus, the risk in taking action on digital piracy is that we make choices that move the finely crafted historical balance away from the imitators and users and towards innovators. Finally, we are concerned about proposals that direct the government to anoint one particular technological solution to a social problem; this reduces incentives for future innovation and gives no one the incentive to solve the piracy “problem” at minimum social cost.

As the DCC report notes, the ultimate solutions to the problem of digital piracy are new business models. Just as player pianos and radio expanded the market for music and radio and television led to greater interest in televised and broadcast sports, there is every reason to expect that digital technology will expand the market for entertainment by reducing the cost of producing and disseminating it. Moreover, we must bear in mind that these are the issues confronting the *marketers* of digital product, who are often not the *creators* of it -- the difference between a publishing house and an author. The publishing house is a business model for distributing the author’s work -- the economy depends less on this specific manner of distribution than it does the work of authors who provide the economy with creative input.

The DCC’s recommendations are carefully considered and should be given serious consideration. The moral issues raised by widespread theft and the economic burden theft imposes on some businesses are of great concern. But they are not sufficient cause to take actions that could slow the rate of societal innovation so crucial to long-term economic growth.

On behalf of CED and its Trustees, the Research and Policy committee welcomes this contribution by the DCC to the debate.

EXECUTIVE SUMMARY

There has been an explosion in the popularity of downloading and transmitting high-value digital content, triggered by the growth of the Internet and the evolution of peer-to-peer systems. At the same time, there is a substantial disconnect between public attitudes toward copyright and the letter of the law, and growing concern among copyright-holders over the erosion of their rights. The National Academy of Sciences has identified the phenomenon at the center of these developments and labeled it the "digital dilemma": The same technologies that allow the creation and manipulation of digital content (as well as its perfect reproduction and nearly free distribution) can also be used to prevent access to digital content.

The result is a major policy debate between those who seek to protect their rights in digital content and those concerned about the public access to content that has traditionally been guaranteed under copyright law. In this emerging digital world, what, if anything, should be done to ensure that authors, artists, songwriters, and musicians have adequate incentives to create content? And what, if anything, should be done to protect the public's access rights, developed in the physical world, in order to encourage innovation and dissemination and to enhance the public domain?

This report from the Digital Connections Council (DCC) of the Committee for Economic Development presents a different view of this "digital dilemma." Because of CED's mission to foster economic growth, the DCC has focused on the economic impact of copyright protection in the digital age and the potential economic effects of proposals for change. The report briefly explores the history of copyright law, revealing that legal protection of the rights of creators has always been explicitly balanced against protection of ongoing innovation. The DCC brings the perspective of the *second* innovator -- the creator of new social value based on existing copyrighted works -- to bear, noting that every creator owes a debt to what has come before. For this reason, our intellectual property systems are based on providing incentives to both create new material and to make such material open to the public for use for subsequent creation. The report then discusses current proposals for legislative and regulatory change, focusing on

requests by the content distribution industries for technical copy protection mandates. Such mandates would have substantial effects on the information technology and consumer electronics industries in this country, on innovation, and on the economic growth that stems from the freedom to innovate.

These proposals were evaluated against the following questions:

1. How will these proposals affect innovation?
2. How will these proposals affect the growth of our high-tech economy?
3. What impact will these proposals have on the broad range of information thought of as the public domain?

The DCC found that while digitization of content is obviously changing the world's economic landscape, there have been other dramatic technological breakthroughs in the recent past that have profoundly changed relationships among producers of content, their distributors, and content users. Introduction of the phonograph, radio, television, and videocassette recorders have all led to fundamental changes in content markets. But throughout these prior changes in the world of physical distribution, copyright law maintained its basic bargain: Society should provide incentives to creators and prevent wholesale appropriation of their work, while at the same time ensuring both that subsequent creators can build upon a creator's work and that the public as a whole can have access to the creation. The DCC believes that this basic bargain should continue to inform copyright law in the digital world in order to stimulate innovation and enhance economic growth. Without this bargain in place, under-protection of works may inhibit initial creation, while over-protection may inhibit "follow-on" innovation by the millions who come after the initial creator.

Drawing on relevant economic and legal evidence, the Digital Connections Council of the Committee for Economic Development is making the following recommendations:

1. Because quick legislative or regulatory solutions for the problem of digital copyright protection pose risks to innovation and economic growth and are likely to have unintended consequences in a period of rapid technological change, we should move slowly. Our first

concern should be to "do no harm." We should dedicate the next two years to attempting to build consensus about the appropriate role in the digital age for traditional legal safety valves that balance the exclusive rights of creators in copyright regimes with users' rights. The DCC looks forward to facilitating this national and international dialogue.

2. The development and testing of new business models for the distribution of creative content should be given the highest priority by the content industries. We should not turn to law or regulation to protect any particular business model.

3. Existing solutions to the issue of unauthorized uses, such as enforcement and education, should continue to be explored.

4. We recognize the need for digital rights management (DRM) systems that will allow creators to be rewarded for their efforts. We are skeptical about government-mandated DRM, and we recommend that manufacturers not be required to build in mandated copy protection technologies. But DRM systems provide a useful "speed bump" for consumers by inhibiting unauthorized uses of materials. During this period of consensus building about "safety valves" in intellectual property law, we encourage continued experimentation in private DRM systems. In particular, the capacity of such systems to accommodate users' rights traditionally allowed under intellectual property law needs to be further explored so that the appropriate copyright balance can be maintained. If government-mandated systems are proposed, they should be evaluated on the basis of their capability to maintain such a balance and their convenience for consumers. Consumers should play a substantial role in evaluating and approving mandated technological protection systems.

5. Market-based economic tools that provide incentives for copyright-holders to facilitate follow-on innovation should be considered --- including measures to provide earlier dedication of copyrighted materials to the public domain.

I. INTRODUCTION

Changes in technology, law, and business practices have combined to create a perfect storm that is raging around our societal conceptions of intellectual property. At the heart of these changes is the shift from analog to digital forms of information. Digital information can be processed in an infinite variety of ways, copied without degradation and at almost no cost, and can, over rapidly evolving communications media such as the Internet, be distributed virtually free to anybody and everybody who is connected. Digitization plus the Internet thus enables the world at large to have access to more information than the greatest libraries in history ever possessed -- and allows anyone to be a creator and a publisher.

But the blessings of digitization can be seen as curses by copyright-owners. Digitization plus the Internet threatens to deprive creators and distributors of control over how and in what form their works are made available to the public, and of the rewards that may flow from that control.

Directly connected to digitization is the trend of replacing physical objects such as CDs, reels of film, magazines, or books with nonphysical objects – intangible aggregations of bits that replicate the information contained in the physical objects. We may have shelves full of CDs, but we may also have hard drives filled with bits that constitute copies of what are on those CDs or on CDs belonging to our friends. Yet legal rules and many business models have been developed over the years based on the production and distribution of physical objects rather than intangible goods.

Another change associated with this move from tangible to intangible goods is the move from owning physical objects to licensing intangible goods. We are accustomed to buying recordings, books, even computer software CDs that serve as tangible expressions of human creativity. But in the digital intangible world we are increasingly being told that we are not a purchaser of a creative work but a licensee of some segments of the intellectual property rights associated with that work. Unlike the far-reaching rights associated with ownership of objects, licenses generally come with a limited set of powers strictly determined by the holder of the intellectual

property rights -- and these rights are not only set out in writing in licenses, but are also, increasingly, coded in software envelopes surrounding the content.

We are moving from an analog world that allows resale of objects, once these objects have been distributed (so-called "first sale" rights), to a digital world that has the potential, through use of technology, to set strict limits on what can be done with content that has been made publicly available. Where the analog world default rule was "everything not prohibited is permitted" (as a matter of reality, if not law), proposed architectures of technical control in the digital world allow the operation of a very different default rule: "everything not permitted by the copyright-holder is prohibited."

Digitization offers the possibility, at least in the short term, of the most finely grained control over information that can be imagined. This has created what the National Academy of Sciences has labeled the "digital dilemma." As the Academy put it, digital technology has the "potential to demolish a careful balancing of public good and private interest that has emerged from the evolution of U.S. intellectual property law over the past 200 years." Technology, in short, has the potential to trump law.

In this new world, the nightmares of both copyright-owners and of consumers are vivid: Copyright-owners see Napster-like technologies and the Internet destroying their control and assert that rampant piracy is ruining them; consumers see proposals for locking down information and worry about a world in which all information is pay-per-view.

The Digital Connections Council (DCC) of the Committee for Economic Development believes that informed debate is critical to the development of a balanced, coherent, and enlightened intellectual property framework that can survive the digital dilemma. The DCC is not made up of lawyers schooled in the fine points of intellectual property law jurisprudence. Nor is the DCC made up of representatives of any particular industry segment, but has representatives from many different industries. The DCC consists of information technology specialists committed to the development of policies that will enable our nation -- and the world -- to obtain the benefits of economic growth and to harness the potential of digitization for the good of society as a whole.

The DCC began its examination of the "digital dilemma" with the goal of determining what intellectual property policies are most likely to stimulate the innovation critical to economic growth. As Chairman Greenspan recently asked,

If our objective is to maximize economic growth, are we striking the right balance in our protection of intellectual property rights? Are the protections sufficiently broad to encourage innovation but not so broad as to shut down follow-on innovation? Are such protections so vague that they produce uncertainties that raise risk premiums and the cost of capital? How appropriate is our current system--developed for a world in which physical assets predominated--for an economy in which value increasingly is embodied in ideas rather than tangible capital?¹

The DCC started its work by reviewing the economic underpinnings of copyright law. It traced the evolution of copyright law from its constitutional foundation to the present. Following the movement from "atoms" to "bits," from analog to digital information, and from tangible to intangible goods, the DCC saw profound impacts on both copyright-holders and users of information. It reviewed legislative, regulatory, and technical proposals put forth by copyright-holders to solve the problems caused by the perfect storm, and attempted to understand and evaluate these proposals based on the economic growth-oriented mission of the Committee for Economic Development. Given this unique perspective, the DCC sought answers to three questions:

1. How will these proposals affect innovation?
2. How will these proposals affect the growth of our high-tech economy?
3. What impact will these proposals have on the broad range of information thought of as the public domain?

This report contains the Council's findings.

II. COPYRIGHT AND THE ECONOMICS OF INNOVATION

Copyright provides a creator with a monopoly over the distribution and sale of a work for a limited time. Like any monopoly, it imposes costs on society. But our laws allow the copyright monopoly to exist because it "provides a benefit to society by providing an incentive for the

production of new creative works," which often require substantial investment in order to come into being.² As a distinguished group of economists recently told the Supreme Court:

To produce a new book, film, or other creative work, an author must make a substantial up-front investment. For the resulting work to be profitable overall, the author must recoup her initial investment through sale of the work to consumers. For products generally, the second competitor who wishes to bring the same product to market must incur the same kinds of costs as the original entrant in order to participate in the market. Books, films, and other creative works are different: without legal protection, an author cannot prevent others from appropriating the fruits of the original investment. Here, a second competitor can quickly enter the market by simply copying the work and offering it for sale, without incurring similar development costs. Without the ability to exclude, entry may be quick and easy...and non-recovery of initial investment by the author is very likely.³

Thus, the incentives provided by copyright protection are designed to encourage innovation by creators. A system that eliminated incentives for creators, by allowing their works to be easily appropriated by others without recompense, would likely lead to a decline in innovation.

But copyright law also takes into account the needs of users and subsequent innovators who benefit from access to the creator's work. The importance of sharing acts of creation to achieving the goals of intellectual property law can be seen by asking a simple question: If an intellectual property regime successfully encouraged vast amounts of creative production but none of this production was shared beyond the creator, would the regime be considered successful? Obviously, the answer would be "No."

Intellectual property law provides a way of allocating the costs associated with creative activity to either the first innovator or to subsequent (or "follow-on") innovators. Many recent calls for changes in copyright law have focused on a perceived need for greater control by, and incentives for, the first creator. But progress in both science and art is incremental and, ultimately, cumulative. As Sir Isaac Newton wrote, "If I have seen far it is by standing on the shoulders of giants." In a different time, the band U2 echoed Newton: "Every artist is a cannibal and every poet is a thief."

The rights of, and the costs to, both the first and subsequent innovators represent an inherent tradeoff.* The structure of intellectual property law will affect the costs of innovation borne by either the first innovator (the creator) or the second innovator (the individual who benefits from the first work in creating something new for the world). It is impossible to maximize the incentives for both innovators concurrently. For example, if we decided to raise the costs of the second innovator, we could extend all copyrights and devote substantial resources to enforcing them. The likely result would be to raise the cost of producing new works by follow-on innovators and to reduce the number of such creations.⁴ On the other hand, if the costs are raised for the first innovator, by making copyrights and patents very limited in scope and duration, it is likely that the number of new works by this group will be reduced. The question that we confront is: Which allocation of costs will create the greatest societal benefit?

In weighing this question we must also decide how much control over subsequent creations we give to the first creator. If we believe that the first innovator has unrivalled knowledge of the innovation, we might be persuaded that he or she is uniquely able to provide subsequent innovation from that foundation. This would justify providing the first innovator with unlimited control over the innovation. But there is only one first innovator/creator, and innumerable potential second innovators. It seems likely that among the many millions of potential follow-on innovators, at least one is likely to be able to better build on the first innovator's work. Why would this one area of human activity be exempt from our view that competitive sources of supply -- here, the supply of subsequent innovation -- are preferable to monopolies? Think of the wheel and the millions of inventions dependent on it -- it would have made no sense to have allowed the first creator of the wheel to control all derivative uses of his or her invention.

Copyright law balances protection of initial creators with the importance of the competitive supply of follow-on innovation, and is (or should be) cautious about providing control to the initial innovator that would allow barring of subsequent innovators or control over the scope and direction of their innovation. Such caution is important in the digital world, in which "improvements in the technology of search and recombination continue to expand the economic

* See Suzanne Scotchmer, "Standing on the Shoulders of Giants: Cumulative Research and the Patent Law," 5 *J. Economic Perspectives* 29 (1991); See also Suzanne Scotchmer and Jerry Green, "Novelty and Disclosure in Patent Law," 21 *Rand J. Econ.* 131 (1990).

importance of new creation built upon old materials."⁵ DCC believes that for innovation to continue as the engine for economic growth, the past cannot be allowed to totally control the future. The current public debate about copyright policy for the digital age needs to continue to provide sufficient weight to the importance of follow-on innovators -- because every first creator "stands on the shoulders of giants."

Ultimately, the balance to be struck is a product of a societal decision. Even first creators cannot succeed in the absence of the rule of law. In return for the incentives that the law provides, first creators have some obligation to the society that enforces the rule of law. Making first creators share their works is the obligation that our society requires; this obligation supports society as a whole.

III. THE DEVELOPMENT OF COPYRIGHT

If the goal is to find an appropriate, balanced approach to copyright that recognizes the interests of both creators and follow-on innovators (and other users) in a world where perfect copies can be freely distributed, it is useful to look at why copyright arose in the first place. The first phase of the copyright story covers the development of early non-U.S. copyright statutes and U.S. Constitutional approaches to copyright.

A. ORIGINS OF COPYRIGHT

Copyright began in England as a method to obtain control over seditious publications. Before the development of the printing press, the Crown maintained control over publication of ideas it did not like by punishing authors directly and confiscating particularly heretical works. But when the printing press arrived, it became clear that trying to control copies of works once they were in general circulation was very difficult -- and was less effective than exerting control over the presses themselves. For this reason, early royal declarations required printers to print their

names, cities, and date of publication on each work to make it easier for the monarchy to locate the press responsible for a particular work.*

LANDMARKS IN COPYRIGHT LAW

- 1709** The Statute of Anne is passed by the British Parliament to prevent monopolies in the printing trade and encourage the production and distribution of written works.
- 1787** Article I, Section 8, Clause 8, of the U.S. Constitution states that “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.”
- 1790** The Copyright Act of 1790 is implemented by the First Congress, which granted American authors monopoly rights over their work for a period of fourteen years, with a possible renewal of another fourteen years. The term of copyright protection would later be extended to twenty-eight years in 1831.
- 1909** The U.S. Copyright Act is revised to expand copyright protection to all works of authorship, including music.
- 1976** The U.S. Copyright Act is revised again. The term of protection is extended to the life of the author plus 50 to 75 years. More importantly, the “first sale” and “fair use” doctrines are codified. The first sale exception, in Section 109(a), limits the distributional rights of the copyright holder to the first sale of each copy. The fair use affirmative defense to infringement, found in Section 107, states that “the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright.”

The Crown gave the group of printers known as the Stationers Company the exclusive right to own a printing press and printing tools, as well as the exclusive right to practice the "mystery or art" of printing. Interestingly, it also gave the Stationers Company the right to enforce its monopoly by burning the books and presses of its competition and imprisoning anyone owning a press or found engaged in printing.

The Stationers quickly agreed not to compete with one another and established a registration scheme for authorized copies. The rights of publishers remained perpetual under the Stationers' rules. This was monopolistic behavior, but it was encouraged by the government in order to

* See generally, Irah Donner, “The Copyright Clause of the U.S. Constitution: Why Did the Framers Include It With Unanimous Approval?” 36 *Am. J. Legal History* 361, 366-369 (1992); Paul Edward Geller, “Copyright History and the Future: What's Culture Got To Do With It?” 47 *J. Copyright Soc. of Am.* 209, 216-218 (2000).

enable control of the press. Thus, as of the 1660s in England, all printed materials needed to be licensed by Parliament and published by a member of the Stationers Company. Every item printed needed to have a title page giving the author, publisher, and place of publication.

But when censorship laws expired in 1694, the copyright monopoly ended as well. The old monopolists suffered a great deal, and finally managed in 1709 to get a version of the previous system back into law.* This act, the Copyright Act of 1709 (also known as the Statute of Queen Anne) was "An Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned." It was intended to prevent future monopolies of the printing trade, by allowing anyone to print books, and was aimed at encouraging production and distribution of new works:

Whereas printers, booksellers, and other persons have of late frequently taken the liberty of printing, reprinting, and publishing, or causing to be printed, reprinted, and published, books and other writings, without the consent of the authors or proprietors of such books and writings, to their very great detriment, and too often to the ruin of them and their families: for preventing therefore such practices for the future, and for the encouragement of learned men to compose and write useful books. . . .

The Statute of Anne represented a change -- instead of the goal being censorship, the goal was now to provide a framework that would allow the printing industry as a whole to do well. And the crown and legislature wanted the printing industry to do well in order to promote the free expression of ideas, not because they were delighted with the monopoly of printers. The Statute of Anne recognized that it took a good deal of money for printers to buy equipment and set up to print, and there needed to be incentives to make printers willing to do so. Without protection of the copyright, the printer would be foolish to invest the money to print new works that could then be quickly undersold. Thus, this Act was designed to protect an overall societal interest in the creation of new works, and to gradually eliminate the Stationers' monopoly on the right to print.†

* See, Tyler Ochoa and Mark Rose, "The Anti-Monopoly Origins of the Patent and Copyright Clause," 84 J. Patent and Trademark Office Society 909, 914-918 (2002).

