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## Anticircumvention and Anti-Anticircumvention

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## Anticircumvention and Anti-Anticircumvention

# ANTICIRCUMVENTION AND ANTI-ANTICIRCUMVENTION

PETER K. YU<sup>†</sup>

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MSG LEFT BY: RED REBEL

THE FOLLOWING TOOLS SHOULD BE IN YOUR ARSENAL FOR CRACKING:

'BENEATH APPLE DOS'	QUALITY SOFTWARE
'BAG OF TRICKS'	QUALITY SOFTWARE
'APPLE MONITORS PEELED'	APPLE COMPUTER
'WHAT'S WHERE IN THE APPLE'	MICRO INK
INTEGER CARD	APPLE COMPUTER
MASTERDISK	MASTERWORKS SOFTWARE
MASTER DOS	MASTERWORKS SOFTWARE
D-A-R-K	MICROSEEDS
NIBBLES AWAY	COMPUTER APPLICATIONS
LOCKSMITH 5.0	OMEGA
INSPECTOR	OMEGA
WATSON	OMEGA
BEAGLE BROTHERS SOFTWARE FROM SAME	
ANY OF THE VARIOUS NON MASKABLE (NMI) INTERRUPT CARDS SUCH AS: CRACK-SHOT, REPLAY II, WILDCARD <sup>1</sup>	

## INTRODUCTION

Digital rights management (“DRM”) systems, including technological measures that are used to protect copyrighted works, are not new.<sup>2</sup> They have existed for at least the last couple of decades. Similarly, circumvention tools have been widely available for a long time, and it is not uncommon for individual users to circumvent the technological measures used to protect copyrighted works.

Those who played with computers in the early Apple II days may still remember the wide variety of cracking software and hardware they could obtain—Bag of Tricks, Locksmith, Wildcard, you name it. Today, however, DRM systems have taken on greater significance because of the growth of electronic commerce and the explosion of the Internet. What was once fascinating to only techies and geeks is now also of great interest to policymakers and the consuming public.

In the current DRM debate, just like in most other intellectual property-related debates, there is a considerable divide between the rights holders, their investors and representatives on the one hand and academics, consumer advocates, and civil libertarians on the other.<sup>3</sup> Although

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1. *Cracking Techniques*, [http://boutillon.free.fr/Underground/Deplombage/Cracking\\_Techniques/1984/1984.html](http://boutillon.free.fr/Underground/Deplombage/Cracking_Techniques/1984/1984.html) (last visited Sept. 20, 2006).

2. For excellent collections of articles discussing DRM systems and related laws, see generally DIGITAL RIGHTS MANAGEMENT: TECHNOLOGICAL, ECONOMIC, LEGAL AND POLITICAL ASPECTS (Eberhard Becker et al. eds., 2003) [hereinafter DIGITAL RIGHTS MANAGEMENT]; Symposium, *The Law and Technology of Digital Rights Management*, 18 BERKELEY TECH. L.J. 487 (2003).

3. See, e.g., Stefan Bechtold, *The Present and Future of Digital Rights Management—Musings on Emerging Legal Problems*, in DIGITAL RIGHTS MANAGEMENT, *supra* note 2, at 597, 619 [hereinafter Bechtold, *Present and Future*] (“[O]ver the last few years, the DRM debate has devel-

these two groups rarely talk to each other, each of them is convinced that “its position is obvious and natural, whereas the other side is radical and contrived.”<sup>4</sup> They concoct their own “doomsday scenarios” and argue for laws and policies that vindicate their positions.<sup>5</sup>

Unfortunately, neither side has sufficient empirical evidence to either support its position nor disprove its rivals’. Instead, as David McGowan noted, both sides tactically push the burden of proof back and forth, knowing full well that “[w]hoever has to prove the unprovable facts is likely to lose.”<sup>6</sup> As the digital economy grows, the debate intensifies, and the divide between the two sides widens.

Today, there has emerged an urgent need to find the common ground on this very divisive issue, and this Inaugural Summit and the resulting symposium issue cannot be timelier. Although finding this proverbial common ground has been difficult, we as academics fortunately can step back from the debate to analyze the positions taken by both sides. As a businessman once told me, “You have the luxury of saying ‘on the other hand,’ but we don’t. We have to make decisions.”

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oped into a discussion about extremes. Depending on the point of view, digital rights management is perceived as either heaven or hell on earth.”); James Boyle, *Enclosing the Genome: What the Squabbles over Genetic Patents Could Teach Us*, in PERSPECTIVES ON PROPERTIES OF THE HUMAN GENOME PROJECT 97, 107-09 (F. Scott Kieff & John M. Olin eds., 2003) (crudely dividing the intellectual property field into “‘maximalists’ or high protectionists, on the one hand, and ‘minimalists,’ or those with a heightened concern about the public domain, on the other”); Anupam Chander & Madhavi Sunder, *The Romance of the Public Domain*, 92 CAL. L. REV. 1331, 1334 (2004) (noting “the increasingly binary tenor of current intellectual property debates”); R. Polk Wagner, *The Perfect Storm: Intellectual Property and Public Values*, 74 FORDHAM L. REV. 423, 424 (2005) (observing the existence of “a virtual crisis for reasoned dialogue and deliberation; the gulf between advocates of ‘the public domain’ and the content creators is so broad as to virtually preclude the sort of discussion that could lead to mutually beneficial agreement about the policy changes that must occur in this new era of the copyright law”); Peter K. Yu, *Intellectual Property and the Information Ecosystem*, 2005 MICH. ST. L. REV. 1, 9 (“Today, the intellectual property debate is highly polarized. Policymakers and commentators tend to fall into one of the two rival camps: the high-protectionists or the low-protectionists—or in academic parlance, the maximalists or the minimalists.”).

4. Daniel A. Farber, *Conflicting Visions and Contested Baselines: Intellectual Property and Free Speech in the “Digital Millennium,”* 89 MINN. L. REV. 1318, 1347 (2005) (stating that “each side [in the debate] tries to convince the other that its position is obvious and natural, whereas the other side’s is radical and contrived”).

5. See, e.g., *id.* at 1321 (stating that both sides in the intellectual property debate “agree that the barbarians are at the gates, the city is under siege, and the situation is grave”); Jane C. Ginsburg, *How Copyright Got a Bad Name for Itself*, 26 COLUM. J.L. & ARTS 61, 65 (2002) (recalling suggestion that “the players in the debate over technological means of committing or forestalling copying were all paranoid, each suspecting the other of bottomless malevolence in their respective endeavors to control or to liberate copyrighted material”); David McGowan, *Copyright Nonconsequentialism*, 69 MO. L. REV. 1, 1 (2004) (observing that “those who debate copyright often seem to talk past each other”).

6. As David McGowan observed:

It is easy for each side to poke holes in the other side’s positions. It is hard for either side to make an affirmative, instrumental case for their views. For this reason, and because scholars favor consequentialist rhetoric, the debate often consists of competing narratives that use hunches and conjectures to link the result an author desires to the policy the author favors. Because the evidence in such arguments is so weak, the legal endgame is to place the burden of proof on the other side. Whoever has to prove the unprovable facts is likely to lose.

McGowan, *supra* note 5, at 2.

Fully exploiting this luxury, Part I begins by examining the positions taken by the proponents and critics of DRM systems and related laws. Part II then focuses on anticircumvention laws, highlighting their harms at both the domestic and international levels. Contending that an unbalanced international anticircumvention regime is more harmful than its domestic counterpart, this Part calls for countries, in particular less developed countries, to be more cautious about the ratification and subsequent implementation of the World Intellectual Property Organization (“WIPO”) Internet Treaties.<sup>7</sup> Part III concludes with four observations which I hope will provide some insight into the development of the next generation of DRM systems and the supporting legal regime. Resuscitating this Summit’s larger theme of “working together in the digital world,” this Part also seeks to find more common ground between the many stakeholders in the DRM debate.

### I. THE DRM DEBATE

In today’s DRM debate, there are generally two different camps. While rights holders, their investors and representatives are on one side, academics (usually liberal academics), consumer advocates, and civil libertarians are on the other. Even though these two camps disagree considerably, they do agree on many issues, and their positions are not irreconcilable. In addition, there are many who fall in between the two camps, as well as those whose affiliations vary depending on the specific issue at hand. Thus, despite the increasing polarity of the debate, it may be misleading to explore it as if there are only two camps.

Nevertheless, to underscore the need to find common ground between the many stakeholders in the DRM debate, this Part intentionally polarizes the positions of the pro-anticircumvention camp and the anti-anticircumvention camp. In particular, it discusses their disagreements over (1) where copyright law should strike the balance, (2) whether the leakage in the current copyright system is acceptable, (3) whether the technological measures deployed thus far by the content industries are sufficiently effective, (4) who should sacrifice in the early DRM systems, and (5) how society should respond to the challenge created by the Internet and new media technologies to the content industries. After exploring these differences, this Part concludes with a reminder that the debate is actually more complex and dynamic than what the bipolar debate has suggested and that stakeholders align their positions with those of others at times while opposing them at other times.

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7. WIPO Copyright Treaty, *adopted* Dec. 20, 1996, 36 I.L.M. 65 [hereinafter WCT]; WIPO Performances and Phonograms Treaty, *adopted* Dec. 20, 1996, 36 I.L.M. 76 [hereinafter WPPT].

*A. Where Should Copyright Law Strike the Balance?*

Most members of the two camps agree that intellectual property is valuable and that the copyright system provides the needed economic incentives to promote creativity.<sup>8</sup> Without copyright protection, they understand, most professional authors and their investors will not be able to recoup the time, effort, or resources expended in the creative process, and society will suffer as a result. Copyright therefore ensures that authors participate in the creative process, rather than in other, more remunerative activities.

What these two camps disagree about, however, is the amount of incentives the copyright system needs to generate to promote creativity and whether support for creative works should come *solely* from the copyright system.<sup>9</sup> Although an increase in copyright protection will generally increase the authors' economic incentives to create, such incentives are not the only motivation behind creative activities. For example, I do not need economic incentives to write a thank you email to the organizers of this interesting summit, even though such an email is eligible for copyright protection if it is original and sufficiently creative and if it satisfies the other requirements under copyright law. Likewise, parents do not need economic incentives to take snapshots of their children, although these snapshots are also eligible for copyright protection. In fact, if the right circumstances arise, these snapshots may be worth a large sum of money (think Brangelina's Baby!<sup>10</sup>).

In addition, more is not always better, and small can be beautiful.<sup>11</sup> To participate in the creative process, authors need access to a richly endowed public domain. The more protection society gives to a single author, the less access to the copyrighted works thousands, or even millions, of future authors (and many more consumers) will have. At some point, the lack of access to needed raw materials and the fear of copyright infringement lawsuits will prompt future authors to abandon their aspiring profession.

As Judge Alex Kozinski warned us in his famous dissent in *White v. Samsung Electronics America, Inc.*,<sup>12</sup> “[o]verprotecting intellectual property is as harmful as underprotecting it.”<sup>13</sup> Judge Kozinski's concern has

8. Inevitably, there are commentators who consider copyright obsolete and irrelevant in the digital world and therefore have called for its abolition. See Peter K. Yu, *P2P and the Future of Private Copying*, 76 U. COLO. L. REV. 653, 732-33 (2005) (discussing these commentaries).

9. See *id.* at 733-39 (examining alternative compensation models).

10. See Julie Bosman, *In Web Era, Big Money Can't Buy an Exclusive*, N.Y. TIMES, June 12, 2006, at C1 (reporting that *People Magazine* paid a substantial sum for the rights to publish the pictures of Angelina Jolie and Brad Pitt cuddling their days-old infant).

11. See generally E.F. SCHUMACHER, *SMALL IS BEAUTIFUL: ECONOMICS AS IF PEOPLE MATTERED* (1975).

12. 989 F.2d 1512 (9th Cir. 1993).

13. *White*, 989 F.2d at 1513 (Kozinski, J., dissenting).

become particularly important today, in light of the ever-expanding scope of intellectual property protection. Indeed, critics have repeatedly questioned whether the existing copyright system has struck the appropriate balance between rights holders and the consuming public. As Jessica Litman, one of the most vocal critics of the copyright industries, stated:

There is no overarching vision of the public interest animating the Digital Millennium Copyright Act ["DMCA"]. None. Instead, what we have is what a variety of different private parties were able to extract from each other in the course of an incredibly complicated four-year multiparty negotiation. Unsurprisingly, they paid for that with a lot of rent-seeking at the expense of new upstart industries and the public at large.<sup>14</sup>

Similarly, Glynn Lunney noted that "[o]rdinary consumers seldom play any direct role in the extended (and often private) negotiating sessions required to craft such compromises" and that consumer interests are "represented only indirectly in these sessions, when it happens to coincide with the interest of one of the participants."<sup>15</sup> Joseph Liu also pointed out that the relationship between copyright and consumer interests remains underexplored in legal scholarship.<sup>16</sup>

While the historical lack of consumer participation in crafting copyright legislation is lamentable, the continued lack of such participation is especially alarming, as digital technologies and the Internet open up many new political, social, economic, educational, and career opportunities. It is therefore understandable why academics, consumer advocates, and civil libertarians have widely criticized the recent expansion of intellectual property laws, including the introduction of anticircumvention

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14. JESSICA LITMAN, DIGITAL COPYRIGHT 144-45 (2001). For a classic treatment of public choice problems in copyright lawmaking, see Jessica D. Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857 (1987). See also LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD (2001) (lamenting how the recent expansion of intellectual property laws have stifled creativity and innovation); LAWRENCE LESSIG, FREE CULTURE: HOW BIG MEDIA USES TECHNOLOGY AND THE LAW TO LOCK DOWN CULTURE AND CONTROL CREATIVITY (2004) (articulating the needs for the development of a free culture movement); LITMAN, *supra* (detailing the expansion of copyright laws in the past two centuries); SIVA VAIDHYANATHAN, COPYRIGHTS AND COPYWRONGS: THE RISE OF INTELLECTUAL PROPERTY AND HOW IT THREATENS CREATIVITY (2001) (describing how the increasing corporate control over the use of software, digital music, images, films, books and academic materials has steered copyright law away from its historical design to promote creativity and cultural vibrancy). But see Jane C. Ginsburg, *Copyright Legislation for the "Digital Millennium,"* 23 COLUM.-VLA J.L. & ARTS 137, 137 (1999) [hereinafter Ginsburg, *Copyright Legislation*] (describing the DMCA as "the fruit of intensive lobbying by a wide range of interest groups of copyright owners, on the one hand, and, particularly, users, on the other" (emphasis added)).

15. Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VA. L. REV. 813, 898 (2001).

16. See Joseph P. Liu, *Copyright Law's Theory of the Consumer*, 44 B.C. L. REV. 397, 401 (2003) (stating that "copyright law currently does not have any persuasive or coherent theory of the consumer, and that examining consumer interests in more detail may shed some useful light on a number of existing copyright law debates").



protection. To them, DRM systems and related laws are just another alarming feature of the ever-expanding copyright regime.

*B. Is the Leakage in the Existing Copyright System Acceptable?*

Both camps agree that unauthorized downloading is widespread, serious, and probably detrimental to the economic health of the content industries.<sup>17</sup> However, they bicker about the actual volumes of illegal downloading and the resulting adverse financial impact on the industries.<sup>18</sup> They also disagree on whether the leakage in the current copyright system is acceptable. From the standpoint of rights holders, the more airtight the protection is, the more profits they will make, and the more worthwhile their investments will be. Thus, it is ideal for the content industries to deploy technological measures to ensure zero leakage from the production facilities to consumers.<sup>19</sup>

From the standpoint of consumers, however, this position is not only unsupportable, but socially detrimental. As Mark Lemley observed:

[T]he effort to permit inventors [and creators] to capture the full social value of their invention—and the rhetoric of free riding in intellectual property more generally—are fundamentally misguided. In no other area of the economy do we permit the full internalization of social benefits. Competitive markets work not because producers capture the full social value of their output—they do not, except at the margin—but because they permit producers to make enough money to cover their costs, including a reasonable return on fixed-cost investment. Even real property doesn't give property owners the right to control social value. Various uses of property create uncompensated positive externalities, and we don't see that as a problem or a reason people won't efficiently invest in their property.<sup>20</sup>

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17. For example, although Raymond Ku disagrees with the recording industry's position that file sharing is theft and considers such activities instead as part of a socially beneficial creative destruction process, he has made it clear that he "do[es] not mean to suggest that consumer copying is not a threat to the recording industry or other content distributors." Raymond Shih Ray Ku, *Consumers and Creative Destruction: Fair Use Beyond Market Failure*, 18 BERKELEY TECH. L.J. 539, 564, 566 (2003). In fact, he believes that file sharing "is a serious threat, one that strikes at the very foundation of a business model based upon distributing content to the public." *Id.* at 566. His disagreement with the industry mainly comes from his belief that "copyright does not protect against this type of threat" and that "[c]opyright protects the distribution of creative works in general, not a particular industry or business model." *Id.*

18. See Yu, *P2P and the Future of Private Copying*, *supra* note 8, at 658 n.15 (providing sources disagreeing over the adverse economic impact of file sharing on the recording industry).

19. As Eben Moglen observed, "[t]he content industries want to make a leakproof pipe that leads from their production facility directly to the eyeball and eardrum of the consumer." Tina Gasperson, *SSSCA Gets a Hearing Oct. 25—Can It Be Stopped?*, NEWSFORGE, Oct. 19, 2001, <http://www.newsforge.com/article.pl?sid=01/10/19/1546246>.

20. Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1032 (2005) [hereinafter Lemley, *Free Riding*]. But see John F. Duffy, *Intellectual Property Isolationism and the Average Cost Thesis*, 83 TEX. L. REV. 1077 (2005) (responding to Professor Lemley). See also Mark A. Lemley, *REPLY: What's Different About Intellectual Property?*, 83 TEX. L. REV. 1097 (2005) (replying to Professor Duffy).

Thus, there are many good policy reasons for harnessing the copyright system to promote spillovers that are beneficial to innovation and creativity.<sup>21</sup> As Professor Lemley pointed out, “[t]he goal of eliminating free riding . . . is ill-suited to the unique characteristics of intellectual property . . . [, and e]fforts to permit intellectual property owners to fully internalize the benefits of their creativity will inevitably get the balance wrong.”<sup>22</sup>

Moreover, the First Amendment seems to require some form of accommodation of individual interests in copyright law. Although the Supreme Court in *Eldred v. Ashcroft*<sup>23</sup> stated that the First Amendment “bears less heavily when speakers assert the right to make other people’s speeches,” as compared to making or declining to make one’s own speech, the Court recognized that copyright law incorporates “built-in free speech safeguards” to address First Amendment concerns,<sup>24</sup> such as the idea-expression dichotomy, the fair use privilege, and the many statutory exceptions cited in the decision. Because of these safeguards, the Court declined to impose on copyright term extension the “uncommonly strict scrutiny” applied in First Amendment cases.<sup>25</sup> As the Court explained, strict scrutiny is unnecessary as long as “Congress has not altered the traditional contours of copyright protection.”<sup>26</sup>

Nevertheless, the Court left open the possibility for strict First Amendment scrutiny when the DMCA or sophisticated DRM systems have altered those traditional contours. Because the DMCA threatens to take away the “built-in free speech safeguards,” some cyberlaw and First Amendment scholars, like Jack Balkin, Daniel Farber, and Lawrence Lessig, suggested that the DMCA may be open to challenge on First Amendment grounds.<sup>27</sup> Others, by contrast, have questioned whether

21. See Lemley, *Free Riding*, *supra* note 20, at 1052 (contending that “part of the point of intellectual property law is to promote uncompensated positive externalities, by ensuring that ideas and works that might otherwise be kept secret are widely disseminated”); see also Brett M. Frischmann, *Evaluating the Demsetzian Trend in Copyright Law*, 4 REV. L. & ECON. (forthcoming 2006), [http://ssrn.com/abstract\\_id=855244](http://ssrn.com/abstract_id=855244); Brett M. Frischmann & Mark Lemley, *Spillovers*, 106 COLUM. L. REV. (forthcoming 2007), [http://ssrn.com/abstract\\_id=898881](http://ssrn.com/abstract_id=898881).

22. Lemley, *Free Riding*, *supra* note 20, at 1032; see also LAWRENCE LESSIG, CODE AND OTHER LAWS OF CYBERSPACE 130 (1999) [hereinafter LESSIG, CODE] (explaining why “perfect control is not the control that law has given owners of intellectual property”).

23. 537 U.S. 186 (2003).

24. *Eldred*, 537 U.S. at 227.

25. See *id.* at 218-19 (“We reject petitioners’ plea for imposition of uncommonly strict scrutiny on a copyright scheme that incorporates its own speech-protective purposes and safeguards.”); see also *id.* at 219-20 (discussing the various exceptions in the copyright statute).

26. *Id.* at 221.

27. See, e.g., Farber, *supra* note 4, at 1349 (contending that *Eldred* has “suggest[ed] that more transformative uses might come out differently under the First Amendment . . . [and that] further First Amendment scrutiny is in order when Congress has altered those contours”); Lawrence Lessig, *Creative Economies*, 2006 MICH. ST. L. REV. 33, 41 (stating that “[t]he Court stated that laws that do not change the ‘traditional contours’ of copyright protection are not subject to First Amendment scrutiny, leaving the implication that laws that change those ‘traditional contours’ do get First Amendment scrutiny”); Posting of Jack Balkin to Balkinization, [http://balkin.blogspot.com/2003\\_01\\_12\\_balkin\\_archive.html#87596430](http://balkin.blogspot.com/2003_01_12_balkin_archive.html#87596430) (Jan. 17, 2003, 11:45 EST) (“Is the Digital Millennium

there has ever been any “traditional contours of copyright protection,”<sup>28</sup> suggesting that these contours may have to be defined, constructed, or even “invented.”<sup>29</sup> Notwithstanding this continuous debate, it seems correct to assume that the copyright system needs to accommodate *some* form of First Amendment interests. After all, the Court rejected the position of the United States Court of Appeals for the District of Columbia Circuit that copyrights are “categorically immune from challenges under the First Amendment.”<sup>30</sup>

In addition to First Amendment interests, commentators have suggested that the “breathing space”<sup>31</sup> in the copyright system extends to cover other individual interests and socially-beneficial activities. For example, Julie Cohen criticized the DMCA for taking away the “breathing space for thought, exploration, and personal growth” usually protected by the right to privacy.<sup>32</sup> Joseph Liu faulted the DMCA for its “potential of effectively blocking out some of the breathing space that conventional copyright law made available for more active modes of consumption.”<sup>33</sup> Pamela Samuelson and Suzanne Scotchmer discussed “[t]he challenge . . . to design legal rules that protect information-rich products against market-destructive cloning while providing enough breathing room for reverse engineering to enable new entrants to compete and innovate in a competitively healthy way.”<sup>34</sup>

Some commentators have also underscored the importance of a regulatory safety valve in our legal system. As Polk Wagner pointed out recently, “[e]ven under legal schemes that demand little or no intervention on the part of third-party regulatory institutions, such as property-backed contracts, there nonetheless exist a number of safety valves that ensure that private arrangements conform to acknowledged boundaries of

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Copyright Act Unconstitutional Under *Eldred v. Ashcroft?*)” (suggesting that “the DMCA is constitutionally suspect” under the *Eldred* logic, because the statute has “altered the traditional contours of copyright protection”).

28. See Peter K. Yu, *The Escalating Copyright Wars*, 32 HOFSTRA L. REV. 907, 929-30 (2004) (explaining that it remains unclear whether the Court would find that the DMCA had altered “the traditional contours of copyright protection”).

29. See Farber, *supra* note 4, at 1322 (observing that the baseline used to determine the ideal governing regime for the digital domain remains to be “constructed” and cannot be derived from simple observation); cf. THE INVENTION OF TRADITION (Eric J. Hobsbawm & Terence Ranger eds., 1983) (showing that many of what we consider ancient traditions were actually invented comparatively recently).

30. *Eldred*, 537 U.S. at 221 (stating that “the D.C. Circuit spoke too broadly when it declared copyrights ‘categorically immune from challenges under the First Amendment.’” (quoting *Eldred v. Reno*, 239 F.3d 372, 375 (D.C. Cir. 2001)); see also Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 414-26 (1999) (describing how the DMCA raises First Amendment concerns); Neil Weinstock Netanel, *Locating Copyright Within the First Amendment Skein*, 54 STAN. L. REV. 1, 74-81 (2001) (contending that the DMCA is vulnerable to First Amendment challenge).

