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## ARTICLE

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### TECHNOLOGY AND UNCERTAINTY: THE SHAPING EFFECT ON COPYRIGHT LAW

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BEN DEPOORTER<sup>†</sup>

*Uncertainty . . . is the only certainty there is, and knowing how to live with insecurity is the only security.*

John Allen Paulos<sup>1</sup>

*This Article examines the symbiotic relationship between copyright law and technology. I describe how an environment characterized by rapid technological change creates two conditions that determine the direction and evolution of copyright law: legal delay and legal uncertainty. I explain how uncertainty over the application of existing copyright law to newly emerging technology catalyzes the actions of copyright owners and users. I argue that uncertainty and delay (1) have an enabling effect on anticopyright sentiments, (2) lead to a greater reliance on self-help efforts by content providers and users, and (3) induce legislative involvement in copyright law. In the final Part of this Article, I consider how the framework of technological uncertainty and delay helps to*

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<sup>1</sup> JOHN ALLEN PAULOS, A MATHEMATICIAN PLAYS THE STOCK MARKET, at v (2003).

*explain a number of emerging issues in copyright law. I conclude by providing normative proposals for copyright reform. These proposals relate to the choice between standards and rules, as well as the role of courts, legislators, and administrative agencies in the development of copyright law.*

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## INTRODUCTION

Judging from the headlines, it appears that copyright law is in an existential crisis.<sup>2</sup> Broadband networks and digital applications have widely expanded unlicensed access to copyrighted content. Consumer-to-consumer dissemination over file-sharing networks increasingly bypasses traditional segments of the copyright market. Despite the deployment of a wide array of scare tactics,<sup>3</sup> professional distributors have failed thus far to reverse file sharing and copyright circumvention.<sup>4</sup>

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<sup>2</sup> This Article focuses on United States copyright law, although the analysis may be generalized to international laws affecting copyright. Reference is made for illustrative purposes as appropriate.

<sup>3</sup> Publishers and entertainment representatives have launched a frontal assault on new dissemination technologies to preserve their existing business models. For instance, the Recording Industry Association of America (RIAA) has pushed for legislation that increases copyright enforcement related to emerging technologies. *See, e.g.*, Piracy Deterrence and Education Act of 2004, H.R. 4077, 108th Cong. (2004) (enhancing copyright enforcement and public education about copyrights and the Internet); Author, Consumer, and Computer Owner Protection and Security (ACCOPS) Act of 2003, H.R. 2752, 108th Cong. (2003) (extending domestic and international copyright enforcement); Piracy Deterrence and Education Act of 2003, H.R. 2517, 108th Cong. (2003) (including many of the provisions of H.R. 4077 and also clarifying the government's authority to seize pirated work). In addition, the RIAA has filed lawsuits against technology

Two paradigms exist to analyze the existential crisis facing copyright law: the political-economy model and the technological paradigm. In the political-economy model, the death of copyright law is caused by legislative and judicial capture by copyright owners, which negates the original, true meaning of copyright law. The technological paradigm argues that digital technology has rendered copyright law hopelessly obsolete or, from the entertainment industry's viewpoint, dangerously ineffective.<sup>5</sup> Commentators argue that "digital copyright" requires a type of governance different from the historical straitjacket of copyright law.<sup>6</sup> Interested parties disagree on the appropriate direction of copyright law: namely, does new technology require a stronger legal hold on copyrighted content or does digital technology present an opportunity to release cultural goods from the shackles of copyright law?