† See generally, Association of Research Libraries, (November 2002), *Timeline: A History of Copyright in the United States*, available at <<http://arl.cni.org/info/frn/copy/timeline.html>>

To this end, the Statute of Queen Anne granted a 21-year extension of the existing copyright monopoly of the Stationers Company.⁶ By limiting the time of the copyright monopoly, the Act created a "public domain" for works whose copyright had expired.

B. THE RELUCTANT CONSTITUTIONAL GRANT OF A MONOPOLY

The framers of the United States Constitution, suspicious of all monopolies to begin with, knew the history of copyright as a tool of censorship and press control. They wanted to make sure that copyright was not used for these purposes in the United States. Article I, Section 8 of the Constitution is now known as the "Intellectual Property" or "Copyright Clause" and states:

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.

Limited rights are explicitly made available in the Constitution only to "authors," and the purpose of such rights is to promote the progress of the arts and sciences. This requires that works be accessible to the public after the "limited" time has passed -- when they enter the public domain. The Framers believed that a copyright monopoly was worthwhile only if it encouraged the creation of work that would eventually fall into the public domain to be shared by others.

Thomas Jefferson (who was against all monopolies, including copyright) and James Madison (who noted the benefits of a copyright monopoly in encouraging the development of new works) engaged in an extensive debate as to whether or not the Constitution should include a provision that would allow Congress to grant a "monopoly" power.* But even Madison clearly understood copyright as a monopoly granted only for a limited term to promote the arts and sciences.⁷ Thus, the Constitution adopted the traditional English idea of copyright as trade regulation to limit both the existence of monopoly and censorship powers of the publishing industry and the time-duration of this monopoly, thereby creating a "public domain."

* See, Tyler Ochoa and Mark Rose, "The Anti-Monopoly Origins of the Patent and Copyright Clause," 84 J. PTOS 909, 925-927 (2002).

Over time in the U.S., copyright protection has been extended to more types of works (including maps, charts, music, prints, broadcasts, motion pictures, and software programs) and the length of protection has been steadily extended (from an initial, renewable term of 14 years to the current term of life plus 70 years). U.S. acts uniformly talk about the protection as being primarily for the benefit of the author -- invoking the romantic vision of lonely creators in garrets -- and only benefiting the publisher as an assignee, but in reality the laws have clearly worked to benefit publishers, who in most cases, hold the copyright.* Under U.S. law, corporate entities ("legal persons") can have the same rights as human beings and can claim copyright in their own right.

C. COPYRIGHT TODAY

In a nutshell, U.S. copyright law provides authors of original works with a bundle of five exclusive rights: (1) to reproduce the work in copies, (2) to make derivative works, such as translations, (3) to distribute copies to the public, (4) to perform the work publicly, and (5) to display the work publicly. (Of course, no copyright exists in government works, or in facts or data or ideas -- only in the "expression" of facts or ideas.) These rights are provided for a limited period of time, and are subject to a complicated series of limitations and exceptions.

The "author's" rights of exclusivity (which enable the author to charge for his/her/its work) are balanced by "user" rights to make private uses of already-distributed content. For example, the so-called "first sale" doctrine embodied in Section 109(a) of the Copyright Act of 1976 provides that the copyright owner's right to control distribution of copies only extends to the "first sale." In other words, the Copyright Act grants to authors the exclusive right to distribute copies of their work, but limits that right by distinguishing between ownership of a copyright (the bundle of exclusive rights) and ownership of a copy (the tangible material in which a work is fixed), and by extinguishing the copyright owner's distribution right after the first sale of each copy. This "first sale" doctrine is the basis for standard practices such as used book markets, the local video

* The MPAA has echoed this traditional sentiment by calling its educational game about copyright law (designed for schoolchildren) "Starving Artist." Laura Holson, "Studios Moving to Block Piracy of Films Online," *The New York Times*, September 25, 2003.

store, and even exchanges of copyrighted works between friends and family.* This first sale doctrine has allowed the creation of libraries that provide access to copyrighted works to people who might not otherwise have such access. A library can buy a single copy of a work and then loan it to dozens or hundreds of people, one at a time,[†] and, because of the first sale doctrine, such loans are not considered infringements of copyright. Although these loans might be seen as making it impossible for the publisher to make additional sales, as all potential purchasers are potential library patrons, we know that the creation of libraries did not kill the publishing industry in this country. Both authors and publishers have benefited from the broadly educated public that libraries encourage.

A second important exception to the exclusive rights of authors, the "fair use" exception, allows a broad range of unregulated private uses of content, and, in legal terms, provides an affirmative defense to charges of infringement. Codified at 17 U.S.C. Section 107, the defense provides: "[T]he fair use of a copyrighted work, including such use by reproduction in copies . . . , for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright." Courts weigh four broad non-exclusive factors in deciding whether a particular infringement was "fair" or not: the purpose and nature of the use, the nature of the copyrighted work, the amount and substantiality of use, and the impact on the market for the copyrighted work. "Fair use" depends on context and, under present law, requires an after-the-fact review of the circumstances. It does not lend itself to clear and precise rules; for example, it is not clear whether sending an entire copy of a film or song to a friend over the Internet is a fair use or not. The fair use defense allows the public to use not only facts and ideas contained in a copyrighted work, but also expression itself in certain circumstances, and affords considerable latitude for scholarship and comment, even for parody.

* Commercial rental of software and phonorecords is prohibited under U.S. law because of the threat posed to these industries by modern duplication technologies.

[†] Indeed, according to the American Library Association, "America's libraries have long been among the nation's largest volume-purchasers of copyrighted works. According to surveys published in 1998 by the National Center for Education Statistics (U.S. Department of Education), the 8,891 U.S. public library systems alone spent \$789 million on library materials, including electronic formats, in 1995. The 3,303 U.S. academic libraries spent \$1.3 billion on information resources in all formats in 1994. These libraries now spend well over \$2 billion." Comments of the Library Association before The Library of Congress, The United States Copyright Office and The Department of Commerce, National Telecommunications and Information Administration, Inquiry Regarding Sections 109 and 117, Docket No. 000522150-0150-01, August 4, 2000.

D. THE IMPORTANCE OF THE PUBLIC DOMAIN

The public domain is commonly understood to be the sphere in which contents are free from intellectual property rights (Fair uses of content -- like the noncommercial private copying allowed in the Sony case discussed in the next section of this report -- are outside the public domain in theory, but have a similar impact in practice: providing public access to information.)^{*} Overall, the digitization of content has had a positive impact on the size, effectiveness, and very existence of the public domain. For example, scientific data in digital form is much easier to share, combine, and use than paper-based information. And once such data is digital it can be shared globally via the Internet and used as the basis for further experiments and developments that the utility of the public domain.

Such openness can have direct human benefits. As Paul Uhler, director of International Scientific & Technical Information Programs at the National Academy of Sciences has said: “ ‘There's a general presupposition that public science requires openness. Ultimately you need access to the underlying fact and the sources for research in order to verify the research finding that are published and to do further work -- science builds on science. If you don't have that kind of transparency and access to that information the system breaks down...’ Scientists used open databases and a collaborative model to combat SARS, and "the lesson of SARS is that global security depends on allowing scientists to benefit from a free flow of ideas and from the easy cooperation of experts from home and abroad.”⁸

Access to information is also essential to the functioning of a democracy. Information is the necessary ingredient for the "uninhibited, robust, and wide-open" debate that underlies the First

^{*} See, Pamela Samuelson, “Digital Information, Networks, and The Public Domain,” *68 J.L. & Contemporary Probs*, (2002) p. 82-83: "Across the border from the public domain are several categories of content that are widely enough usable that, for practical purposes, they seem to be part of the public domain. This includes, importantly, much content that is protected by intellectual property law but is widely available to the public, as when it is posted on publicly accessible websites available to all comers without fee or apparent restrictions on use. Also outside the public domain in theory, but seemingly inside in effect, are such things as open source software; a penumbra of privileged uses under fair use, experimental use, and other rules that permit unlicensed uses and sharing of information to take place; and standards that are licensed without payment of royalties." (Internal citations omitted from quote.)

Amendment's guarantees.⁹ Without access to information, it is impossible to imagine widespread public participation in democratic processes. "[A] democracy that involves wisely and collectively formulating attitudes, values, and conceptions of a common good -- as republicans believe -- or conceptions of a subgroup identity -- as complex democrats maintain -- calls for a broader range of information."¹⁰

The public domain is importantly one of several "safety valves" that avoid conflict between the First Amendment and copyright law:

Any law -- copyright included -- that is implemented by telling anyone that there are some words or images that they may not print, publish, or display publicly raises a First Amendment question. When that law is copyright law, the prohibition is normally permitted, and conflict with the First Amendment is generally avoided by safety valves internal to copyright law--like the idea/expression dichotomy, the fair use doctrine, or copyright law's placement of some materials in the public domain. . . . But if Congress passes a statute that undermines those safety valves -- say, by eliminating fair use altogether or by passing a hypothetical law excluding fair use of works authored by Republican Senators -- of course that statute would be subject to First Amendment review, and would almost certainly fail.¹¹

In the recent *Eldred v. Ashcroft* decision, the Supreme Court recognized that copyrights were not necessarily "categorically immune from challenges under the First Amendment," but held that as long as Congress did not "alter[] the traditional contours of copyright protection, further First Amendment scrutiny is unnecessary."^{*} Thus, any Congressional action that has the effect of substantially narrowing the public domain and/or eliminating fair use might be subject to First Amendment scrutiny.

A key value of the public domain is that it puts ideas into circulation by providing access to these thoughts to a wide variety of people. The public domain is a modern invention, but it continues to enhance the movement begun as we changed from an artisan culture (in which people deeply understood particular processes but were unable to share these insights beyond their locality) to the age of Enlightenment and scientific understanding-- when broad sharing of local and

^{*} *Eldred v. Ashcroft* opinion. Justice Ginsburg, writing for the majority of the Court, noted that the copyright clause and the First Amendment "were adopted close in time. This proximity indicated that, in the framers' view, copyright's limited monopolies are compatible with free speech principles."

particularized insight allowed individuals to build generalized theories that could be tested scientifically.

In the U.S., there was a longtime presumption that published works were in the public domain unless copyright was explicitly claimed. The reverse presumption operates today, because no formalities are needed in order to claim copyright -- copyright protection is automatic, and you do not have to write "Copyright 2003" on your work in order to claim rights in it. But it remains the case that ideas, methods, scientific principles, and facts cannot be protected by copyright, and thus are dedicated to the public domain upon their publication. Arguably, the Internet enables innumerable forms of publication, and allows the public domain to be more robust and vital than ever before. If access to facts and ideas (the unprotected underpinnings of copyrighted works) is denied, the scope of the available public domain is inevitably narrowed.

President George Washington said in his message to Congress leading to enactment of the 1790 Copyright Act: "Knowledge is, in every country, the surest basis of public happiness." Ever since the founding of this nation, knowledge -- its creation and diffusion -- has been recognized as essential to the public good. For this reason, the copyright statutes in this country are aimed not only at encouraging creation but also at minimizing monopolies, fostering learning, and increasing the knowledge of the people by increasing their access to the information.

IV. COPYRIGHT BACKGROUND: SECOND PHASE

The first copyright laws came into being as a reaction to the invention of the printing press, and the interaction between copyright law and new technology has continued to be a source of friction and interest. New technologies historically have challenged our system of protecting creative works through copyright. Each new technology potentially requires a balance between providing the broader public with access to information and creative works so that they can build on what has gone before, on the one hand, and supporting the incentives for creation provided by granting limited monopoly rights to creators, on the other.

A. HOW DOES COPYRIGHT INTERACT WITH NEW TECHNOLOGIES?

The copyright/technology issue did not first arise in reaction to Napster. While today's perfect storm appears uniquely challenging to the existing intellectual property legal regime, it is not the first time that technological change has been seen as profoundly threatening. In 1906, John Philip Sousa publicly bemoaned the future of American music in words that still sound current: "I foresee a marked deterioration in American music and musical taste, an interruption in the musical development of the country, and a host of other injuries to music in its artistic manifestation, by virtue -- or rather, by vice -- of the multiplication of the various music reproducing machines." (According to Sousa, these machines would not only cause American music to suffer, but would also cause a mother to "cease to croon her baby to sleep with sweet lullabys (sic)," He feared that bands would be "doomed to vanish," singing around the campfire would end, and "never again will the soldier hear the defiant call of the bugle.")¹² The machines that Sousa was referring to were the player piano and newly emerging phonographic media.

Sousa was worried not only about damage to American music, but also about damage to his business model. As a rule, Sousa kept all rights to his music. He was compensated, in part, through royalties based on the sale of sheet music. Yet the makers of piano rolls or phonographic discs needed to buy only one copy of a Sousa march, paying negligible royalties, in order to pattern ("burn," in our lexicon) a piano roll or disk. They could then copy the pattern endlessly and sell directly to consumers who previously might have purchased sheet music.¹³ Sousa lost his legal battle in the Supreme Court in 1908, but the Copyright Act of 1909 provided that the makers of piano rolls and phonographic disks had to pay two cents to the copyright-holder for every piano roll or phonograph disk produced. The 1909 Act, in effect, recognized the need to allow copyright-holders to be rewarded for use of their work -- and led to the creation of institutions like ASCAP to collect royalties on behalf of authors.

* See also, Oliver Read and Walter L. Welch, *From Tin Foil to Stereo: Evolution of the Phonograph* 175 (Howard W. Sams, 1959). In a strange echo of Sousa's comment, in 1996 ASCAP informed summer camps nationwide that they had to pay license fees to use any of the four million copyrighted songs written or published by ASCAP members. After a (predictable) public relations disaster, ASCAP retreated. James V. DeLong, "ASCAP v. *Girl Scouts*: The Best Things in Life Aren't Free, or, Why You Might Be Better Off If You Wind Up Paying for Those Campfire Singalongs," *National Law Journal*, March 10, 1997.

This pattern has been repeated time and time again. Radio broadcasting carried with it the risk of local musical performances being superseded by national broadcasts produced by a much more limited number of bands. Other live local events, like athletic contests, were perceived to be at risk of disappearing because potential attendees would stay in their living rooms, cocooned in front of the radio console.

THE STORY OF THE "DONGLE"

Many mid-1980s software programs (such as Lotus 1-2-3 and Symphony) were protected from unauthorized use by a disk system. In order to run the program, a "key disk" had to be placed in the user's floppy disk drive. The idea was that key disks would not be (or could not be) duplicated by users, and so it would be impossible to use the software on more than one machine. Before long, however, software that unlocked these key disks was widely available. Most of the large software publishers stopped using the key disk.

A more secure system for early software protection involved the use of "dongles" -- devices that attach to a computer's ports. These devices were expensive to manufacture and maintain, and caused problems for users (imagine running several programs at once, each requiring its own dongle). As with key disks, dongles could be spoofed or copied. For its time, the dongle was the most sophisticated device around for protecting against software piracy. But the software industry wound up abandoning dongles because the companies that made products without dongles could charge more and still sell more copies.

The dongle story reminds us how difficult it is to copy-protect content in a way that will not degrade performance or otherwise defy end-user expectations. Software users may have expected that they would be able to use software that they had paid for on different machines throughout their homes or offices, but the dongle made such use difficult.

The dongle story provides another useful economic lesson. Consumers will pay more for a product that provides them more capabilities or more "user" rights. And more attractive products, those that provide more rights or capabilities, will triumph in the marketplace, in the absence of a legal regime that prevents them from being offered.

But new business arrangements evolved. At first, bands played on the air for free in order to gain exposure for their live performances. Then, seeing that radio stations were profiting, in part, from the fruits of their labor, they fought to be paid both directly and through royalties based on the radio airing of their recorded work. Live broadcasts from opera houses, concert halls, baseball stadiums, and dance palaces were, in and of themselves, advertisements for the venues, a means of increasing the fan base, and a mechanism for stimulating sales of associated products such as clothing and fan magazines.

The history of computer software protection provides a more recent example of interaction between copyright and new technology in this second phase. In the 1980s, the software industry used hardware locks, such as key disks and dongles, to prevent unauthorized duplication of their product. But these anti-piracy schemes lacked the flexibility, ease of use, and inexpensive distribution that would make them attractive to manufacturers and end users, particularly in a networked environment. Essentially, dongles and other first-generation physical DRM efforts often made computers crash -- and did not actually stop copying.*

Now, software is often distributed and licensed to the end user online. Many software publishers rely on their license agreements for legal protection of their copyrights in order to take advantage of the new opportunities for cheap, flexible and direct software distribution. The business software industry, for example, has assumed some level of unauthorized copying (at times, as much as 40%) and has moved forward, working against unauthorized copying and, in particular, mass commercial unauthorized physical duplication of their works offshore through education and enforcement efforts by its trade associations.† But they have also changed their business model to compensate for revenue lost from unauthorized copying. The industry now collects a major part of its revenues from the sale of basic products that are made easily transferable to other devices. This transferability is important to software customers. In addition, the industry relies on follow-on revenues for value-added services, particularly upgrades and support that users need. The business model that the software industry subsequently developed demonstrates the utility of making available relatively lower-cost products to establish a presence in the

* Direct impacts of DRM, like dongles, can include difficulty in simply using the product, and expense passed on to the consumer; indirect impacts can include hard-to-quantify public relations negatives, such as engendering suspicion or otherwise alienating potential customers. See, Section VI(D)(1)(e) *infra*. Intuit's product activation software for TurboTax, discontinued by Intuit in May 2003 in response to a backlash from its customers, is the modern software equivalent of the dongle. See, Mark Hachman, "Intuit Will Discontinue Product Activation," *ExtremeTech*, May 14, 2003, available at <<http://www.extremetech.com/article2/0,3973,1088341,00.asp>>

† In a June 2002 report, the Business Software Alliance estimated that the worldwide rate of software piracy in 2001 was approximately 40%. BSA Global Piracy Study, available at <<http://www.bsa.org/usa/policyres/admin/2002-06-10.130.pdf>> The Business Software Alliance has focused on offshore, largescale, commercial copying as "piracy" that it addresses aggressively; it distinguishes between this mass physical copying of unlicensed business application software and personal, noncommercial copying. Interestingly, the Motion Picture Association of America, in its Anti-Piracy materials, makes clear that mass physical copying is a major problem for the industry -- particularly of optical discs, which are easy to copy: "Optical Disc Piracy is major threat to the audiovisual sector. Pirate optical discs, which include Laser Discs (LD), Video Compact Discs (VCD) and Digital Versatile Discs (DVD), are inexpensive to manufacture and easy to distribute. In 2000, over 20 million pirate optical discs were seized, and by comparison, 4.5 million videos were seized worldwide in the same period." Motion Picture Association of America, Anti-Piracy, available at <<http://www.mpa.org/anti-piracy>>.

marketplace (and to compete with free unauthorized copies) in order to lay the foundation for associated revenues from value-added services.