31. *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 579 (1994).

32. Julie E. Cohen, *DRM and Privacy*, 18 BERKELEY TECH. L.J. 575, 578 (2003).

33. Liu, *Copyright Law’s Theory of the Consumer*, *supra* note 16, at 429.

34. Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575, 1580 (2002).

social practice.”<sup>35</sup> Thus, one can conclude that some leakage is beneficial and can be further justified as the needed “safety valve” in the copyright system.<sup>36</sup> After all, the Framers of the Constitution intended copyright to be the “engine of free expression,”<sup>37</sup> and jurists and commentators have underscored the “safety valve” function of the First Amendment.<sup>38</sup>

### C. Are the Existing Technological Measures Sufficiently Effective?

Both camps agree that the arms race between copyright holders and technology developers on the one hand and hackers—or, more accurately, crackers—on the other hand is wasteful.<sup>39</sup> In fact, society will be

35. R. Polk Wagner, *Reconsidering the DMCA*, 42 HOUS. L. REV. 1107, 1118 (2005). Among the safety valves he cited are the doctrine of unconscionability in contract law, unfair competition law, principles of nondiscrimination, and restraint encouraged by public enforcement of contract law. *Id.*

36. *Cf.* Universal City Studios v. Reimerdes, 111 F. Supp. 2d 294, 322 (S.D.N.Y. 2000) (stating that “[i]t has been viewed by courts as a safety valve that accommodates the exclusive rights conferred by copyright with the freedom of expression guaranteed by the First Amendment”). There is no guarantee, however, in what form this safety valve should take. As stated in a study by the Kernochan Center for Law, Media and the Arts, “the current law already includes a ‘safety valve’—in addition to several exemptions set out in the law, the Copyright Office can create new exemptions through its rulemaking proceeding.” June M. Besek, *Anti-Circumvention Laws and Copyright: A Report from the Kernochan Center for Law, Media and the Arts*, 27 COLUM. J.L. & ARTS 385, 390 (2004).

37. Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 558 (1985).

38. As Justice Louis Brandeis recognized in *Whitney v. California*:

Those who won our independence . . . knew that order cannot be secured merely through fear of punishment for its infraction; that it is hazardous to discourage thought, hope and imagination; that fear breeds repression; that repression breeds hate; that hate menaces stable government; that the path of safety lies in the opportunity to discuss freely supposed grievances and proposed remedies; and that the fitting remedy for evil counsels is good ones.

274 U.S. 357, 375 (1927); *see also* Frances H. Foster, *Izvestiia as a Mirror of Russian Legal Reform: Press, Law, and Crisis in the Post-Soviet Era*, 26 VAND. J. TRANSNAT’L L. 675, 742 (1993) (stating that the press in the United States “has acted as a ‘safety valve’ for the release and ‘domestication’ of popular discontent and frustration” (footnote omitted)); Jonathan Weinberg, *Broadcasting and Speech*, 81 CAL. L. REV. 1103, 1141 n.177 (1993) (stating that “[a]dvocates of a ‘safety valve’ theory of the First Amendment can cite Brandeis’ [concurrency in *Whitney v. California*]”).

39. I described this endless arms race earlier:

Although copy protection technologies allow copyright holders to lock up creative works, these technologies lose their protective function when they are decrypted. Even worse, once the decryption key is disclosed, the copyrighted work will become available not only to those “techies” who successfully broke the code but also to unsophisticated users around the world. . . . To prevent the public from breaking the copy protection technology, copyright holders must constantly upgrade their technology. Such upgrading, unfortunately, will further attract the attention of hackers, who are eager to tinker with the latest technology. Eventually, the repeated encryption and decryption will create a vicious cycle in which the entertainment industry and the hacker community engage in an endless copy protection arms race.

Yu, *P2P and the Future of Private Copying*, *supra* note 8, at 722-24 (footnotes omitted); *see also* Ginsburg, *Copyright Legislation*, *supra* note 14, at 153 (stating that an “arms race wastes creative resources that might be better directed toward creating original works of authorship, rather than devices that promote piracy”); Trotter Hardy, *Property (and Copyright) in Cyberspace*, 1996 U. CHI. LEGAL F. 217, 251 (discussing the “wasteful ‘arms race’ of technological-protection schemes, with each side increasing its spending to outperform the other’s technology”); Raymond Shih Ray Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology*, 69 U. CHI. L. REV. 263, 319-20 (2002) (discussing an expensive and unending technological arms race).

better off if the content industries devote their scarce resources to nurturing artists and creators and improving products, rather than upgrading the technology that is used to restrict consumers' access to copyrighted works.<sup>40</sup>

Both camps also understand that there are no perfect, hacker-proof DRM systems.<sup>41</sup> As Edward Felten explained, even the best encryption technology merely serves as “a speed bump that will frustrate people who want to copy illegally.”<sup>42</sup> The goal of DRM systems is not to ensure that the content will be unavailable to highly sophisticated hackers. Rather, it is to “help . . . keep honest people honest”<sup>43</sup>—or, as Fred von Lohmann put it, to help “keep[] technically unsophisticated people honest.”<sup>44</sup> By providing “virtual fences,” DRM systems also can help signal

40. See Yu, *P2P and the Future of Private Copying*, *supra* note 8, at 723.

41. See *Competition, Innovation, and Public Policy in the Digital Age: Is the Marketplace Working to Protect Digital Creative Works?: Hearing Before the Senate Comm. on the Judiciary*, 107th Cong. 89-92 (2002) (testimony of Edward W. Felten, Associate Professor of Computer Science, Princeton University) (noting that “strong encryption” techniques that a moderately skilled person cannot break do not exist in the real world), available at [http://frwebgate.access.gpo.gov/cgi-bin/useftpl.cgi?laddress=162.140.64.21&filename=85758.pdf&directory=/disk/wais/data/107\\_senate\\_hearings](http://frwebgate.access.gpo.gov/cgi-bin/useftpl.cgi?laddress=162.140.64.21&filename=85758.pdf&directory=/disk/wais/data/107_senate_hearings); PETER BIDDLE ET AL., *THE DARKNET AND THE FUTURE OF CONTENT DISTRIBUTION* § 5.1 (2002), <http://crypto.stanford.edu/DRM2002/darknet5.doc> (noting that digital rights management systems “are doomed to failure”); Stuart Haber, *If Piracy Is the Problem, Is DRM the Answer?*, in *DIGITAL RIGHTS MANAGEMENT*, *supra* note 2, at 224 (arguing that “given the current and foreseeable state of technology the content protection features of DRM are not effective at combating piracy”); Pamela Samuelson, *DRM {and, or, vs.} the Law*, *COMM. ACM*, Apr. 2003, at 41, 43 (stating that “no DRM technology is hacker-proof”); see also Fred von Lohmann, *Measuring the Digital Millennium Copyright Act Against the Darknet: Implications for the Regulation of Technological Protection Measures*, 24 *LOY. L.A. ENT. L. REV.* 635, 638 (2004) (“Proponents of the DMCA’s anti-circumvention provisions were not naïve about the technological infallibility of TPMs. They admitted that no technology would be foolproof against every hacker bent on compromising it.”).

42. A “Speed Bump” vs. *Music Copying*, *BUS. WK.*, Jan. 9, 2002 (interview with Professor Edward Felten of Princeton University), available at [http://www.businessweek.com/bwdaily/dnflash/jan2002/nf2002019\\_7170.htm](http://www.businessweek.com/bwdaily/dnflash/jan2002/nf2002019_7170.htm). Although no encryption technology can protect perfectly, such technology does not need to be perfectly robust to have a positive effect.

43. As a National Research Council study observed:

Most people are not technically knowledgeable enough to defeat even moderately sophisticated systems and, in any case, are law-abiding citizens rather than determined adversaries. TPSs [technical protection services] with what might be called “curb-high deterrence”—systems that can be circumvented by a knowledgeable person—are sufficient in many instances. They can deter the average user from engaging in illegal behavior and may deter those who may be ignorant about some aspects of the law by causing them to think carefully about the appropriateness of their copying. Simply put, TPSs can help to keep honest people honest.

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44. von Lohmann, *supra* note 41, at 639; see also David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 *U. PA. L. REV.* 673, 740 (2000) [hereinafter Nimmer, *A Riff on Fair Use*] (stating that “[i]f the courts apply section 1201 as written, the only users whose interests are truly safeguarded are those few who personally possess sufficient expertise to counteract whatever technological measures are placed in their path” (footnote omitted)). Pamela Samuelson, however, questioned “whether Congress intended for the technologically savvy who could ‘do it themselves’ to be the only ones who could engage in privileged acts of circumvention.” Pamela Samuelson, *Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised*, 14 *BERKELEY TECH. L.J.* 519, 551 (1999) [hereinafter Samuelson, *Intellectual Property and the Digital Economy*]. But see *Universal City Studios v. Reimerdes*, 111 F. Supp.

to the outside world the traditionally elusive boundaries of intellectual property,<sup>45</sup> even though these systems sometimes “‘fence in’ material that is either not copyrighted or which is already in the public domain.”<sup>46</sup>

Nevertheless, the two camps disagree on whether the encryption technology currently deployed by the content industries is sufficiently effective to protect copyrighted works.<sup>47</sup> A case in point is the weak copy-protection technology manufactured by SunnComm for BMG’s CDs.<sup>48</sup> In October 2003, SunnComm threatened to sue a computer science graduate student under the DMCA after he posted a paper on his website explaining how to disarm SunnComm’s technology by pushing the shift key when loading a CD into a computer.<sup>49</sup> While there is no doubt that the student’s disclosure of this embarrassing flaw has reduced the company’s market value in the short term, it is unclear how such a shift-key-disabled technology could be considered effective.<sup>50</sup>

It is important to remember that the anticircumvention provision of the DMCA, and the WIPO Internet Treaties on which it was based, were created to promote *self-help*.<sup>51</sup> To some extent, the provision can be seen

2d 294, 324 (S.D.N.Y. 2000) (declaring that “[t]he fact that Congress elected to leave technologically unsophisticated persons who wish to make fair use of encrypted copyrighted works without the technical means of doing so is a matter for Congress unless Congress’ decision contravenes the Constitution”).

45. See, e.g., Ian R. Kerr et al., *Technical Protection Measures: Tilting at Copyright’s Windmill*, 34 OTTAWA L. REV. 7, 13 (2002) (stating that “TPMs can operate as safeguards or ‘virtual fences’ around digitized content, whether or not the content enjoys copyright protection”); Ejan Mackaay, *Intellectual Property and the Internet: The Share of Sharing*, in THE COMMODIFICATION OF INFORMATION 133, 136-38 (Neil Weinstock Netanel & Niva Elkin-Koren eds., 2002) (discussing the “fencing” aspect of property). *But cf.* Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 HARV. J.L. & TECH. 41, 53 (2001) (discussing the uneasiness of using the “fence” metaphor).

46. Thomas Dreier & Georg Nolte, *The German Copyright—Yesterday, Today, Tomorrow*, in DIGITAL RIGHTS MANAGEMENT, *supra* note 2, at 479, 496.

47. Effectiveness is actually one of the requirements of the DMCA. See 17 U.S.C. § 1201(a)(3)(B) (2004) (stating that “a technological measure ‘effectively controls access to a work’ if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work”); *id.* § 1201(b)(2)(B) (stating that “a technological measure ‘effectively protects a right of a copyright owner under this title’ if the measure, in the ordinary course of its operation, prevents, restricts, or otherwise limits the exercise of a right of a copyright owner under this title”).

48. BMG seems to have its unfortunate share of bad publicity about its deployment of TPMs. The most recent embarrassment concerns the unauthorized installation of a “rootkit” onto users’ computers. For a discussion of this controversy in this symposium issue, see Megan M. LaBelle, *The “Rootkit Debacle”: The Latest Chapter in the Story of the Recording Industry and the War on Music Piracy*, 84 DENV. U. L. REV. 79 (2006).

49. John Borland, *Student Faces Suit Over Key to CD Locks*, CNET NEWS.COM, Oct. 9, 2003, <http://news.com.com/2100-1025-5089168.html>.

50. SunnComm smartly dropped the lawsuit. See Declan McCullagh, *SunnComm Won’t Sue Grad Student*, CNET NEWS.COM, Oct. 10, 2003, <http://news.com.com/2100-1027-5089448.html>.

51. See, e.g., DIGITAL DILEMMA, *supra* note 43, at 312 (stating that it is “a perfectly understandable goal” when the DMCA is “[i]nterpreted as an incentive for copyright owners to protect their own property, rather than to rely solely on the police and the courts”); ROBERT S. SCHWARTZ & MIKE GODWIN, *BEYOND GROKSTER: A CRITIQUE OF THE MODELS PROPOSED BY COPYRIGHT AND LAW-AND-ECONOMICS AUTHORITIES* (2005), <http://www.publicknowledge.org/news/analysis/critique-menellet-rss-mg> (stating that “Sections 1201(a) and (b) are aimed at strengthening a regime of licensed technological measures and self-help, as an alternative to copyright litigation”);

as a two-step legislative compromise. The first step commences when copyright holders introduce technological measures that effectively protect copyrighted works. If the rights holders complete the first step by deploying *effective* measures, the law will then kick in to offer additional protection, based partly on the premise that some legal protection is needed to compensate for the lack of perfect, hacker-proof encryption technology. However, if the copyright holder fails to complete the first step, there is no need to reach the second step. Thus, the anticircumvention right—if there is one—is not absolute, but conditional, and circumvention of technological measures *per se* is not a violation of the DMCA.

#### D. Who Should Sacrifice in Early DRM Systems?

Both camps agree that DRM systems are important and can be very useful, especially during a transitional period when the content industries are seeking solutions to the extensive unauthorized copying problem created by the Internet and new media technologies.<sup>52</sup> Thus, the question for the debate is not whether the use of these systems and related laws is good or bad, but what systems should be deployed, under what circumstances they should be deployed, and whether they embody the important values of our society.<sup>53</sup>

Although self-help measures and supporting laws are often criticized, DRM systems actually have many benefits.<sup>54</sup> Indeed, as Lionel Sobel observed, these systems “appear[] to be at the foundation of whatever business models will actually succeed in the digital age.”<sup>55</sup> If effectively deployed, they can help “facilitate[] the acquisition of rights, reduce transaction costs and allow a better price differentiation by permit-

Mackaay, *supra* note 45, at 137 (“If new technology results in old fences becoming more permeable, this problem falls to the owner. It is not the mission of state law enforcement to shore up outdated fences.”).

52. For a discussion of this transition, see generally DIGITAL DILEMMA, *supra* note 43.

53. See Symposium, *Edited & Excerpted Transcript of the Symposium on the Law & Technology of Digital Rights Management*, 18 BERKELEY TECH. L.J. 697, 741 (2003) [hereinafter *DRM Symposium Transcript*] (“The question is not: DRM, yes or no? It can be a helpful tool. It’s under what context it’s being developed and how it’s being used.”) (remarks of Commissioner Mozelle Thompson of the Federal Trade Commission).

54. For discussions of the needs and benefits of DRM systems, see generally Kenneth W. Dam, *Self-Help in the Digital Jungle*, 28 J. LEGAL STUD. 393, 405 (1999); Dean S. Marks & Bruce H. Turnbull, *Technical Protection Measures: The Intersection of Technology, Law and Commercial Licences*, 22 EUR. INTEL. PROP. REV. 198 (2000); Barry B. Sookman, “TPMs”: *A Perfect Storm for Consumers: Replies to Professor Geist*, 4 CAN. J.L. & TECH. 23 (2005), available at [http://cjlt.dal.ca/vol4\\_no1/index.html](http://cjlt.dal.ca/vol4_no1/index.html).

55. Lionel S. Sobel, *DRMs as an Enabler of Business Models: ISPs as Digital Retailers*, 18 BERKELEY TECH. L.J. 667, 669 (2003). As elaborated by one commentator:

DRMs enable a wide variety of business models. They are seen as being crucial for the development of new business models, in which pricing schemes, subscription models, credit sales and billing schemes could be incorporated. DRMs permit different price-points for services, such as “à la carte” downloads, subscriptions, or rental and preview. Business models might also include network downloads, streaming, rights lockers, broadcasts and super distribution using P2P technologies.

Sookman, *supra* note 54, at 31.

ting the rights holder to tailor their products and the prices to the individual needs of the users.”<sup>56</sup> They also foster competition and allow rights holders to “better exploit the markets for their products” and ultimately provide greater choices for consumers.<sup>57</sup> In addition, as Kenneth Dam pointed out, such systems “can . . . serve purposes akin to moral rights, first by assuring attribution to the author, artist, or composer, and second by ensuring the integrity of documents, images, and music.”<sup>58</sup> If the copyrighted works are reasonably priced, and the use of DRM systems is not too burdensome, those systems “will [even] facilitate the change in public mores that will be required to make paying for information seem to be the thing to do rather than an encroachment on freedom.”<sup>59</sup>

By contrast, if they are improperly deployed, they will intrude upon the users’ individual privacy while stripping away important rights consumers have traditionally enjoyed in the physical space, including the idea-expression dichotomy, the fair use privilege, the first sale doctrine, and many other lawful personal uses. The next Part will discuss in greater detail how the misuse of DRMs and anticircumvention laws can be harmful at both the domestic and international levels.<sup>60</sup>

To boost the use of DRM systems and related laws, proponents have justified their proposals by stating that consumers sometimes have to sacrifice, at least in the early stages of development of DRM systems. As they argue, because digital technologies allow individuals to reproduce unlimited copies of copyrighted works in near-perfect quality, effective protection is essential for the continued development of copyrighted products.<sup>61</sup> Without such protection, new, innovative products would not appear in the market in the first place. Thus, the proponents claimed, Congress has recalibrated the balance in the copyright system to respond to the challenge created by the digital revolution. As Eric Smith of the International Intellectual Property Alliance declared, “Congress made a judgment that the danger from unauthorized copying and further

56. Dreier & Nolte, *supra* note 46, at 501.

57. *Id.*; Sookman, *supra* note 54, at 31 (“In contrast to traditional distribution, consumers could gain wider access to content wherever and whenever they choose. Given their ability to unbundle copyright into discrete and custom-made products, DRMs promise a much greater range of consumer choice and perhaps even a reduction in prices.”).

58. Dam, *supra* note 54, at 405. As Ian Kerr and others explained:

Under a moral rights view, they would say, the creators of original works ought to have some ability to control the use of those works—not merely because their financial livelihoods depend on it but, also because of the ease with which a digital work can be unbundled. The unbundling of a digital work threatens the integrity of the work and poses serious challenges for those creators who wish to ensure that elements of their work are given proper attribution. As such, the personality and reputational rights of authors, which are so deeply and inextricably tied to the products of their creation, are in jeopardy.

Kerr et al., *supra* note 45, at 39.

59. Dam, *supra* note 54, at 409.

60. See discussion Part II.

61. See Burk & Cohen, *supra* note 45, at 48 n.20 (collecting congressional testimonies on this point).



distribution of digitally transmitted material was so high, that there could be some incursions on fair use.”<sup>62</sup> Similarly, the court noted the necessary sacrifice in *United States v. Elcom Ltd.*<sup>63</sup>:

[W]hile it is not unlawful to circumvent for the purpose of engaging in fair use, it is unlawful to traffic in tools that allow fair use circumvention. That is part of the sacrifice Congress was willing to make in order to protect against unlawful piracy and promote the development of electronic commerce and the availability of copyrighted material on the Internet.<sup>64</sup>

Notably, both the proponents and courts have not denied that the DMCA has burdened free speech and other legitimate uses. Rather, they believe that the industries successfully convinced Congress that these burdens were acceptable because they were necessary to slow piracy and to promote the development of electronic commerce.

Critics, however, disagree, for good reasons. While the protection of private property is important, it is not the only right enshrined in the United States Constitution. There are many other important rights, such as freedom of speech, freedom of press, freedom of thought, and the right to privacy. The proponents’ argument that property is so important that we have to give up our other important rights simply does not withstand constitutional scrutiny.<sup>65</sup> Indeed, the American people have decided not to set up such a scheme in the physical space, and the proponents have yet to rebut this position or persuasively explain why we need to change our tradition in the digital environment. As Yochai Benkler pointed out in the context of self-help measures:

The convenience of using self-help measures rather than the more ponderous legal process is not an insignificant value. But it is one that courts and legislators have often decided must yield in the face of important countervailing interests. Landlords can no longer use self-help against tenants in most jurisdictions, but instead must resort

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62. Symposium, *Implications of Enforcing the Digital Millennium Copyright Act: A Case Study, Focusing on United States v. Sklyarov*, 12 *FORDHAM INTELL. PROP. MEDIA & ENT. L.J.* 805, 841 (2002) [hereinafter *Sklyarov Symposium Transcript*] (remarks of Eric Smith of the International Intellectual Property Alliance); accord Ginsburg, *Copyright Legislation*, *supra* note 14, at 142 (stating that “Congress has independently determined that this scope of protection is necessary to afford meaningful protection to copyrighted works in the digital environment”).

63. 203 F. Supp. 2d 1111 (N.D. Cal. 2002).

64. *Elcom*, 203 F. Supp. 2d at 1125; *see also* Besek, *supra* note 36, at 391 (“Section 1201 involves genuine tradeoffs: Congress, recognizing that technological controls might diminish the convenience of making privileged uses, nonetheless made a judgment that technological protection would foster innovation in new content delivery mechanisms and provide consumers with a range of new options for experiencing copyrighted works”).

65. *See, e.g.*, Julie E. Cohen, *Overcoming Property: Does Copyright Trump Privacy?*, 2002 *U. ILL. J.L. TECH. & POL’Y* 375 (questioning whether copyright protection should trump the protection of the right to privacy); Margaret Jane Radin, *A Comment on Information Propertization and Its Legal Milieu*, 54 *CLEV. ST. L. REV.* 23, 23 (2006) (urging that “policy arguments about property in the digital environment take explicit cognizance of other policy considerations that tend to bound propertization: contractual ordering, competition, and freedom of expression”).

to summary process. Life, limb, and the public peace were considered by courts too important to sacrifice in the name of effective self-help. The claimed inefficiency of courts at enforcing copyrights hardly seems an adequate reason to prevent individuals from reading, criticizing, or mocking the words of others in ways that the law of copyright privileges them to do.<sup>66</sup>

When the issue is projected into the international sphere, the importance of protection of private property vis-à-vis other rights becomes even more contestable. The word “private,” for example, was deliberately omitted in the right to property provision of the Universal Declaration of Human Rights, which states that “[e]veryone has the right to own property alone *as well as in association with others*.”<sup>67</sup> The right to property was also not explicitly recognized in both the International Covenant on Civil and Political Rights<sup>68</sup> and the International Covenant on Economic, Social and Cultural Rights,<sup>69</sup> the two legally-binding human rights instruments drafted after the adoption of the Universal Declaration of Human Rights. Unlike anticircumvention laws, these international covenants have recognized many potential countervailing interests, such as the right to freedom of thought, the right to freedom of expression, the right to education, the right to take part in cultural life, and the right to the benefits of scientific progress and its applications.<sup>70</sup>

Moreover, commentators have suggested that there does not have to be “an all-or-nothing choice between the total control of DRM and rampant copyright infringement.”<sup>71</sup> While sacrifices may sometimes be needed, especially in the early stages of development of DRM systems, consumers may not need to sacrifice as much as the DMCA requires.

66. Benkler, *supra* note 30, at 426 (footnote omitted).

67. Universal Declaration of Human Rights art. 17(1), G.A. Res. 217, U.N. GAOR, 3d Sess. (1948) [hereinafter UDHR] (emphasis added); Peter K. Yu, *Reconceptualizing Intellectual Property Interests in a Human Rights Framework*, 40 U.C. DAVIS L. REV. (forthcoming 2007), <http://ssrn.com/abstract=927335> (discussing the omission of the word “private” in article 17 of the Universal Declaration of Human Rights); see also MARY ANN GLENDON, *A WORLD MADE NEW: ELEANOR ROOSEVELT AND THE UNIVERSAL DECLARATION OF HUMAN RIGHTS* 182-83 (2001) (discussing the different conceptions of the right to property among the various delegates to the Human Rights Commission).