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producers, *see, e.g., In re Aimster Copyright Litig.*, 334 F.3d 643, 646 (7th Cir. 2003) (noting "the recording industry's anxiety about file-sharing"); *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1013 (9th Cir. 2001) ("Plaintiffs claim Napster users are engaged in the wholesale reproduction and distribution of copyrighted works, all constituting direct infringement."); *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 259 F. Supp. 2d 1029, 1034 (C.D. Cal. 2003) ("Plaintiffs argue that Defendants are liable for both contributory and vicarious copyright infringement."), *aff'd*, 380 F.3d 1154 (9th Cir. 2004), *vacated*, 545 U.S. 913 (2005), Internet service providers, *see, e.g., In re Verizon Internet Servs., Inc.*, 240 F. Supp. 2d 24, 26 (D.D.C. 2003) (noting that the RIAA was seeking enforcement of subpoenas demanding the identities of copyright infringers), *rev'd*, 351 F.3d 1229 (D.C. Cir. 2003), and end users of peer-to-peer networks, *see infra* Part I. For an overview, see LexisNexis, Recording Industry Association of America Case Activity from Lexis/Nexis Courtlink, <http://www.lexisnexis.com/trial/nalm100181clinkriaa.asp> (last visited Apr. 15, 2009).

<sup>4</sup> Consider in this respect research data from the NPD Group showing that the number of people downloading music illegally surged a month after recording companies began suing hundreds of music fans. *See* Press Release, NPD Group, Peer-to-Peer Digital Video Downloading Outpacing Legal Alternatives Five to One (Dec. 20, 2006), available at [http://www.npd.com/press/releases/press\\_061220.html](http://www.npd.com/press/releases/press_061220.html). For more on the mixed results of these studies, *see infra* Part II.

<sup>5</sup> *See* Petition for Writ of Certiorari at 3, *Grokster*, 545 U.S. 913 (No. 04-0480) ("Unless [developers of file-sharing software] can be held accountable, copyright will soon mean nothing on the Internet, and the incentives on which our copyright system rests will be imperiled.").

<sup>6</sup> *See, e.g.,* John Perry Barlow, *The Economy of Ideas*, WIRED, Mar. 1994, at 84 (discussing the obsolescence of intellectual property law in the digital world); Jessica Litman, *Revising Copyright Law for the Information Age*, 75 OR. L. REV. 19, 39 (1996) ("We can continue to write copyright laws that only copyright lawyers can decipher . . . or we can contrive a legal structure that ordinary individuals can learn . . ."). *See generally* Tom W. Bell, *Escape from Copyright: Market Success vs. Statutory Failure in the Protection of Expressive Works*, 69 U. CIN. L. REV. 741, 750 (2001) ("[C]lumsy attempts to legislatively amplify common law rights threaten to . . . do more harm than good.").

With every court decision or appeal to Congress, the debate over the proper adjustment of copyright law becomes further polarized.<sup>7</sup> At one end, we find the entertainment industry, while on the other end we have consumers, scholars, and civil libertarians. The former argues that the entertainment industry will not survive unless intellectual property laws are strengthened to meet the threat of new technologies and the widespread theft that occurs over the Internet.<sup>8</sup> The latter maintain that new technology presents opportunities for unprecedented cultural exchange, suggesting that existing legal and institutional arrangements reduce economic welfare by strangling technological progress.<sup>9</sup> At regular intervals, both sides present their

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<sup>7</sup> See, e.g., H.R. 5211, 107th Cong. sec. 1, § 514(d)(1) (2002) (exempting anti-piracy devices from liability where damage to a user's computer is \$250 or less); see also Declan McCullagh, *Could Hollywood Hack Your PC?*, CNET NEWS, July 23, 2002, [http://news.cnet.com/2100-1023-945923.html?tag=fd\\_lede](http://news.cnet.com/2100-1023-945923.html?tag=fd_lede) (quoting an attorney from the Electronic Frontier Foundation as saying that H.R. 5211 is "part of a greater strategy that's being implemented by the entertainment industry to lock up and control digital information").

<sup>8</sup> See *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster Ltd.*, 380 F.3d 1154, 1158 (9th Cir. 2004), *vacated*, 545 U.S. 913 (2005) ("From the advent of the player piano, every new means of reproducing sound has struck a dissonant chord with musical copyright owners, often resulting in federal litigation.").