THE STORY OF THE VCR

Today's VCR began as a bulky and expensive analog recording device the development of which, by legend, was partly funded by Bing Crosby -- who wanted a high quality recorder to tape his performances so that he would not be held captive to live broadcast schedules.^(a) Eventually, as with so many other technologies, it became smaller and cheaper and successfully entered the consumer market. As this occurred, Motion Picture Association of America (MPAA) president Jack Valenti told the House Judiciary committee that "the growing and dangerous intrusion of this new technology" threatened his entire industry's "economic vitality and future security."

The MPAA and its member companies were worried enough to use litigation to attempt to shut down the VCR industry. In the 1970s, Universal City Studios and Disney sued Sony for contributory copyright infringement for making (and selling) Betamax VCRs. The studios argued that Sony's machines materially contributed to unauthorized copying of protected works -- in this case, television programs. They maintained that such copying was not "fair use" because it was "nontransformative" -- no new works were being created by users, who were merely copying the works wholesale for their own purposes. The studios also pointed out that the entire work was copied by the user. (The amount of the work copied is a key factor in fair use analysis.) Because Sony knew or should have known that these private infringements were taking place, it was (so the studios said) a contributory infringer. In 1984, the Supreme Court heard the case and ruled that Sony's actions did not constitute contributory infringement because the VCRs were capable of substantial non-infringing uses. More importantly for purposes of this report, however, the Court found that it was "fair use" for users to make private, noncommercial copies for time-shifting purposes.

The Sony decision has created a powerful presumption that private noncommercial copying of content is fair. Beyond its legal implications, the Sony decision, and the experience of users with copy-protected software (and, indeed, software in general) has created a consumer expectation that noncommercial copying for backup purposes, or to time-shift or space-shift (to use at a different time or in a different device), is acceptable.

The VCR story illustrates how consumer expectations about a technology develop. Most consumers now expect that they can make a personal copy of software in order to have a backup or for time- or space-shifting purposes. Polls show that many people do not consider such copying wrong or believe that personal copying (as opposed to commercial copying) has a real impact on copyright owners.

(a.) Investing Opportunities in Digital Media, Raymond James & Associates, February 10, 2002, at 3.

A lesson that might be drawn from these stories is the importance of flexibility when the Schumpeterian "winds of creative destruction" blow. New business arrangements have consistently emerged in response to new technologies. Over the long term, the creators of

advances in science and the arts have profited from advances in new production and distribution technologies. And attempts to protect existing production and distribution arrangements by law have failed.

B. THE STRENGTH OF FINANCIAL INCENTIVES

During the first and second phases of the copyright story, the debate about intellectual property policy was couched in terms of incentives for those who create new works -- authors, songwriters, artists, and performers. Yet because the distributors of these works collect steep rents (in economic terms) from creators in exchange for distributing these works, and because it is so difficult for a creator to be "heard" without the aid of a largescale distributor, most creators receive only a small percentage of the funds that their works generate. Only a tiny percentage of creators achieve the great financial rewards that we assume accompany celebrity.

For example, bands that record a CD for a major label are unlikely to receive substantial rewards, even for CDs that sell well. Their financial incentives to record more music (based on royalty income) are likely to be attenuated, but having a recording marketed by a major label recording may be important for developing a fan base and building a performance career. Few bands, in fact, can earn a livelihood based on sales of recordings of their performances through the present distribution system.

Royalties paid to the band by its label, the source of direct income from the sale of CDs, are based on retail (or wholesale) sales, ranging from approximately 9-22% of retail sales (more often 13-18%).* (They also depend on the status and bargaining power of the group -- whether they are new, fairly established, or highly successful).¹⁴ These rates may be increased over the course of the band's career if its contract is renewed and may be reduced over the life of a CD as it goes from initial release ("front list") to back list with a reduced price.¹⁵ These royalty percentages, by themselves, would make royalties among the most significant costs in the production and sale of a CD, and potentially create a substantial flow of funds to the most successful artists. But that turns out not to be the case.

* See, Merrill Lynch, Global Securities Research and Economics Group, Global Fundamental Equity Research Department, "Music Industry: Can Majors Control Online Growth?" (November 2001) p.96, available at < http://www.stern.nyu.edu/mgt/courses/b2101/lamb/download/music_industry_merril_lynch.pdf>

Many artists receive an advance from the label upon signing a recording contract. These advances, in theory, are to be recouped by the label from the flow of funds generated for the artist's royalties. If, for example, a band were given a \$1 million advance, the first million of royalties due to the artist would be recouped by the label. And, if the band does not generate \$1 million in royalties, standard contracts do not permit the company to get back the balance of the advance (known as the "artist's deficit"). So the record company bears the risk of not earning back the advance -- a considerable risk because, according to the industry, only three out of ten CDs are actually successful and only one out of ten makes a significant profit.*

But the story does not end with the band receiving its \$1 million advance and the label recouping the royalties. Royalties are not the only costs that the recording company can recoup. Charged against the advance are costs of recording, including equipment rental and travel, a substantial percentage (often 25%) of the cost of producing videos used in marketing the CD, other promotional expenses paid on behalf of the artist, and expenses associated with touring to market the work.¹⁶

In an examination of the flow of funds in a relatively large CD sale, Merrill Lynch estimated that if a company sold 500,000 copies of a CD at approximately \$16 per copy (retail), actual royalties paid to the artist over his advance would amount to approximately \$88,000 out of gross revenues of \$8,000,000.¹⁷ This income might be supplemented by additional royalties if the band wrote the songs and kept the copyrights, or from royalties paid from broadcast performances of the music or its inclusion in other media -- but it would also have to cover the costs for the band's management, legal fees, and other costs. Based on the numbers, it is difficult to argue that the artists' principal incentive to create is the financial return from recordings.[†] The distributors, as opposed to the artists, are commonly the main direct beneficiaries of these particular copyright protections.

* Raymond James Report. The recording company may provide that any artist's deficit be recouped from royalties from any subsequent CD released under the contract.

[†] In 2002, on average, the top ten rock groups (Paul McCartney, the Rolling Stones, etc.) received only 17% of their income from recording, and 66% of their income from touring. Richard E. Howard, *ATT*.

FIGURE 1: CD Cost Breakdown (Retail Price)

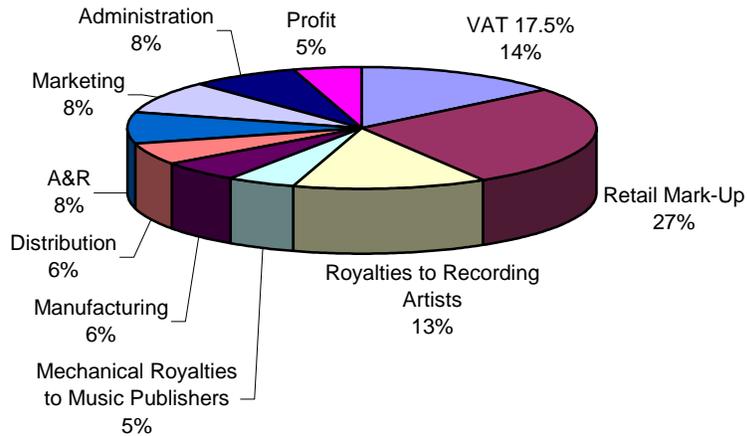
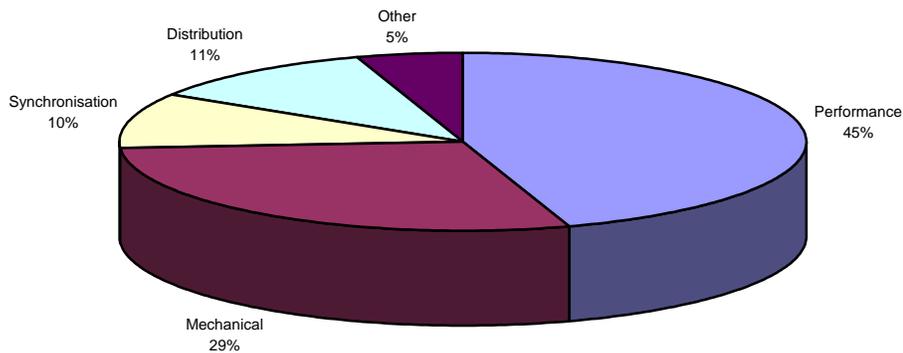


FIGURE 2: Music Publishing Revenue by Type 1999 (%)



V. COPYRIGHT BACKGROUND: THIRD PHASE

With the VCR and dongle era behind us, we are entering a third phase of the copyright story. This phase is characterized by the rise of electronic networks, the digitization of content, and the

prevalence of licensing models (as compared to ownership of creative objects) for the distribution of digital goods. Digitization plus compression plus high bandwidth equals, in the eyes of investors in expensive proprietary content (normally those who distribute rather than create such content), a nightmare scenario: simply making available a work in digital form may guarantee that someone can make a copy of it and give it to a friend or share it with 200,000,000 buddies they have never met.

At the same time, user expectations about what was reasonable under intellectual property law evolved during the second phase. Millions of people now are used to time-shifting and space-shifting: taping shows or burning CDs so that they can take their music with them and play it on whatever playback unit is available. These second-phase user expectations have survived the introduction of third-phase technologies, and copyright owners are justifiably worried.

A. THE CHALLENGE OF THE THIRD PHASE

In an era of physical distribution of content "objects" (such as books, movies, and music saved on physical media), creators (or other rights-holders) could divide the bundle of intellectual property rights both geographically and temporally with some assurance that the divisions would be meaningful. Thus, the release of a book in Germany would not necessarily dictate that copies would "leak" into the U.S. in great numbers. The physical difficulty and cost involved in copying, crating, and shipping books militated against easy or widespread piracy. And the economic costs of the leakage were sufficiently limited that distributors did not feel directly threatened.

Now, in the digital era, the friction and cost that were involved in copying physical content-goods no longer are limiting factors. All a person has to do now is save a file to a publicly accessible folder on his or her hard drive, where it can be redistributed to other users via peer-to-peer file sharing services. Or that person can email the file as an attachment to a message sent to many people. Or that person can upload the file to a personal web page and make it visible to the world. The capability of the Internet to allow worldwide, instantaneous, cost-free distribution of perfect, non-degradeable copies makes the digital world frightening to owners of

high-investment content. At the same time, such copyright-owners are deeply aware of the distribution benefits the Internet may provide, as long as they are able to maintain control over their works.

It is becoming clearer to many that intellectual property may be as different from real property as intangible objects are different from tangible objects. As Chairman Greenspan recently said,

[T]he nature of intellectual property is importantly different from physical property. In particular, one individual's use of an idea does not make that idea unavailable to others for their own, simultaneous use. Furthermore, new ideas almost invariably build on old ideas in ways that are difficult or impossible to delineate. From an economic perspective, this provides a rationale for making the calculus, developed initially by Leibnitz and Newton, freely available, despite the fact that those insights have immeasurably increased wealth over the generations. Should we have protected their claim in the same way that we do for owners of land? Or should the law make their insights more freely available to those who would build on them, with the aim of maximizing the wealth of the society as a whole? Are all property rights inalienable, or must they conform to a reality that conditions them?¹⁸

But how to acknowledge this difference between property and intellectual property, and what this difference means for copyright policy, is a hard problem. As with the development of the printing press so many years ago, a new means of storing, displaying and distributing information (or knowledge) is becoming widespread: digitization. Now, in the Internet age, the content industry sees digitization accompanied by the threat of "Napsterization."

The idea of Napster came from its creator Shawn Fanning in 1998. Mr. Fanning, while still an undergraduate at Northeastern University, created programs that permitted people to locate and transfer files in real time -- something that traditional search engines did not allow -- and to log on and update lists of MP3 (compressed music) files. By May 1999, Mr. Fanning's idea developed into a full-blown operation and an incorporated entity, Napster Inc., which allowed users to swap music with each other by using a search option that found the songs requested and then allowed downloads from other users at no cost. Napster's popularity grew quickly.

The music industry successfully prosecuted Napster -- and because the Napster service had become a centralized, incorporated entity with proprietary software, it was an easy target. Napster was ordered to prevent its users from sharing tunes without paying the copyright-holders. When Napster was eventually disabled, people were forced to move their music file-sharing to more sophisticated P2P programs that did not rely on centralized databases but instead directly connected users to each other: Gnutella, Aimster, Morpheus, and Freenet.

There are now over 130 different P2P programs. The majority of the files downloaded are MP3 music files. According to the research firm The Yankee Group, about five billion music files were downloaded in 2002.¹⁹ But P2P users are also swapping files of movies, television shows, and video games. About five million video games were downloaded in 2002, and about three million television shows are downloaded each day from KaZaa alone.^{*20}

The music industry argues that it has been grievously hurt by the widespread online sharing of audio files, first by way of Napster and then via Napster's more decentralized progeny. The most telling statistic is the decline, over the last three years, of music sales: a 5% drop in 2000 and 2001, and a further 7% drop in 2002.^{†21} According to the industry, these declines, the first in two decades of uninterrupted growth, can be attributed in part to the enormous increase in file-sharing, imperiling the industry and foreshadowing a future marked by less and less creation, the successful emergence of fewer and fewer artists, and a precipitous reduction in the music available to us all.

A closer look at the state of

"The industry would not be able to produce and market the number of new artists it's offered historically. It would mean far less investment in music. Record companies make money by selling music...If they can't sell music because people are downloading or burning it for free, they'll take fewer risks on fewer artists."

Cary Sherman, President of the Recording Industry Association of America

the music industry supports the view that *offline* piracy -- the massive copying of the physical media in which form most listeners receive recorded music -- *and* online file-sharing of

* On December 19, 2003, the Supreme Court of the Netherlands upheld a lower court's ruling that Kazaa's creators could not be held liable for the infringing actions of Kazaa's users. Joris Evers, "Dutch Supreme Court Rules Kazaa Legal," December 19, 2003, available at

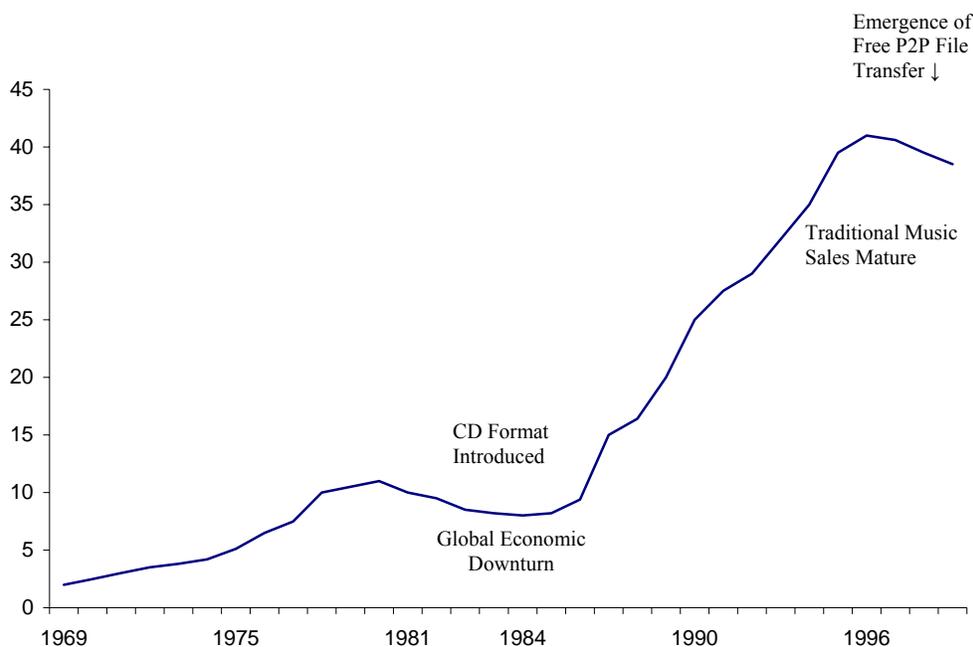
<http://story.news.yahoo.com/news?tmpl=story&u=/pcworld/20031219/tc_pcworld/113968>.

† See also, International Federation of the Phonogram Industry, available at <<http://news.com.com2100-1027-966205.html>>.

copyrighted material have damaged the financial performance of the industry. According to Merrill Lynch, CD burning and ripping are serious threats. Physical piracy, however, accounts for losses of approximately 10% of revenues of the music recording market and roughly a third of the total in unit sales.²²

Other factors have also contributed substantially. Over the last two decades there have been several periods of decline or stagnant growth in this fundamentally cyclic industry -- not surprisingly (for the sale of discretionary products) correlated with bad economic conditions.*

FIGURE 3: World Music Sales (\$bn) 1969-2000



Source: Merrill Lynch, *Music Industry: Can Majors Control Online Growth?* Comment, RC#30231317 (November 9, 2001)

* Overall, the evidence is mixed with respect to the impact of downloading on record label sales. On July 9, 2003, Claire Smith of The Scotsman reported, "Far from damaging the music industry, downloading music from the Internet can be a useful and significant marketing tool." On November 4, 2002, Amy Harmon of the New York Times reported that independent bands were experimenting with promoting their wares on file-trading services, and that "an executive at a major record company said that he and many colleagues would like to use [a free file-sharing service] to distribute their material but that their lawyers would not allow it." Reuters reported on June 15, 2003 that Sony Music had decided not to make downloads available for sale to European Internet users -- but would sell downloads in Britain, "making it the last among the major recording labels to join Europe's music download bandwagon."

In the period from 1980-1984, the music market contracted at a compounded annual growth rate of -4.1% due, according to Merrill Lynch, to a recession and to copying associated with music on audiotapes.* 1985-1995 was another period of strong growth, similar to the period between 1969-1979, both of which were marked by growth stimulated by new distribution media -- first of cassette players, then CD players.²³ 1995-2000 was another stagnant period, with a 1.5% compounded annual growth rate decline (although the strong dollar affected these results and there was a slight increase in local currencies).²⁴ The recessionary effects of the early 1990s were masked by strong CD revenues resulting from the replacement of vinyl libraries. This changeout has largely occurred and is no longer stimulating sales.²⁵

Other factors appear to be playing a part in recent revenue declines experienced by the music industry. The consolidation of ownership of radio outlets and the increasing importance of mass market retailers (as opposed to specialty stores), who have doubled their share of the market, has led to a smaller number of artists receiving air play and having their materials available to a mass audience.²⁶ The industry significantly reduced the number of new releases from 38,900 in 1999 to between 27,000 and 31,000 in 2001 -- a 20%-25% drop.[†] Cyclical changes in musical tastes also seem to have had an impact. Even prior to Napster, the industry was experiencing a substantial decline in 1995-2000 sales to 14-19 year-olds, traditionally its highest-spending group.²⁷ In addition, during the boom years of the 1990s the industry continued to raise prices, with the average CD increasing in cost from approximately \$12 to \$15.²⁸ This overall price increase may well have affected sales as the U.S. entered an economic downturn -- indeed, the industry has continued to raise prices in the 2000s.[‡] Another factor may have been fierce

* Raymond James Report. Chart reflects dollars adjusted for inflation.