68. International Covenant on Civil and Political Rights, Dec. 16, 1966, 999 U.N.T.S. 171 [hereinafter ICCPR].

69. International Covenant on Economic, Social and Cultural Rights, Dec. 16, 1966, 993 U.N.T.S. 3 [hereinafter ICESCR].

70. See, e.g., ICCPR, *supra* note 68, art. 19(1) (recognizing the right to freedom of thought); *id.* art. 19(2) (recognizing the right to freedom of expression); ICESCR, *supra* note 69, art. 13 (recognizing the right to education); *id.* art. 15(1)(a) (recognizing the right to take part in cultural life); *id.* art. 15(1)(b) (recognizing the right to the benefits of scientific progress and its applications).

71. Alfred C. Yen, *What Federal Gun Control Can Teach Us About the DMCA's Anti-Trafficking Provisions*, 2003 WIS. L. REV. 649, 697; see also Jacqueline D. Lipton, *Solving the Digital Piracy Puzzle: Disaggregating Fair Use from the DMCA's Anti-Device Provisions*, 19 HARV. J.L. & TECH. 111, 113 (2005) [hereinafter Lipton, *Solving the Digital Piracy Puzzle*] (stating that “[c]ourts typically take an all-or-nothing approach to circumvention technologies, usually resulting in a complete ban on marketing them”); Lunney, *supra* note 15, at 820 (observing that “decryption presents something close to an all-or-nothing choice”).

For example, Dan Burk and Julie Cohen proposed a mixed fair use infrastructure that includes automatic fair use defaults and a key escrow system that provides would-be fair users with the needed encryption keys to obtain access to protected works.<sup>72</sup> Drawing on British law, Jacqueline Lipton offered an administrative complaint mechanism for individuals who sought to obtain legitimate uses of copyrighted works.<sup>73</sup> As she explained, “[a]dministrative approaches tend to be more flexible and less formal in their procedures than judicial processes and are generally less costly than judicial hearings.”<sup>74</sup> Alfred Yen suggested that “[a] circumvention technology control law modeled after federal gun control law will deter the irresponsible misuse of circumvention technology while preserving access to such technology for lawful purposes.”<sup>75</sup> Professor Yen’s proposal is quite similar to the national verification system introduced in Australia.<sup>76</sup>

#### *E. How Should Society Respond to the Digital Challenge?*

As discussed above, both camps understand the “digital challenge” confronting the content industries. They also appreciate the need for transition and the sometimes imperfection of transitional policies. However, they disagree on whether the law should err on the side of consumers or that of rights holders, especially when supporting empirical evidence is lacking one way or the other.

It is important to remember that creating protection for copyright holders is a *means* to an end, not an end itself.<sup>77</sup> As the Supreme Court

72. See Burk & Cohen, *supra* note 45.

73. See Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71. Her proposal draws, but improves on, the administrative complaint mechanism provided under the British Copyright, Designs and Patents Act of 1988. Section 296ZE of the statute provides:

Where the application of any effective technological measure to a copyright work other than a computer program prevents a person from carrying out a permitted act in relation to that work then that person or a person being a representative of a class of persons prevented from carrying out a permitted act may issue a notice of complaint to the Secretary of State.

Copyright, Designs and Patents Act, 1988, c. 48, § 296ZE(2) (U.K.) (amended 2003).

74. Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 155.

75. Yen, *supra* note 71, at 697.

76. As Ian Kerr and others described:

In order to make sure that a circumventing device or service is really used for a permitted purpose, a person wishing to make such a use must provide the supplier of the device or service with a signed declaration containing information, such as the person’s name and address, the basis of the exemption claimed, the name and address of the supplier, a statement that the device or service is to be used for a permitted purpose and identification of that purpose by reference to a specific section of the *Copyright Act*.

Kerr et al., *supra* note 45, at 58-59.

77. See, e.g., COMM’N ON INTELLECTUAL PROP. RIGHTS, INTEGRATING INTELLECTUAL PROPERTY RIGHTS AND DEVELOPMENT POLICY: REPORT OF THE COMMISSION ON INTELLECTUAL PROPERTY RIGHTS 7 (2002) [hereinafter IPR COMMISSION REPORT] (“Regardless of the term used for them, we prefer to regard IPRs as instruments of public policy which confer economic *privileges* for individuals or institutions solely for the purposes of contributing to the greater public good. The *privilege* is therefore a means to an end, not an end in itself.”), available at [http://www.iprcommission.org/papers/pdfs/final\\_report/CIPRfullfinal.pdf](http://www.iprcommission.org/papers/pdfs/final_report/CIPRfullfinal.pdf); Dan T. Coenen & Paul J.

reminded us in *Twentieth Century Music Corp. v. Aiken*,<sup>78</sup> and again in *Sony Corporation of America v. Universal City Studios, Inc.*,<sup>79</sup> “[t]he ultimate aim [of copyright] is . . . to stimulate artistic creativity for the general public good.”<sup>80</sup> Earlier in *Mazer v. Stein*,<sup>81</sup> the Court also stated that “[t]he economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in ‘Science and useful Arts.’”<sup>82</sup>

The two camps also disagree on what society should do in the meantime while the legislature is searching for a better solution.<sup>83</sup> Should consumers wait for the content industries to come up with better protection mechanisms and a viable business plan? Or should the industries wait for consumers to change their attitudes toward the protection of artists and creators or for society to develop legal solutions that can *equally* protect both consumers and copyright holders?

In congressional testimonies, the content industries stated that they were unlikely to release works until the market was well protected.<sup>84</sup> However, experience on the Internet and in China (as well as in other major markets in the less developed world) has demonstrated otherwise. There is no doubt that the industries are very reluctant to release creative works if *no* protection whatsoever exists. However, they might be more willing to do so if *some* protection exists. In fact, because rights holders are unlikely to find a marketplace that has zero leakage, economics suggest that they will release their products if the profits they obtain will exceed their piracy-related losses. Some rights holders may even write off these early losses as expenses for the experimentation of new business plans or for promotion or market development purposes. As Microsoft’s founder Bill Gates famously declared:

Although about three million computers get sold every year in China, people don’t pay for the software. Someday they will, though. And

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Heald, *Means/Ends Analysis in Copyright Law: Eldred v. Ashcroft in One Act*, 36 LOY. L.A. L. REV. 99 (2002) (discussing the means-end fit of the Sonny Bono Copyright Term Extension Act).

78. 422 U.S. 151 (1975).

79. 464 U.S. 417 (1984).

80. *Sony*, 464 U.S. at 432 (quoting *Aiken*, 422 U.S. at 156).

81. 347 U.S. 201 (1954).

82. *Mazer*, 347 U.S. at 219.

83. Cf. Peter K. Yu, *Innovation Gains Edge in Music, Movie Battle*, DETROIT NEWS, Aug. 29, 2004, at 15A (stating that “[t]he difficult question in the *Grokster* case is not whether the court should exercise caution while waiting for time and market forces to achieve some balance, but whom the court should ask to wait”).

84. Even Jane Ginsburg, a noted advocate of strong authors’ rights, conceded that “[t]he assumption that copyright owners will only make their works available in copy-protected form may well be overstated.” Ginsburg, *Copyright Legislation*, *supra* note 14, at 153. Nevertheless, she believes the issue should be left for the U.S. Copyright Office to review during its triennial rulemaking proceeding. *Id.*

as long as they're going to steal it, we want them to steal ours. They'll get sort of addicted, and then we'll somehow figure out how to collect sometime in the next decade.<sup>85</sup>

It remains to be seen whether Mr. Gates has figured out how to collect these lost software license fees, especially in light of the growing development of open source software in China.<sup>86</sup>

#### *F. Summary*

In sum, both camps share sufficient common ground to start a dialogue, but their considerable disagreements prevent them from reaching mutually acceptable conclusions. Because many of their differences have yet to be proved or disproved by empirical data, the positions they eventually will take will depend on their perceptions of the market, the state of technology, and the expectation of consumers, all of which are susceptible to rapid changes in the digital world. As Daniel Farber pointed out insightfully, their differing positions may also raise broader and deeper issues about “how the economy works, how power is distributed in society, and how individuals can best flourish under contemporary conditions.”<sup>87</sup> With the continuous change in the market, technology, and social norms, it will be interesting to see whether the two camps can eventually agree on what the legal regime should be and how to build the next generation of DRM systems.

Although the divide between these two camps is unlikely to narrow in the near future, the actual DRM debate is actually more complicated. As I mentioned in the beginning, the stakeholders in this debate are not divided nicely into the pro-anticircumvention camp and the anti-anticircumvention camp. Instead, they accrue different benefits from the use of DRM systems and have incurred different costs. As a result, their positions often change according to the market, technologies, and consumer behavior. As a National Research Council study reminds us:

The debate over intellectual property includes almost everyone, from authors and publishers, to consumers (e.g., the reading, listening, and viewing public), to libraries and educational institutions, to governmental and standards bodies. Each of the stakeholders has a variety of concerns . . . that are at times aligned with those of other stakeholders, and at other times opposed. An individual stakeholder may also play multiple roles with various concerns. At different times, a single individual may be an author, reader, consumer, teacher, or shareholder in publishing or entertainment companies; a member of an editorial board; or an officer of a scholarly society that relies on

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85. Brent Schlender et al., *The Bill & Warren Show*, FORTUNE, July 20, 1998, at 48.

86. See Peter K. Yu, *From Pirates to Partners (Episode II): Protecting Intellectual Property in Post-WTO China*, 55 AM. U. L. REV. 901, 982 (2006) (using Microsoft products to illustrate how piracy losses can be treated as promotional expenses needed to capture an emerging market).

87. Farber, *supra* note 4, at 1358.

publishing for revenue. The dominant concern will depend on the part played at the moment.<sup>88</sup>

Thus, the DRM debate is far more complex and dynamic than what the bipolar debate has suggested. This Part merely emphasizes the debate's bipolar nature to underscore the importance of finding common ground between the many stakeholders in the DRM debate.

## II. THE ANTICIRCUMVENTION REGIME

Although DRM systems can be traced back to the early days of the software industry, the international standards for these systems were not created until the 1996 WIPO Diplomatic Conference, which updated international intellectual property norms to reflect changes in the digital environment.<sup>89</sup> Entering into effect in 2002, both the WIPO Copyright Treaty ("WCT") and the WIPO Performances and Phonograms Treaty ("WPPT") require member states to "provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures" that are needed to protect creative works.<sup>90</sup> Although the treaties leave discretion to the member states over how to discharge their obligations, several countries have chosen to create an anticircumvention regime. In the United States, for example, Congress enacted the oft-criticized DMCA.<sup>91</sup> Other countries, like Australia, China, Japan, and various members of the European Union, have since followed suit to enact anticircumvention laws, or are in the process of doing so.<sup>92</sup>

Although the WIPO Internet Treaties require only adequate protection and effective remedies, the DMCA went beyond this requirement to prohibit the circumvention of any technological measure that effectively controls access to, or use of, a copyrighted work.<sup>93</sup> The statute also prohibits the manufacture, importation, or distribution of any technology or device that is primarily designed, produced, or knowingly marketed for the purpose of circumventing such a measure or that does not have any commercially significant purpose other than to circumvent the measure.<sup>94</sup>

88. DIGITAL DILEMMA, *supra* note 43, at 51; *see also* Jeremy F. deBeer, *Locks & Levies*, 84 DENV. U. L. REV. 143, 165-75 (2006) (discussing the impact of locks and levies from the perspectives of three main groups of stakeholders—creators, technology firms, and consumers).

89. For a detailed discussion of the U.S. agenda at the 1996 WIPO Diplomatic Conference, *see generally* Pamela Samuelson, *The U.S. Digital Agenda at WIPO*, 37 VA. J. INT'L L. 369 (1997) [hereinafter Samuelson, *U.S. Digital Agenda*].

90. *See* WCT, *supra* note 7, art. 11; WPPT, *supra* note 7, art. 18.

91. 17 U.S.C. §§ 1201-1205 (2004).

92. *See, e.g.*, Kerr et al., *supra* note 45, at 58-64 (discussing anticircumvention regimes in Australia, Japan, and the European Union); Regulations on the Protection of the Right of Communication Through Information Network, (promulgated by the State Council, May 10, 2006, effective July 1, 2006) (P.R.C.), available in Chinese at <http://www.nCAC.gov.cn/servlet/servlet.info.NatLawServlet?action=list&id=529>.

93. *See* 17 U.S.C. § 1201(a)(1).

94. *See id.* §§ 1201(a)(2), 1201(b).

To protect the public interest, the DMCA expressly states that Congress did not intend to alter existing “rights, remedies, limitations, or defenses to copyright infringement, including fair use,” the scope of vicarious or contributory liability for copyright infringement, or the free speech and free press guarantees under the First Amendment as they relate to consumer electronics, telecommunications, or computing products.<sup>95</sup> In addition, the statute enumerates seven narrow, carefully-drafted exceptions for nonprofit organizations, law enforcement agencies, reverse engineers, encryption researchers, and security testers, as well as for the protection of minors and of personally identifying information.<sup>96</sup> Finally, the statute includes a triennial rulemaking proceeding to determine whether users would be, or are likely to be, “adversely affected by the prohibition . . . to make noninfringing uses . . . of a particular class of copyrighted works.”<sup>97</sup> Conducted by the Librarian of Congress, this proceeding has led to the creation of a small number of new, but limited exceptions.<sup>98</sup>

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95. *Id.* § 1201(c).

96. *See, e.g., id.* § 1201(d) (exemption for nonprofit libraries, archives, and educational institutions); *id.* § 1201(e) (exemption for law enforcement, intelligence, and other government activities); *id.* § 1201(f) (exemption for reverse engineering); *id.* § 1201(g) (exemption for encryption research); *id.* § 1201(h) (exceptions regarding minors); *id.* § 1201(i) (protection of personally identifying information); *id.* § 1201(j) (exemption for security testing). For a detailed discussion of these exemptions, see generally Ginsburg, *Copyright Legislation*, *supra* note 14, at 148-52.

97. 17 U.S.C. § 1201(a)(1)(C); *see also id.* § 1201(a)(1)(B)-(D) (outlining the triennial rulemaking proceeding). When the statute was first enacted, it also included a two-year moratorium on enforcement of the anticircumvention provision due to “the strong concerns expressed by librarians and educators about the potential negative impacts that broad anti-circumvention provisions might have on fair uses of copyrighted works and on access to information and to public domain works.” Samuelson, *Intellectual Property and the Digital Economy*, *supra* note 44, at 559.

98. *See, e.g.*, Copyright Office, Library of Congress, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 65 Fed. Reg. 64,556 (2000); Copyright Office, Library of Congress, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 68 Fed. Reg. 62,011 (2003). These exceptions are limited because the Librarian of Congress narrowly defined the term “a particular class of copyrighted works” in the rulemaking proceedings. 17 U.S.C. § 1201(a)(1)(C). The current available exemptions, for example, apply to persons who engage in noninfringing uses of the following four classes of copyrighted works:

(1) Compilations consisting of lists of Internet locations blocked by commercially marketed filtering software applications that are intended to prevent access to domains, websites or portions of websites, but not including lists of Internet locations blocked by software applications that operate exclusively to protect against damage to a computer or computer network or lists of Internet locations blocked by software applications that operate exclusively to prevent receipt of e-mail.

(2) Computer programs protected by dongles that prevent access due to malfunction or damage and which are obsolete.

(3) Computer programs and video games distributed in formats that have become obsolete and which require the original media or hardware as a condition of access. A format shall be considered obsolete if the machine or system necessary to render perceptible a work stored in that format is no longer manufactured or is no longer reasonably available in the commercial marketplace.

(4) Literary works distributed in ebook format when all existing ebook editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling of the ebook’s read-aloud function and that prevent the enabling of screen readers to render the text into a specialized format.

Notwithstanding these public interest safeguards, this Article takes the position that the DMCA was defectively designed and that anticircumvention laws are problematic at both the domestic and international levels. This Part first discusses the problems with the anticircumvention provision of the DMCA at the domestic level. It then explains why an international anticircumvention regime modeled after the DMCA would be even more harmful. If countries are to introduce such a regime, they need to carefully evaluate the costs and benefits of such protection. They also need to tailor the contours of protection to their local needs, interests, and conditions and avoid the wholesale transplant of the DMCA to their own soil. In addition, in jurisdictions where the WIPO Internet Treaties are self-executing,<sup>99</sup> courts need to remember that the treaties do not require anticircumvention protection<sup>100</sup> and that countries can comply with the treaties without ever introducing such protection.<sup>101</sup>

#### A. *The Domestic Regime*

As commentators have widely noted, there are four main criticisms of the anticircumvention provision of the DMCA. First, the DMCA has made it difficult for users and future creators to exercise legitimate rights under existing copyright law.<sup>102</sup> On its face, the statute seems to be pro-

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99. A self-executing treaty is one that can be enforced in courts without prior implementing legislation. In jurisdictions where the WIPO Internet Treaties are self-executing, courts will directly apply the treaties as if they are domestic laws.

100. Cf. Michael Geist, *Anti-circumvention Legislation and Competition Policy: Defining a Canadian Way?*, in *IN THE PUBLIC INTEREST: THE FUTURE OF CANADIAN COPYRIGHT LAW* 211, 240 (Michael Geist ed., 2005) (stating that, in countries that “have allowed for the WIPO Internet treaties to take direct effect within their countries . . . , it would be difficult to discern the precise legal rules since the WCT and WPPT do not contain the specificity typically found in implementing legislation”).

101. See *infra* discussion Part II.B.1 (discussing alternative ways to comply with the WIPO Internet Treaties).

102. See, e.g., Dan L. Burk, *Anticircumvention Misuse*, 50 UCLA L. REV. 1095, 1138 (2003) (noting that “[t]he limited exceptions provided under the statute, or under the rulemaking authority of the Librarian of Congress, lack the breadth and flexibility to fill the equitable role played by fair use”); Burk & Cohen, *supra* note 45, at 54 (claiming that “[c]urrently, the DMCA’s anti-circumvention provisions effectively sanction the use of private code to write the public law of fair use out of existence”); Jacqueline Lipton, *The Law of Unintended Consequences: The Digital Millennium Copyright Act and Interoperability*, 62 WASH & LEE L. REV. 487, 494-95 (2005) [hereinafter Lipton, *Law of Unintended Consequences*] (noting that “several recent bills have been introduced into Congress to remedy the perceived defects of the DMCA in terms of its impact on the fair use defense”); Nimmer, *A Riff on Fair Use*, *supra* note 44, at 739 (stating that “[t]he user safeguards so proudly heralded as securing balance between owner and user interests, on inspection, largely fail to achieve their stated goals”). But cf. Zohar Efroni, *Towards a Doctrine of “Fair Access” in Copyright: The Federal Circuit’s Accord*, 46 IDEA 99 (2005) (arguing that the United States Court of Appeals for the Federal Circuit is developing a common law doctrine of “fair access” in *Chamberlain Group, Inc. v. Skylink Technologies, Inc.* and *Storage Tech. Corp. v. Custom Hardware Engineering & Consulting, Inc.*); David Nimmer, *Appreciating Legislative History the Sweet and Sour Spots of the DMCA’s Commentary*, 23 CARDOZO L. REV. 909, 979 (2002) (holding a belief that “a tight reading of Section 1201 . . . leaves no room within the statutory orbit for a general Congressionally-sanctioned fair use defense,” but that, “to effectuate justice in a concrete case, judges may go outside the statutory text by doing what common law jurists have done since time immemorial”); Lipton, *Law of Unintended Consequences*, *supra* note 102, at 495 (observing that judges in *Lexmark* and *Chamberlain* have “suggest[ed] a greater role for the fair use defense, even in the DMCA con-



tective of these rights. Section 1201(c) states explicitly that “[n]othing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, *including fair use*, under this title.”<sup>103</sup> As described above, the statute also includes exceptions and a triennial rulemaking proceeding. In reality, the exceptions under the DMCA are highly constrained, and many of the legitimate rights that exist in copyright law are unavailable under the anticircumvention regime. As Dan Burk observed:

The separation between the anticircumvention right and copyright becomes apparent when comparing the limitations on each: . . . [C]opyright contains numerous exceptions and user privileges, such as statutory provisions allowing unauthorized use of copyrighted works in classroom instruction, in certain religious services, and creation of “back-up” copies of computer programs, to name a few. None of these uses is sanctioned by the anticircumvention provisions. If a work is protected by technical controls, circumventing those controls to act in a manner privileged under the copyright act is still prohibited. Outside of circumvention for the few exceptions described above, the only statutorily sanctioned method for gaining access to technically protected works is with the permission of the content owner.<sup>104</sup>

In addition, “even though copyright law confers on copyright owners the right to control only public performances and displays of these works, DRM systems can also be used to control private performances and displays of digital content.”<sup>105</sup> The DMCA also threatens the first sale doctrine and many different lawful private uses, including those customary ones that may or may not have been codified as exceptions in the current copyright statute.<sup>106</sup> Indeed, when the statute was being

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text”); Samuelson, *Intellectual Property and the Digital Economy*, *supra* note 44, at 540 (stating that, “[i]f section 1201(c)(1)’s preservation of fair use and other defenses to infringement are to be given their plain meaning, it would seem that this sort of circumvention should be permissible”).

103. 17 U.S.C. § 1201(c)(1) (emphasis added); *see also* Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 120 (suggesting that, because the treaties did not mention the effect of the anticircumvention provision on fair use, “the drafters of the treaties may have assumed that the domestic implementation of the relevant treaty terms would not adversely affect activities that are permitted by law, such as fair use”).

104. Burk, *Anticircumvention Misuse*, *supra* note 102, at 1107. For a discussion of the impact of the DMCA on the enjoyment and exercise of fair use, *see generally* Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 115-16 (describing the various DMCA provisions that sought “to balance the competing needs of fair use and digital content protection”). *See also* ANDREW L. SHAPIRO, *THE CONTROL REVOLUTION: HOW INTERNET IS PUTTING INDIVIDUALS IN CHARGE AND CHANGING THE WORLD WE KNOW* 18 (1999) (proposing “a rule analogous to fair use that might be known as ‘fair hacking’ or ‘fair breach’”); Julie E. Cohen, *Copyright and the Jurisprudence of Self-Help*, 13 *BERKELEY TECH. L.J.* 1089, 1092 (1998) (arguing that “licensees . . . should be accorded rights of electronic self-help when necessary to preserve the balance that the Copyright Act is intended to establish”); Geist, *supra* note 100, at 248-49 (proposing to amend the anticircumvention bill “to include a positive user right to circumvent a technological measure for lawful purposes”).

105. Samuelson, *DRM {and, or, vs.} the Law*, *supra* note 41, at 42.

106. For discussions of these lawful personal uses, *see generally* Jessica Litman, *Lawful Personal Use* (Michigan Legal Studies Research Paper Series, No. 06-004, 2006), [http://ssrn.com/abstract\\_id=926575](http://ssrn.com/abstract_id=926575); Lunney, *supra* note 15.

drafted, then-Senator John Ashcroft expressed concern that the anticircumvention provision “would have established a flat prohibition on the circumvention of technological protection measures to gain access to works for any purpose, and thus raised the specter of moving our Nation towards a ‘pay-per-use’ society.”<sup>107</sup> Although this pay-per-use society has yet to materialize, critics remain justifiably concerned.

In the statute’s defense, one has to differentiate between access-control and use-control technologies, which receive different treatment under the DMCA.<sup>108</sup> As Alan Adler of the Association of American Publishers testified before Congress, “the fair use doctrine has never given anyone a right to break other laws for the stated purpose of exercising the fair use privilege. Fair use doesn’t allow you to break into a locked library in order to make ‘fair use’ copies of the books in it, or steal newspapers from a vending machine in order to copy articles and share them with a friend.”<sup>109</sup> Similarly, museums have the right to restrict access to the many public domain works they hold on their premises—for example, by charging admission fees, prohibiting photography, and determining which and when works will be displayed.<sup>110</sup> Although Jessica Litman rightly pointed out that the “breaking and entering” metaphor was somewhat misleading because it overlooked the importance of property rights in the physical establishment,<sup>111</sup> there is no doubt that the

107. 144 Cong. Rec. S11,887 (Oct. 8, 1998) (statement of Senator John Ashcroft).

108. See, e.g., Ginsburg, *Copyright Legislation*, *supra* note 14, at 139 (explaining why the DMCA affords greater protection to the copyright holders’ right to control access); R. Anthony Reese, *Will Merging Access Controls and Rights Controls Undermine the Structure of Anticircumvention Law?*, 18 BERKELEY TECH. L.J. 619, 621 (2003) (stating that “Congress expressly provided less protection for rights controls in order to allow consumers to make noninfringing uses of copyrighted works in protected digital format, just as consumers have for centuries made noninfringing uses of copyrighted works in unprotected analog copies”).