† See BusinessWeek.com article: "The industry released 27,000 new titles in 2001, according to a speech made by an RIAA official, a 25% drop from the high of 38,900 in 1999. The RIAA disputes Ziemann's analysis, saying it hasn't released an official tally of annual new releases since 1999. Industry-research firm Nielsen SoundScan has run the numbers, however, and the RIAA doesn't dispute its findings. According to SoundScan, new releases in 2001 totaled around 31,734, still a 20.3% drop." Releases rose to 33,443 in 2002, but that's still 14% below the 1999 record. "The music industry's [modus operandi] is to throw things against the wall and see what sticks," says Nathan Brackett, senior editor at Rolling Stone. "If they're throwing 20% less stuff out there, there's less chance something will stick." See also, Stan Liebowitz, "Will MP3 Downloads Annihilate the Recording Industry? The Evidence So Far," June 2003 (concluding that MP3 downloads cannot be blamed for all of the drop in unit sales the music industry has experienced; decline in sales of CD singles and cassettes, which has continued in the past three years, began long before Napster), available at <<http://wwwpub.utdallas.edu/~liebowit/intprop/records.pdf>>

‡ In a sharp departure from the practices of the rest of the music industry, in September 2003 Universal Music Group dropped the price of its CDs, offering a \$12.98 suggested retail price on all of its top-line CDs sold in the United States. See, <<http://maccentral.macworld.com/news/2003/09/05/umg/>>; <[29](http://www.pro-</p></div><div data-bbox=)

competition for the discretionary consumer entertainment dollar: DVD sales rose by 61% in 2002, and video games are competing directly for the attention of the crucial 14-19 year old purchaser.^{*29}

Whatever the causes of the decline in the music distribution business, the movie industry has taken the experience of Napsterization to heart. As the MPAA has stated:

While the Internet and Broadband services have great potential, they can also cause enormous losses and damage to consumers, telecommunications services, and the companies that produce and distribute content for those businesses. Audiovisual work piracy and cable theft have always been problematic; however, the digital world is far more dangerous than the analog world.

In the digital world, pirates can download everything from USA Networks' original program to episodes of "Jerry Seinfeld" for their own use or to provide to countless others. Moreover, the 1,000th copy of a digitized movie or television program is as pure as the original, whereas in analog each copy is degraded in quality. Thus with a single keystroke, a computer pirate can do millions of dollars worth of damage to the potential market for television programming or motion pictures, whether or not the pirate makes a nickel from this effort. No one will pay for cable television or movies when they are available for free on the Internet. ...³⁰

But in contrast to the recording industry, which has recorded three consecutive years of declining sales, the movie business continues to grow. While the MPAA points to millions of downloads of a new movie release, even before its official opening, movie box office receipts grew 13.5% in 2002 -- the best year-over-year performance in two decades. Growth in other media used for movie distribution was also dramatic. And revenues from videocassettes, the technology that was to have threatened the very security of the movie industry, exceeded box office receipts by \$2 billion.

music.org/viewpoints/speech290703.htm.> The average price for a CD (excluding promotion CDs sold through record clubs or nonmusic stores) rose from \$14.31 in 1998 to \$17.02 in 2002.

<<http://www.azoz.com/news2/math01.html>> Cary Sherman of the RIAA has confirmed that prices have been raised to keep revenue figures high.

* A recent Forrester report suggests that even if peer-to-peer file sharing goes away, the end of the domination of physical media distribution methods may be just around the corner. Devices are becoming so small and have so much memory that buying CDs and other physical media objects may soon no longer make sense to consumers. Forrester Tech Strategy Report: From Discs to Downloads (August 2003) (predicting that 33% of music sales will be made through downloads by 2008).

But the MPAA is correct in seeing a profound threat to its present forms of distribution. The costs of production for creative works (particularly extraordinarily costly works, like movies) are likely to remain high, while the marginal cost of copying and distributing digital versions of these works may someday become very low. As Alan Greenspan recently pronounced:

[I]n the physical world, the usual situation is that each additional unit of output is more costly to produce than the previous one; that is, production, at least eventually, is characterized by increasing marginal cost. By contrast, in the conceptual world, much of production is characterized by constant, and perhaps even zero, marginal cost. For example, though the set up cost of creating an on-line encyclopedia may be enormous, the cost of reproduction and distribution may be near zero if the means of distribution is the Internet.³¹

Clearly the movie distribution industry's future contains many of the same challenges faced by the music distribution industry.

Whatever the true impacts of the movement to digitization and the growth of computerized networks, it is beyond question that those industries that have relied on the physical distribution of copyrighted materials -- previously in analog form, and now in digital -- believe they have a critical problem that must be attacked on all fronts, domestic and international, legislative and regulatory, through education, standard setting, and litigation.

B. WHAT ARE THE PROPOSED SOLUTIONS FOR THE THIRD PHASE?

The advent of any new technology (like the advent of the printing press, photocopying machine, and VCR) presents a profound challenge to rights-holders. One answer is the "dongle" approach -- finding technical means of locking content down. Such technical approaches often have such undesirable direct and indirect impacts on users that publishers realize that they are not worth the "lock-down" benefit. A second answer is the VCR approach -- finding legal means of locking down the machines that facilitate access to the content. But such legalistic approaches may not work if there are good ("substantially noninfringing") uses for the machine in question, as in the Sony case, or if some inventive technologist finds a way around the legally mandated solution.

A variety of steps (both of the "dongle" and "VCR" variety) have been proposed over the last few years that have been intended to combat the perceived threat of online copyright infringement:

- major Congressional legislative initiatives;
- a proceeding before the FCC to determine whether broadcast television receivers and other devices capable of providing access to video signals should respond to a "broadcast flag" by preventing retransmission of "flagged" material over the Internet;
- ratification by the FCC of an agreement between the cable industry and the movie studios;
- creation of digital rights management protections; and
- initiation of cross-industry groups studying the question of online copyright infringement and making recommendations for copy protection technologies.

DIGITAL RIGHTS MANAGEMENT

Digital Rights Management (DRM) refers to technologies and services that allow digital content providers to regulate the use of copy-protected products, such as photographs, books, music, and videos. DRM systems often use encryption to restrict access to digital content to authorized users. Additionally, some DRM systems enable content providers to monitor the activity of the authorized user via electronic "marking" devices to prevent altering, copying, or sharing of content on different machines. DRM technologies may be embedded in the software of digital content or the hardware of a device.

DRM technologies give content providers more control over their intellectual property assets. By controlling file access and distribution, content providers can sell (collect payments for) more units of digital copy-protected material by preventing unauthorized duplication.

The next sections of this report examine the various approaches (legislative, regulatory, and contractual) that have been proposed or implemented. We will look at the impact on innovation of each of these approaches, and their relationship to the current societal balance between control and access to information, as well as to consumer expectations that have arisen over the last two decades.

VI. DISCUSSION OF "SOLUTIONS" FOR DIGITAL COPYRIGHT INFRINGEMENT

A. LEGISLATION

1. *THE DMCA*

Any discussion of legislative activity begins with the Digital Millennium Copyright Act (DMCA), enacted into law in 1998 "to make digital networks safe places to disseminate and exploit copyrighted materials."³² The DMCA set the stage for efforts to protect digital information from unauthorized copying by recognizing that copyright-holders might employ technological protection measures to control access to their works. Section 1201(a)(1)(A) of the Act outlaws circumvention of "effective" technical measures used by copyright owners to protect access to their works (subject to a few exceptions).^{*} The Act also includes provisions making it illegal to "make, import, offer to the public, provide or otherwise traffic in technologies that bypass access controls" (Section 1201(a)(2)), or to make technologies that bypass "other technical protection measures" used by copyright-owners to protect a right in their works (Section 1201(b)(1)).

Significantly, the DMCA has another element that addresses directly the risk that the law would be read to mandate certain technical protection measures for a broad range of devices. The Act states that manufacturers of computers and consumer electronics products have no obligation to

^{*} According to the Home Recording Rights Coalition, "The legislative history of the DMCA indicates that Congress intended to require minimum attributes for measures to be deemed "effective," and thus to trigger DMCA obligations. On the occasion of initial passage of the DMCA by the House of Representatives, Chairman Tom Bliley, on behalf of the House Commerce Committee, addressed the meaning of "effectively protects" in the context of section 1201(b): 'Section 1201(b)(2) of H.R. 2281 defines important phrases, including when a protection measure "effectively protects a right of a copyright owner under title 17, United States Code." In our view, the measures that would be deemed to "effectively" protect such rights would be those based on encryption, scrambling, authentication, or some other measure which requires the use of a "key" to copy a work.'" Congressional Record, 105th Congress, August 4, 1998, H7094. Home Recording Rights Coalition, "When Is A "Technological Measure" "Effective" And When Is Compliance Mandated?" available at <http://www.hrrc.org/global_include/asp/technological_measure.asp>

ensure that their devices respond to particular copy protection technical measures (Section 1201(c)).* This key section of the DMCA is known as the "no tech mandate" clause.

The DMCA has several other components that were the result of extended debate over the responsibilities of third parties who might be involved in unauthorized access to and distribution of copyrighted materials. Traditionally, companies that provided telecommunications services did so as "common carriers," transmitting all communications presented to them, without liability for the content of the materials that carried. The new question answered by the DMCA was how copyright law would treat the category of companies that provided access to the Internet (online service providers) or that hosted web pages that could be accessed via the Internet -- who, under classic copyright law, would be liable for copyright infringement for passive "copying" of protected content. Under the DMCA, companies acting as "mere conduits" (e.g., facilitating email exchanges) have essentially no liability for infringements originated by subscribers. Companies providing "hosting" services for sites they do not control will also not be subject to copyright infringement liability if they cooperate with a detailed process set forth in the DMCA by which rights holders notify them of infringements and they take down the offending site. Operators of websites (individuals actually and actively responsible for content on these sites) remain subject to normal liability under existing copyright law.

For the purposes of this report, the most important sections of the Act are the anti-circumvention provisions. The Act prohibits the manufacture or distribution of any product or service that is primarily designed or produced for the purpose of circumventing a technological measure that controls access to a copyrighted work, and prohibits the manufacture or distribution of any product or service that is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner.

But the DMCA provides some exceptions to these sweeping provisions. For example, the DMCA permits the act of circumvention and circumvention devices for critical activities such as

* The Act does feature a mandate for manufacturers of VCRs to use Macrovision (which prevents VCR-to-VCR copying) in their devices (Section 1201(K)), but that is a narrow agreement with respect to *analog* technology that was specifically agreed to in exchange for the broader "no tech mandate" clause for the *digital* world.

achieving interoperability, encryption research, and security testing. The DMCA also establishes a rulemaking proceeding under which the Librarian of Congress can establish additional exceptions upon finding that users of a particular class of copyrighted works are likely to be adversely affected by their inability to make noninfringing uses of the works. A critical question for those who care about the public domain is the relationship among the provisions that criminalize attempts to gain access to material protected by technical means, the expectations and practices of users who have grown used to time- and space-shifting content, and the legal regimes created to ensure access to copyright material such as fair use. Many consumer advocates and scholars have focused on these questions.*

As part of recent attempts to prevent unauthorized access and distribution of copyrighted materials, attempts are being made to pass legislation at the state level. Proponents claim that the legislation will update the DMCA to help combat digital piracy and that new "criminal and civil penalties against Internet pirates and hackers of communications services" at the state level are "an essential tool to complement resource-limited activity at the federal level."³³ While the proposed legislation largely duplicates the DMCA, it omits key exceptions and limitations inserted by Congress to permit legitimate activities such as circumvention for particular purposes -- encryption research, security testing, and interoperability -- as well as the explicit disavowal of a generalized tech mandate discussed above. By excluding these limitations, the proposed state legislation strikes a very different balance than that found in the DMCA, and may harm technology companies, universities, libraries, and users. Additionally, although these proposed (and in some cases, enacted) state bills are described as "theft of service" legislation, they would potentially subject consumers and manufacturers to criminal penalties and fines for attaching to their broadband connections otherwise lawful devices (e.g., TiVos) that have not been "approved" by the broadband service provider -- who might be offering a competing device. Under these bills, liability could be found based on a subjective "intent to defraud" standard. Given the legal risks created by these new bills, and the service provider approvals that might be required, manufacturers and retailers might choose not to produce or sell such devices, chilling the market for innovative applications. As of the date of the drafting of this report, state "super-

* See, e.g., materials collected at <www.eff.org, www.publicknowledge.org>, and Professor Pamela Samuelson's articles collected at <<http://www.sims.berkeley.edu/~pam/papers.html>>.

DMCA" bills have been passed or are under consideration in Arkansas, Colorado, Delaware, Florida, Georgia, Illinois, Massachusetts, Maryland, Michigan, Oregon, Pennsylvania, Tennessee, Texas, and Virginia.*

2. THE HOLLINGS BILL

In 2002, Sen. Hollings introduced his Consumer Broadband and Digital Television Promotion Act. In contrast to the DMCA's "no tech mandate" direction, the Hollings bill, S. 2048, would have allowed the FCC to mandate a security standard protective of digital content for all digital media devices; if the private sector was unable to agree to a standard on its own, the government was to develop one. Under the bill, it would have been illegal to make or provide a "digital media device" that did not contain such standard security measures (or to remove such measures). Proponents of the Hollings bill argued that the growth and development of digital content (and broadband deployment generally) was being stalled by the absence of protection systems. They suggested that digital content would not be secure and would not be made available for distribution until some form of digital rights management system (DRM) was installed in all devices capable of displaying digital content -- from TV sets to personal digital assistants to wristwatch cellphones to general purpose computers. They insisted that the consumer electronics and information technology industries would not voluntarily accede to DRM usage, because it would add costs to the devices without providing consumers with what they would perceive to be added value, and that therefore the government must mandate the inclusion of DRMs. The Hollings bill has not yet been reintroduced in the 108th Congress.

3. THE BERMAN BILL

On July 25, 2002, Rep. Howard Berman (D-CA) introduced a bill that would permit copyright owners to employ self-help technologies when their copyrighted works are infringed on peer-to-

* Similar efforts are proceeding at the government-to-government level: On May 6, 2003, President Bush and Prime Minister Goh of Singapore signed the U.S.-Singapore Free Trade Agreement (the "FTA"), which requires Singapore to implement DMCA-like anti-circumvention provisions. The FTA does not contain any of the DMCA's exceptions to the scope of digital protections for copyrighted works. Brandy Karl, "Enforcing the Digital Millennium Copyright Act Internationally: Why Congress Shouldn't Lock in the Current DMCA By Approving the Current Version of the U.S.-Singapore Free Trade Agreement," (May 15, 2003) available at <http://writ.news.findlaw.com/student/20030519_karl.html>.

peer (P2P) networks. The bill, known as the Berman bill, was intended to enable the music and movie industries to legally use interdiction, decoys, redirection, file blocking, spoofs, or other technological tools to prevent P2P piracy, but gave them immunity from criminal and civil liability for such acts. The bill did not require the copyright owner to give advance (or subsequent) notice to its target that it was planning to employ self-help measures.

In support of his bill, Rep. Berman said, "the primary current application of P2P networks is unbridled copyright piracy. P2P downloads today consist largely of copyrighted music, and as download speeds improve, there has been a marked increase in P2P downloads of copyrighted software, games, photographs, karaoke tapes, and movies." The Berman bill was clearly intended to enable the music and movie industries to shut down the sorts of rampant copying that the court in the Napster case found to constitute infringement. However, the bill was written with language broad enough to encompass a variety of other scenarios, and provided broad discretion to parties using self-help measures. Many things other than movies are protected by copyright -- like educational and political materials -- and the bill required only that the copyright owner merely have a "reasonable basis to believe" that his/her materials had been infringed. And the right of self help provided for by the Berman bill could be exercised by a copyright-holder to stop the dissemination of content that the copyright-owner had not sold, thus preventing the dissemination of expression. While the scope of the actions that would be protected by the safe harbor provision was not specified in the Berman bill, and while it was stated that all the actions that would be protected were lawful, there was considerable concern that self-help activities would interfere with legitimate uses of computers or other devices and that the bill would immunize those who engaged in such actions from damage that they might cause. One information technology association rejected "the premise of this bill that content owners should be entitled to 'vigilante justice' for suspected copyright violations."³⁴ The bill was not passed in the 107th Congress.

In February 2003, Rep. Berman announced that he might not reintroduce his bill, because copyright-holders may not need extra protection to combat file-sharing piracy. Also,

Hollywood's support for the bill was weakened by Rep. Berman's plan to impose new liabilities on copyright-holders that went too far in attacking pirates.*

4. "FAIR USE" BILLS

At the other end of the spectrum, bills were introduced at the end of the 107th Congress that attempted to bolster the rights of end users and creators who rely on existing copyrighted works.

Boucher-Doolittle. On January 7, 2003, Rep. Rick Boucher (D-VA) and Rep. John Doolittle (R-CA) re-introduced the "Digital Media Consumers' Rights Act" (DMCRA).

To date, the Copyright Office has not allowed an exemption from the DMCA's anti-circumvention provision for those who circumvent a technological lock in order to make a non-infringing use (such as a use permitted by the copyright law for fair use, classroom, preservation or similar provisions) of a lawfully acquired copyrighted work. Boucher-Doolittle would amend Section 1201 of the DMCA to allow circumvention of a technological measure that controls access to and use of a copyrighted act, if the circumvention does not result in infringement of the work. The bill would also decriminalize anti-circumvention tools when the tools have substantial non-infringing uses and broaden allowances for anti-circumvention scientific research. Boucher-Doolittle would also require record companies to label CDs that were copy-protected or that would not play on certain devices (such as PCs).