109. *WIPO Copyright Treaties Implementation Act and Online Copyright Liability Limitation Act: Hearing on H.R. 2281 and H.R. 2280 Before the Subcomm. on Courts and Intellectual Property of the House Comm. on the Judiciary*, 105th Cong. 208 (1997) (prepared statement of Allan Adler, Association of American Publishers); see also Ginsburg, *Copyright Legislation*, *supra* note 14, at 140 (stating that “it may be fair use to make nonprofit research photocopies of pages from a lawfully acquired book; it is not fair use to steal the book in order to make the photocopies”).

110. As Michael Landau observed:

Museums have controlled access to public domain works by controlling how and when people may view the works contained inside. Museums control access by charging admission to see public domain works. Museums also often prevent photography or other reproduction of the works inside, many of which are in the public domain. In addition, museums control access by determining which works will be on display and when. An enormous number of works owned by museums are in storage at any given time. I have not heard a public outcry against museums for limiting access.

Michael Landau, *Has the Digital Millennium Copyright Act Really Created a New Exclusive Right of Access?: Attempting to Reach a Balance Between Users’ and Content Providers’ Rights*, 49 J. COPYRIGHT SOC’Y U.S.A. 277, 289 (2001); accord Dam, *supra* note 54, at 408-09 (stating that “[t]he Louvre has the Mona Lisa, a prototypical public domain painting, but surely the Louvre is not required to allow students and artists (or even art reviewers and parodists) to set up easels for copying it or to allow them to take photographs or even to admit them without charge to the museum so that they can copy covertly”).

111. As Jessica Litman explained:

The thing about houses is that property laws give homeowners legal control over who gets to come in. A homeowner may therefore say: “My painting may be in the public

metaphor has been effective as part of the overall lobbying efforts.<sup>112</sup> In fact, it partly accounts for the differential statutory treatment of access-control and use-control technologies.

In practice, however, such differential treatment may not be as useful as commentators have suggested. As Anthony Reese observed, copyright holders increasingly employ technological measures that incorporate both access-control and use-control technologies. “[C]ourts [also] have treated such ‘merged’ control measures as entitled to the legal protections of both access- and rights-control measures, even when the system was essentially directed only at preventing copying and distribution, rather than at controlling access.”<sup>113</sup> By upgrading the protection of use-control technologies to the level of access-control technologies whenever merged control mechanisms are deployed, these courts therefore have “undercut[] the congressional intent in drafting the DMCA expressly to allow circumvention of rights controls so long as the circumventor does not engage in copyright infringement.”<sup>114</sup>

Second, the existing regime has upset the historical balance between copyright interests and access to information.<sup>115</sup> Some commentators, notably Jane Ginsburg, have suggested that the DMCA has created a new access right.<sup>116</sup> In addition, the DMCA has brought about many unin-

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domain but I don't have to let you into my locked home to see it.” Backed up by that legal control, she can use protective devices—locks, burglar alarms, electrified fences, vicious attack dogs—to keep outsiders out of her home and away from her painting. The property laws about home ownership are what gives the locks and other devices their legitimacy.

Without those property rights, however, the metaphor collapses. Imagine, for example, that somebody used a lock or other protection measure (a well-trained attack dog, say) to prevent strangers from viewing some painting she didn't own in some place she didn't own. If I were to set my vicious attack dog to keep folks away from the Mona Lisa in the Louvre Museum, the guards would simply shoot it.

LITMAN, *supra* note 14, at 133.

112. Samuelson, *Intellectual Property and the Digital Economy*, *supra* note 44, at 539 (observing that “[t]he ‘breaking and entering’ metaphor for circumvention activities swayed some influential Congressmen in the debate over anti-circumvention regulations”).

113. Reese, *supra* note 108, at 621; *see also id.* (contending that “[t]he deployment of merged control measures thus poses a threat to the congressional scheme for balancing protections for copyright owners against the public's interest in noninfringing use”); Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 116 n.25 (stating that “[i]t is difficult to think of a circumstance where circumvention of a copy-control measure would not also be prohibited as circumvention of a commensurate access-control measure”).

114. Reese, *supra* note 108, at 651.

115. *See, e.g.*, Kerr et al., *supra* note 45, at 38 (stating that, because “TPMs could go on working indefinitely,” “the ensuing policy issue is not merely a question of copyright's ability to balance but also one of technology's power to control”); Lunney, *supra* note 15, at 814-15 (contending that the DMCA transformed copyright into a “guild monopoly,” similar to the monopoly the Stationers' Company enjoyed in the sixteenth and seventeenth centuries); Diane Leenheer Zimmerman, *Adrift in the Digital Millennium Copyright Act: The Sequel*, 26 U. DAYTON L. REV. 279, 285 (2001) (contending that “the DMCA departs sharply from prior practice” in which Congress sought to limit the impact of the changed information environment on research, education, and on libraries and their users).

116. *See* Ginsburg, *Copyright Legislation*, *supra* note 14, at 140-43 (discussing the right of access); *see also* Burk, *Anticircumvention Misuse*, *supra* note 102, at 1103 (stating that “the DMCA

tended consequences, chilling innovation and competition while raising concerns about free speech, privacy, academic freedom, learning, scientific advancement, cultural development, and democratic discourse.<sup>117</sup> Early reports of potential chilling effects and unintended consequences included the disturbing episodes concerning the cease-and-desist letter sent to computer science professor Edward Felten, the lawsuit to enjoin *2600: The Hacker Quarterly*, the arrest of Russian cryptographer Dmitry Sklyarov, and the subsequent failed criminal prosecution of Elcom-Soft.<sup>118</sup>

In recent years, the DMCA has also been misused to deter competition and interoperability in tangible products that only incidentally incorporated copyrightable software code.<sup>119</sup> Recent examples include *Lexmark International, Inc. v. Static Control Components, Inc.*,<sup>120</sup> which concerned laser printer toner cartridges, and *Chamberlain Group, Inc. v. Skylink Technologies, Inc.*,<sup>121</sup> which involved universal garage door openers. One may also add Sony's attempt to suppress distribution of software tools among owners of its programmable 'Aibo' robot dogs.<sup>122</sup> Although all of these incidents are eventually resolved favorably in the interests of consumers, it is important not to overlook the potential chilling effect created by threatening cease-and-desist letters invoking the anticircumvention provision of the DMCA. As Dan Burk reminded us, "court action is always the exception, rather than the rule, in legal disputes,"<sup>123</sup> and there is no easy way to find out how often the DMCA has been invoked in unreported letters.

Third, by protecting DRMs, the DMCA has undermined the protection of privacy of individual users. As Julie Cohen pointed out, the statute "threaten[s] to change rather substantially . . . the degree of informational and spatial privacy to which users of intellectual goods are enti-

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as enacted creates a new and unprecedented right to control access to copyrighted works"); cf. Thomas Heide, *Copyright in the E.U. and United States: What "Access Right"?*, 23 EUR. INTELL. PROP. REV. 469 (2001) (contending that "the recent inclusion of the 'access right' within copyright does not represent an evolution of copyright to extend to new forms of exploitation but rather the incorporation of a completely new rights structure into copyright law—one closely akin to that underlying cinemas and theatres"); Wagner, *Reconsidering the DMCA*, *supra* note 35, at 1108-09 ("Congress did not in fact alter the balance between copyright owners and the public . . . . Instead, Congress attempted to alter the balance between law and software to respond to changes in the enforcement environment by shifting the regulatory equilibrium back towards the law." (footnote omitted)).

117. See Yu, *P2P and the Future of Private Copying*, *supra* note 8, at 725-26.

118. See *id.* at 724-25.

119. For excellent discussions of the unintended consequences of the DMCA, see generally ELEC. FRONTIER FOUND., UNINTENDED CONSEQUENCES: SEVEN YEARS UNDER THE DMCA (2006), [http://www.eff.org/IP/DMCA/DMCA\\_unintended\\_v4.pdf](http://www.eff.org/IP/DMCA/DMCA_unintended_v4.pdf); Lipton, *Law of Unintended Consequences*, *supra* note 102. But see Richard Gooch, *Requirements for DRM Systems*, in DIGITAL RIGHTS MANAGEMENT, *supra* note 2, at 16, 23 ("Of course misuse of any technology is possible, but such issues do not arise more significantly with DRM than with any other technology.").

120. 387 F.3d 522 (6th Cir. 2004).

121. 381 F.3d 1178 (Fed. Cir. 2004).

122. See Burk, *Anticircumvention Misuse*, *supra* note 102, at 1113.

123. *Id.* at 1112.

tled.”<sup>124</sup> By collecting information about an individual’s intellectual consumption and exploration, DRM systems intrude upon the “the privacy interest in (metaphoric) breathing space for thought, exploration, and personal growth.”<sup>125</sup> In addition, the technologies “dictate the circumstances—the when, where, how, and how often—of one’s own intellectual consumption, unobserved and unobstructed by others” and therefore threaten to take away the freedom to explore areas of intellectual interest that an individual might not feel as free to explore in public.<sup>126</sup> Indeed, the concern of privacy intrusion was so important that the DMCA includes a special but limited exception to enable circumvention in the event that the circumventer needs to protect personally-identifying information.<sup>127</sup> Nevertheless, because the exception is limited, commentators have called for more expansive protection of privacy.<sup>128</sup>

Finally, the expediency of the DMCA has been deeply undercut by its failure to achieve its stated goals of reducing digital piracy.<sup>129</sup> As of this writing, the DMCA has yet to reduce the amount of copyright infringement on the Internet, and online file sharing remains widespread.<sup>130</sup> Although the content industries have billed the Content Scramble System<sup>131</sup> (“CSS”) deployed to protect copyrighted contents in DVDs as a major success, the technology “was readily compromised, and . . . free

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124. Cohen, *DRM and Privacy*, *supra* note 32, at 594. For discussions of the impact of anticircumvention laws on privacy, see generally *id.*; Lee A. Bygrave, *Digital Rights Management and Privacy—Legal Aspects in the European Union*, in DIGITAL RIGHTS MANAGEMENT, *supra* note 2, at 418; Ian R. Kerr, *To Observe and Protect?: How Digital Rights Management Systems Threaten Privacy and What Policy Makers Should Do About It*, in 1 INTELLECTUAL PROPERTY AND INFORMATION WEALTH: ISSUES AND PRACTICES IN THE DIGITAL AGE (Peter K. Yu ed., forthcoming 2006).

125. Cohen, *DRM and Privacy*, *supra* note 32, at 578.

126. *Id.* at 579.

127. See 17 U.S.C. § 1201(i) (2004) (creating an exception to protect personally identifying information).

128. See Cohen, *DRM and Privacy*, *supra* note 32, at 609 (stating that, compared to both judicial and regulatory sanctions, “[a] far more effective method of ensuring that information users actually enjoy the privacy to which they are entitled would entail building privacy into the design of DRM technologies in the first instance”); Kerr, *supra* note 124 (recommending countermeasures needed to offset the new powers and protections afforded to TPM and DRM); see also Julie E. Cohen, *A Right to Read Anonymously: A Closer Look at “Copyright Management” in Cyberspace*, 28 CONN. L. REV. 981 (1996) (discussing how the proposed federal protection for digital copyright management technologies has failed to protect an individual right to read anonymously).

129. See von Lohmann, *supra* note 41, at 636 (contending that “the DMCA fails in light of its stated goal—namely, reducing the threat of copyright infringement in the digital age”). It is important to note that, although the reduction of digital piracy is one of the important goals of the DMCA, it is not the only one.

130. For discussions of illegal file sharing, see generally Yu, *The Escalating Copyright Wars*, *supra* note 28; Yu, *P2P and the Future of Private Copying*, *supra* note 8.

131. “CSS, or Content Scramble System, is an access control and copy prevention system for DVDs developed by the motion picture companies, including plaintiffs. It is an encryption-based system that requires the use of appropriately configured hardware such as a DVD player or a computer DVD drive to decrypt, unscramble and play back, but not copy, motion pictures on DVDs.” *Universal City Studios v. Reimerdes*, 111 F. Supp. 2d 294, 308 (S.D.N.Y. 2000) (footnote omitted); see also Marks & Turnbull, *supra* note 54, at 212-13 (describing the CSS technology and its application to DVDs).

circumvention tools are in wide circulation across the Internet.”<sup>132</sup> It also remains unclear whether the continued heavy sales of DVDs derive from the success of the CSS or from the structural differences of the movie industry and the inherently attractive features of the DVD medium.<sup>133</sup>

In sum, the benefits created by TPM thus far are largely questionable. It is problematic enough that the DMCA has many shortcomings and unintended consequences. It is more disturbing that the statute may have imposed these costs and burdens on society without bringing significant benefits to copyright holders.

### B. *The International Regime*

While the DMCA is problematic at the domestic level, it is even more harmful at the international level. In general, due to the territorial nature of intellectual property rights, the DMCA does not have any significant extraterritorial effects. As a result, the DMCA is usually not applicable to foreign nationals unless and until they conduct business in the United States—a painful lesson Dmitry Sklyarov and his former employer ElcomSoft have learned.<sup>134</sup>

In recent years, however, the United States has actively pushed for bilateral and plurilateral treaties that seek to achieve “a standard of protection similar to that found in United States law.”<sup>135</sup> Thanks to these agreements, an anticircumvention regime that is modeled after the DMCA has now been exported to foreign countries. Indeed, the DMCA has emerged as the international standard for the implementation of the WIPO Internet Treaties. Article 15.5.7 of the Central America-Dominican Republic Free Trade Agreement, for example, transplanted the DMCA onto the soils of Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, and Nicaragua.<sup>136</sup> Similar provisions

132. von Lohmann, *supra* note 41, at 645.

133. See, e.g., *id.* at 645-46 (discussing the various features that make DVDs successful in the face of darknet competition); Peter S. Menell, *Envisioning Copyright Law's Digital Future*, 46 N.Y. L. SCH. L. REV. 63, 123-25 (2002) (highlighting the unique structure of the film industry); Peter K. Yu, *The Copyright Divide*, 25 CARDOZO L. REV. 331, 426-27 (2003) (discussing how the differences between the movie and music industries may have impacted on the volume of illegal online file sharing).

134. The creation of ElcomSoft's software, which removed security protection from Adobe e-books, was not illegal under Russian Law. However, Sklyarov was arrested in the United States in July 2001, after giving a presentation at a computer hacker convention. His Moscow-based employer was subsequently criminally prosecuted. In December 2002, a federal jury acquitted ElcomSoft of all charges. For a symposium discussing the criminal lawsuit against Sklyarov, see *Sklyarov Symposium Transcript*, *supra* note 62.

135. Bipartisan Trade Promotion Authority Act of 2002, 19 U.S.C. § 3802(b)(4)(A)(i)(II) (2004) (stating that one of the principal negotiating objectives of the free trade agreements is to “ensur[e] that the provisions of any multilateral or bilateral trade agreement governing intellectual property rights that is entered into by the United States reflect a standard of protection similar to that found in United States law”).

136. Central America-Dominican Republic Free Trade Agreement, May 28, 2004, art. 15.5.7 [hereinafter CAFTA-DR], available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/CAFTA/CAFTA-DR\\_Final\\_Texts/asset\\_upload\\_file934\\_3935.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/CAFTA/CAFTA-DR_Final_Texts/asset_upload_file934_3935.pdf).

are found in all of the other free trade agreements the United States has reached in recent years—with Australia, Bahrain, Chile, Jordan, Morocco, Oman, and Singapore.<sup>137</sup>

Even worse for these countries, the protection under the free trade agreements is often stronger than what is required under the DMCA. This type of DMCA-plus legislation is particularly troublesome because less developed countries actually need to have greater access to information and knowledge than their developed counterparts. While the anticircumvention regime required by the agreements still includes many narrow exceptions commonly found in the DMCA, it omits other important ones and has made it more difficult for the signatory countries to introduce new exceptions.<sup>138</sup> For example, the Central America-Dominican Republic Free Trade Agreement allows for exceptions for noninfringing uses of a copyrighted work only

when an actual or likely adverse impact on those noninfringing uses is demonstrated in a legislative or administrative proceeding by substantial evidence; provided that in order for any such exception to remain in effect for more than four years, a Party must conduct a review before the expiration of the four-year period and at intervals of at least every four years thereafter, pursuant to which it is demonstrated in such a proceeding by substantial evidence that there is a continuing actual or likely adverse impact on the particular noninfringing use.<sup>139</sup>

To be certain, this “substantial evidence” standard is similar to the one adopted by the Copyright Office in the first DMCA rulemaking pro-

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137. See, e.g., United States-Australia Free Trade Agreement, May 18, 2004, U.S.-Austl., art. 17.4.7, available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/Australia\\_FTA/Final\\_Text/asset\\_upload\\_file469\\_5141.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Australia_FTA/Final_Text/asset_upload_file469_5141.pdf); Agreement Between the Government of the United States of America and the Government of the Kingdom of Bahrain on the Establishment of a Free Trade Area, Sept. 14, 2004, U.S.-Bahrain, art. 14.4.7, available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/Bahrain\\_FTA/final\\_texts/asset\\_upload\\_file211\\_6293.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Bahrain_FTA/final_texts/asset_upload_file211_6293.pdf); United States-Chile Free Trade Agreement, June 6, 2003, U.S.-Chile, art. 17.7.5, available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/Chile\\_FTA/Final\\_Texts/asset\\_upload\\_file912\\_4011.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Chile_FTA/Final_Texts/asset_upload_file912_4011.pdf); Agreement Between the United States of America and the Hashemite Kingdom of Jordan on the Establishment of a Free Trade Area, Oct. 24, 2000, U.S.-Jordan, art. 4.13, available at [http://www.ustr.gov/Trade\\_Agreements/Bilateral/Jordan/Section\\_Index.html](http://www.ustr.gov/Trade_Agreements/Bilateral/Jordan/Section_Index.html); United States-Morocco Free Trade Agreement, June 15, 2004, U.S.-Morocco, art. 15.5.8, available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/Morocco\\_FTA/Final\\_Text/asset\\_upload\\_file797\\_3849.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Morocco_FTA/Final_Text/asset_upload_file797_3849.pdf); Agreement Between the Government of the United States of America and the Government of the Sultanate of Oman on the Establishment of a Free Trade Area, Jan. 19, 2006, U.S.-Oman, art. 15.4.7, available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/Oman\\_FTA/Final\\_Text/asset\\_upload\\_file715\\_8809.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Oman_FTA/Final_Text/asset_upload_file715_8809.pdf); United States-Singapore Free Trade Agreement, May 6, 2003, U.S.-Sing., art. 16.4.7, available at [http://www.ustr.gov/assets/Trade\\_Agreements/Bilateral/Singapore\\_FTA/Final\\_Texts/asset\\_upload\\_file708\\_4036.pdf](http://www.ustr.gov/assets/Trade_Agreements/Bilateral/Singapore_FTA/Final_Texts/asset_upload_file708_4036.pdf). For a recent discussion of some of these agreements, see Anupam Chander, *Exporting DMCA Lockouts*, 54 CLEV. ST. L. REV. 205, 212-16 (2006).

138. Compare CAFTA-DR, *supra* note 136, art. 15.5.7, with 17 U.S.C. § 1201(c)-1201(j).

139. CAFTA-DR, *supra* note 136, art. 15.5.7(e)(iii).

ceeding in 2000.<sup>140</sup> However, the standard successfully shifts the burden of proof governments of less developed countries usually adopt when determining whether they need to introduce new exceptions and limitations to the copyright system. To some extent, it reminds one of David McGowan's observation that "the legal endgame [has now become one that] place[s] the burden of proof on the other side."<sup>141</sup> Because less developed countries now have to "prove the unprovable facts,"<sup>142</sup> they are less likely to be able to introduce exceptions to protect noninfringing uses.

To help understand why an international anticircumvention regime is more harmful than its domestic counterpart, this Part discusses the serious mismatch between the regime and the local conditions of less developed countries, the insufficient empirical evidence needed to demonstrate the need or expediency of such a regime, and the greater unintended consequences created by the regime for less developed countries. This Part also explains how an international anticircumvention regime may ultimately backfire on the United States when it forces other countries to expand their domestic protection without providing significant benefits in return.

### 1. Mismatch with Local Conditions

To begin with, the DMCA was designed specifically to deal with the threat created by digital technologies under conditions specific to the United States, including the stage of its economic development, the structure of its content and communications industries, the state of available technology, the overall market conditions, and the average living standards of local consumers. Because these conditions are unlikely to be present in less developed countries, the DMCA serves as an inappropriate model for the implementation of the WIPO Internet Treaties. In fact, the U.K. Commission on Intellectual Property Rights has advised against the adoption of similar legislation by less developed countries. As the Commission stated in its final report:

We believe developing countries would probably be unwise to endorse the WIPO Copyright Treaty, unless they have very specific reasons for doing so, and should retain their freedom to legislate on technological measures. It follows that developing countries, or indeed other developed countries, should not follow the example of the DMCA in forbidding all circumvention of technological protection. In particular, we take the view that legislation such as the DMCA

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140. See Copyright Office, Library of Congress, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 65 Fed. Reg. 64,556, 64,558-59 (2000) (discussing the respective burdens of proponents and opponents of any classes of works to be exempted from the prohibition on circumvention).

141. McGowan, *supra* note 5, at 2.

142. *Id.*



shifts the balance too far in favour of producers of copyright material at the expense of the historic rights of users. Its replication globally could be very harmful to the interests of developing countries in accessing information and knowledge they require for their development.<sup>143</sup>

It is important to remember that the DMCA is not the only way, but one of the *many* possible ways, to implement the WIPO Internet Treaties. As Ian Kerr, Alana Maurushat, and Christian Tacit noted:

it is clear that there is no singular correct approach to interpreting articles 11 [of the WCT] and 18 [of the WPPT]. The *WCT* and *WPPT* provide WIPO Members with large degrees of latitude as to how a particular state might choose to fulfill its obligations with respect to the relevant provisions. Consequently, there is considerable flexibility as to how [each country] might implement these provisions, should the Government elect to ratify the two WIPO Treaties.<sup>144</sup>

Thus, countries can comply with the treaties without ever introducing an anticircumvention regime. In the context of the United States, for example, Pamela Samuelson contended that “the DMCA was largely unnecessary to implement the WIPO Copyright Treaty because U.S. law already complied with all but one minor provision of that treaty [concerning the protection of the integrity of rights management information].”<sup>145</sup> Dan Burk cited the common law “doctrine of contributory infringement, which attributes copyright liability to providers of technical devices that lack a substantial noninfringing use.”<sup>146</sup> Indeed, in light of the substantial overlap between the treaty and then-existing U.S. law, “the Clinton Administration initially considered whether the WIPO Copyright Treaty might even be sent to the Senate for ratification ‘clean’ of implementing legislation.”<sup>147</sup>

Even if anticircumvention protection is needed, the DMCA may not serve as a good model. As Jessica Litman noted, “[a]ll the [WCT] required, and all that made policy sense, was to give copyright owners remedies against people who circumvented technological protection in aid of infringement and redress against others—including device makers

143. IPR COMMISSION REPORT, *supra* note 77, at 108.

144. Kerr et al., *supra* note 45, at 36; *see also* Geist, *supra* note 100, at 214 (arguing that “there is a fairly diverse array of implementing provisions, demonstrating that the US model found in the *Digital Millennium Copyright Act*, is but one approach open to Canada”).

145. Samuelson, *Intellectual Property and the Digital Economy*, *supra* note 44, at 521 & n.10; *see also* Kerr et al., *supra* note 45, at 36 (stating that “article 11 of the *WCT* does not require anti-circumvention measures to be integrated into copyright legislation”).

146. Burk, *Anticircumvention Misuse*, *supra* note 102, at 1103. *But see* 3 MELVILLE B. NIMMER & DAVID NIMMER, *NIMMER ON COPYRIGHT* § 12A.01[C] (Perm. ed. 2006) (explaining why the *Sony* standard of being “capable of a commercially significant noninfringing use” may not meet the treaty requirement of providing “adequate legal protection and effective legal remedies against circumvention”).