Lofgren. On Oct. 3, 2002, Representative Zoe Lofgren (D-CA) introduced H.R. 5522, the "Digital Choice and Freedom Act of 2002." The bill would amend the Copyright Act to allow consumers to use CDs, DVDs and other digital works on the devices of their choice and to sell or

* On May 4, 2003, The New York Times reported that "[s]ome of the world's biggest record companies, facing rampant online piracy, are quietly financing the development and testing of software programs that would sabotage the computers and Internet connections of people that download pirated music." Andrew Ross Sorkin, "Software Bullet Is Sought to Kill Musical Piracy," *The New York Times*, May 4, 2003. Industry spokespeople have said publicly that, just as the "left" believes it has a right to hack overly protective DRM measures, the content industry believes it also has a right to use self-help. Prof. Lawrence Lessig of Stanford Law School stated that "Some of this stuff is going to be illegal...It depends on if they are doing a sufficient amount of damage. The law has ways to deal with copyright infringement. Freezing people's computers is not within the scope of the copyright laws."

lend their personal copies of digital works. Rep. Lofgren explained that her bill "encourages content owners to respect consumer rights and expectations by permitting circumvention tools if they fail to do so." The bill also provides that terms in nonnegotiated licenses ("shrinkwrap" or "clickwrap" licenses) that restrict rights of users under the Copyright Act will not be enforceable.*

B. REGULATION: THE BROADCAST FLAG

For several years, the FCC has been engaging in reviewing proposals for a "broadcast flag." Providers of video content want to avoid being "Napsterized" by online file-traders and proposed to mark video content with a short digital tag (the "broadcast flag"); machines receiving digital television content would be required to recognize this tag and ensure, by way of new forms of enforcement software, that the content is not subject to any "unauthorized use" -- and, in particular, is not transmitted either over the Internet or over insufficiently secure wired connections inside one's home.†

While the objective of blocking Internet transmission seems simple, what ultimately would be needed to implement this goal is a government mandate that would require that all devices that touch digital broadcast content be "compliant" (possessed of approved technology to prevent unauthorized use of content) and sufficiently "robust" (secure and nontamperable). Like the Hollings bill, the broadcast flag regime, as proposed, would apply to "downstream devices" which include a broad range of machines -- anything capable of receiving or storing or copying digital broadcast content, such as PCs, televisions, or mobile phones.‡

* In a related development, in September 2003 Sen. Sam Brownback (R.-Kan.) introduced legislation directed at curbing the DMCA-provided ability of copyright owners to obtain identity information about ISP subscribers without judicial supervision. Roy Mark, "Brownback Bill Aims to Curb DMCA Subpoena Powers," *DC.Internet.com*, September 17, 2003.

† As currently constituted, the 5C suite of technologies that are anticipated to be approved copy protection technologies under the broadcast flag regulation would not allow wireless transmission, even within the home although new proposals for protecting wireless transmission have been put forward.

‡ Mobile phones capable of showing analog television are just beginning to hit the market. E.g., the Samsung SGH-P705 is a phone and an NTSC television. Cellular telephones that can receive terrestrial digital television broadcasts will be marketed in December 2003 in three major Japanese cities; See 3G, (press release, "3G Phones Evolve in the Ubiquitous Era," London, England: October 9, 2003), available at <<http://www.3g.co.uk/PR/Oct2003/5934.htm>>.

In November 2003, the FCC issued its first order in its broadcast flag rulemaking³⁵. Supporting the flag proposal, the FCC required that devices that receive digital television broadcasts sold after July 2005 must include content protection technologies approved by the government. The first order left unresolved a number of important issues---who will approve the technologies, using what criteria, and what uses (e.g. copying, time and space-shifting, sharing, sending over the Internet) of flagged content will be allowed, including what use will be permitted in a "personal digital network environment"--- which will be considered in a subsequent rulemaking. Judicial challenges to the FCC's jurisdiction to issue this first order are expected. In recent months, there have been several Congressional hearings on the broadcast flag, and it is likely that broad legislation on this subject will be introduced in the next few months.

Plugging the "analog hole." The broadcast flag proceeding concerns locking down digital outputs of devices only, and does not constrain analog outputs. This means that "flagged" digital material could be captured from an analog output such as one contained in an analog video display device (e.g., a VCR), transformed into high-quality analog form, and then redigitized -- in the process, the "flag" being considered by the FCC would be lost, and the result of this digital-analog-digital conversion would be a high-quality file that was available for perfect and unlimited digital copying and transmission with no "flag" attached. The content industry is concerned that control needs to be extended to any outlet through which digital material could "leak" into analog form without the flag and then be redigitized -- in popular parlance, they believe that they have to plug the "analog hole." In an April 2002 "Content Protection Status Report" provided to the Senate Judiciary Committee by the Motion Picture Association of America, the MPAA said that analog-to-digital converters needed to be regulated to ensure that they responded to a "watermarking" technology that would survive digital to analog conversion. This is a very broad goal, because analog-to-digital converters are present in any number of machines -- including digital scanners, samplers, thermometers, seismographs, computer pointing devices, camcorders, cameras, microscopes, telescopes, modems, radios, televisions, cellular phones, walkie-talkies, and many other devices.

For the process of plugging the analog hole to proceed, a watermarking technology will need to be chosen that survives digital-analog-digital conversion. Led by the MPAA, the information

technology, consumer electronics, and entertainment industries formed a discussion group in February 2003 (the Analog Reconversion Discussion Group) to work on this issue.

Cable/CE MOU. Recently, the cable services and consumer electronics industries developed a framework for plug-and-play compatibility among consumer devices that can receive cable services. A proposed agreement, the *Memorandum of Understanding Among Cable MSOs and Consumer Electronics Manufacturers*, was considered by the FCC.³⁶ The draft agreement outlined "encoding rules" (statements about how many and what kinds of copies consumers will be able to make using approved technologies) that prohibited or constrained copying of commercial content received over a cable system regardless of whether such copying posed a security threat or a copyright infringement. For example, the MOU's encoding rules would have prohibited time-shifting of a pay-per-view program. In general, the encoding scheme presented in the MOU would have limited copying to a greater degree than it is limited with current consumer electronics or computer equipment. Additionally, the draft MOU locked in a particular group of content-protection technologies (the 5C suite of technologies) and thus might have locked some players out of the marketplace.

The FCC was asked to define "digital cable-ready" to mean that a given device used the 5C suite of technologies. Thus, if the MOU was approved by the FCC in the form it was proposed, only machines that used this particular proprietary content-protection technology would have been able to call themselves "digital cable-ready." In the 5C world, once flagged content is recognized by a 5C compliant device, it cannot be transmitted to (or played on, or copied by) any noncompliant legacy device. So if 5C had been the endorsed technology, consumers would have been able to copy and play content only on 5C devices. For many consumers, this might have meant substantial (and perhaps surprising) required upgrading of much of the consumer electronic and computing based technologies in their homes. As of the date of the preparation of this report, the FCC had issued an initial Order with respect to this "plug and play" MOU, saying that consumers will still need a set-top box to receive two-way services such as video on demand, impulse pay-per-view and cable operator-enhanced electronic programming guides.³⁷ The FCC noted that the cable and consumer electronics industries continue to work on the development of an agreement for two-way "plug and play" receivers that would eliminate the

need for a set-top box to receive these advanced cable services. Thus, the FCC has approved a baseline "cable ready" standard that connotes a oneway download ability to view digital video programming, but has not yet established rules for two-way interactivity.

The cable and consumer electronics industries also filed a model license for the 5C-based scrambling technology, which protects content from unauthorized use. The FCC concluded that, "given the importance of these products as a portal into consumers' homes for content in the digital age, further consideration of how innovations and changes [under this license] should be approved was warranted."³⁸ The Plug and Play Order initiated a Second Further Notice of Proposed Rulemaking (FNPRM) to examine these issues. This means that the FCC has decided to look hard at the licenses covering copy-protection technology in the cable context, to determine whether consumer-friendly protections (such as protection for "Betamax-like" fair use) are included in these licenses. Because the FCC will have an oversight role in the approval of new outputs and content protection technologies under this MOU, the Commission will be able to ensure that PCs and other devices with open architectures and alternative copy-protection schemes are included in the DTV transition. Several Parties, including the MPAA and the National Cable Television Association, have asked the FCC to reconsider portions of the Plug and Play Order.

C. PRIVATE DRM

Private DRM efforts have been underway for some time, as evidenced by the early "dongle" attempts in the 1980s. There are, generally, two levels of protecting content through technology: restricting duplication of the content, and implementing access controls that ensure that only valid, authenticated users can use the content. DVD and CD protection are examples of the former; the Trusted Computing Platform Alliance is an example of the latter.

DVDs and CDs. In 1995-96, an inter-industry group pooled their patents, formed the DVD Copy Control Association, and agreed on a Content Scrambling System (CSS) encryption technology that all devices touching DVD content would have to use. Under the DVD CCA licensing regime, installation of CSS is required (as is adherence to a DVD CCA license) in order for

decryption of DVDs to legally occur in any device. DVD players need CSS circuitry to be able to decode and play the contents of these discs. And to play on computers' DVD-ROM drives, the DVD-decoder hardware and software need to include a CSS decryption module. No personal use copying of DVDs is permitted by CSS.

CSS was successfully hacked in 1999 with the creation of DeCSS. DeCSS allows a DVD to be played on a Linux machine. No Linux DVD players were available on the market at the time DeCSS was created -- so DeCSS filled a gap perceived by Linux users*.

Additionally, DVD movies are often region-protected, so that (for example) DVDs coded "region one" (US and Canada) will not play anywhere else in the world. This vestige of the distribution regimes established for physical goods has also been successfully hacked.

Recently, Disney announced that it will be "renting" DVDs beginning in August 2003. These so-called "EZ-D" DVDs are set to become unplayable after two days, when "a process similar to rusting makes them unreadable." When "rented" (or sold), the discs are red -- but two days' exposure to oxygen turns the discs black and makes it impossible for a laser reader to read data off the discs.†

There are now audio CDs that are copy-protected and cannot be played on a computer (or can be played only through play-back software, not "ripping" software). Music files contained on these CDs will not play if they are distributed over the Internet or emailed. Although CD copy-protection technology is proprietary, researchers have been able to determine that it works by deliberately creating errors so as to cripple the CD's ability to be copied -- or, sometimes, by placing "dummy" files on the CD that are so large that CD recorders cannot burn them. In some cases, use of copy-protected CDs has prevented radio stations from playing the songs -- because

* On December 22, 2003, an Oslo appeals court affirmed a lower court decision that had found that Jon Johansen, the person who had hacked DVDs for Linux, not guilty of piracy. Alister Doyle, "Norwegian Freed in DVD Film Piracy Case," *Reuters*, December 22, 2003.

† See, Reuters, "Disney to slip DVDs a Mickey," May 16, 2003, available at <<http://news.com.com/2100-1026-1003889.html>>.

the station used only PCs.* The digital content is being successfully protected, but at the cost of limiting broadcast exposure normally used to spur sales.

Trusted Computing. The Trusted Computing Platform Alliance, or TCPA, has been formed by Compaq, HP, IBM, Intel and Microsoft, and more than 190 other companies have joined up. TCPA has defined what it calls a "general purpose Trusted Subsystem" intended for use in PCs. Using this system, computers can remain open platform devices that contain within them secure kernels for content protection. The plan is for this to happen through built-in security features incorporated in both hardware and software. On the software side, Microsoft is working on a secure operating system. More generally, part of the idea of "trusted computing" is for the content itself to signal how it is to be protected, using Extensible Rights Markup Language (XrML) -- a set of statements about the digital rights of the user and the conditions under which such a license is granted.† Licenses can be written in XrML (thus stating the policy of the rights-holder) and adhered to by DRM software (thus implementing the rights-holder's policy desires). The policy questions surrounding XrML are complex: Who decides what rights should be expressed in this language and what these rights mean? How do "fair use" and "first sale" interoperate with devices that implement XrML commands?

There has been very little public involvement with TCPA or XrML processes. Nor has there been public participation in the DVD or CD licensing/lock-down discussion. These are, in general, private solutions to the copy protection concerns of the content industry to which "notice and comment" rules of regulatory agencies do not apply.

D. ANALYSIS

Each of these proposed solutions (legislative, regulatory, and contractual) has powerful proponents who argue that increased control over copyrighted goods will stimulate creative

* In April 2003, EMI sent a radio station a bag of free discs that the station was unable to play. The station in question had no standalone CD players because it used only desktop PCs. "Copy Protected CDs: Artists Can Be the Losers," *The Age*, April 3, 2003, available at <<http://www.theage.com.au/articles/2003/04/03/1048962867084.html>>.

† XrML is based on work by the OASIS Rights Language Technical Committee in defining a Rights Markup Language; See <www.xrml.org>

activity by providing greater incentives for creators and rights-holders. On the other hand, there are strong arguments that wide-ranging technical mandates will dampen innovation, damage the high-tech industries, and fundamentally alter the traditional balance between rights-holders and users with negative impacts on the public domain. The following section addresses the various proposals.

1. DAMPENING INNOVATION

a. Raising the Costs for the Second Innovator

Debates about all of the pro-protection legislative and regulatory efforts described above have focused on the claim that greater control by, and greater incentives for, creators and distributors are justified because of the unique threat posed by digital technologies. But the policies proposed would also affect the key role of follow-on innovators. All of these legislative and regulatory efforts (as well as private DRM solutions, to the extent they are mandated by government) would raise the costs of creation by the follow-on innovator. As a result, these proposals are likely to lead to an underproduction of innovation from those who would otherwise base their work on earlier created work. Moreover, because the purpose of these proposals is to provide for greater control by the original rights-holders, whatever innovation is allowed to occur will happen under the control of those who came before. These original rights-holders want to create an "orderly marketplace" in which innovation happens "according to the rules." To the extent that such control channels innovation to areas that do not threaten incumbents or undercut existing business models, the likelihood of genuine breakthroughs will be sharply reduced.

One form of innovation that has drawn the attention of economists is likely to be particularly affected. User-led innovation results from changes made to products by customers themselves -- who know better than any supplier what their needs are. Leading edge customers, now bound by technologically fixed licensing agreements, would be unable to make changes to create new products or to devise new uses. In a recent example of user-led innovation, a purchaser-licensee of SONY Corporation's AIBO robot dog, obtained, in violation of the license, the source code, which allowed the dog to perform a limited number of dances. The purchaser-licensee, a

programmer and AIBO enthusiast, then programmed the dog to do more dances and made the program available to other AIBO hobbyists. SONY objected until its customers made clear that a programmable, more "open source" dog that could do more dances was more valuable to them than a "proprietary" dog with a more limited repertoire.

Limits on research. The effects of these pro-protection proposals, as well as the effects of existing laws intended to protect digital content, are quite direct in limiting research. For example, the DMCA's strictures regarding anti-circumvention measures have been read to discourage reverse-engineering -- a technique that has traditionally been used in the high-tech area, perhaps most intensely in the videogame industry, to facilitate the development of new products and services.* Ironically, the DMCA may also be inhibiting research about ways of making information more secure. While the DMCA includes an exemption for certain research regarding encryption, at least one noted researcher in the area was reminded by the Record Industry Association of American that he might be sued under the DMCA for disclosure at an academic meeting of encryption researchers of his findings that the methods proposed by the RIAA for securing music were, in fact, insecure.†

Anticompetitive impacts on the development of new products and services. The potential reach of the DMCA is beginning to emerge in court cases. Some of the uses to which the Act is being put may impede research and development efforts related to product development in areas far afield from digital copyright protection. Indeed, several commentators have suggested that the DMCA may be used for anti-competitive purposes. For example, in the recent *Lexmark v. Static Controls* case, Lexmark, one of the top U.S. manufacturers of computer printers, tried to stop other companies from supplying cartridges for its printers by installing tiny computer chips in each printer. Those chips cause the printers to malfunction if the replacement cartridge comes from anyone other than the original manufacturer. In response, Static Control designed a chip that enabled replacement cartridges to work in the Lexmark printers. That resulted in a lawsuit, in which Lexmark successfully alleged that Static Control's microchip "spoofed" its copyrighted

* See, Pamela Samuelson and Suzanne Scotchmer, "The Law and Economics of Reverse Engineering," 111 *Yale L.J.* 1575 (2002).

† See, Letter RIAA to Professor Edward Felten, April 9, 2001, available at <http://www.eff.org/Legal/Cases/Felten_v_RIAA/20010409_riaa_sdmi_letter.html>

software in violation of the DMCA.* Another recent DMCA assertion was that a universal garage door opener was a circumvention tool[†]. In November 2003, an Illinois federal judge ruled that the DMCA did not apply to garage door openers to which no notice saying, “interoperability is not allowed” had been attached. The judge’s reliance on the plaintiff’s lack of notice to consumers left the core DMCA issue of the legality of interoperability unresolved[‡].

b. Reducing Incentives to Innovate

The broadcast flag and Cable/CE agreements have in common their focus on enshrining a particular group of proprietary technologies (the 5C suite of technologies) as copy protection technology in all consumer electronics devices capable of storing, processing, transmitting, and displaying digital broadcast or cable content.[§] (The Hollings bill made a suggestion that an effort be made to find an appropriate copy protection that would shield all digital content.) The approval of any particular copy protection technology by the government may dampen innovation and competition in this marketplace. While the present proposals envision subsequent development of additional copy protection technologies that could be approved by the FCC, any government approval of a first standard will reduce the economic incentives for those who might produce follow-on or alternative technologies that would have to compete with an approved and established standard.

* During a recent Copyright Office hearing concerning additions to DMCA exemptions, Former Register Ralph Oman, representing Lexmark, at one point appeared to assert that users need permission to run a computer program, and consequently that if users use a computer program for a purpose of which its author disapproves, they are infringers. Email from Seth Schoen of EFF, May 9, 2003.

[†] *Chamberlain v. Skylink*, Civ. No. 02 C 6376 (N.D. Ill.).

[‡] See, Memorandum Opinion and Order, November 13, 2003

[§] The joint proposal of the Digital Transmission Licensing Administrator, LLC (DTLA) and the Motion Picture Association of America, et al. (MPAA) in the FCC's Broadcast Flag proceeding is known as the MPAA/5C proposal. The "5C" consortium is made up of Hitachi Ltd., Intel Corporation, Matsushita Electric Industrial Co. Ltd., Sony Corporation, and Toshiba Corporation. 5C has developed the Digital Transmission Content Protection System, or DTCP. DTLA is the licensing authority joint venture founded by the 5C companies, which administers the licensing of DTCP. The characterization of 5C as a suite, rather than just a set of incompatible technologies, is bolstered by the terms of the DTCP license, which largely restrict digital output to "approved" technologies. The Cable/CE MOU now under consideration by FCC involves asking the FCC to endorse the 5C suite of technologies for protection of cable content. See, In the Matter of Implementation of Section 304 of the *Telecommunications Act of 1996*, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment, Federal Communications Commission Further Notice of Proposed Rulemaking, FCC 03-3 (Jan. 10, 2003).

Even the private choice of particular technical protection schemes -- such as the present DVD encryption technology, which has already been hacked -- is likely to inhibit the development of stronger or different copy protection technology. The enforcement of these schemes through non-negotiable license arrangements that prohibit unauthorized interoperability only heightens this concern. If DVD-player manufacturers knowingly employ less robust (or already-hacked) technology and rely on the law to protect them, there is clearly less incentive for others to develop and bring to the DVD licensing regime stronger protection technologies. A widely-adopted or governmentally mandated standard may diminish incentives to create "better" protection. This would surely be a perverse effect. It seems better to stimulate competition to produce better protection than to enshrine a particular technology by governmental mandate or industry fiat.

If law rather than technology is relied upon, the results may be unexpected. The DVD encoding scheme has been cracked and the results have been posted online. But in order to prevent further dissemination of this hack, courts have essentially established a prior restraint on publication: preventing websites from linking to other websites that provide the means to decrypt DVDs. Such restraints are normally thought of as allowable only in circumstances akin to publishing the departure times of troop ships during wartime, but here were authorized to protect a technical protection mechanism that had already been compromised.

c. Allowing Industry Gatekeepers to Control Innovation

Some of the present proposals place rights-holders in a position to impose standards on a broad range of devices. It is important to examine who chooses "approved" devices and content protection technologies because of the effect this role has on incentives to innovate. For example, we understand that proponents of the broadcast flag proposal have said that they want to have it affect the fewest possible devices. But the current flag proposal explicitly establishes the studios as approval-granters over future product design for all devices that touch digital video content.* Such a "gatekeeper" role potentially puts the rights holders in a position to approve

* Additionally, if the flag rules are put into effect, all 45 million DVD players currently in consumers' hands will become obsolete -- because they will not be "compliant," they will not be permitted to manipulate DTV content that

new technologies. The proposed flag regulation raises concerns about whether self-interested industry gatekeepers will be in a position to approve uses of new products that have previously been accepted as reasonable (such as recording a program on standard fixed media) or new innovations (such as securely sharing a program on a WiFi network). Imagine if those who sought to bring the videocassette recorder to the consumer marketplace in earlier days needed the approval of the broadcast or movie industries.

d. Providing the Right Incentives

In supporting the broadcast flag proposal, rights-holders have argued that in order to protect their intellectual property rights they need a governmental mandate requiring all devices that touch digital broadcast content to be sufficiently "robust" (secure and nontamperable) and "compliant" (possessed of approved technology to prevent unauthorized flows of content through digital outputs). But the effect of this proposal is to reduce the incentive of the rights-holders to protect their own content.

Most analysts would say that the most effective way to protect content is to protect it as close as possible to the point of origination, rather than broadcasting it "in the clear" and imposing standards on machines that receive the content.* Thus, film studios could encrypt their movies at the source and they would then be broadcast in encrypted form. For political reasons, this idea has not taken root.† Opponents of "encryption at the source" have said that this technique would instantly make obsolete existing digital television receivers -- because they would not have the decryption boxes necessary to allow the broadcast content to be viewed. But opponents of the flag proposal argue that (1) not very many DTV receivers are now in the hands of consumers; (2) a \$25 device could perform the necessary decryption; (3) early adopters of DTV would likely be

has been recorded on a "compliant" DVD recorder. Edward W. Felten, Professor of Computer Science, Princeton University, Testimony before the Senate Commerce Committee (September 17, 2003).

* Indeed, there is substantial evidence that most films make their way online not through consumer copying but through leaks from inside the studios themselves -- the so-called "studio hole." See, Simon Byers, Lorrie Cranor et al., "Analysis of Security Vulnerabilities in the Movie Production and Distribution Process (2003)," available at <www.tprc.org> This report also showed that no Sony Classics films were available online, and posited that because these classics are already available in DVD format, they are not "leaked" online.

† See, e.g., Declan McCullagh, "Congress Questions FCC Copyright Plan," (March 6, 2003) (reporting on House hearing), available at <<http://news.com.com/2100-1028-991482.html>>

willing to pay the extra \$25; or (4) the content industry could pay for these devices in order to protect its valuable content. Recent suggestions that copyright protection is better obtained through the forensic use of watermarks (thus moving the complexity of protecting the content inside the content itself by stamping content with a mark and then looking for it out on the Internet, rather than forcing this complexity on hardware), lead in the same direction.

e. The Weaknesses of DRM

All of the proposals under discussion involve an increased use of digital rights management technology, whether mandated by government, approved by government, or as part of private contractual arrangements. And any system that seeks to monitor use of digital information so as to reward rights-holders will need some form of DRM. The Digital Connections Council supports a rich, competitive marketplace in DRM options that provides reasonable choices to consumers as well as protection for copyrighted works. But it is important to realize the limitations of DRM.

Simply put, DRM systems are likely to fail. Technologists almost uniformly view them as potentially valuable in the short term, as "speed bumps" that slow down attempts to obtain unauthorized access to digital information, but vulnerable in the long term. The average person might be unable to mount even a rudimentary attack, and even talented "crackers" might fail. But just one successful attack can be incorporated into software that will permit even an amateur to succeed.

Even if their fundamental weakness runs deep, there are a large number of problems with DRM that are closer to the surface. Implementation of DRM systems inherently increases systems cost. Due to the complexity and heterogeneity of the devices in which DRM-protected content must operate, DRM systems often fail. For example, recent attempts to introduce DRM-protected CDs were marked by incidents in which the CDs were unable to play on computer-based CD drives or caused the computers into which they were introduced to freeze.

DRM systems can also convey a message to consumers that companies are trying to protect themselves against their customers, and thus that the interests of the consumer and the company are adverse. Equally damaging can be the lack of a message -- a lack of notice that what the consumer is purchasing cannot be used on the same devices as apparently identical media that the consumer previously purchased.*

There is another policy issue raised by DRM systems. There is a substantial risk that any information-gathering accomplished by the DRM software will create data privacy liability for providers under the Data Protection Directive of the European Union or other similar laws.

Compared with the regular version of any device, the DRM version will have many new ways of failing. This means that equipment companies will have to staff helpdesks and fund higher support costs. Also, compared to the regular version, the DRM version will have more versions, more customization features, and more internationalization issues, and will, therefore, be more expensive to keep in inventory. All of these costs will have to be carried by equipment manufacturers.

For content companies competing with each other on the nature of the rights packages they grant, it is inevitable that customers will begin to comparison-shop for rights. This will put price pressures on these rights grants and will drive their value down. This cannot be a good business model for content companies.†

Yet even with these difficulties, some forms of DRM are likely to be part of the solution to today's controversy. Clearly there is a need to make rights-holders confident enough about being rewarded that they will make their works available to the public. And even though DRM systems may be cracked, they will serve as speed bumps; most consumers will accept DRM limitations and not use available work-arounds, particularly if they feel that they are getting adequate value for their money -- as can be seen from the widespread consumer use of DVDs

* See Section VI(A), describing legislative attempts to address this problem.

† Dr. Bob Blakley of IBM analyzed the weaknesses of DRM at a recent DRM conference at Berkeley, and many of the ideas in this section were drawn from that presentation. The Law and Technology of DRM Conference, Berkeley, California, (February 27 - March 1, 2003), available at <<http://www.law.berkeley.edu/institutes/bclt/drm/index2.html>>.

whose protection scheme was cracked several years ago. But as in other markets, it would be preferable to have competition rather than fiat in the DRM market and assured appropriate consumer access to protected content.

Consumers will benefit most from simple DRM that they understand well. Making consumers spend a lot of time thinking about whether they want to spend a dime on this song now or later or never will create a good deal of social cost, and requiring complex DRM systems may reduce their commercial potential. It is critical to acceptance of DRM systems that they be simple, convenient, easy to use, and easily understood by consumers.

2. IMPACT ON HIGH TECH INDUSTRIES

A key metric against which all of the current proposals should be measured is their impact on U.S. high-tech businesses. The extent to which these proposals:

- shift costs to the high-tech industry;
- negatively affect a sector that has been responsible for substantial productivity gains
- put government in the position of making decisions about product design;
- limit open platforms (such as the general purpose computer) and open source product development;
- and generally dampen the economic activity generated by the purchase of equipment to record, store, manipulate, and transmit digital content

needs to be examined.

a. Shifting Costs

The proposed use of governmental mandates dramatically shifts the cost of protection onto the consumer electronics, information technology, and Internet access industries.* If content providers encrypt, they have to pay for encryption; if the broadcast flag or Cable/CE agreement mandate encryption through the regulation of hardware and software, the content industry will get whatever protection this provides for free. The reality is that most home devices are not used

* See, Raymond James Report at 36.

for piracy. Any regulation mandating copy protection technology will require that all home devices and all enterprise computers (some 85% of U.S. computers are manufactured for use by enterprises, not consumers) recognize "flagged" material and treat it appropriately. This means that all of these millions of devices will have to be redesigned for this special purpose, and these costs will be born by the manufacturers of these devices and, ultimately, by consumers. It would be preferable for those who have the greatest incentive to protect their content to have the task of doing so.*

COST-SHIFTING

The music industry has said it plans to recoup revenue lost to free P2P services from other industries that have benefited from these file-sharing services. The Canadian Private Copyright Protective (the Canadian equivalent of the RIAA) has proposed a \$21 per gigabyte fee for hard disk drives that would compensate copyright-holders for file-sharing losses.^(a) The group has also asked the Copyright Board of Canada to significantly increase fees on recordable DVDs and CDs. The music industry may try to collect payments from Australian broadband Internet providers, believing that demand for faster music downloading speeds may be driving demand for high-speed Internet service. The chief of the RIAA said in a speech to a music conference in Cannes that she planned to "hold Internet services providers more accountable" for Internet file-sharing.^(b) Peter Coroneos, Executive Director of the Australian Internet Industry Association, said that ISPs are well protected by copyright law, and would fight any attempt by the music industry to shift costs to their sector.

a. Raymond James Report, n. 19, at 33. Ian Austen. *New York Times*. May 16, 2002.

b. Sue Lowe, "Music Industry Chases Internet Providers for Lost Revenue," *Sidney Morning Herald*, January 22, 2003. <http://www.smh.com.au/articles/2003/01/21/1042911380707.html>

This cost-shifting effort is not without precedent. Rights-holders' historic reaction to piracy has been to seek levies on recording devices and media, arguing that manufacturers profit from

* See, e.g., John Markoff, "Plan Would Use Software, Not Devices, to Fight Piracy," *New York Times*, April 15, 2003.

Another approach whose proponents argue that it might more appropriately balance benefits and burdens between rights-holders and others in the digital copyright context would be to establish a compulsory license to be paid by ISPs on behalf of their users in connection with access to and transmission of any copyrighted work. In a variation of this proposal, Fred von Lohmann of EFF proposed a compulsory license fee to be paid via a surcharge on Internet access with a portion of the money paid to the record labels and a portion paid directly to artists based on popularity on file-sharing networks. <<http://dailyprincetonian.com/archives/2003/04/14/opinion/7930.shtml>> (In general, compulsory licensing occurs when third parties are allowed access to copyrighted works without the consent of the owner and on payment of a fee.) In other contexts, high transaction costs for licensing individual works have led to the imposition, by statute and regulation, of compulsory licenses. For example, in the 1970s, the cable industry was able to get a compulsory license for "over the air" signals (17 U.S.C. 111). In the 1980s, the license was extended to the nascent satellite industry (17 U.S.C. 119). Some have argued that in the digital copyright world the difficulties of determining who should pay such royalties, who should collect them, and how they should be allocated once received are insuperable. So far, no legislation has been introduced to extend compulsory licensing to interactive services.

products that are used for these purposes. This effort makes some sense when applied to single-purpose devices that have been built only to copy the studios' content. But it makes less sense when applied to flexible, open-platform, multifunction devices such as personal computers. There is another form of cost shifting that occurs: the costs borne by consumers when hundreds of millions of devices that do not conform to standards for technical protection (mandated directly by the government, or ratified by the government) are rendered obsolete. If the analog hole was ever successfully closed, all existing analog devices that were capable of displaying or storing digital content would become incapable of optimal performance in the processing and display of digital information, even if they were capable of being partially upgraded via hardware or software.* Given the roughly 270 million televisions in 100 million U.S. households and the 92 million households with VCRs, this is no small effect with no small cost.³⁹

Earlier copy protection schemes failed when consumers were willing to pay more for devices that were more flexible and capable -- and that provided them with more of the bundle of intellectual property rights than those devices that were locked down. Unless the market for devices is perfectly regulable, devices that provide more rather than less capability will prove more attractive to consumers and will command higher prices in the marketplace. "Illegal" devices, whether hardware or software, are manufactured in other countries, and may well flood the U.S. market. At the same time, the U.S. government will be saying that it has the power to eliminate choices of devices. Devices that provide greater constraints on consumer behavior will be less attractive and will fail, unless government mandates eliminate other competitive choices for consumers.

b. The Special Case of the General Purpose Computer

Designed in a garage by hobbyists, the personal computer is an icon of American innovation. It is increasingly difficult to distinguish between "computers" and all other devices, as consumer electronic products are built with memory and processing power, and microprocessors make walls and tables location-aware. Given the sweeping nature of the technical protection mandates

* Additionally, even if only a few analog-digital-analog converters remain available (such as those that are imported from other countries), even a fully protected digital bitstream can be converted at very low cost to a high-quality analog version -- and then re-digitized.

that have been proposed, as processing power, memory, and transmission capabilities become part of more and more devices, all of these machines may be swept into a world of copyright regulation.

Part of the reason for the success of digital computing has been the freedom to develop new products and services that take advantage of the extraordinary progress made in processing, storage, and transmission of digital information. One can see the startling results of such freedom in the growth of the Internet. Anyone can design and implement a new product or service at the edge of the Internet without seeking the approval of a central authority. Moreover, the design principle now enshrined at the center of the Internet is that Internet standards should not be optimized for any particular application, in order to prevent today's design constraints from preventing the emergence of tomorrow's "next big idea." Yet the current proposals for mandating particular technological protection mechanisms involve setting constraints on the design of all digital devices. Titanic legal battles have been fought to prevent the exercise of private control over innovation in the personal computer software market through a monopoly over the operating system market; mandating particular design constraints to protect digital content seems to be moving in the opposite direction.

Moreover, compliance with the broadcast flag (as currently proposed) would require the general-purpose computer -- still an open-platform device -- to become "secure" and "untamperable." Would this mean that future generations of garage tinkerers would be unable to open their devices, poke, push, or prod in order to bring us the steady stream of innovation we have come to expect?

c. Ignoring the Role of Open Source

These same broadcast flag requirements of being secure and untamperable create special problems for the developing area of open source software. Such a legal requirement is antithetical to open source software, which by its very nature, is intended to be tampered with. Indeed, tampering is how open source software products (including security software products) are improved.

The role of open source software is being systematically ignored in many of the proposals under discussion in this report, and particularly in the broadcast flag context. Open source software is increasingly important as a source of innovation; it can be far more reliable and secure than proprietary software because talented programmers around the world can examine the code and try to break its security, without having to worry about hidden backdoors or holes. Yet such examination and the resulting improvement appears incompatible with a prohibition on tampering.

Digital television signals can now be demodulated in software, allowing general-purpose computers to function as digital televisions; software products with this capability will be widely available in a few years. It is difficult to imagine the FCC successfully regulating software products. When open source software products are capable of allowing viewers to see digital video on their home personal computers, neither the FCC nor the studios will know what "manufacturer" to sue if applicable regulations are ignored by these products.

d. Riskiness of Government Mandates

As has been noted, there are substantial problems with widespread DRM usage, even that which results from private agreement. But government technology mandates raise even more issues for the future of this country's high-tech industries. Traditionally, the U.S. has relied on a relatively restrictive role for government, with market failures providing a justification

"Another important plank in this agreement [between the RIAA, the Business Software Alliance, and the Computer Systems Policy Project] is a firm commitment to opposing government-imposed technological mandates. The RIAA believes in innovation. And we believe that consumers in the marketplace, not the government, should decide which technological innovations will thrive."

Hillary Rosen, Business 2.0^(a)

a. <http://www.business2.com/articles/mag/0,1640,48572,00.html>

for limited government action. Government technology mandates have been particularly suspect in the fast moving world of high technology both because of the pace of government -- a slower pace in legislating or imposing regulations may be desirable to obtain broad agreement about public law but is highly undesirable in making high-tech product decisions. The high-tech

industry has also criticized the government's lack of technical expertise, and the fact that the essence of many government decisions is political (even in the best sense of the word). Having innovation overseen by a particular self-interested industry, or a slow-moving government agency, or by officials attuned to the political impact of a decision, is not the way the high-tech industries are accustomed to operate -- nor should it be. Any broad government involvement in DRM mandates raises a substantial risk of backward-looking regulation, freezing in existing ways of doing business. This kind of regulation will inevitably favor incumbents, and threatens to allow the past to control the future. Government agencies should not be in the position of making business decisions in dynamic high-tech markets or mandating the use of particular technologies.

e. Frustrating Consumer Expectations

The flag regime (and any mandated DRM scheme) will frustrate existing consumer expectations -- and if consumers are confused they will buy fewer IT industry products. Consumers expect to be able to time-shift, fast-forward, store, copy, and use digital content in portable, mobile devices. Although consumers have (so far) been content with encrypted DVDs, as they become more sophisticated and as convergence between electronic devices continues, they may be frustrated when they are not able to easily move content from one favorite device to another. Reasonable consumer expectations also include the expectation that existing devices will continue to interoperate with new devices.*

A July 2002 GartnerG2 survey reported that 77 percent of respondents thought they should be able to copy CDs for personal use in another device; 60 percent said they should be able to give copies of CDs to members of their families; and 82 percent thought that they should be able to copy CDs for personal backup purposes. These results do not square with the move towards copy-protection of CDs. Copy-protected CDs limit users' options -- preventing them from

* Under the flag regime, this simply will not be the case. Existing ("legacy") storage devices will not be permitted to store flagged content. Legacy players will not be permitted to play flagged content. Content stored upstairs will not be playable downstairs -- unless a "compliant" device is already in place downstairs. If the flag regime is put in place, consumers will have to get all new devices for their home networks -- and business users will have to decide how to cope with these severe interoperability problems. See generally, In the Matter of Digital Broadcast Content Protection, MB-02-230, Before the Federal Communications Commission, Reply Comments of Public Knowledge and Consumers Union (filed February, 18, 2003).

making a copy of the CD to play in their car, for example, as one could with a cassette tape. But they also limit the ability of consumers to use the same CD in different places or on different machines. In some cases, the protected CDs cannot even be played in more than one of the consumer's CD players.* Consumers who are used to being able to copy CDs or use them on any of their playback devices are frustrated by these new restrictions, and there has been a move to require that copy-protected CDs be clearly labeled.†

In the meantime, copy-protected CDs are beginning to move into the U.S. commercial market in large numbers for the first time. Analysts have reported that Arista Records (a subsidiary of BMG Music) will be shipping protected CDs into the U.S. in May-June 2003.⁴⁰

f. Overall Impact on the Information Technology Industry

The potential shifting of costs of content protection to the consumer electronics and information technology industries poses a challenge to one of the most dynamic sectors of the U.S. economy. Not only would such cost-shifting reduce the incentives of the content distribution industry to manage the transition to a digital world -- and place the incentives on a sector farther from the source of the problem -- but, by imposing design constraints, it would also challenge the information technology industry's ability to innovate. That innovation has resulted in enormous investment in information technology over the last decade (a critical factor in the economic successes of the U.S. in the 1990s) and contributed substantially to the upward trend in productivity growth that emerged in the U.S. in the late 1990s.⁴¹ And despite the recent slump, computer and electronic product manufacturers shipped \$429.5 billion worth of goods in 2001.⁴²

* In a related development, after Intuit recently released a version of TurboTax that included a key "tying" the software to a particular machine (and thus preventing its use on multiple home machines), uproar caused it to backtrack and provide an uninstaller program to users. <<http://www.pcmag.com/article2/0,4149,821308,00.asp>> Intuit was using a program called C-Dilla (also known as Safecast) from Macrovision for activation. C-Dilla writes a code, based on the registration number and activation information, to a user's hard disk (in an area that is not copied by hard disk backup and restore software such as Casper, or erased by normal (DOS level) reformatting of the hard drive). Users could not get a second activation code for another computer. Similarly, Microsoft's Office XP reverts to "Reduced Functionality Mode" if it is not activated within 50 launches, and activation of a copy of XP ties that copy to the particular device requesting activation. See, "Microsoft FAQs regarding product activation," available at <<http://www.microsoft.com/piracy/basics/activation/mpafaq.asp>>

† See, discussion of *Boucher-Doolittle bill* above.