147. Samuelson, *Intellectual Property and the Digital Economy*, *supra* note 44, at 530.

and sellers—who deliberately facilitated circumvention for an infringing purpose.”<sup>148</sup> Likewise, Coenraad Visser reminded us that the treaty “is much more limited than the wording of the DMCA. It does not strike at manufacturing devices; it strikes only at the actual circumvention.”<sup>149</sup>

In fact, from Australia to Japan, countries have implemented the WIPO Internet Treaties differently.<sup>150</sup> Likewise, the EU Information Society Directive, which sought to implement the treaties, differs from the DMCA in providing an additional requirement that each member state

take appropriate measures to ensure that rightholders make available to the beneficiary of [the specified] exception or limitation provided for in national law . . . the means of benefiting from that exception or limitation, to the extent necessary to benefit from that exception or limitation and where that beneficiary has legal access to the protected work or subject-matter concerned.<sup>151</sup>

Some commentators even suggested that the treaties can be implemented by adopting legislation outside the copyright system (and the greater copyright system that includes paracopyright laws). Ian Kerr and others, for example, noted that the protection of technological measures “could be dealt with in other kinds of legislation, such as criminal law or competition law.”<sup>152</sup>

Moreover, although the digital revolution affects both developed and less developed countries, these countries face different challenges and obtain different benefits from the opportunities created by the Internet and new media technologies. While the Internet serves mainly as a communication medium or a commercial marketplace for the United States and other developed countries, it provides for many less developed countries an important leapfrogging tool to catch up with their more developed counterparts.<sup>153</sup> To take advantage of this leapfrogging tool, less developed countries pushed aggressively for the recognition of the importance of access to information and knowledge in the recent World Summit on the Information Society.<sup>154</sup> In that forum, and elsewhere,

148. LITMAN, *supra* note 14, at 132.

149. *Sklyarov Symposium Transcript*, *supra* note 62, at 854 (remarks of Professor Coenraad Visser of the University of South Africa).

150. See Kerr et al., *supra* note 45, at 58-60 (discussing anticircumvention regimes in Australia and Japan).

151. Directive 2001/29/EC of the European Parliament and of the Council on the Harmonisation of Certain Aspects of Copyright and Related Rights in the Information Society art. 6(4), 2001 O.J. (L 167) 10.

152. Kerr et al., *supra* note 45, at 36-37.

153. See Peter K. Yu, *Bridging the Digital Divide: Equality in the Information Age*, 20 CARDOZO ARTS & ENT. L.J. 1, 9 (2002) (contending that “[t]he information revolution also might allow the less developed countries to catch up with the developed countries by leapfrogging stages of technological, industrial, and infrastructural development”).

154. See World Summit on the Information Society, Dec. 10-12, 2003, Declaration of Principles, U.N. Doc. WSIS-03/GENEVA/DOC/4-E (Dec. 12, 2003), available at

they have also questioned the compatibility of intellectual property protection with their development goals.<sup>155</sup> Their position is understandable. As James Boyle noted in the early days of the Internet, “[t]he intellectual property regime could make or break the educational, political, scientific, and cultural promise of the Net.”<sup>156</sup> Thus, strong intellectual property protection not only may not be in the interest of less developed countries, but may take away their rare opportunities to catch up with their more developed counterparts.

To make matters worse, the DMCA is based on three assumptions that may be invalid in the less developed world. The first assumption concerns the claim that most works will exist in both DRM and non-DRM formats. If consumers are unhappy with the protected format, or if that format prevents users from enjoying noninfringing uses, they can always switch to an identical product in an unprotected format.<sup>157</sup> In *United States v. Elcom Ltd.*,<sup>158</sup> for example, the court reminded us that the DMCA “does not ‘prevent access to matters in the public domain’ or allow any publisher to remove from the public domain and acquire rights in any public domain work.”<sup>159</sup> Rather, it allows copyright holders to “gain[] a technological protection against copying *that particular electronic version* of the work.”<sup>160</sup>

While the *Elcom* court’s assumption that copyrighted works are always available in both protected and unprotected formats is invalid even in developed countries,<sup>161</sup> it is particularly problematic in the less devel-

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[http://www.itu.int/dms\\_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0004!!PDF-E.pdf](http://www.itu.int/dms_pub/itu-s/md/03/wsis/doc/S03-WSIS-DOC-0004!!PDF-E.pdf); World Summit on the Information Society, Nov. 16-18, 2005, Tunis Agenda for the Information Society, WSIS-05/TUNIS/DOC/6(Rev. 1)-E (Nov. 18, 2005), available at <http://www.itu.int/wsis/docs2/tunis/off/6rev1.html>.

155. For an excellent discussion of how to recalibrate intellectual property protection in light of the development concept, see generally Margaret Chon, *Intellectual Property and the Development Divide*, 27 CARDOZO L. REV. 2821 (2006).

156. James Boyle, *A Politics of Intellectual Property: Environmentalism for the Net?*, 47 DUKE L.J. 87, 89 (1997).

157. See Copyright Office, Library of Congress, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 65 Fed. Reg. 64,556, 64,558 (2000) (considering a mitigating factor “when a work as to which the copyright owner has instituted a technological control is also available in formats that are not subject to technological protections”); Reese, *supra* note 108, at 653 (“Motion pictures . . . are today often available both on DVD, protected by CSS, and on videocassette, unprotected by CSS, perhaps alleviating some concerns about the difficulty a consumer might have in circumventing CSS to engage in noninfringing use of a film that she owns on DVD”); *Sklyarov Symposium Transcript, supra* note 62, at 841-44 (discussing whether consumers can exercise fair use despite strong DRM systems); *id.* at 841 (observing that “a lot of these e-books will be published as normal, printed books”) (remarks of Eric Smith of the International Intellectual Property Alliance); *id.* at 842 (stating that “absolutely nothing under the law stops you from displaying the text on the screen and sitting there and typing into your own hard drive whatever portions of the book you want to type in”) (remarks of Bruce Lehman, former Assistant Secretary of Commerce and Commissioner of the U.S. Patent and Trademark Office).

158. 203 F. Supp. 2d 1111 (N.D. Cal. 2002).

159. *Elcom*, 203 F. Supp. 2d at 1131.

160. *Id.* (emphasis added).

161. See Copyright Office, Library of Congress, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 65 Fed. Reg. 64,556, 64,558

oped world,<sup>162</sup> which faces an acute shortage of copyrighted works. As the U.K. Commission on Intellectual Property Rights observed:

In the tertiary sector, the evidence indicates that access to books and other materials for education and research remains a critical problem in many developing countries, particularly the poorest. Most developing countries remain heavily dependent on imported textbooks and reference books, as this sector is often not commercially feasible for struggling local publishers to enter. The prices of such books are beyond the means of most students.<sup>163</sup>

Even worse, a copy-protected copy on the Internet sometimes may be the only available copy. Even materials that are in the public domain of developed countries may not be available in those countries.

Moreover, although the WIPO Internet Treaties, the DMCA, and similar anticircumvention laws do not extend to public domain materials, it is naïve to assume that these materials are always freely available.<sup>164</sup> Today, public domain works are increasingly bundled with copyrighted materials, such as copyrighted introduction or editorial comments.<sup>165</sup> As

(2000) (reporting that commenters have submitted a number of databases and indexes “that were available only in digital form”). *But see* Stefan Bechtold, *Digital Rights Management in the United States and Europe*, 52 AM. J. COMP. L. 323, 363 (2004) [hereinafter Bechtold, *Digital Rights Management*] (“DRM systems will never be able to cordon off content completely. File-sharing networks will continue to exist, movies and photos can be captured from a computer screen, and music can be re-recorded from a loudspeaker.”).

162. Challenging this position, Jane Ginsburg suggested that the assumption that works will be available only in encrypted formats “may be more true for some works, such as software, digital sound recordings, and databases, than for others, such as books and other literary works.” Ginsburg, *Copyright Legislation*, *supra* note 14, at 153-54. She also explained that “many documents (frequently composed of noncopyrightable information) have been the objects of limited distribution and site licenses or shrink-wrap licenses that contractually limit the library’s or user’s ability to dispose of the information disclosed in the document.” *Id.* at 153 n.52. Nevertheless, it remains debatable whether these licenses would hold up in court. In addition, Professor Ginsburg pointed out that “copyright owners may not choose to restrict access to every copy, . . . [and that] copies will often still be available for anonymous consultation (and limited copying) in places such as public libraries (who, under the analysis offered earlier, are entitled to circumvent access and anti-copying codes, under appropriate circumstances).” *Id.* at 154.

163. IPR COMMISSION REPORT, *supra* note 77, at 103.

164. Examples that easily come to mind are the public domain materials included in Lexis-Nexis and Westlaw databases and those public domain movies shown on subscription-based cable television channels. To these content providers, “what is being sold is not the work itself but rather, the service of delivering it.” MARK STEFIK, *THE INTERNET EDGE: SOCIAL, LEGAL, AND TECHNOLOGICAL CHALLENGES FOR A NETWORKED WORLD 94* (1999).

165. As Alfred Yen described:

Bundling happens all the time. History books contain copies of the Constitution and letters by historical figures that have passed into the public domain. Telephone books contain both copyrightable yellow pages and uncopyrightable white pages. Law school casebooks combine the copyrightable commentary of authors with public domain cases. If such works were to be distributed in digital form, then the publishers could implement DRM schemes that limit the uses a digital reader could make of these works. The DRM scheme might not allow any printing of the book, or it might not allow any copying of the book. It might even restrict the number of times a person can read the book.

Yen, *supra* note 71, at 674; accord NIMMER & NIMMER, *supra* note 146, §12A.06[B][1] (stating that “[p]ublishers are free to take old works that have fallen into the public domain, to add a bit of original material to them, and to claim a copyright in the newly released whole” (footnote omitted));

a result, the bundled materials, including both the copyrighted and public domain portions, will be protected by technological measures supported by the anticircumvention regime.<sup>166</sup> Because many less developed countries lack a choice of materials in both protected and unprotected formats, sophisticated DRM systems “may exclude access to these materials altogether and impose a heavy burden that will delay the participation of those countries in the global knowledge-based society.”<sup>167</sup>

The second assumption concerns the availability of decryption tools or technological expertise to perform the needed circumvention as allowed under the narrowly-crafted exceptions. Because of their inevitable dual-use nature and the continued merger of access-control and use-control technologies,<sup>168</sup> decryption tools are unlikely to be widely available. The limited Internet connectivity in many of these countries has also reduced access to these tools, although such access will increase as connectivity improves.

Even if the needed decryption tools are available, it is very likely that these tools or related services will have to be imported into less developed countries until they can develop their own technological expertise. Less developed countries are therefore at the mercy of their developed counterparts. If circumvention technologies are banned in the exporting developed countries, less developed countries may not be able to obtain access to protected works even if they manage to obtain an exception in the international intellectual property agreements to prevent the decryption tools or services from being outlawed in their own countries.

Burk, *Anticircumvention Misuse*, *supra* note 102, at 1108 (stating that “copyrightable content is typically mixed with uncopyrightable content, which will also be under the control of the technological protection system”); *see also* Nimmer, *A Riff on Fair Use*, *supra* note 44, at 712 (stating that “[p]ublishers are free to take old works that have fallen into the public domain, to add a bit of original material to them, and to claim a copyright in the newly released whole” (footnote omitted)).

166. In addition to technological measures, restrictive licenses have also been employed to protect these works (and other copyrighted works). The adverse impact of these licenses, however, is likely to be less severe than that of technological measures due to the underdeveloped legal systems and lax enforcement of laws in many of these countries. The law concerning the enforceability of shrinkwrap and clickwrap mass market licenses is also unsettled and varies from country to country.

167. IPR COMMISSION REPORT, *supra* note 77, at 106.

168. As Professor Lunney explained:

Dealing with decryption technology is difficult because the same decryption technology that enables the making of a non-infringing copy of a creative work also enables the making of an infringing copy. A decryption tool that enables a teacher to prepare a few spur-of-the-moment copies for the classroom is the same decryption tool that enables a pernicious pirate to duplicate the work for resale. Moreover, unless lawful access to decryption technology is severely restricted, the widespread dissemination of decryption technology is almost inevitable. Because decryption technology is usually readily portable and easily duplicated, it will likely prove impossible to contain. If every librarian, teacher, or researcher with a potential fair use claim is allowed to possess decryption technology, it will be all but impossible to keep the technology out of the hands of those who intend unlawful uses.

Lunney, *supra* note 15, at 820; *see also* Burk, *Anticircumvention Misuse*, *supra* note 102, at 1106 (stating that “enacting a sweeping blanket prohibition with discrete exceptions is a foolish approach to legislation covering multipurpose technologies”).

To some extent, the plight of less developed countries in the circumvention area is similar to the access-to-medicines problems they currently experience. Lacking the technical capacity to develop or manufacture drugs, these countries often have to import pharmaceutical products from abroad—regardless of whether these products are on- or off-patent. While there is no doubt that the access-to-medicines problem has an immediate and arguably more severe impact, the access-to-circumvention-tools problem will touch on education and cultural development and will therefore have a more lasting impact.

To deal with the access-to-medicines problem, the WTO member states have adopted a proposal to amend the Agreement on Trade-Related Aspects of Intellectual Property Rights<sup>169</sup> (“TRIPs Agreement”) to allow member states with insufficient or no manufacturing capacity to import generic versions of on-patent pharmaceuticals.<sup>170</sup> If DRM systems are widely deployed throughout the world and if they have prevented people in less developed countries from having access to basic educational and research materials, a similar exception may be needed to enlarge access to the needed circumvention tools or services.<sup>171</sup> Indeed, many international intellectual property treaties already contain technology transfer and technical assistance provisions that can be easily extended to these tools. Article 67 of the TRIPs Agreement, for example, requires developed countries to provide technical and financial cooperation to less and least developed countries “on request and on mutually agreed terms and conditions.”<sup>172</sup>

The final assumption states that the DMCA only creates inconvenience. As the United States Court of Appeals for the Second Circuit declared in *Universal City Studios, Inc. v. Corley*,<sup>173</sup> it “kn[e]w of no au-

169. Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, LEGAL INSTRUMENTS—RESULTS OF THE URUGUAY ROUND, 33 I.L.M. 1197 (1994) [hereinafter TRIPs Agreement].

170. See Council for Trade-Related Aspects of Intellectual Property Rights, *Implementation of Paragraph 11 of the General Council Decision of 30 August 2003 on the Implementation of Paragraph 6 of the Doha Declaration on the TRIPs Agreement and Public Health: Proposal for a Decision on an Amendment to the TRIPs Agreement*, IP/C/41 (Dec. 6, 2005), available at [http://www.wto.org/english/news\\_e/news05\\_e/trips\\_decision\\_e.doc](http://www.wto.org/english/news_e/news05_e/trips_decision_e.doc). For a discussion of proposed article 31bis of the TRIPs Agreement, see generally Peter K. Yu, *The International Enclosure Movement*, 82 IND. L.J. (forthcoming 2007), <http://ssrn.com/abstract=896134>.

171. Scholars have advanced proposals to amend domestic circumvention laws to facilitate the provision of this type of assistance. See, e.g., Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 120 (advancing a proposal to develop an administrative complaint mechanism to assist individuals who seek to obtain legitimate uses of copyrighted works); Tian Yijun, *Problems of Anti-Circumvention Rules in the DMCA & More Heterogeneous Solutions*, 15 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 749, 785 (2005) (stating that “a future DMCA amendment should provide specific legal mechanisms to help eligible users obtain necessary circumvention assistance from the appointed government agency when these users are not capable of circumventing the technological protection measures by themselves”).

172. TRIPs Agreement, *supra* note 169, art. 67.

173. 273 F.3d 429 (2d Cir. 2001).

thority for the proposition that fair use, as protected by the Copyright Act, much less the Constitution, guarantees copying *by the optimum method or in the identical format of the original*.<sup>174</sup> Likewise, in *United States v. Elcom Ltd.*,<sup>175</sup> the court explained that fair use is still available even though “[t]he fair user may find it more difficult to engage in certain fair uses with regard to electronic books.”<sup>176</sup> These observations were similar to the position articulated by Jesse Feder when he was the Acting Associate Register for Policy and International Affairs of the United States Copyright Office: “[T]he ability to make a perfect digital reproduction of something is not something that is inherent in fair use. Fair use entails copying, but it does not have to be a perfect digital reproduction.”<sup>177</sup>

From the perspectives of the proponents, judges, and officials, the DMCA has adequately preserved the users’ ability to obtain legitimate access through traditional analog means even though it may have reduced consumer convenience.<sup>178</sup> Consumers may not be able to make copies “by the optimum method or in the identical format of the original.”<sup>179</sup> However, they can always do so by employing analog fixation devices and techniques—sometimes as simple as the use of pen and paper. As the Second Circuit noted in *Corley*, the DMCA continues to allow one

to make a variety of traditional fair uses of DVD movies, such as commenting on their content, quoting excerpts from their screenplays, and even recording portions of the video images and sounds on film or tape by pointing a camera, a camcorder, or a microphone at a monitor as it displays the DVD movie.<sup>180</sup>

What the court did not mention is that the use of these analog tools and techniques “will often be costly or impractical.”<sup>181</sup> As Alfred Yen

174. *Corley*, 273 F.3d at 459 (emphasis added).

175. 203 F. Supp. 2d 1111 (N.D. Cal. 2002).

176. *Elcom*, 203 F. Supp. 2d at 1134-35.

177. *Sklyarov Symposium Transcript*, *supra* note 62, at 843-44 (remarks of Jesse Feder, former Acting Associate Register for Policy and International Affairs of the United States Copyright Office).

178. Jane Ginsburg questioned whether, “[w]hen the public increasingly expects to acquire works with a click of a mouse, . . . the law should stand back while third-party entrepreneurs endeavor to make works available without authorization in the most copy-convenient format (and without compensation for resulting copies)?” Ginsburg, *Copyright Legislation*, *supra* note 14, at 154. Bruce Lehman went even further to remark that he did not believe that the DMCA has made it inconvenient for consumers to exercise fair use. As he stated, “It is not more cumbersome at all. It is just exactly the same as it has always been.” *Sklyarov Symposium Transcript*, *supra* note 62, at 844 (remarks of Bruce Lehman, former Assistant Secretary of Commerce and Commissioner of the U.S. Patent and Trademark Office).

179. *Corley*, 273 F.3d at 459.

180. *Id.*

181. Yen, *supra* note 71, at 678; *see also* Landau, *supra* note 110, at 298 (stating that “[a]lthough ‘fair use’ does not guarantee the making of the most efficient copies, the DMCA should not mandate the most inefficient”).

pointed out, these alternatives sometimes require the purchase of analog equipment as well as the technical expertise to set up such equipment.<sup>182</sup> The inferior results of analog reproduction also raise the question “[w]hy should the rights holders benefit from the new opportunities of DRM systems in order to protect their legitimate interests, while the beneficiaries of a copyright limitation have to fall back on an inferior and sometimes outdated version of the work in order to carry out their legitimate interests?”<sup>183</sup>

Moreover, inconvenience in one nation may be inaccessibility in another. Due to limited resources and the lack of infrastructure development in many less developed countries, inconvenience can become such a heavy burden that would eliminate access entirely.<sup>184</sup> As June Besek noted in the Kernochan Center report, “there is a continuum between ‘inconvenient’ and ‘impossible.’ There may well be circumstances in which the exercise of a privilege is so inconvenient as to be impossible, as a practical matter.”<sup>185</sup>

Finally, there is no guarantee that the traditional analog means of noninfringing uses will always be available in the near future. “[S]ome copyright owners [already] have expressed a desire to use technology, perhaps backed by legal requirements, to ‘plug the analog hole’ and prevent such copying of copyrighted works.”<sup>186</sup> If the analog hole is plugged, or severely shrunk, anticircumvention legislation is more than a mere inconvenience.

## 2. Lack of Empirical Evidence

Thus far, there has been insufficient empirical proof to conclusively demonstrate whether an anticircumvention regime will be expedient, or even needed, in less developed countries. There has also been limited evidence about whether the extensive use of DRM systems would benefit these countries. On the one hand, due to lax enforcement of intellectual property laws, these systems, along with strong anticircumvention protection, will provide foreign rights holders with the needed protection to make the products available in the first place. If they decide to relocate their manufacturing plants to take advantage of the lower labor, production, and distribution costs, such protection will also help bring the desperately needed foreign direct investments. In countries that have wide digital distribution of culture-based materials, DRM systems may even

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182. See Yen, *supra* note 71, at 679 (stating that the use of video camera to make fair use of DVDs “requires the purchase of an appropriate camera and the effort of setting up the camera so that a serviceable image can be captured”).

183. Bechtold, *Digital Rights Management*, *supra* note 161, at 363.

184. Thanks to Mark Schultz for reminding me of this important point.

185. Besek, *supra* note 36, at 481.

186. Reese, *supra* note 108, at 653; see also Susan P. Crawford, *The Biology of the Broadcast Flag*, 25 HASTINGS COMM. & ENT. L.J. 603, 618-21 (2003) (providing an overview of the “analog hole”).



help protect the integrity of those materials. Such protection therefore would benefit the local people if it would not make the materials unaffordable.

On the other hand, as pointed out above, the deployment of sophisticated DRM systems will make the products expensive and inaccessible to a large number of people in these countries. While in theory DRM systems allow for price discrimination, in reality foreign rights holders rarely do so, for at least two reasons. First, many of them are concerned that the discounted products would flow back as parallel imports to their primary markets in the developed world and emerging economies.<sup>187</sup> Second, because of highly uneven distribution of wealth in these countries, foreign content providers may choose to price their products based on the demand of the “more affluent minority,” rather than the larger and poorer majority.<sup>188</sup> Thus, instead of providing greater consumer choices and cheaper products, the widespread deployment of DRM systems will generally reduce access to materials that are needed for education, science, and cultural development.

One may still argue that the use of DRM systems will encourage people in less developed countries to consume local products that are not in copy-protected formats. Although this argument is valid in some cases, it is unlikely that the benefits accrued from such diversion would outweigh the costs of reduced access. After all, the high prices of foreign products also encourage people in less developed countries to consume the cheaper, local products. However, it would be difficult to argue that these countries should encourage high prices for foreign products for that particular reason. Moreover, there may not always be local alternatives for the needed products. Nor may there always be alternatives in unprotected format. With increased globalization and the demand generated by the “more affluent minority” in these countries, many

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187. See Yu, *The Copyright Divide*, *supra* note 133, at 436 (noting the concern of backflow of discounted products as parallel imports).

188. This reason, indeed, is one of the primary reasons why price discrimination of pharmaceuticals does not occur in many less developed countries. See F.M. SCHERER & JAYASHREE WATAL, POST-TRIPS OPTIONS FOR ACCESS TO PATENTED MEDICINES IN DEVELOPING COUNTRIES 45 (Comm'n on Macroeconomics & Health, Working Paper No. WG4:1, 2001), available at [http://www.cmhealth.org/docs/wg4\\_paper1.pdf](http://www.cmhealth.org/docs/wg4_paper1.pdf); Patricia M. Danzon & Adrian Towse, *Theory and Implementation of Differential Pricing for Pharmaceuticals*, in INTERNATIONAL PUBLIC GOODS AND TRANSFER OF TECHNOLOGY UNDER A GLOBALIZED INTELLECTUAL PROPERTY REGIME 425, 455 (Keith E. Maskus & Jerome H. Reichman eds., 2005) (noting that “pricing in some [developed countries] is dominated by the demands of small, affluent populations, resulting in prices that are unaffordable to the majority of poorer people”); Keith E. Maskus, *Ensuring Access to Essential Medicines: Some Economic Considerations*, 20 WIS. INT'L L.J. 563, 566 (2002) (stating that “pharmaceutical firms and their distributors in poor countries may find it more profitable to sell drugs in low volumes and high prices to wealthier patients with price-inelastic demand rather than in high volumes at low prices to poorer patients”); Yu, *The International Enclosure Movement*, *supra* note 170 (explaining why pharmaceutical companies prefer not to price discriminate their products in less developed countries).

of the needed local products may even be copy-protected or manufactured by multinational corporations that seek to sell the products abroad.

In sum, there is no conclusive evidence that the use of DRM systems would benefit less developed countries. Without such evidence, it remains unclear whether an anticircumvention regime would be expedient, or even needed, in these countries. While strong anticircumvention protection may bring in some benefits—such as a potential increase in foreign investment and the protection of culture-based materials—it is likely to result in high prices and restricted access. In my view, the benefits of an anticircumvention regime to less developed countries are speculative and therefore would not outweigh its costs.

Even worse, such a regime may be a risky gamble that these countries cannot afford. If the anticircumvention regime does not strike an appropriate balance between proprietary interests and public access needs, it is likely to cause more damage to less developed countries than to their developed counterparts. Many less developed countries have neither the correction mechanisms nor the expertise or resources to introduce mechanisms to correct the imbalance.<sup>189</sup> In the developed world, commentators have proposed to adjust the balance of the anticircumvention regime by using the following correction mechanisms: antitrust or competition law,<sup>190</sup> the misuse doctrine,<sup>191</sup> a mixed fair use infrastructure with automatic fair use defaults and a key escrow system,<sup>192</sup> an administrative complaint mechanism and an appeal procedure,<sup>193</sup> a verification system based on gun control laws,<sup>194</sup> the provision of circumvention ser-

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189. See IPR COMMISSION REPORT, *supra* note 77, at 4 which states that:

[W]e consider that, if anything, the costs of getting the IP system 'wrong' in a developing country are likely to be far higher than in developed countries. Most developed countries have sophisticated systems of competition regulation to ensure that abuses of any monopoly rights cannot unduly affect the public interest.

*Id.*; KEITH E. MASKUS, INTELLECTUAL PROPERTY RIGHTS IN THE GLOBAL ECONOMY 237 (2000) (noting that developed countries "have mature legal systems of corrective interventions" where "the exercise of IPRs threatens to be anticompetitive or excessively costly in social terms").

190. See, e.g., Bechtold, *Present and Future*, *supra* note 3, at 619 (stating that antitrust concerns need to be taken into account when analyzing DRM-related developments); Zohar Efroni, *A Momentary Lapse of Reason: Digital Copyright, the DMCA and a Dose of Common Sense*, 28 COLUM.-VLA J.L. & ARTS 249, 266 (2005) (noting that "grounds for constraining the power to prohibit access might be found in legal sources external to copyright law, for instance, in antitrust law"); Geist, *supra* note 100, at 246-48 (proposing to respond to the introduction of anticircumvention protection by making parallel amendments to the Canadian Competition Act "to ensure that the Competition Bureau is not restricted in its ability to bring actions against abusive behaviour stemming from the application of an anti-circumvention right"); Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 491 (stating that "[i]t is important that the DMCA does not become a tool for those engaging in potentially questionable tying practices to distract attention from their possible antitrust violations by claiming copyright and DMCA infringements against a commercial competitor").

191. See generally Burk, *Anticircumvention Misuse*, *supra* note 102; John R. Therien, Comment, *Exorcising the Specter of a "Pay-Per-Use" Society: Toward Preserving Fair Use and the Public Domain in the Digital Age*, 16 BERKELEY TECH. L.J. 979, 1041-42 (2001).

192. See generally Burk & Cohen, *supra* note 45.

193. See generally Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71.

194. See generally Yen, *supra* note 71.

vice providers,<sup>195</sup> and the development of DRM systems that are engineered to protect the process of fair use.<sup>196</sup> All of these legal doctrines and infrastructures are likely to be costly and thus unavailable in the less developed world.

Indeed, many countries lack the needed resources and expertise to put in place *both* an anticircumvention regime and a follow-up correction mechanism. It is important to remember that many of these countries institute or revamp their intellectual property systems in the first place mainly because of the TRIPs Agreement or external pressure from the developed world, such as what they currently experience in their bilateral and plurilateral trade negotiations.<sup>197</sup> Oftentimes, they introduce reforms in the fear of losing trade benefits, export markets, and development aid.<sup>198</sup> If they had a choice to select the type of innovation systems they wanted to build, an anticircumvention regime would be very unlikely to be a top priority. After all, economists have shown empirically that countries with limited imitative capacity often do not benefit from a strong intellectual property regime.<sup>199</sup>

Even if these countries have the needed expertise to introduce correction mechanisms after they completed their reforms, they may have exhausted their resources after strengthening the intellectual property system. Even worse, local policymakers may have used up their limited political capital for anticircumvention reforms, especially if the earlier reforms turn out to be unsuccessful.<sup>200</sup> Under that scenario, local reformers will not only have to deal with resistance in the country and to justify the short-term economic losses, but they will also have lost credibility to introduce new reforms. After the failure of the earlier reforms, the resistance to the later reforms is likely to be severe even if the goals of those follow-up reforms are to correct the imbalance of the earlier ones.

195. See Besek, *supra* note 36, at 509-10 (discussing circumvention service providers).

196. See generally Timothy K. Armstrong, *Digital Rights Management and the Process of Fair Use*, 20 HARV. J.L. & TECH. (forthcoming 2006), [http://ssrn.com/abstract\\_id=885371](http://ssrn.com/abstract_id=885371).

197. See Peter K. Yu, *TRIPS and Its Discontents*, 10 MARQ. INTELL. PROP. L. REV. 369, 373-75 (2006) (discussing the coercive narrative of the origins of the TRIPs Agreement). *But see* Edmund W. Kitch, *The Patent Policy of Developing Countries*, 13 UCLA PAC. BASIN L.J. 166 (1994) (suggesting that less developed countries agreed to stronger intellectual property protection because they found such protection in their self-interests). Although I agree with Professor Kitch's arguments about how the TRIPs Agreement can be in the self-interests of less developed countries, especially those with strong imitative capacities, I have serious doubts that these countries saw the strengthening of intellectual property standards as pursuits of their own self-interests during the TRIPs negotiations.

198. See Yu, *The International Enclosure Movement*, *supra* note 170; *see also* Frederick Abbott, *The Future of IPRs in the Multilateral Trading System*, in *TRADING IN KNOWLEDGE: DEVELOPMENT PERSPECTIVES ON TRIPS, TRADE AND SUSTAINABILITY* 36, 43 (Christophe Bellmann et al. eds., 2003) (stating that many less developed countries remain "highly dependent on the developed countries as the source of capital, whether it is provided through the IMF or World Bank, or through investment bankers and securities exchanges").

199. See, e.g., MASKUS, *supra* note 189, at 116-19.

200. See Yu, *The International Enclosure Movement*, *supra* note 170.

### 3. Unintended Consequences

An anticircumvention regime may create unintended consequences that would greatly hurt consumers in less developed countries. For example, it may require new supporting technology and equipment that may be nonexistent or highly unaffordable in less developed countries. Even in the developed world, consumer advocates have been worried that the introduction of copy-protected CDs, which may not be playable on older car stereos, personal computers, and CD players, may force consumers to buy new hardware they do not otherwise need or cannot afford. Indeed, when Sony released Celine Dion's album as an encrypted CD in 2002, consumer advocates called for record companies to properly label those CDs to avoid confusion and to allow consumers to choose away from those products.<sup>201</sup> Two California consumers even filed a class action lawsuit against the major record labels.<sup>202</sup>

While it is already problematic in developed countries to require consumers to purchase new devices that support the technological measures employed, it would be particularly disturbing if the anticircumvention regime required consumers in less developed countries to purchase new end devices that they could not find or afford. By definition, less developed countries have few resources, and people there have very limited disposable income. Some may even have a difficult time meeting such basic needs as clean drinking water, food, shelter, electricity, schools, and basic health care. While it is hard, though not impossible, to explain why people in such circumstances need copyrighted Hollywood movies or popular music, technological measures have also been used to restrict access to basic educational products and research materials. Thus, an anticircumvention regime that renders household products obsolete is likely to have a very significant impact on less developed countries—much greater than the impact on its developed counterparts.

### 4. Backdoor Lawmaking

The anticircumvention regime that the United States exported abroad may come back to haunt the American people.<sup>203</sup> The WIPO Internet Treaties are a good example of what I have called “backdoor lawmaking”—a process of outsourcing the legislative process to an in-

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201. See George Cole, *Celine Dion and the Copycats*, FIN. TIMES, July 19, 2002, at 11; Kevin Hunt, *Record Industry Opens Attack on Consumer Rights*, HARTFORD COURANT, May 23, 2002, at 21; Peter K. Yu, *How the Motion Picture and Recording Industries Are Losing the Copyright War by Fighting Misdirected Battles*, FINDLAW'S WRIT: LEGAL COMMENTARY, [http://writ.news.findlaw.com/commentary/20020815\\_yu.html](http://writ.news.findlaw.com/commentary/20020815_yu.html) (Aug. 15, 2002).

202. See Jon Healey & Jeff Leeds, *Record Labels Grapple with CD Protection*, L.A. TIMES, Nov. 29, 2002, 3, at 1 (reporting that “two California consumers . . . have filed a class-action lawsuit against the five major record companies, alleging that copy-protected CDs are defective products that shouldn't be allowed on the market”).

203. Anupam Chander recently published an article expressing similar concerns. See Chander, *supra* note 137, at 206 (expressing concern that the United States “may be exporting our all-too-narrow vision of intellectual property to many of our trading partners”).

ternational forum of unelected representatives in an effort to create laws that the domestic legislature would not have otherwise enacted.<sup>204</sup> This type of lawmaking is rent seeking at its best.

As far as anticircumvention protection is concerned, there are two different sets of backdoors—or “double backdoors” as I have sometimes called them. The United States began by going to a multilateral forum—WIPO in this case<sup>205</sup>—to create international standards based on laws that its domestic legislature was reluctant to enact (first backdoor).<sup>206</sup> These resulting standards traveled back to the United States in the form of international obligations that provided the needed momentum for the enactment of the DMCA. Then, it used bilateral or plurilateral free trade agreements to induce other countries that have yet to ratify or implement the WIPO Internet Treaties to enact laws that implement DMCA-like standards (second backdoor). Eventually, these bilateral or plurilateral standards will return to the United States to further affect its domestic legislative process. In both scenarios, harmonization and international legal obligations provided the domestic legislature with politically acceptable justifications to enact laws that it had originally deemed unappealing from the domestic standpoint. What is particularly disturbing is

204. As I noted earlier:

From the standpoint of democratic governance, these bilateral agreements are particularly problematic, because they seek to circumvent the political process by using “negotiation backdoors” through which government officials can achieve what these officials otherwise could not achieve before Congress. By pushing controversial legislation into international fora, these officials are more likely to secure international agreements that, in turn, would convince Congress to enact implementing legislation that would not be adopted in the first place.

Peter K. Yu, *Currents and Crosscurrents in the International Intellectual Property Regime*, 38 *LOY. L.A. L. REV.* 323, 397-98 (2004).

205. As Pamela Samuelson noted:

The digital agenda that Clinton administration officials pursued in Geneva was almost identical to the digital agenda they had put before the U.S. Congress during roughly the same time period. Notwithstanding the fact that this digital agenda had proven so controversial in the U.S. Congress that the bills to implement it were not even reported out of committee, Clinton administration officials persisted in promoting these proposals in Geneva and pressing for an early diplomatic conference to adopt them. For a time, it appeared that administration officials might be able to get in Geneva what they could not get from the U.S. Congress, for the draft treaties published by WIPO in late August 1996 contained language that, if adopted without amendment at the diplomatic conference in December, would have substantially implemented the U.S. digital agenda, albeit with some European gloss. Had this effort succeeded in Geneva, Clinton administration officials would almost certainly have then argued to Congress that ratification of the treaties was necessary to confirm U.S. leadership in the world intellectual property community and to promote the interests of U.S. copyright industries in the world market for information products and services.

Samuelson, *U.S. Digital Agenda*, *supra* note 89, at 373-74; *see also* LITMAN, *DIGITAL COPYRIGHT*, *supra* note 14, at 129 (suggesting that, because of domestic resistance, Commissioner Bruce Lehman of the United States Patent and Trademark Office “decided to attack the problem the other way around . . . [and] focused his attention on getting his agenda adopted by the WIPO member nations, reasoning that when the United States signed the treaty, Congress would be obliged to adopt implementing legislation in accord with the White Paper’s recommendations”).

206. WTO would be another possible forum. In the case of members of the European Union, Brussels would be a usual forum.

that these pressing international standards were unlikely to have existed in the first place had the initiating country not “outsourced” the legislative process.

Even if the domestic legislature were able to resist the temptation of introducing harmonizing legislation, these laws might still enter the country in the form of customary international law when a sufficient number of countries have adopted the controversial provisions in their bilateral or plurilateral agreements and have expressly and consistently recognized these provisions as legal norms governing their state conduct. Although Congress may override these customary laws through legislation, the potential of their influence on the domestic legislative and judicial processes and their ability to shape international discussion are not to be ignored.

Moreover, the international agreements and the network of bilateral and plurilateral treaties might affect the country’s international obligations by “form[ing] the context for” the interpretation of treaties the United States has signed.<sup>207</sup> Because of the increasing overlap between intellectual property and other issue-areas,<sup>208</sup> governments and international organizations increasingly look to these agreements as part of the overall framework in an effort to avoid future conflicts in international obligations. In *United States—Section 110(5) of the US Copyright Act*, for example, the WTO Dispute Settlement Panel noted the need “to seek contextual guidance . . . when developing interpretations that avoid conflicts within this overall framework, except where these treaties explicitly contain different obligations.”<sup>209</sup> In short, an international anticircumvention regime is not only harmful to importing less developed countries, but also to the developed exporters, like the United States.

If that is not enough, the United States’ obligations under the free trade agreements may make it difficult and costly for the country to reduce protection later when it finds that the anticircumvention regime has overprotected. As Anupam Chander reminded us recently:

FTA [free trade agreements] obligations, it must be remembered, generally apply equally to the United States. Thus, it is possible that the United States could run afoul of its own FTAs. The FTAs are not term-limited, though they do permit withdrawal. Should we con-

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207. See Ruth Okediji, *TRIPS Dispute Settlement and the Sources of (International) Copyright Law*, 49 J. COPYRIGHT SOC’Y U.S.A. 585, 602-04 (2001).

208. See, e.g., Kal Raustiala, *Density & Conflict in International Intellectual Property Law* 40 U.C. DAVIS L. REV. (forthcoming 2007), [http://ssrn.com/abstract\\_id=914606](http://ssrn.com/abstract_id=914606) (discussing the “intellectual property regime complex”); Symposium, *The International Intellectual Property Regime Complex*, 2007 MICH. ST. L. REV. 1 (forthcoming).

209. Panel Report, *United States—Section 110(5) of the US Copyright Act* ¶ 6.70, WT/DS/160/R (June 15, 2000). For discussions of the dispute, see generally Graeme B. Dinwoodie, *The Development and Incorporation of International Norms in the Formation of Copyright Law*, 62 OHIO ST. L.J. 733 (2001); Laurence R. Helfer, *World Music on a U.S. Stage: A Berne/TRIPS and Economic Analysis of the Fairness in Music Licensing Act*, 80 B.U. L. REV. 93 (2000).

clude in the future that the DMCA anti-circumvention rules are too constricting, we will have to renegotiate the FTA, flout the FTA, or conform to an uncongenial rule. Our FTA partners may often lack the internal economic incentive to seek to enforce the FTA's strict anti-circumvention terms (though they may take it as a license to re-do their own anti-circumvention excess), yet they may seek to enforce the FTA once partnered with interested multinational corporations engaged in rent-seeking.<sup>210</sup>

### III. FOUR OBSERVATIONS

As we plan for the future, it is important that we take heed of the disagreements described in Part I and the various concerns articulated in Part II. This Part provides four observations, which I hope will provide some helpful guidance toward the development of the next generation of DRM systems and the supporting legal regime. These suggestions also seek to find more common ground between the many stakeholders in the DRM debate.

#### A. Entrenched Laws and Lock-in Effects

Laws can be politically entrenched. Once entrenched, amending them would be difficult even if they had proven to be ineffective or harmful. A case in point is the Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases ("Directive"),<sup>211</sup> which created a *sui generis* right in the producers of nonoriginal, noncreative databases to harmonize protection throughout the European Community.<sup>212</sup> The European Commission recently evaluated the Directive for the first time and found empirically that the Community benefited very little from the ten-year-old Directive.<sup>213</sup> In fact, the Directive might have harmed the publishing and database industries in the European Union.<sup>214</sup>

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210. Chander, *supra* note 137, at 207.

211. 1996 O.J. (L 77) 20.

212. *Id.*

213. COMM'N OF THE EUROPEAN COMMUNITIES, FIRST EVALUATION OF DIRECTIVE 96/9/EC ON THE LEGAL PROTECTION OF DATABASES (2005) [hereinafter DATABASE DIRECTIVE EVALUATION], available at [http://ec.europa.eu/internal\\_market/copyright/docs/databases/evaluation\\_report\\_en.pdf](http://ec.europa.eu/internal_market/copyright/docs/databases/evaluation_report_en.pdf); see also James Boyle, *Two Database Cheers for the EU*, FT.COM, Jan. 2, 2006, <http://www.ft.com/cms/s/99610a50-7bb2-11da-ab8e-0000779e2340.html> (discussing the report). For an interesting exchange concerning the EU Database Directive among James Boyle, Thomas Hazlett, and Richard Epstein, see James Boyle, *A Natural Experiment*, FT.COM, Nov. 22, 2004, <http://www.ft.com/cms/s/4cd4941e-3cab-11d9-bb7b-00000e2511c8.html>.

214. As the report stated:

According to the *Gale Directory of Databases*, the number of EU-based database "entries" was 3095 in 2004 as compared to 3092 in 1998 when the first Member States had implemented the "sui generis" protection into national laws. More significantly, the number of database "entries" dropped just as most of the EU-15 Member States had implemented the Directive into national laws in 2001. In 2001, there were 4085 EU-based "entries" while in 2004 there were only 3095.

DATABASE DIRECTIVE EVALUATION, *supra* note 213, at 24. Although the Directive aimed to create a level playing field between U.S. and EU database industries, the report found that "[b]etween 2002

Notwithstanding these disturbing findings, the Commission provided three reasons for the retention of the Directive.<sup>215</sup> First, the Commission “has received strong representations from the European publishing industry that ‘*sui generis*’ protection is crucial to the continued success of their activities.”<sup>216</sup> As the Commission recognized in the report, “the attachment to the new right is a political reality that seems very true for Europe.”<sup>217</sup> Second, a repeal of the *sui generis* right “would require withdrawing, or ‘reverse,’ legislation and that might reopen the original debate on the appropriate standard of ‘originality.’”<sup>218</sup> Similarly, a reformulation of the scope of the right would “require the Community legislator to revisit the compromise underlying the two-tier protection introduced by the Directive.”<sup>219</sup> Third, “[r]emoving the ‘*sui generis*’ right and thereby allowing Member States to revert to prior forms of legal protection for all forms of ‘non-original’ databases that do not meet the threshold of ‘originality,’ might be more costly than keeping it in place.”<sup>220</sup>

Troublesomely, these three reasons can also be used to explain the retention of an ineffective anticircumvention regime. One can hardly deny that the beneficiaries of the regime—say, developers of DRM systems—would prefer to retain the status quo. It is also undeniable that revamping the regime would be costly and would require a reassessment of where to strike the balance between proprietary interests and public access needs. While the legislatures of less developed countries might reason differently from the European Commission and be more protective of the public interest, it is unlikely that these countries would be in a better position to resist pressure from the content industries and their supporting developed countries.

To make things worse, laws that seek to manipulate technology may create lock-in effects.<sup>221</sup> As Dan Burk noted, the DMCA “confers upon content owners a new exclusive right to control not only access to tech-

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and 2004, the European share decreased from 33% to 24% while the US share increased from 62% to 72%. The ratio of European/US database production, which was nearly 1:2 in 1996, has become 1:3 in 2004.” *Id.* at 22.

215. In addition to maintaining the status quo, the Commission provided three other policy options: (1) repeal the Directive, (2) withdraw the *sui generis* right, and (3) amend the *sui generis* provisions. *See id.* at 25-27 (discussing the policy options); *see also* Boyle, *Two Database Cheers for the EU*, *supra* note 213 (criticizing the fourth policy option of maintaining the status quo).

216. DATABASE DIRECTIVE EVALUATION, *supra* note 213, at 24.

217. *Id.* at 25.

218. *Id.* at 6.

219. *Id.*

220. *Id.* at 27.

221. *See, e.g.*, Dan L. Burk, *Legal and Technical Standards in Digital Rights Management Technology*, 74 FORDHAM L. REV. 537, 568 (2005) [hereinafter Burk, *Legal and Technical Standards*] (noting that “like any other interoperable computer technology, DRM will tend toward a single standard, and simultaneously toward whatever concerns over monopolization or restraint of trade that come with such network effects”); Wagner, *supra* note 35, at 1122 (stating that “[t]he direct manipulation of technology could serve to ‘lock-in’ an unfortunate set of circumstances, could forestall developments that might lead to more socially beneficial arrangements or even have more general unintended spillover effects on technological change.”).



nologically protected works, but also . . . to control ancillary technologies related to content protection.”<sup>222</sup> Indeed, the statute grants

broad power to dictate technological format and interoperability. The very concept of a secure or managed digital environment contemplates that only approved or certified interoperation will occur: Unapproved devices or applications potentially compromise the security of the system. This type of interoperability control is a version of the technical standards problem that has been identified in other commentaries of computer technology.<sup>223</sup>

If these laws were entrenched, they would harm society more and might even hinder the modernization efforts of many less developed countries.

In addition, the existing anticircumvention regime has stifled encryption research worldwide by making it difficult for researchers to conduct and publish their research. As Joseph Liu pointed out, “even though academic encryption researchers can continue to conduct and publish some of their research under the DMCA without significant practical risk of criminal or civil liability, the DMCA significantly affects the manner in which that research is conducted.”<sup>224</sup> The regime has also had the unintended effect of reducing incentives to create stronger and better DRM systems—something copyright holders need to protect their intellectual assets.<sup>225</sup> As a National Research Council study warned us a few years ago,

[i]t is . . . possible that anticircumvention laws will be interpreted by distributors not as incentives to use effective protection measures but, rather, as incentives to do just the opposite—use insufficiently tested, possibly weak protection technology, and increase reliance on the police and the courts to punish people who hack around it. This would

222. Burk, *Anticircumvention Misuse*, *supra* note 102, at 1132.

223. *Id.* at 1138; *see also* WILLIAM W. FISHER, III, PROMISES TO KEEP: TECHNOLOGY, LAW, AND THE FUTURE OF ENTERTAINMENT 172 (2004) (contending that if “[t]he proposal of the record and movie companies that manufacturers of electronic equipment be obliged to embed encryption systems in their products [were] . . . adopted, it would limit the technological options available to the manufacturers”); Bechtold, *Present and Future*, *supra* note 3, at 619 (“More and more, manufacturers of hardware and software platforms use DRM components to prevent competitors from developing and marketing competing platforms. In particular, DRM technologies and anti-circumvention regulations are used to create proprietary interfaces to the platform, thereby foreclosing entry into the platform market.”).

224. Joseph P. Liu, *The DMCA and the Regulation of Scientific Research*, 18 BERKELEY TECH. L.J. 501, 503 (2003) [hereinafter Liu, *DMCA and Scientific Research*]; *see also* Peter K. Yu, *Is Anti-Piracy Law Stifling Cybersecurity Innovation?*, LEGAL TIMES, Mar. 29, 2004, at 20 (discussing how the DMCA has undermined cryptography and cybersecurity).

225. *See, e.g., DRM Symposium Transcript*, *supra* note 53, at 705 (recalling the following conversation: “I remember one conversation, ‘How good are these solutions?’ Answer: ‘Pretty good.’ I come back: ‘Nine months to break.’ ‘Mmm, maybe six.’”) (remarks of Professor David Farber, who recently retired from the University of Pennsylvania); Wagner, *Reconsidering the DMCA*, *supra* note 35, at 1126-27 (stating that the DMCA “will significantly suppress the incentives to use, develop, and distribute anticircumvention technologies of any kind” and that “the lasting contribution of the DMCA to the copyright law is as a set of rules that stabilized, moderated, and encouraged relatively weak forms of DRM”).

result in some cost shifting: Instead of owners and distributors paying for good technology to protect their property, the public at large would likely pay for a greater portion of this protection through the law-enforcement system, although some of the increased costs in enforcement may be borne by the antipiracy efforts of the various information industry associations.<sup>226</sup>

While there is no doubt that antitrust and unfair competition laws—assuming they exist in the relevant countries—may be used to curb market abuse by copyright holders and technology developers, commentators seem to agree that exceptions are still needed if DRM research is to be improved and if stronger and better DRM systems are to be developed.<sup>227</sup> Such exceptions may have to be more encompassing and be extended beyond encryption research “to recognize [other] legitimate reasons for circumventing technical measures, such as to engage in research about non-encryption-based watermarking technologies and to analyze computer viruses or worms.”<sup>228</sup>

In sum, the the decision to introduce the anticircumvention regime needs to “be guided not by speculation, but by what is known”<sup>229</sup>—including those lessons from the DMCA experience. As Professor Kerr and others wrote cautiously about the choice Canada faces:

TPM [technological protection measures] and DRM technologies are still in relatively early stages of development, and new business models for the delivery of digital information products are still being beta-tested. Moreover, state of the art TPMs are still unable to distinguish between infringing and non-infringing uses. Consequently, TPMs are currently unable to provide selective access to works in situations in which such access would not result in copyright infringement.