These numbers dwarf the \$69.4 billion revenues of the movie and video industry over the same period.⁴³ Even the \$93.2 billion of consumer electronic products shipped in 2001 seems large in comparison.⁴⁴ While it is important to ensure the proper functioning of the copyright system -- and the movie industry in particular deserves attention due to its strong growth rate and positive trade balance -- it is fair to ask whether shifting costs to the IT industry is analogous to the tail wagging the dog.

Attempts to lock down information and force the production of lower capability devices -- in the face of technology trends that continue to improve the ability of these devices to record, store, manipulate, and transmit digital information -- also ignores the significant economic activity entailed by consumers participation in digital content. Much consumer activity in this arena is, obviously, legal. Billions of dollars are spent annually by consumers for Internet access, and this number is increasing daily as broadband penetration continues to grow. And the growth in the number of devices (particularly portable devices) that allow users access to content has been dramatic. Six million portable digital media players were shipped in 2001, up 50% from the year 2000.⁴⁵ The list of media and devices that are designed for digitized content continues to grow: satellite TV, cable TV, digital broadcast TV, video camcorders, digital still cameras, personal video recorders such as TIVO, CDs, DVDs and their respective players, CD and DVD burners etc. -- many of these devices are recent additions to this list.⁴⁶

3. *IMPACT ON THE PUBLIC DOMAIN*

Many of the digital rights proposals under consideration threaten to change the traditional balance struck between the incentives provided to creators by allowing them to control the exploitation of their work and the rights of users to have some form of access to the work and some right to make use of it. That balance, developed over hundreds of years, has produced widespread voluntary adherence and seemed to fit comfortably in a world of tangible books, magazines, and videocassettes -- the world of atoms.

We now have a situation where technology can trump existing legal rights: DRM schemes (such as the proposed "broadcast flag" system) theoretically allow control over access to creative

works notwithstanding what the law says about fair use. If a copyright-owner could establish perfect DRM, either through private agreement (as in the cable and satellite contexts) or through governmental mandate (as in the broadcast flag context), such an owner could ignore these existing user-rights -- unless the law provided users of these safety valves with some form of enforceable rights.

Two problems stand out with respect to accepting this technological approach to legal rights. First, it may substantially narrow the public domain -- expansion of which is a central tenet of the bargain underlying our copyright laws. Second, it may undermine societal respect for law and discourage self-enforcement.

a. *Restricting Public Access to Digital Information*

The absence of user control over private, non-commercial uses of lawfully obtained content has substantial implications. Secure systems that do not allow reasonable uses to be made of protected digital information (unless a license fee has been paid) surely impede the user's ability to make productive uses of the locked-up materials that could themselves "promote the Progress of Science and useful Arts."

For example, a key (and common) transformative/productive use of content is "sampling" -- fragmentary "theft" used in a way that does not create a loss to the owner. Appropriation has been an integral part of the creative process since there was a creative process, and the digital era is rich with examples of new works created through sampling. Users can access millions of sounds, riffs, loops, and sonic textures online and use them to create their own works. Existing DRM systems do not permit sampling of the works they lock down.

According to the American Library Association, the DMCA's prohibition of circumvention "places criminal penalties on top of contractual restrictions, thereby increasing publishers' ability to control access to works."⁴⁷ The libraries are concerned that technical measures currently in use "blur control over initial access with control over library lending and fair use practices such as viewing, reading, extracting, copying, and printing."⁴⁸ Moreover, a DRM system's technology

may not recognize when the works it protects are no longer subject to copyright protection and therefore have fallen into the public domain. Such potentially unlimited control is also contrary to the philosophy behind the first sale doctrine, which calls for extinguishing control over "copies" once they have been distributed.* Restrictive licensing of digital works is becoming the standard, and as print sources become increasingly obsolete, users are being forced to agree to whatever conditions are stated in private licenses in order to get access to the information they need.

The content distribution industry asserts that only if they have sufficient control to allow for certainty in their digital distribution channel can they provide users with a wide variety of choices and price points for licensed use of their material. This is a powerful argument for allowing the market to function without artificial constraints or supports and for suppliers and consumers to exercise their rights to choose. The problem with the content industry argument is that the ability to offer many choices carries with it the ability to offer only one choice. In the end, users are left with the content industry's promise that they will have choices -- or with the argument that in a world in which distribution is cheap and perfect price discrimination is possible, everyone will be able to obtain what they are willing to pay for. But if the content industry chooses to offer only one profit-maximizing option -- say, pay-per-view -- for all of its cultural artifacts, and if the law provides no alternative path for access (even for the purposes for which fair use was codified), users will find the sphere of publicly available material shrinking rapidly.

The fundamental idea behind intellectual property protection is that creators are entitled to limited incentives in order to stimulate the production -- and distribution -- of new works. We grant limited privileges to creators because we want them to create and to share their works for the benefit of society as a whole, not in order to give them total control over how their works are used. The central problem with broad use of DRM is not that software code will be regulating

* "[A] bill to change the first sale doctrine . . . is not a modest proposal. It is . . . a major substantive proposal involving a fundamental change in one of the main tenets of copyright law." Comment of Chairman Kastenmeier at the 1990 Senate Judiciary hearings on the *Computer Software Rental Amendments Act of 1990*, quoted by the ALA in their comments at p. 20.

users, but that content creators will be unilaterally regulating private uses of content and controlling the course of subsequent innovation.

b. Undermining Self-Enforcement

It is one thing for society to make some action "wrong" or "illegal." It is quite another for society to enable private parties to make an otherwise lawful action impossible. Building digital walls may be antithetical to building trust and that sense of community that is essential to encouraging voluntary compliance with law -- particularly if those walls do not reflect shared values. Building such walls is the technological equivalent of Prohibition -- and will likely be as successful.* If our government tells us that we may only use systems that obey the "authorization" mandates of others, and those mandates ignore shared values, many among us may seek to breach the walls in order to act in ways that we have been accustomed to doing, and which the law has previously authorized. If we substitute electronic fences for internalized values, and technical controls for publicly created law, we may lose our collective moral bearings and the considerable benefits of self-enforcement. Instead of enforcing a social bargain designed to encourage both creation and the public access that stimulates innovation and economic growth, overuse of DRM (particularly government-mandated DRM) may lead to a world where resort to the courts to obtain legal enforcement of rights becomes the norm and where, as Chairman Greenspan described, "our court system would be swamped into immobility and the performance of our economy would suffer." As he observed, "if our market system is to function smoothly, the vast majority of trades must rest on mutual trust and only indirectly on the law."[†]

Currently, private DRM discussions and agreements are occurring in a world that is based on licensing rather than purchase. As a DRM company executive said recently, "Any content company can distribute digital content with any level of protection and any assigned rights of use

* Following Prohibition, consumers went back to legitimate (non-bootleg) outlets for liquor because of a desire to ensure good quality. Raymond James Report.

[†] See, Remarks by Chairman Alan Greenspan, "Market Economies and Rule of Law," at the 2003 Financial Markets Conference of the Federal Reserve Bank of Atlanta, Sea Island, Georgia (April 4, 2003).

now, and should be attempting just that rather than trying to replicate existing business models." The move from purchase to license marks a significant change in our relationship to goods. Very few consumers read clickwrap agreements in detail, and none of these agreements are negotiable in any real sense.* Unless the law provides otherwise, private agreements can ignore previously defined norms -- indeed, license agreements could establish outrageous norms without our being aware of it, such as forbidding criticism or parody of the content licensed, or allowing our machines to be disabled remotely if the license terms were disobeyed, or permitting detailed review and reporting of private information about the user as a condition of access to content. Consumers obtaining access to digital works are routinely required to agree to terms that include waiver of long-standing limitations on exclusive copyright rights, such as the first sale doctrine and fair use. Routine library practices that are permitted under copyright law (such as interlibrary lending, lending for classroom or at-home use, archiving and preservation for historical purposes, and duplication for fair use purposes) are frequently restricted or barred by licensing agreements. Some first sale/fair uses are conditioned by license agreements on payment of additional fees -- a practice that will inevitably increase the information-gap between the rich and the poor. Because our economy is increasingly based on intangible assets, and we are continually growing more dependent on access to digital goods controlled via licensing agreements, we need to be thoughtful as a society about what license terms are permissible and how they affect the values that underlie our copyright regimes and our democracy.†

Those who advocate the aggressive use of DRM argue that there is no right to access another's property -- no right, for example, to break into a Border's bookstore at 3 AM to read a book there. But the work we license is not locked in the bookstore; DRM operates, as one observer has noted, more like a chain locking a work we felt we "owned" to a particular table; the chain

* Indeed at least one major computer company apparently does not even package any form of license (hard or soft copy) with the software to which these licenses apply. <<http://www.cypherpunks.ca/dell.html>>, (August 28, 2003.)

† Recently, the Federal Circuit's decision in *Bowers v. Baystate Technologies*, 01-1108, -1109 (finding that federal copyright law does not preempt a shrink-wrapped contract barring reverse engineering) has been the subject of great concern. Many public-interest groups and law professors signed an amicus brief in that case and have petitioned for certiorari, arguing that the decision allows unacceptably broad restraints on reverse engineering, fair use, and other limits on copyright, and suggesting that copyright law should preempt contract.

does not allow the work to be shared with a friend, read in a more comfortable armchair, or taken to a copy machine in order to bring an excerpt to class.*

The existence of private license agreements containing "unreasonable" terms -- terms inconsistent with shared values -- undermines the societal interest in self-enforcing contracts. The self-enforcement aspect of private agreements is essential; after all, voluntary compliance with private agreements is what makes a society livable. If we create a world where license terms do not appear to represent a fair bargain, and are contrary to shared values, we are likely to have built a world where there is little inclination for voluntary compliance and much delight taken in rule-breaking. Such a world will be filled with obtuse letters threatening dire legal consequences, or (more likely) widespread remote disabling of the machines upon which we rely. Just as we respect laws that embody our values, and self-enforce (thus avoiding the need for policemen at every corner), we respect private agreements that are fair and embody good bargains. Self-enforcement of private agreements is a societal benefit and a self-annealing process, and is preferable to strict enforcement by outside parties -- or even by the party with technical control over the machine of a consumer who "agreed" to an unreasonable license.

VII. FINDING A BETTER PATH

This report has reviewed three significant trends -- the movement from analog to digital information, from physical to intangible goods, and from sale to licensing. We have examined the development of the copyright balance over the years in the face of technological change, and the challenges these three trends are now posing to that balance: how to provide appropriate incentives for creators when their works may be copied perfectly and distributed widely without significant costs, while recognizing societal interests in access to information. We have reviewed proposals from the rights-holders to address these challenges through legal, regulatory, and contractual terms, all of which turn on providing far greater control to rights-holders than has been extended in the past. We have found these proposals flawed in important respects.

* Prof. Cohen has argued that the First Amendment supports a "right to read anonymously," which bars the government from enacting measures supporting the technological protection measures that infringe on such a right. Julie E. Cohen, "A Right to Read Anonymously: A Closer Look at 'Copyright Management' in Cyberspace," 28 *Conn. L. Rev.* 981 (1996).

But the challenges faced by rights-holders are real. A copyright system is not functioning if anyone can take a work, copy it perfectly, and share it freely with two hundred million people unknown to them without regard for the wishes of the rights-holder.

We do not believe that the present proposals should be adopted. Nor do we believe there is presently a perfect alternative solution. But we have also reached the view that there are ways of proceeding, and ways not to proceed, that will allow us to develop a robust solution that will appropriately balance the rights of creators (both the original and the follow-on creator), continue the leading role played by dynamic high tech industries, honor political and social goals of widespread access to information, and improve prospects for continued innovation and economic growth.

In attempting to develop a roadmap for ways in which to proceed, we have kept in mind certain principles that have guided CED over the years. It is important to thoroughly analyze a problem and not to rush to impose a solution without an understanding of its impacts. As with the practice of medicine, one should take care first to "do no harm." Relying on market forces is a useful starting point, but government has an important role to play in addressing important issues, particularly if market solutions are unlikely to promote fundamental social values. Calls for government action are weakest when the petitioner asks the government to mandate or impose a particular technology -- solutions that are technologically neutral and that utilize sound economic incentives are more likely to work under rapidly changing technological conditions. Governmental action is likelier to succeed if it reflects broadly shared values that commend themselves to voluntary compliance. And, finally, proposals should be judged with respect to their impact on continued innovation and, thus, sustained economic growth -- which creates the conditions for continued social and cultural progress.

With these principles in mind -- chief among them, the desire to promote innovation and sustained economic growth -- the Digital Connections Council makes the following recommendations:

RECOMMENDATIONS

1. Because quick legislative or regulatory solutions for the problem of digital copyright protection pose risks to innovation and economic growth, and are likely to have unintended consequences in a period of rapid technological change, we should move slowly. Our first concern should be to "do no harm." We should dedicate the next two years to attempting to build consensus about the appropriate role in the digital age for traditional legal safety valves that balance the exclusive rights of creators in copyright regimes with users' rights. The Digital Connections Council looks forward to facilitating this national and international dialogue.

Proponents of legislative and regulatory action now argue that we cannot afford to wait, that we must act now, that the future of their entire industries now hang in the balance, that "[p]rompt action is required to save broadcast television" (or movies, or cable television). It is clear that the financial results of the music distribution industry have declined over the last three years, but a close look at that marketplace reveals a number of significant factors in addition to file sharing that may have contributed to this downturn. Efforts now underway to experiment with different business models for music distribution are gaining ground. And the continued growth of other indicators, such as revenues from musical performances, suggests the vitality of the music industry as a whole.⁴⁹ We should not move quickly to change laws or regulations, being mindful of the first rule to "do no harm."

While the movie industry fears "Napsterization," it is coming off its most successful year in several decades. And the principal difference between the music industry's experience and that of the movie industry is the enormous bandwidth required to download a digitized movie. While a 56 Kbps connection -- now the standard dial-up modem rate -- allows a 5MB MP3 audio file to be downloaded in twelve minutes, downloading a one-hour video file, even one with VCR quality resolution, would require 20 hours over a 56 Kbps connection, and a high-definition video file would take impossibly long to download. It is true that the threat to the movie industry will increase with the growth of broadband connections in U.S. households: Home broadband access in the United States climbed in 2002 by 59% over 2001, bringing the total number of U.S.

users who accessed the web via high-speed connections to more than 33.6 million in December 2002.⁵⁰ But even with this growth bandwidth constraints remain: a VCR-quality hour of standard (analog) TV would require about four hours to download over a broadband connection, but an hour of high definition digital television would take at least 18 hours to download over a typical cable modem or DSL connection. There is little evidence that people are now sharing movie files online in large numbers in the way audio files are shared. Access to sufficient bandwidth in the "last mile" to make downloading videos painless is several years away. And, while lagging behind the music industry, the movie industry has also begun to experiment with new business models. At the same time, industry efforts to educate consumers about appropriate conduct and to bring enforcement actions under current law should continue to have a positive impact on consumer behavior.*

We should use this legislative and regulatory moratorium to attempt to build a new consensus about the basic "safety valves" that balance the exclusive rights of creators -- fair use, first sale, archiving and preservation in a digital environment. This approach may seem too slow for some rights-holders whose participation in the dialogue is critical. But we need to take our time as a society making up our minds about what policy direction to take. We have moved from a world in which we can think about a physically manifested work -- like a book -- to a world of swirling, undifferentiated bits. When we buy a book, we understand what it is we are doing and what access rights we have to that book. When we license software, on the other hand, we know less about what this means, and the two parties to the licensing agreement may have wildly different expectations about their respective rights, including rights to access or duplicate the content. Because we are still uncertain about this new world, we need to think carefully about what we do

* While the recent RIAA suits against several hundred uploaders have created a public relations furor for the music industry, these suits are appropriate under current law. The RIAA's tactics, however, have included use of a section of the DMCA that permits subpoenas to be sent to ISPs for users' personal information without review by any judicial officer -- and without notice to users. Many have recommended that this section of the DMCA, Section 512(h), be amended to require user notice and judicial review. See, e.g., Alan B. Davidson, Associate Director, Center for Democracy & Technology, Testimony before the Senate Committee on Commerce, Science and Transportation, (September 17, 2003.) The U.S. Court of Appeals for the District of Columbia Circuit has recently held that such subpoenas are not permissible under Section 512(h) of the DMCA. *Recording Industry Association of American, Inc. v. Verizon Internet Services, Inc.*, U.S. Court of Appeals for the D.C. Circuit, 2003, U.S. App. LEXIS 25735. The RIAA has also been criticized for not checking its facts before sending demand letters; in the last wave of cases, the RIAA went after people who had not in fact uploaded music and who were minors. See, <<http://www.foxnews.com/story/0,2933,96797,00.html>> (12 year old girl); <http://www.usatoday.com/tech/news/2003-09-24-riaa-drops-suit_x.htm> (66 year old woman who had never downloaded song-sharing software).

and, in particular, the relation between newly developing technological means of control and access guarantees traditionally found in intellectual property laws.

The key question that must be answered is whether we, as a society, have achieved an appropriate balance. Such a balance must provide the right incentives to creators to create. But it also must demonstrate a healthy respect for the purposes that copyright has sought to achieve by allowing a means for access to copyrighted material -- including the ability of individuals to make appropriate private noncommercial uses of copyrighted material. Such access recognizes the innovative impact of those who build on earlier works of creation. For this reason, we should be careful not to unnecessarily perpetuate rules that were created for a world made up of atoms that were physically distributed.

2. The development and testing of new business models for the distribution of creative content should be given the highest priority by the content industries. We should not turn to law or regulation to protect any particular business model.

It is our belief that that the most important efforts the content industry can make are those directed toward the development and testing of new business models for the distribution of creative content. This is not to minimize the need for educational campaigns about the rights and responsibilities of users, and enforcement -- particularly directed toward large- scale physical duplication of recorded media -- and development of technical protection measures that can accommodate consumer expectations such as time-shifting, space-shifting, non-commercial personal copies, and fair use.* But it is to emphasize that the perfect storm threatens not creative activity but the current models for its commercial distribution.