Given all of the above, it is perhaps too early to predict whether the legal protection of TPMs is in fact necessary to the success of mass markets for digital works. It is perhaps also too early to determine whether the failure to adopt such measures would ultimately prove to be injurious to such markets. In fact, we do not even know whether the legal protection of TPMs might actually undermine the

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226. DIGITAL DILEMMA, *supra* note 43, at 312. For a discussion of how the cryptology and security communities work, see generally *id.* at 313-18.

227. See, e.g., Liu, *DMCA and Scientific Research*, *supra* note 224, at 537 (stating that “a broader exemption under the DMCA for encryption research . . . would do a superior job of ensuring that basic scientific research is left unaffected by the DMCA”); see also Samuelson, *Intellectual Property and the Digital Economy*, *supra* note 44, at 524 (arguing that the DMCA “should be amended to provide a general purpose ‘or other legitimate purposes’ provision to avert judicial contortions in interpreting the statute”).

228. Samuelson, *DRM {and, or, vs.} the Law*, *supra* note 41, at 42.

229. Kerr et al., *supra* note 45, at 76; see also *id.* at 45 (suggesting that “Canada could choose not to confer additional legal protection to TPMs and simply allow them to flourish or fail in an unregulated environment until such time as there is more compelling evidence of a need to legislate”).

very aim of the TPM strategy by retarding the research and development of newer, more secure TPMs and other innovative means of distributing digital information products, thereby leading to sub-optimal consumption.<sup>230</sup>

What Professor Kerr and his colleagues stated is true not only for Canada, but for all other countries that have yet to introduce an anticircumvention regime or to ratify the WIPO Internet Treaties. After all, there has not been a significant reduction of the availability of digital copyrighted materials in those countries that have not done so—Canada being a very good example.<sup>231</sup> Nor has there been a significant increase in the availability of digital copyrighted materials in those countries that have ratified the treaties or introduced anticircumvention legislation.

### B. DRM v. TPM

It is important to distinguish between DRM and TPM—digital rights management systems and technological protection measures.<sup>232</sup> While the latter focuses narrowly on mechanisms used to *protect* copyrighted contents, such as passwords, encryption, digital watermarking, and other protection techniques,<sup>233</sup> the former includes a larger set of technological tools that not only protect the content, but also monitor consumer behavior and facilitate payment for content usage.<sup>234</sup> If DRM systems are to be properly designed, they should not only protect the copyrighted works from unauthorized access but also accommodate important interests of users and future creators. After all, as Stefan Bechtold reminded us, “[n]othing in the ‘nature’ of DRM requires that DRM be only used for restricting access to protected content or suppressing fair use privileges. Properly understood, DRM is a much more neutral technology than commonly acknowledged.”<sup>235</sup>

The distinction between DRM and TPM and the reduced emphasis on protection are important because exceptions and limitations in the

230. *Id.* at 42.

231. Thanks to Jeremy deBeer for this suggestion.

232. *Accord* Kerr, *supra* note 124 (stating that “[i]t is useful to distinguish between TPMs and DRMs”); *see also* Kerr et al., *supra* note 45, at 26 (describing DRMs that do not utilize TPMs). As Professor Kerr explained, “[w]hile TPMs are designed to *prevent* copying, DRMs are designed to *manage* copying by using various automation and surveillance technologies to identify content and technologically enforce certain licensing conditions. More and more, DRMs will be used to manage all rights reserved by content owners/providers usually on a take-it-or-leave-it basis.” Kerr, *supra* note 124.

233. *See generally* DIGITAL DILEMMA, *supra* note 43, at 153-76 (discussing technological protection); Kerr et al., *supra* note 45, at 13-23 (describing the various TPMs that can be used to control access to, and use of, copyrighted works).

234. “A trusted system is a system that can be relied on to follow certain rules. In the context of digital works, a trusted system follows rules governing the terms, conditions and fees for using digital works.” Mark Stefik, *Shifting the Possible: How Trusted Systems and Digital Property Rights Challenge Us to Rethink Digital Publishing*, 12 BERKELEY TECH. L.J. 137, 139 (1997).

235. Bechtold, *Present and Future*, *supra* note 3, at 602 (footnote omitted).

copyright regime are just as important as the rights themselves.<sup>236</sup> If we equate DRM with TPM and consider DRM systems as “copyright boxes,”<sup>237</sup> we are likely to lose sight of the important interests of users and future creators as well as the legitimate rights they have traditionally enjoyed. In doing so, we will also privilege the protection of rights over the maintenance of exceptions and limitations. An overemphasis on TPM may even backfire on content providers, because products that include many restrictions—or, as Hal Varian put it, “cripple-ware”<sup>238</sup>—are unlikely to be attractive.

In a symposium at Boalt Hall, Lawrence Lessig noted the additional distinction between DRM and DRE (digital rights expression).<sup>239</sup> To Professor Lessig, the ability to express what rights the author chooses is just as important as a system that manages those rights. What he did not mention (but is likely to agree with<sup>240</sup>) is that, if we are to ensure that DRM systems truly reflect the historical bargain struck in the copyright system, we need to build into them not just holder rights, but also consumer rights.<sup>241</sup> Otherwise, as Pamela Samuelson put it, a DRM system would become a “digital restrictions management” system that focuses on permissions alone.<sup>242</sup>

236. See JAMES BOYLE, *SHAMANS, SOFTWARE & SPLEENS: LAW AND THE CONSTRUCTION OF INFORMATION SOCIETY* 138 (1996) (noting that exceptions and limitations are “just as important as the grant of the right itself”).

237. STEFIK, *supra* note 164, at 55 (1999) (describing trusted systems as “copyright boxes”).

238. *DRM Symposium Transcript*, *supra* note 53, at 707 (terming this type of technological protection measures as “cripple-ware” because “[i]t inherently reduces the value of the product”) (remarks of Professor Hal Varian of the School of Information Management and Systems at the University of California at Berkeley); see also Marc Fetscherin, *Evaluating Consumer Acceptance for Protected Digital Content*, in *DIGITAL RIGHTS MANAGEMENT*, *supra* note 2, at 301, 315 (stating that the consumers’ frustrations over “the restrictions placed on how they can use content they own . . . are enough to encourage piracy”).

239. See *DRM Symposium Transcript*, *supra* note 53, at 728 (stating that “[t]he Creative Commons believes that we need to distinguish between this idea, DRM, and this idea, DRE”) (remarks of Professor Lawrence Lessig of Stanford Law School).

240. Cf. LESSIG, *CODE*, *supra* note 22, at 127 (introducing the concept of “copy-duty—the duty of owners of protected property to make that property accessible”).

241. See STEFIK, *supra* note 164, at 101 (stating that “[p]ublishers and consumers alike will be better served if publishers use trusted systems in a way that recognizes and responds to legitimate consumer expectations—for example, by creating digital contracts that preserve traditional notions of fair use”); Armstrong, *supra* note 196 (observing that “the efficacy of any DRM system for protecting fair use depends in large measure on the extent to which the system grants parties other than the copyright holder . . . a say in whether any individual use, or category of uses, will be permitted”); Bechtold, *Digital Rights Management*, *supra* note 161, at 363 (stating that “[f]or an emerging information society, the goal should not be a DRM environment which protects the legitimate interests of rights holders only, but a symmetric DRM environment which protects the legitimate interests of both rights holders and users”); Dam, *supra* note 54, at 411 (contending that, “[f]or content providers, workable technological arrangements to accommodate fair users would be a win-win solution”); Samuelson, *DRM {and, or, vs.} the Law*, *supra* note 41, at 42 (stating that “[i]f DRM systems were about digital management of rights, they would need to be designed so users could express their rights under copyright, too”).

242. See *id.* (noting that DRM “technologies are not really about the management of digital ‘rights’ but rather about management of certain ‘permissions’ to do X, Y, or Z with digital information”); *id.* (stating that “[a]n alternative phrase for DRM is ‘digital restrictions management,’ given

In the past few years, the content, computer, and home electronics industries devoted a considerable amount of effort in developing TPM. It is high time that they start thinking about the next generation of DRM systems that would include digital rights language to facilitate the expression of *both* consumer rights and holder rights.<sup>243</sup>

### C. Machine-Interpretable Noninfringing Uses

It is important to distinguish between machine-interpretable and machine-uninterpretable noninfringing uses. The fact that the scope and boundaries of these uses, such as the fair use privilege, are uncertain and that software code at the current state of technology may not be able to capture the full range of exceptions and limitations in the copyright system does not mean that we should not build legitimate uses into the DRM systems.<sup>244</sup>

Consider, for example, the fair use privilege, “an elusive legal doctrine” that Judge Learned Hand has described as “the most troublesome in the whole law of copyright.”<sup>245</sup> So far, commentators have pointed out the considerable mismatch between technology and this legal doctrine. As Edward Felten noted, “[f]air use is one of the starkest examples of the mismatch between what the law requires and what technology can do. Accurate, technological enforcement of the law of fair use is far beyond

its use by copyright industries to restrict user rights”). As Barbara Fox and Brian LaMacchia observed:

Current digital rights management (DRM) systems take a very limited view of the set of rights they need to manage. Typically, they make decisions using a closed-world assumption: Only actions explicitly authorized by content owners or their delegate(s) are allowed, and the only “rights” are those explicitly granted by them and presented to the DRM system. Most DRM systems do not even acknowledge the possible existence of rights other than the content owner’s to license a particular work.

Barbara L. Fox & Brian A. LaMacchia, *Encouraging Recognition of Fair Uses in DRM Systems*, COMM. ACM, Apr. 2003, at 61, 61.

243. See Susanne Guth, *Rights Expression Languages, in DIGITAL RIGHTS MANAGEMENT*, *supra* note 2, at 101-12 (discussing digital rights expression language); Kerr et al., *supra* note 45, at 27-28 (discussing Extensible Rights Mark-up Language (XrML)); Stefik, *supra* note 234, at 140-41 (discussing digital rights language).

244. See generally Burk & Cohen, *supra* note 45 (proposing a mixed fair use infrastructure that includes automatic fair use defaults and key escrow elements); Bygrave, *supra* note 124, at 446 (explaining the need to “build[] mechanisms into the systems’ architecture which preserve, where possible, consumer anonymity, and which allow for pseudonymity as a fall-back option where anonymity is not feasible for legal or technical reasons”); Cohen, *DRM and Privacy*, *supra* note 32, at 609-16 (discussing how to build intellectual privacy into the design of DRM technologies); cf. Sklyarov *Symposium Transcript*, *supra* note 62, at 853 (stating that “[the] idea that tools are not able to distinguish between what is a fair use and what is not a fair use, and therefore we just have to outlaw fair use altogether, somehow gets short shrift”) (remarks of Robin Gross, former attorney with the Electronic Frontier Foundation).

245. *Dellar v. Samuel Goldwyn, Inc.*, 104 F.2d 661, 552 (1939) (Hand, J.); MARSHALL LEAFFER, *UNDERSTANDING COPYRIGHT LAW* § 10.02, at 470 (4th ed. 2005) (stating that the fair use privilege is “an elusive legal doctrine, reputed to be the most troublesome in copyright law”); see also Lipton, *Solving the Digital Piracy Puzzle*, *supra* note 71, at 121 (“Fair use has always been a problematic concept within copyright law. Although it is an important defense against a claim of copyright infringement, its precise boundaries have never been clear.”).

today's state of the art and may well remain so permanently."<sup>246</sup> Indeed, as he described colorfully, "[a] DRM system that gets all fair use judgments right would in effect be a 'judge on a chip' predicting with high accuracy how a real judge would decide a lawsuit challenging a particular use. Clearly, this is infeasible with today's technology."<sup>247</sup>

While Professor Felten is right that software codes may not be able to fully capture the fair use privilege—at least with the current state of technology—his concerns will be greatly alleviated if we assume that software codes can capture only *some* of its benefits under the fair use privilege. Put differently, instead of looking at the glass as half empty, we can consider it half full. As Barbara Fox and Brian LaMacchia, both software architects from Microsoft, maintained:

[The limitation that no one can mathematically model fair use, as it is understood today,] should not stop us from attempting to identify a useful subset we might approximate in code. That is, we can take a purely pragmatic engineering approach to what is on its face an "irresistible force meets immovable object" paradox: Focus first on defining and modeling a useful subset of fair use rights in some policy language, then add these expressions to the policy evaluators of DRM systems.<sup>248</sup>

Congress, thus far, has been satisfied with intermediate technological fixes. For example, although the DMCA mandates automatic gain control copy technology for analog videocassette recorders, it includes restrictions on the use of encoding to prevent or limit consumer copying.<sup>249</sup> Likewise, the Audio Home Recording Act of 1992 requires that

246. Edward W. Felten, *A Skeptical View of DRM and Fair Use*, COMM. ACM, Apr. 2003, at 57, 59. Similarly, Professor Samuelson noted:

Thus far, digital rights expression languages (RELs) lack semantics to allow the expression of concepts like fair use. DRM cannot accommodate user rights without REL vocabularies capable of expressing them. Even if RELs developed semantics to express user rights, content owners may abjure expressing them unless forced to do so by law or competition.

Samuelson, *DRM {and, or, vs.} the Law*, *supra* note 41, at 42 (footnote omitted); *see also* Burk & Cohen, *supra* note 45, at 56 (stating that "[a]t least for now, there is no feasible way to build rights management code that approximates both the individual results of judicial determinations and the overall dynamism of fair use jurisprudence"); Kerr et al., *supra* note 45, at 31 (stating that "the technologies employed by DRMs are not yet sufficiently sophisticated to mirror the law of copyright because TPMs themselves remain incapable of distinguishing between infringing and non-infringing uses of digital works"); Reese, *supra* note 108, at 629 (stating that "[t]echnological protection measures that control reproduction or performance of a work, however, are unlikely to be well calibrated to the actual contours of, for example, copyright owners' reproduction or public performance rights").

247. Felten, *supra* note 246, at 58; *see also* Burk & Cohen, *supra* note 45, at 55 (expressing their pessimism over the ability of "system designers . . . to anticipate the types of uses that would be considered fair by a court"); *id.* at 59 (stating that "[a]t present, only human intelligence, reviewing the unique circumstances of a particular use, can determine whether it is likely to be fair").

248. Fox & LaMacchia, *supra* note 242, at 62. For a recent comparative assessment of the existing and proposed DRM systems in relation to its ability to protect fair use, *see* Armstrong, *supra* note 196.

249. 17 U.S.C. § 1201(k) (2004).

digital audio recording machines be equipped with a Serial Copy Management System to provide copyright and generation status information and to prevent the recording devices from producing a chain of perfect digital copies through “serial copying.”<sup>250</sup> None of these provisions is close to replicating the fair use privilege, but they at least strike some balance between proprietary interests and public access needs in the digital environment.

The limited scope of this Article does not allow me to fully describe how I would build noninfringing uses into the DRM systems. However, this section offers a brief sketch of what a more balanced DRM system would look like. As I mentioned earlier, it is important to distinguish between machine-interpretable and machine-uninterpretable noninfringing uses. Under this proposal, software code would be used to accommodate machine-interpretable noninfringing uses, while the determination of the machine-uninterpretable noninfringing uses would remain in the province of courts. As technology advanced and computer programming became more sophisticated, DRM systems would be able to accommodate more noninfringing uses. The domain of machine-interpretable noninfringing uses would therefore expand, leaving fewer and fewer copyright matters to courts.

One may compare this proposal to prior efforts in developing fair use guidelines in the United States, which have thus far been largely unsuccessful.<sup>251</sup> Unlike those efforts, however, this proposal seeks to create a continuous process that may alleviate some of their shortcomings. To better understand my proposal, consider the core minimum approach advocated by the Committee on Economic, Social and Cultural Rights in the human rights area. That approach, which inspired the proposal here, was set up primarily to help countries fulfill their obligations under the International Covenant on Economic, Social, and Cultural Rights in times of resource constraints.<sup>252</sup> In *General Comment No. 3*, the Com-

250. *Id.* § 1002.

251. See, e.g., Ann Bartow, *Educational Fair Use in Copyright: Reclaiming the Right to Photocopy Freely*, 60 U. PITT. L. REV. 149, 160 (1998) (noting that, “[t]hrough Congress specifically declined to incorporate these Guidelines into the Copyright statute, courts have generally held (and publishers have gleefully conceded) that educational photocopying that meets the Guidelines constitutes fair use of copyrighted works”); Kenneth D. Crews, *The Law of Fair Use and the Illusion of Fair-Use Guidelines*, 62 OHIO ST. L.J. 599, 701 (2001) (“One can only find failure in guidelines that have missed their constructive goals and served destructive ends. The vast range of parties with an interest in proper application of fair use have been poorly served by existing guidelines, and they would be better served had the guidelines never existed.”). For a comprehensive discussion of the development of fair use guidelines, see *id.*

252. Article 2(1) of the International Covenant of Economic, Social, and Cultural Rights provides:

Each State Party to the present Covenant undertakes to take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures.

mittee stated that “a minimum core obligation to ensure the satisfaction of, at the very least, minimum essential levels of each of the rights is incumbent upon every State party.”<sup>253</sup> The interpretive comment did not stop there, however. It continued to state that, once countries have satisfied this core minimum obligation, they have to take “deliberate, concrete and targeted” steps towards the full realization of the rights in the Covenant.<sup>254</sup>

While the Committee was concerned with *physical and economic* resource constraints concerning the implementation of international human rights obligations, we are struggling with *technical* resource constraints regarding our ability to design DRM systems that capture the full range of exceptions and limitations in the copyright system as well as the dynamic nature of many copyright doctrines.<sup>255</sup> A core minimum approach therefore will allow us to ensure the satisfaction of, at the very least, minimum essential levels of noninfringing uses. For example, we can begin by “allowing users to extract a certain number of bits, or display the work for certain periods of time, or partially perform the work a certain number of times.”<sup>256</sup> As technology improves—and more technical resources become available, just like the availability of more physical resources in the human rights context—we can strive to achieve full realization of these exceptions and limitations. By developing DRM systems to accommodate as many noninfringing uses as technology allows, this process will help approximate the rights consumers have traditionally enjoyed in the physical space.

One concern with the core minimum approach, as Dan Burk and Julie Cohen suggested, is that such an approach would encourage minimalist interpretation of important safeguards and the creation of a right ceiling. As they explained:

We are . . . skeptical . . . about the ability of negotiated defaults to capture the full range of social benefit that more flexible legal standards allow. While these defaults sometimes might allow access that

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ICESCR, *supra* note 69, art. 2(1) (emphasis added); *see also* UDHR, *supra* note 67, art. 22 (stipulating that “the economic, social and cultural rights indispensable for [one’s] dignity and the free development of his [or her] personality” are to be realized “in accordance with the organization and resources of each State”).

253. Comm. on Economic, Social and Cultural Rights, *General Comment No. 3: The Nature of States Parties Obligations (Art. 2, Par. 1)* ¶ 10, U.N. Doc. E/1991/23 (Dec. 14, 1990), available at [http://www.unhchr.ch/tbs/doc.nsf/\(Symbol\)/94bdbaf59b43a424c12563ed0052b664?OpenDocument](http://www.unhchr.ch/tbs/doc.nsf/(Symbol)/94bdbaf59b43a424c12563ed0052b664?OpenDocument).

254. *Id.* ¶ 2; *see also* ICESCR, *supra* note 69, art. 2(1) (requiring each state party “to take steps, . . . to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures”).

255. *See, e.g.*, Besek, *supra* note 36, at 493 (stating that “[f]air use by design” techniques . . . [do not] reflect the dynamic nature of the doctrine”); Burk & Cohen, *supra* note 45, at 56 (“[F]air use is a dynamic, equitable doctrine designed to respond to changing conditions of use. Programmed fair use functionality, in contrast, is relatively static.”).

256. Burk & Cohen, *supra* note 45, at 55.



would exceed fair use under a judicial determination, the “safe harbor” concept is more likely to tend toward a minimalist view of fair use. We suspect that copyright holders would be willing to concede fair use in only a small fraction of the situations that would constitute fair use—indeed, it was just such insistence upon minimalist guidelines by rights holders that led to the collapse of the CONFU [Conference on Fair Use] discussions. Moreover, in the case of the 1976 “safe harbor” guidelines for educational copying, rights holders, content users, and even courts have shown a deplorable tendency to act as though the guidelines defined the outer limits of fair use. To the contrary, such guidelines were intended to delineate fair use minima: a floor rather than a ceiling. We are consequently reluctant to recommend an infrastructure based solely on the design of similar defaults into self-enforcing “lock-out” systems for fear that the “ceiling” effect could be even more pernicious.<sup>257</sup>

Professors Burk and Cohen are rightly concerned about minimalist interpretation and the ceiling effect. Indeed, those issues have continued to dominate discussion in the human rights context. In regards to the core minimum approach, human rights activists have been particularly concerned that “the identification of minimum core content will reveal to State parties how little they have to do in order to be in compliance with their obligations, and that States will do that minimum and nothing more.”<sup>258</sup> However, it is important to remember that Professors Burk and Cohen did not reject the use of technology defaults. Rather, they were skeptical that such use *alone* would give the necessary protection and therefore added a key escrow system to complement those defaults in their proposed mixed fair use infrastructure. As Professor Burk pointed out later, their concern was mainly that “technological controls tend to be relatively blunt instruments for control of digital content, unable to accommodate copyright fair use without the re-introduction of human discretion.”<sup>259</sup> Because courts under my proposal will still provide the needed human discretion when they make determination of machine-uninterpretable noninfringing uses, their concern will be greatly reduced.

Nevertheless, there still remains their concern about minimalist interpretation and a broader question of how to build machine-interpretable noninfringing uses into DRM systems. To alleviate their concern, we need to be particularly cautious about the process through which we build noninfringing uses into DRM systems. The fact that the process may create an unwanted ceiling does not mean that we should not create the process at all. Rather, it means that we need to be careful about the design of the building process.

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257. *Id.* at 57.

258. Audrey R. Chapman & Sage Russell, *Introduction to CORE OBLIGATIONS: BUILDING A FRAMEWORK FOR ECONOMIC, SOCIAL AND CULTURAL RIGHTS* 1, 9 (Audrey Chapman & Sage Russell eds., 2002).

259. Burk, *Legal and Technical Standards*, *supra* note 221, at 551.

To do so, we need to develop a process that brings together copyright holders, technology developers, consumer advocates, civil libertarians and other stakeholders. To some extent, this process reminds one of Mark Stefik's proposed Digital Property Trust, which "would be governed by representatives of the various stakeholders—including publishers, trusted system vendors, financial institutions, lawmakers, librarians, and consumers—and would interact in an appropriate and organized way with governing bodies and law enforcement agencies in different countries."<sup>260</sup> The integrity of this process is particularly important in light of the historical lack of direct consumer representation in the copyright lawmaking process. Even today, "[n]ot all standards processes include end user representation, and even in those that do, there is no assurance that end user grievances, once aired, will prospectively shape the standards that are brought to market."<sup>261</sup>

Representation, however, is not the only major concern regarding the design of my proposed process. Although public choice scholarship has widely criticized the lack of representation, there is surprisingly very limited discussion about how legislatures have made laws without fully understanding technological development. Indeed, laws tend to be drafted by lawyers and lobbyists through a lengthy deliberative process with only limited advice from technology developers in the form of comments, congressional testimonies, and commissioned studies.<sup>262</sup> As a result, the drafters may not know exactly what can and cannot be done technically. As Representative Zoe Lofgren (D-Cal.), a lawyer by training, recalled humorously, "I looked at the [DMCA] bill and I saw some problems, but the bigger problem in retrospect that I see was, on the

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260. Stefik, *supra* note 234, at 156. This proposal was later refined in STEFIK, *supra* note 164, at 100-01. As he explained, "[i]n DPT, fair use is treated as a licensed privilege analogous to a driver's license, rather than as a legal defense. From a legal perspective, this is a substantial reframing of the fair-use concept that takes into account the greater risks of misappropriation in the digital arena." *Id.* at 100.

261. Cohen, *DRM and Privacy*, *supra* note 32, at 616. Indeed, "[m]any other DRM standards projects utilize neither open standards nor open membership. These include the motion picture industry's DVD Content Control Association, Microsoft's Next Generation Secure Content Base project, Intel's LaGrande project, and a host of smaller private efforts to develop proprietary DRM technologies." *Id.* at 616 n.113.

262. In the past, Congress benefited from the assistance of the Office of Technology Assessment, which was abolished in 1995. Among the studies conducted in the intellectual property area were those concerning computer software, home copying, and intellectual property in the digital age. See Pamela Samuelson, *Toward a "New Deal" for Copyright in the Information Age*, 100 MICH. L. REV. 1488, 1499 n.48 (2002) (reviewing LITMAN, *supra* note 14) (listing intellectual property-related studies conducted by the Office of Technology Assessment). In fact, Pamela Samuelson suggested that Congress could promote public interest by "establish[ing] something akin to the Office of Technology Assessment to provide it with independent advice about policy options when legislating on intellectual property and other issues responding to challenges presented by new technologies." *Id.* at 1499.

committee, I was the tech expert. I mean we're in trouble when that occurs. I'm a lawyer, not a techie."<sup>263</sup>

To make matters worse, laws tend to be reactive and therefore lag behind technological development. Even the DMCA, which David Nimmer has characterized as "proleptic,"<sup>264</sup> failed to anticipate the latest technological developments. For example, in its first DMCA rulemaking proceeding in 2000, the Copyright Office noted "[t]he merger of technological measures that protect access and copying does not appear to have been anticipated by Congress."<sup>265</sup> As Part II described, Congress's inability to anticipate these technologies and the courts' failure to uphold the congressional intent has rendered the statutory distinction between access-control and use-control technologies virtually meaningless. That distinction has also created a difficult situation concerning region codes used in DVDs and video games, because regional encoding, as Nimmer pointed out, "constitutes neither an access control (inasmuch as buyers of the disc obtain the lawful right to access it, at least under certain circumstances) nor a copying control (inasmuch as disabling the regional coding does not implicate the copyright owner's rights as defined in the Copyright Act)."<sup>266</sup>

Likewise, even though one of the stated goals of the DMCA is to reduce digital piracy, the drafters of the DMCA failed to anticipate the extensive unauthorized copying problem created by file-sharing technologies. As the United States Court of Appeals for the District of Columbia Circuit reminded us in *Recording Industry Association of America v. Verizon Internet Services*,<sup>267</sup> "P2P software was 'not even a glimmer in anyone's eye when the DMCA was enacted.'"<sup>268</sup>

In light of these deficiencies, the process needs to include technology developers—not just as experts for their testimonies, but as participants who will help distinguish machine-interpretable noninfringing uses from their uninterpretable counterparts and then build them into DRM systems. As Fox and LaMacchia noted:

The two open issues in establishing a safe harbor are: how to create machine-interpretable expressions that adequately model a set (or subset) of fair use rights; and how to get the stakeholders (content owners, DRM system builders, and Congress, as the representative of

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263. Zoe Lofgren, *Edited Transcript of the David Nelson Memorial Keynote Address: A Voice from Congress on DRM*, 18 BERKELEY TECH. L.J. 495, 498-99 (2003).

264. David Nimmer, *Back From the Future: A Proleptic Review of the Digital Millennium Copyright Act*, 16 BERKELEY TECH. L.J. 855 (2001).

265. Copyright Office, Library of Congress, Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 65 Fed. Reg. 64,556, 64,558 (2000).

266. NIMMER & NIMMER, *supra* note 146, § 12A.06[D][2].

267. 351 F.3d 1229 (D.C. Cir. 2003).

268. *Recording Indus. Ass'n of Am.*, 351 F.3d at 1238 (quoting *In re Verizon Internet Servs., Inc.*, 240 F. Supp. 2d 24, 38 (D.D.C. 2003)).

the people's interest in the social bargain of copyright) to work together on defining the boundaries of a subset of fair use rights that would be safe to implement.<sup>269</sup>

While the first issue is important and remains a vital project for technology developers,<sup>270</sup> my proposal focuses mainly on the latter—how to get the stakeholders to work together on defining the boundaries of a subset of noninfringing uses. To do so, one needs to have a dynamic process. First, we need to allow technology developers to explain what machines can and cannot interpret. While it is undoubtedly important for technology developers to continue to improve the recognition of noninfringing uses, my proposal uses the core minimum approach and relies on existing technology.

The next step is for stakeholders to come to an agreement on the minimum essential levels of noninfringing uses. As demonstrated by the collapse of CONFU<sup>271</sup> and other similar efforts and the continued rent-seeking copyright lawmaking process, this part of the process is probably the most difficult. While copyright holders will no doubt have a strong interest in developing the next generation of DRM systems that consumers will embrace, as well as in the migration of illegal downloaders to DRM-compliant systems, it is naïve to assume that they will easily come to agreement with communications providers, consumer advocates, and civil libertarians on the boundaries of noninfringing uses. Thus, the participation of Congress or courts—either as a mediator or an adjudicator—may be necessary. Under that scenario, noninfringing uses will be built into the system using both the “by design” approach and the “by mandate” approach.<sup>272</sup>

To make the process manageable, it is important that the discussion is restricted to existing laws, including interpretation of statutes, case law, and treaty obligations. Such discussion is already difficult enough, even without introducing issues that have not been anticipated by Congress and courts. In examining the exceptions and limitations, it is also

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269. Fox & LaMacchia, *supra* note 242, at 63.

270. The vitality of this project is obvious. As Stefan Bechtold noted: “Whether a DRM system respects fair use or not depends, in particular, on the design of the rights expression language [REL]. If fair use privileges and the other legitimate interests of information users cannot be expressed in the REL, such interests simply do not exist with the DRM system.” Bechtold, *Present and Future*, *supra* note 3, at 608.

271. For discussions of CONFU, see Crews, *supra* note 251, at 626-35; Gregory K. Klingsporn, Note, *The Conference on Fair Use (CONFU) and the Future of Fair Use Guidelines*, 23 COLUM.-VLA J.L. & ARTS 101 (1999).

272. *Cf.* Besek, *supra* note 36, at 491-94 (discussing both the “fair use by design” and “fair use by mandate” approaches). As June Besek defined, “[f]air use by design’ refers to situations in which the design of a technical solution builds in some ability to take advantage of copyright exemptions.” *Id.* at 491. In contrast, “[f]air use by mandate’ describes circumstances in which rightholders are directed to enable non-infringing uses but not necessarily given specific instructions as to how that should be done.” *Id.* at 492.

important that the participants explore customary usage in addition to exceptions that have already been codified in the copyright statute.<sup>273</sup>

Once the stakeholders have agreed on the minimum essential levels of noninfringing uses, it is important for technology developers to recognize these uses in software code. Should they encounter any problems, the process will allow them to ask the stakeholders for clarification or to explain the technological limitation so that the participants can reconsider the coding request. This step is not completed until the agreed-upon noninfringing uses have been built into DRM systems. Then the cycle repeats itself, and more noninfringing uses will be built into the system as technology advances.

There are at least two potential objections to this approach, in addition to the usual criticism that the approach is unable to capture the full spectrum of noninfringing uses, to which I responded earlier, as well as the argument that the stakeholders can never reach a mutually acceptable agreement. First, as Joseph Liu has noted with respect to the fair use privilege,

if we actually tried to spell out, in the law, in a detailed manner, instead of the four factors, what exactly copyright and fair use would look like, I think you would soon find a statute that would begin to resemble the tax code in its complexity because it would be volumes and volumes and volumes of very detailed regulations depending on who you are, why you're using it, which context, and all the rest.<sup>274</sup>

When this criticism is combined with Jessica Litman's criticism of the incomprehensible nature of current copyright law, a tax-code version of the fair use privilege seems very unappealing, even if it is interpretable by machines.<sup>275</sup> As Professor Litman noted, "We can continue to write copyright laws that only copyright lawyers can decipher, and accept that only commercial and institutional actors will have good reason to comply with them, or we can contrive a legal structure that ordinary individuals can learn, understand and even regard as fair."<sup>276</sup> However, Professor Liu only highlighted the complexity of the fair use privilege,

273. See Litman, *Lawful Personal Use*, *supra* note 106 (explaining that some lawful personal uses may not have been codified as exceptions in the copyright statute); see also Lunney, *supra* note 15 (discussing private copying in relation to the DMCA); Michael J. Madison, *A Pattern-Oriented Approach to Fair Use*, 45 WM. & MARY L. REV. 1525 (2004) (advancing a pattern-oriented approach to fair use decisions).

274. *DRM Symposium Transcript*, *supra* note 53, at 731-32 (remarks of Professor Joseph Liu of Boston College Law School); see also Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 VA. L. REV. 1575, 1637-38 (2003) (stating that "industry-specific rules and exceptions [in the copyright model] have led to a bloated, impenetrable statute that reads like the tax code").

275. See LITMAN, *supra* note 14, at 145 (stating that "[t]he DMCA is long, internally inconsistent, difficult even for copyright experts to parse and harder still to explain"); see also FISHER, *supra* note 223, at 93 (describing the DMCA as "[a]n enormous, gangling, and poorly edited piece of legislation").

276. Jessica Litman, *Revising Copyright Law for the Information Age*, 75 OR. L. REV. 19, 39 (1996).

which is true with or without this proposal, while Professor Litman was mainly concerned about whether humans could read and understand copyright laws. Her concern, I suspect, would be considerably alleviated if computers are to read and execute the “code.” After all, computers have handled far more complex application programs, and the widespread usage of tax preparation software strongly suggests the technological feasibility of this approach.

The second objection is that, even if we are able to build into the system a subset of noninfringing uses under the copyright system, the system will not work, because there is no guarantee that there will be zero leakage in the system. As Richard Epstein noted, it is hard to find an intermediate fix in the digital world, “because once one pristine copy gets out, then there are a billion pristine copies that are out there.”<sup>277</sup> As far as DRM systems are concerned, “all it takes is ‘one leak’ to neutralize a TPM entirely,”<sup>278</sup> and this leak can come from anyone from anywhere in the world.

Admittedly, this proposal would not address this problem. Although it may take seventeen hours to reproduce the latest Harry Potter novel<sup>279</sup>—and significantly less if more perpetrators are involved—the publisher’s revenue stream can be significantly reduced as soon as that reproduction becomes available on the computer. However, we have to question whether it is realistic to expect perfect protection, just like we have to question whether it is realistic, or even possible, to find perfect, hacker-proof encryption technology. With more than six billion Internet users in the world,<sup>280</sup> and many more in the future, there is always the possibility of having “one pristine copy” being leaked to the public.<sup>281</sup> If we are going to aim for a system that guarantees zero leakage, that system may never be found.

Thus, the question cannot be whether we can prevent that copy from being leaked to the public, but whether we can contain the leakage to ensure reasonable compensation for copyright holders. This alternative question makes a lot of sense, because copyright holders do not need to capture the full social value of their creation and completely prevent free

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277. *DRM Symposium Transcript*, *supra* note 53, at 755 (remarks of Professor Richard Epstein of University of Chicago Law School).

278. von Lohmann, *supra* note 41, at 641.

279. *DRM Symposium Transcript*, *supra* note 53, at 755 (remarks of Jerry Berman of the Center for Democracy and Technology).

280. *Internet Usage Statistics—The Big Picture: World Internet Users and Population Stats*, <http://www.internetworldstats.com/stats.htm> (last visited Sept. 5, 2006).

281. See BIDDLE ET AL., *supra* note 41 (holding the belief that “at least for some classes of user, and possibly for the population at large, efficient darknets will exist”); Yen, *supra* note 71, at 691 (“[N]o law—not even a complete ban on circumvention technology—can guarantee the security of copyright. Piracy has always existed, yet copyright-based industries have flourished.”). *But see* Besek, *supra* note 36, at 477 (noting that “[s]ome piracy has always been a cost of doing business, but there comes a point at which it is realistic—and unfair—to expect paying customers to subsidize widespread free use”).

riding.<sup>282</sup> Indeed, zero leakage has never been a goal of copyright law, which was introduced primarily “to stimulate artistic creativity for the general public good” by allowing authors to obtain a reasonable return on their investment.<sup>283</sup>

In sum, a two-step approach—technology first, then courts—seems to be the best compromise we can have today, and it is worth considering developing such a system as we explore the next generation of DRM systems. As Charles Clark titled his well-cited chapter, “the answer to the machine is in the machine.”<sup>284</sup> As long as we do not need to give up exceptions and limitations of the copyright system, using computers as the first step seems to be very appealing.

From the standpoint of less developed countries, this approach is even more attractive because it avoids the costly correction mechanisms involved in other proposals, especially if the multistakeholder process is set up as part of the legislative process (which already exists) and if the software code used in DRM systems, or at least the specific portion concerning the machine-interpretable noninfringing uses, is revealed. The different laws and institutions that are involved in this process may also help these countries tailor protection to their own needs, interests, and goals.

Unfortunately, this proposal would not address my earlier concern that a new anticircumvention regime might require consumers to purchase end devices that support the technological measures employed.<sup>285</sup> Thus, the best option for many less developed countries is not to introduce any anticircumvention laws at all, unless they have concrete evidence that those laws would benefit the countries. However, if they have no choice but to do so, either because of changing international norms, external pressure, or benefits in other trade areas, this proposal—coupled with technical assistance in circumvention tools and economic assistance in purchasing new end devices—may provide an acceptable solution.

#### *D. Market Responsiveness*

Consumer interests are important, and the success of DRM systems will depend on the satisfactory accommodation of these interests. It is therefore no surprise that this Summit was entitled “From Creator to Consumer: Working Together in the Digital World.” When the old Napster was discussed in the file-sharing context, the service was often criti-

282. See discussion Part I.B.

283. *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 432 (1984) (quoting *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975)).

284. Charles Clark, *The Answer to the Machine Is in the Machine*, in *THE FUTURE OF COPYRIGHT IN A DIGITAL ENVIRONMENT* 139 (P. Bernt Hugenholtz ed., 1996).

285. Thanks to Michael Mireles for pointing this out.

cized for its illegality and its unresponsiveness to the plight of artists and consumers. As jazz artist Herbie Hancock noted:

So far, [Napster]'s even worse than the labels. On the way to making millions for its owners and investors, Napster has yet to give anything to artists other than the chance to spread their music, for free, and whether they like it or not. Its supporters hide behind claims that labels misuse artists and consumers, as if that entitled them to take everything they want absolutely free. *Excuse me, but* just because record executives give artists a bad deal doesn't mean that everyone else can then go and do worse.<sup>286</sup>

Regardless of what impression one has of the old Napster, one can hardly deny that the service was appealing to consumers because it gave them what they wanted. Apart from free (and often illegal) music downloads, Napster also allowed consumers to find obscure music and special remixes that were unavailable in the market.<sup>287</sup> As I noted elsewhere, "Napster succeeded because it supplied a market solution to an emerging demand. . . . Shawn Fanning was inspired to create Napster by his college roommate's frustration in searching for MP3s on the Web. Napster responded to the market instead of chasing it."<sup>288</sup>

The same can be said of DRM systems. Indeed, technology developers constantly have to deal with their systems' market responsiveness. As Emery Simon, an attorney with the Business Software Alliance, recalled:

The software industry has used DRMs for twenty-five years. It goes through a cycle. The software industry tightens up the DRMs and consumers scream, because they can't do very much with the software when it fails, or they want to reload it. Companies loosen up on the DRM, and the piracy goes way up, and then they tighten up on it. That has been the cycle, and that continues to be the cycle, and we're reconciled to that cycle. What we do in that cycle is we abandon technologies that consumers hated the worst. I'll give you an example. There is something called a dongle, a little piece of hardware that people attach to the back of the PC with which the PC has to shake hands in order to run the software. People hated it. Nobody uses a dongle anymore. So yes, there are DRMs that are hated by the marketplace, and are taken out of the marketplace in response to the market.<sup>289</sup>

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286. Herbie Hancock, *Preface* to JOHN ALDERMAN, *SONIC BOOM: NAPSTER, MP3, AND THE NEW PIONEERS OF MUSIC*, at xvii, xviii (2001).

287. See Yu, *P2P and the Future of Private Copying*, *supra* note 8, at 699-701 (explaining why record companies may not have the rights to release all of the content consumers found on the old Napster and other file-sharing engines).

288. *Id.* at 742.

289. *DRM Symposium Transcript*, *supra* note 53, at 750 (remarks of Emery Simon of the Business Software Alliance); see also Kerr et al., *supra* note 45, at 31 (recalling that "in the early



Indeed, technology developers, and those who incorporate DRM systems into their products, are constantly struggling with the trade-offs between cost and effectiveness and between protection and inconvenience.<sup>290</sup> If the systems are too complicated and restrictive, they would jeopardize the user experience and make content inaccessible. The costly technology also would raise product prices, thereby reducing consumer demand. However, if the systems are too simple and easy to break, they do not provide sufficient protection for copyright holders.

Consider region codes used in DVDs and video games. Designed to direct machines to allow access to the protected content only if the product was coded to be played in the authorized geographic area, these special codes are important to copyright holders, because they allow movie producers to segment the international market. In doing so, they enable the scheduling of DVD releases based on the timing of the theatrical release or the progress of the relevant promotional campaign.<sup>291</sup> They also facilitate price discrimination and allow rights holders to respond to different licensing arrangements and local censorship regulations.

From the standpoint of consumers, however, region codes can be annoying, especially to frequent travelers or foreign film or anime aficionados, whose interests have yet to generate a big enough market to facilitate domestic distribution. When these consumers make a purchasing decision, they not only have to decide whether they want the products, but also where they want to enjoy the products and whether they have the needed playback device to do so. After all, products that are purchased in Asia (with a region code of 2, 3, 5, or 6) are very unlikely to be playable in machines purchased in the United States (with a region code of 1).<sup>292</sup> Indeed, the use of region codes has led the Australian Competition and Consumer Commission to investigate whether such usage would breach the Trade Practices Act.<sup>293</sup>

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1980s many companies that sold software applications employed a form of copy protection to prevent the floppy disks on which their applications were sold from being copied" and that "[m]assive consumer resistance to this approach led to the abandonment of this TPM and yet software companies subsequently found the risk of illegal copying to be within acceptable limits").

290. See DIGITAL DILEMMA, *supra* note 43, at 153 (noting "inherent trade-offs between the engineering design and implementation quality of a system on the one hand and the cost of building and deploying it on the other"); *id.* at 164 (stating that "[a] good mechanism is one that provides the degree of disincentive desired to discourage theft but remains inexpensive enough so that it doesn't greatly reduce consumer demand for the product"); von Lohmann, *supra* note 41, at 643 (noting that "[w]here alternative channels exist, customers of legitimate services will respond to restrictions imposed by TPMs by seeking out darknet channels").

291. See, e.g., Randal C. Picker, *Mistrust-Based Digital Rights Management* 15 (U. Chicago Law & Economics, Olin Working Paper Series, No. 291, 2006), [http://ssrn.com/abstract\\_id=899155](http://ssrn.com/abstract_id=899155).

292. The six region codes are: "1. USA and Canada; 2. Europe, Middle East, South Africa and Japan; 3. Southeast Asia and East Asia; 4. Central and South America, Mexico, Australia and New Zealand; 5. Eastern Europe, Indian subcontinent, Africa, North Korea and Mongolia; and 6. China." Besek, *supra* note 36, at 457 n.284.

293. Caitlin Fitzsimmons, *Restricting DVDs 'Illegal' Warns ACCC*, AUSTRALIAN IT, Mar. 27, 2001, at 33; see also Cohen, *DRM and Privacy*, *supra* note 32, at 615 (noting that "[t]he more deeply

Today, it is common for the content industries to describe how digital technologies have greatly reduced their market. While this claim may be true to some extent, one question they rarely raise is whether consumers are, in fact, purchasing the same products—with the same usage terms and conditions. If they do not, one may have to question whether the market demand was reduced because of the digital challenge or because of the increased usage restrictions that have made the product less appealing. Indeed, the adverse impact of these restrictions on consumers has been so severe that Representative Rick Boucher (D-Va.) introduced the Digital Media Consumers' Rights Act of 2005 to amend the Federal Trade Commission Act to ensure proper labeling of copy-protected compact discs.<sup>294</sup>

As DRM systems become increasingly deployed to protect copyrighted works, rights holders need to be conscious of the trade-offs between cost and effectiveness and between protection and inconvenience. They need to be careful about what usage restrictions or protection mechanisms they put on the products, especially if such mechanisms could harm the users' computers (think Sony rootkit!). They also need to be mindful of laws that are introduced to protect consumers. If they fail to do so, the new technologies not only will harm their markets by reducing customer satisfaction, but will bring them legal troubles outside the intellectual property area.

Interestingly, if the content industries and technology developers begin to take market-related concerns more seriously, they are also less likely to adopt draconian technological protection measures that would severely limit consumer access to the product. As Douglas Lichtman reminded us, "a point [that is] often missed in discussions of DRM [is that] content owners do not necessarily want airtight control over their work, and so there is no reason to expect that they will use extreme forms of DRM even if extreme forms were feasible."<sup>295</sup> Moreover, if some content providers find that greater access would be in their own interest, they may want to encourage other content providers to do so through industry standards.<sup>296</sup> To compete for customers, some content

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embedded in software and hardware DRM functionality becomes, the harder it will be to avoid by purchasing noncompliant equipment"); see also Bechtold, *Present and Future*, *supra* note 3, at 629 (noting that "[b]oth the European and the Australian competition authorities have investigated whether the regional code management system in DVD players is used to overcharge European and Australian customers for DVD discs compared to U.S. customers"); see also Cohen, *DRM and Privacy*, *supra* note 32, at 615 (noting that "[t]he more deeply embedded in software and hardware DRM functionality becomes, the harder it will be to avoid by purchasing noncompliant equipment").

294. H.R. 1201, 109th Cong. (2005). For a brief discussion of similar legislation in the 108th Congress, see Declan McCullagh & Milana Homsí, *Leave DRM Alone: A Survey of Legislative Proposals Relating to Digital Rights Management Technology and Their Problems*, 2005 MICH. ST. L. REV. 317, 319-20 (2005).

295. Doug Lichtman, *Defusing DRM*, IP L. & BUS., Feb. 2006, at 24.

296. As Kenneth Dam explained:

[S]ome content providers may find that fair use buttons or related devices are in their own interest and therefore may want to encourage other content providers to use similar

providers may also find it worthwhile to reduce user restrictions in their products or to facilitate greater transformative uses.<sup>297</sup>

### CONCLUSION

In the future, DRM systems are likely to be used in products that are important to us in our digital life. They will appear in not only an Adobe e-book or an Apple iPod, but also in our car, our school, our kitchen, and our living room.<sup>298</sup> There is a growing tendency for the content industries to invoke copyright liability whenever their works were used without authorization. There is also an increasing trend for manufacturers of household products that incorporated software code to use anticircumvention laws to protect their products from competition. If we do not have balanced DRM-related laws and good DRM systems that accommodate consumer interests and if we allow rights holders to invoke intellectual property principles in every instance of unauthorized circumvention of DRM systems, we are creating a recipe for disaster. Intellectual property protection is important, but not more important than how we live our daily life. As a senior official from the Department of Homeland Security reportedly reminded the entertainment industries following Sony's recent rootkit debacle, "[i]t's very important to remember that it's your intellectual property, it's not your computer."<sup>299</sup>

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devices. If so, the development of industry standards is likely to be a preferable and more flexible approach, allowing different kinds of content providers to approach the fair use issue in quite different ways, thereby avoiding the deficiencies of a one-kind-fits-all legislative or rule-making approach.

Dam, *supra* note 54, at 405.

297. *Id.* at 411 (stating that "it is probable that some kinds of content providers, at least in the realm of ideas, will want to facilitate transformative uses so long as acknowledgment of their own work is made").

298. *See, e.g.,* Chander, *supra* note 137, at 208 (stating that, "in an environment in which silicon chips are embedded in more and more of our most ordinary products, potentially copyrightable material can be found in the most unexpected places"); Lipton, *Law of Unintended Consequences*, *supra* note 102, at 512 (observing that "more and more digital technology is now being incorporated into physical items from large scale industrial machinery, to car motors, to basic household appliances ranging from digital pianos, to stereo systems, to the humble toaster").

299. Carrie Kirby, *Sony Halts Anti-Piracy Software*, S.F. CHRON., Nov. 12, 2005, at C1.