The best protection of commercial distribution plans against the forces of digitization -- perfect copies, freely distributed -- are business plans that recognize these characteristics (what some have called the "natural laws" of the digital economy) and employ them to better serve customer

* Educational campaigns are sorely needed. A recent Business Software Alliance study found that nearly two-thirds of college students surveyed said they would download pirated software. "Only a third of those students who have already downloaded commercial software have paid for it." Stefanie Olson, "Students Unfazed by Piracy," News.com., (September 16, 2003), available at <<http://news.com.com/2100-1027-5077451.html>>.

needs. Business plans that benefit from freely available copying and distribution are those most attractive in the emerging economy where "viral marketing" is an accepted norm.

Early efforts directed at enforcement or galvanizing legal or regulatory assistance to shut down file sharing systems or extend federally approved digital rights management systems into every possible digital display device seemed to distract the content industry from the development of new business models.⁵¹ It is not surprising that there would be a reluctance to engage in these experiments because of the risk of undercutting business models already in place.

But the affected industries are now increasingly engaged in

"The best way to combat piracy is to remove the incentive by providing a better alternative. The vast majority of us pay for Internet access. You can get it for free, but you have to live with pop-up ads and limitations. Only a tiny fraction of the public does that. We pay for Internet access because we cannot abide the annoyances. The renegade (file-sharing) networks have an abundance of pop-up ads, spyware, decoy files, viruses and sporadic crashes."

Phil Leigh of Raymond James and Associates, quoted in USA today, May 6,

various experiments for digital delivery of their products. As Michael Eisner, CEO of Disney, a strong proponent of technical mandates, recently told the National Association of Broadcasters annual convention, Disney will utilize the fullest range of digital technologies, while recognizing the threats they pose -- and will even rethink its current business models. In the future, Eisner said, movie studios will need to be more flexible about the way they distribute movies. In place of the current sequence of studio releases (from theaters to video to pay-per-view to television), studios will need to offer faster distribution, directly to consumers. As he put it, "If we don't provide consumers with our product in a timely manner, pirates will."⁵²

According to
the head of
the
Recording
Industry
Association
of America,
some of the

"I used to say that the record business was like a soft-drink company that sold its products in nothing but 64-ounce bottles, because our product was principally the full-length album. Well, thanks to electronic distribution through multiple types of networks with varied business models, we now have the equivalent of cans and six-packs and fountain drinks. Consumers can buy digital music a la carte or sign up for subscription services offering unlimited downloads, and they can take their tunes with them wherever they go."

Hillary Rosen, Business 2.0^(a)

a. <http://www.business2.com/articles/mag/0,1640,48572,00.html>

new models are gaining traction. It is clear that the new models have begun to accommodate customer expectations, moving in the direction of lower prices, wider choice of music, the ability to make copies of music that is downloaded, and even to burn downloaded music into a physical medium. Apple's iTunes Music Store, providing music downloads from a large library of songs, processed as many downloads on its opening day in May 2003 as had been collectively requested from the other competing download services over a six-month period -- more than 200,000.^{53*} During the last week of December 2003 alone, 1.9 million songs were downloaded from iTunes -- a rate of 100 million downloads per year. Thirty million songs were downloaded from iTunes between its May introduction and the end of 2003.^{†54} The reasons for the Music Store's popularity are many. Rather than streaming music, it offers all the songs available for download from the big-five record labels for \$.99 each -- and is very easy to use.⁵⁵ Users can save downloaded tracks on multiple devices, and can copy music onto their own CDs -- allowing time- and space-shifting. Even iTunes has limitations, because its inventory is not exhaustive and users cannot take songs and convert them directly into MP3 formats. But a version of iTunes for Windows has been released, and take-up of paid-for downloading is likely to continue. Further experimentation will undoubtedly explore different forms of funding support such as subscriptions, advertising, and promotional funding, as well as different means of

* The system allows sharing across three authorized Macs, and unlimited sharing among CDs and iPods that are pre-authorized. Id. Because Macintosh users represent only about 3 percent of the PC market, usage numbers will be even larger now that a Windows version has come out. Facing competition from the iTunes service, Listen.com will lower the price to download songs from its Rhapsody music service by 20 cents to 79 cents, marking the latest move by paid music services to attract and retain new ears.

<<http://www.wired.com/news/digiwood/0,1412,59005,00.html>>

† See also, Apple, "iTunes Music Store Sells Ten Millionth Song," (press release, Cupertino, California, September 8, 2003) available at <<http://www.apple.com/pr/library/2003/sep/08musicstore.html>>

competing with the free downloads available through file sharing services by providing newly released music, concert ticket tie-ins, authenticated copies, and other services.

At the same time, new competition to the existing distribution channels is developing as artists explore use of peer-to-peer file sharing networks to sell music directly to their fans. KazAa, where at any moment four million users are sharing some 800 million files, will offer rapper Ice T's new album *Repossession* for \$4.99 over a secure platform. According to the rapper, "With technology today, artists don't need to rely on the working of a traditional label to get their music to consumers, and without the label being in the middle to get a stake, it enables artists like myself to generate more revenue through selling product ourselves."⁵⁶

Thus, as the content industry is finding, there are ways to compete with "free" -- as the ever-increasing number of people carrying around bottles of purchased spring water demonstrate.* In the music business, "cheap and great" is likely to be at least as attractive to consumers as "free and crummy." Many analysts believe that the prospects for a reinvented music industry are quite positive. There is nothing to indicate any lessening of interest in listening to music; the very success of Napster and its decentralized descendents belie any such trend. Paradoxically, given the perceived threat of computer copying and distribution of music, listening to music on a computer is one of the few things that can be done while surfing the Internet -- and more and more people are spending more and more time online. And as the explosion of portable music devices has demonstrated over the last four years, a market exists for music on the move -- delivered by satellite, carried on a memory stick, or burned onto a "mix."⁵⁷

One powerful positive force supporting these new models is the fact that online offerings provide far greater choices of music for customers everywhere than is available from

"The best technical protection model is a better business model."

Joan Feigenbaum of Yale University at Berkeley DRM conference.

physical outlets. The rise of mass-market retailers has tended to reduce access to a broader range of music (while generally putting downward pressure on prices). Even music megastores,

*. In 2001, US sales of bottled water, which are expected to pass sales of coffee and milk by 2004, were \$6.5 billion. Bottled water sales are growing at a rate of 10% per year, and are soon likely to be second only to sales of soda in the US.

generally located in urban areas, have a stock that is a small fraction of the virtually unlimited choice of music available online regardless of the customer's location. It is estimated that approximately one out of five customers leaves a music store without purchasing anything because of inadequate selection or availability -- a problem not faced by the online distributor whose inventory costs are, at the same time, much lower.⁵⁸

In light of the fear of cannibalization of existing markets, the experience of Amazon in expanding the market for books is illustrative. While approximately 60% of its sales cannibalize sales of existing bookstores, approximately 40% of its sales are additive.* Most of the music available in stores today is in the form of new releases -- what is referred to as "front catalog" -- and more than half the sales are from this catalog. Yet 30-40% of sales are already from "back catalog" -- a figure likely to expand with greater availability of items online, combined with preference-based recommendations and intelligent agents available to assist online customers. (Webnoize found that Napster's greatest attraction was the vast choice of music available to users.)[†]

New devices are likely also to increase the market for music on the move. Cell phones have already created a market for ring tones. New mobile devices coming to market will make it easier to download music over new higher bandwidth mobile services.

Changes in relationships among the various players in the value chain are likely as technology improves and as greater bandwidth in the "last mile" is available. Given the threat of disintermediation of the distribution system, it is likely that artists will seek a greater share of the revenues; music publishers who hold rights to songs themselves are already seeking high returns for use of their rights. Even given increases in monies owed to music publishers and in marketing costs, the reduction or elimination of manufacturing and distribution costs (the largest category of capital expenses for recorded music), as well as reductions in the costs associated with customer transactions, inventories, and returns, increases the chances that successful

* Artists who allowed free downloads increased sales by 40%. Merrill Lynch Report, p.130.

† The most popular response by respondents was breadth of choice; the second most popular choice was instant gratification; third was "free." Raymond James Report, p.7.

business models can be created based on lower revenues -- enabling offerings that can more easily compete with free file-sharing services.⁵⁹

We believe
there is a
strong
likelihood
that

"The business model for the record labels has collapsed. Nobody wants to steal anything so long as there is a reasonable way to buy it at a fair price. The music industry has not caught up fast enough with the demands of the market."

Kunitake Ando, President Sony Corp., Dec 2002, quoted on cover of Digital Media/Raymond James report.

customers will find easily searchable, high quality, downloadable, value-laden content worth paying for online. Labels will continue to be seen as indicators of value when consumers are looking for works; labels will provide added value by "filtering" the vast amounts of music available due to the low cost of putting new music online and marketing particular customized selections to customers. Consumers have already invested considerable amounts to be able to enjoy the creative content of their choice and are likely to go to a legitimate source of content if they feel they are getting good value. Consumers do not want to face the vagaries of slower, more inaccurate, and less secure services. Content distributors are well placed to provide services of greater value. The Digital Connections Council encourages further movement in this direction.

3. Existing solutions to the issue of unauthorized uses, such as enforcement and education, should continue to be explored.

Current copyright law provides rights-holders with very significant enforcement tools. The Copyright Act allows for substantial civil penalties and criminal remedies.* We see no reason why the content industry should not use these tools; particularly as the greatest threats to industry revenues (up to two-thirds of all losses due to piracy) are from commercially driven pirates duplicating physical media such as tapes and CDs. Such large-scale offenders should be the

* Where a copyright is registered in a timely fashion, a court has the discretion to award statutory damages of up to \$30,000 for each copyrighted work infringed. If the infringement was willful, the court can award statutory damages up to \$150,000.

subjects of lawsuits -- and we do not think that the content industry will alienate the mass market by going after true pirates.*

Education about the rationale for copyright has taken on a new prominence in the work of trade associations as file sharing by consumers has exploded. It is an important response and is likely to have a positive effect.† When taken together with well-publicized enforcement actions, we think education may be more effective than it has been in the past-- particularly if attractive, legal, alternative sources for content exist beyond Napster and its progeny.

4. We recognize the need for digital rights management (DRM) systems that will allow creators to be rewarded for their efforts. We are skeptical about government-mandated DRM, and we recommend that manufacturers not be required to build in mandated copy protection technologies. But DRM systems provide a useful "speed bump" for consumers by inhibiting unauthorized uses of materials. During this period of consensus building about "safety valves" in intellectual property law, we encourage continued experimentation in private DRM systems. In particular, the capacity of such systems to accommodate users' rights traditionally allowed under intellectual property law needs to be further explored so that the appropriate copyright balance can be maintained. If government-mandated systems are proposed, they should be evaluated on the basis of their capability to maintain such a balance and their convenience for consumers. Consumers should play a substantial role in evaluating and approving mandated technological protection systems.

* In recent months, the RIAA has initiated legal enforcement actions against actively pursued hundreds of individuals uploading very large numbers of files to peer-to-peer networks. As Alan Davidson of the Center for Democracy and Technology recently stated, "While enforcement action is unpopular, it is necessary and preferable to the alternatives. ... It is unhealthy for our country, and unfair to copyright holders, for large numbers of people to routinely violate the law of the land." Davidson, testimony before the Senate Committee on Commerce, Science, and Transportation, hearing on Consumer Privacy and Government Technology Mandates in the Digital Media Marketplace, September 17, 2003.

† The RIAA has recently mounted an education campaign aimed at school children that involves a game called "Starving Artist," in which students come up with an idea for a record album, cover art, and lyrics. After this exercise is completed, a teacher tells them that the album is already available for download for free. According to the New York Times, the teacher would then "ask them how they felt when they realized that their work was stolen and that they would not get anything for their efforts." Laura Holson, "Studios Moving to Block Piracy of Films Online," *The New York Times*, September 25, 2003.

Some DRM developments are crucial for any system that needs to monitor use of copyrighted digital information in order to provide rewards for rights-holders; other forms of DRM may be quite useful in enabling rights-holders to allow multiple choices for the use of content in response to differing customer needs. But we also need to think carefully about the ability of DRM systems to prevent what has previously been viewed as legitimate access to information, and to technically enforce rules that would prevent reverse engineering or criticism of a product. Most importantly, we must understand the ability of DRM systems not only to protect copyrighted materials from unauthorized use but also their ability to technically accommodate those aspects of copyright that provide "safety valves" that release the pressure of rights-owner control. And consumers need to be part of these ongoing discussions and evaluations.

We have attempted to focus on the question of whether there is a way for technology to accommodate what the law has previously recognized as existing patterns of reasonable consumer uses. It is even more difficult for technology to accommodate the unknown -- the new, as-yet-undiscovered reasonable uses enabled as new technologies emerge. This latter task may be impossible. But what we have learned from our experience with the Internet -- an experimental laboratory for the creativity of half a billion users -- is that the best rules are those that allow for the possibility of presently untemplated uses.

Given the risks to innovation posed by DRM, our current belief is that the law should apply the first sale and fair use doctrines to digital content regardless of the digital rights management scheme imposed by the rights-holder. These rights should not be ignored simply because technology makes it possible to ignore them. At the same time, the law should not permit anyone to make and distribute unauthorized copies of digital content to the public -- simply because technology makes this possible.

We think this approach is appropriate (and necessary) for several reasons. First, fair use is an inherently subjective, case-by-case, fact-specific inquiry. No one knows in advance that any particular use of content is assuredly fair. For this reason, many believe it is impossible to completely "code" fair use. Allowing a 30-second snippet to be emailed to a friend is likely to be appropriate fair use of a two-hour movie (or might not, depending on circumstances), but

probably would not be fair use of a 30-second independent film short. Second, if someone overcame the difficult problems of coding in fair use as it is now, they might inadvertently cause future reasonable uses to be blocked. "Coding in" fair use might itself stifle innovation.

Because it is difficult -- perhaps impossible -- to "code" fair use, some have argued that DRM systems should not have to accommodate the purposes underlying fair use and first sale, and thus should be able to block reasonable consumer uses (such as emailing a program to a friend). But claiming that it is "too difficult" is not a sufficient answer. Such an answer removes the incentives to overcome the problem from the party who, seeking societal protection, has the greatest incentive to solve it. Moreover, protection of intellectual property is inherently a social contract. It is a matter of collective consensus (now embodied in copyright law) about the reasonableness of particular choices to use content in particular ways. It is not a matter of neutral enforcement by the state of a private party's decisions to exclude others from access. (Nor is it a matter of giving all parties that get access to a particular thing the right to deal with it as they see fit.) And, in order for a stable and self-enforcing intellectual property regime to exist, the social contract must be one that reflects our collective views. Having "no fair use" as the default setting does not reflect the bargain that has historically been struck --- and there is no indication that a new bargain has gained societal acceptance.

The problem, of course, is that unless fair use is specified in some binary way there is no way to incorporate it into any digital rights management system. No DRM scheme we know about can simultaneously protect against unauthorized uses and allow individual overrides whenever the user feels that what he or she is doing is reasonable. An alternative might provide for coding in general rules that would likely accommodate a majority of situations that all parties would agree would meet the fair use tests; but such a system would not likely cover all fair uses, and would certainly not accommodate new reasonable uses that emerge with technological progress. While such coding might provide a "floor" for fair use, it is equally possible that it would become a "ceiling." This dilemma suggests the importance of providing a role for the courts to ensure (in a case by case fashion) that the law reflects evolving practices.

The Digital Connections Council realizes that rights-holders are anxious to have government mandated and private DRM regimes in place and is sympathetic to their concerns and the threats they face from unauthorized digital copying and distribution. As a society, we could respond by greatly increasing the control offered to the rights-holder by mandating DRM systems that do not allow "wobble room" for existing or new uses of content. Or we could prevent the imposition of new costs on the follow-on innovator and the narrowing of the public domain that would result from such a mandate by requiring that DRM systems be evaluated in light of their effect on the existing balance between creators' rights and public rights.

One other point needs to be made about this choice. At present the Digital Millennium Copyright Act prohibits the circumvention of effective technological protection mechanisms. The effect of this prohibition is to protect material that may not be copyrightable and, more importantly, to bar access to copyrightable material even for purposes that would clearly be considered fair use. As we consider the future role of digital rights management systems, we should consider how to ensure that courts are empowered to protect fair, private, noncommercial uses, even in the presence of such systems.

5. Market-based economic tools that provide incentives for copyright-holders to facilitate follow-on innovation should be considered--including measures to provide earlier dedication of copyrighted materials to the public domain.

We should not necessarily be constrained by the current policy debate as we seek to resolve the "digital dilemma." It may be that different incentives for copyright-holders will provide the encouragement authors need to continue to create, while protecting the future of innovation and the public domain. For example, indirect subsidies of some kind -- in exchange for a form of "compulsory license" allowing unfettered use of content -- should be explored. It may be possible to create a collective rights association on the ASCAP/BMI model that can allocate payments -- perhaps even micropayments -- made by downloaders to appropriate recipients. The valuation and allocation questions posed by such proposals are very difficult, but that should not mean that discussion of these models never takes place. The Digital Connections Council encourages relevant stakeholders to look at alternative models. Such models may include

historical ideas that emerged out of periods of technological change, as well as new models that can be considered today only because of technical developments.*

Similarly, it may be possible to broaden the public domain. Should economic incentives be created to encourage rights-holders to dedicate their content to the public before their statutory term of copyright protection expires? It is beyond question that most of the value of a copyrighted work resides in its use in the early years of its copyright protection.[†] Might it be in the public interest to require some low-cost renewal process that would encourage rights-holders to decide whether to continue to assert their copyright rights or to allow the work to enter the public domain? Such a proposal would, at the least, allow interested parties to know who holds the rights in a particular work of authorship. At the present time, the costs involved in making this determination create obstacles to works being used by follow-on innovators. Such a renewal proposal would not fix the digital dilemma, but might contribute to a broadening of materials available to society as a whole.

* For example, the BBC recently announced that they would embrace Napster-like file sharing to make their archives free for those who paid a nominal license. *The Guardian*, August 28, 2003.

[†] See Economists' Brief.

CONCLUSION

We are sympathetic to the problems confronting the content distribution industry. It is beyond question that this industry faces real problems that deeply affect its future. But these problems -- perfect copies of high-value digital works being transmitted instantly around the world at almost no cost -- require clear, concentrated thinking, rather than quick legislative or regulatory action. As Thomas Edison said: "There is time for everything." Given the present limitations on bandwidth, the immaturity of many technical protection systems, and the inevitable unforeseen consequences of governmental actions, there is time to lay a stable foundation for intellectual property rules in the digital world.

Given CED's mandate, the Digital Connections Council has attempted to examine the current digital copyright issues within the context of concern for the overall economic health of this country. We believe this economic perspective -- and in particular an understanding of the sequential nature of innovation -- has not been adequately taken into account in the public debate. We also believe it is not too late for thoughtful discussion to find solutions that will prove broadly acceptable and encourage self-enforcement rather than an increase in litigation or regulation. It will be essential for thoughtful and inventive key stakeholders to sit down together to work through these problems. The Digital Connections Council looks forward to joining in such discussions and hopes this report will provide a helpful perspective.

ENDNOTES

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