<sup>9</sup> One argument in support of this claim is that modern communication tools enable the dissemination of content without significant capital investments and that the economic rationale for copyright's bias towards publishers and distributors is outdated. See, e.g., Jessica Litman, *Sharing and Stealing*, 27 HASTINGS COMM. & ENT. L.J. 1, 37-38 (2004) (arguing that new distributors may be able to harness digital distribution and pay a higher percentage of proceeds to artists). Based on the assumption that digital sharing of music is a superior distribution mechanism, there have been several proposals to amend the traditional licensing model of copyright. Many commentators would replace the traditional proprietary licensing model with commons or pooling arrangements on the basis of mandatory levies or blanket fees. See, e.g., WILLIAM W. FISHER III, *PROMISES TO KEEP* 199-258 (2004) (arguing for a "governmentally-administered reward system" for copyright holders); Raymond Shih Ray Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology*, 69 U. CHI. L. REV. 263, 313 (2002) (arguing that artists could be compensated through statutory levies on Internet service subscriptions and on the sales of computer, audio, and video equipment); Litman, *supra* note 9, at 41-50 (proposing blanket fees or levies, digital rights management, and an opt-out mechanism for copyright); Lydia Pallas Loren, *Untangling the Web of Music Copyrights*, 53 CASE W. RES. L. REV. 673, 704-16 (2003) (arguing for a market-based solution to the problem of copyright licensing); Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VA. L. REV. 813, 852-53 (2001) (suggesting a levy on sales of equipment and blank storage media while authorizing private copying); Neil Weinstock Netanel, *Impose a Noncommercial Use Levy to Allow Free Peer-to-Peer File Sharing*, 17 HARV. J.L. & TECH. 1 (2003) (making the case for governmental use levies to force individuals to effectively pay for the right to copy and distribute copyrighted works).

arguments before the Supreme Court.<sup>10</sup> Meanwhile, the copyright tug of war attains iconoclastic dimensions.<sup>11</sup>

As this description of current events illustrates, copyright law is greatly influenced by technological change.<sup>12</sup> Whenever technological advances create new means of making copies or communicating copyrighted works, difficult questions arise as to how boundaries should be drawn around new uses of content created by the new technology.<sup>13</sup>

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<sup>10</sup> See, e.g., *Eldred v. Ashcroft*, 537 U.S. 186 (2003) (holding that the Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, 112 Stat. 2827 (1998), is constitutional); *N.Y. Times Co. v. Tasini*, 533 U.S. 483 (2001) (concluding that newspapers cannot license individual articles to databases without a transfer of copyright). The Supreme Court recently declined to hear an appeal by the RIAA regarding subpoenas of Internet service providers in *In re Verizon Internet Services, Inc.* 240 F. Supp. 2d 24 (D.D.C. 2003), *rev'd*, 351 F.3d 1229 (D.C. Cir. 2003), *cert. denied*, 543 U.S. 924 (2004), and vacated the Ninth Circuit's ruling in favor of peer-to-peer developers in *Grokster*, 545 U.S. 913. See generally Cynthia L. Webb, *Supremes Quietly Change Piracy Debate*, WASH. POST, Oct. 13, 2004, <http://www.washingtonpost.com/wp-dyn/articles/A29254-2004Oct13.html> (describing the Supreme Court's refusal to entertain the recording industry's arguments in the *Verizon* case). The Court's abstention is attributed to pending legislation, such as the Inducing Infringements of Copyrights Act of 2004, S. 2560, 108th Cong. (2004), and the percolation of various other cases at the lower court level. See Ken Fisher, *RIAA Given the Snub by Supreme Court*, ARS TECHNICA, Oct. 12, 2004, <http://arstechnica.com/old/content/2004/10/4299.ars> (noting that the Supreme Court will have several upcoming opportunities to reconsider copyright issues).

<sup>11</sup> Both camps are drifting apart and increasingly reject the other's governance model entirely, thus invigorating the discourse. Protests by activist organizations such as the Electronic Frontier Foundation, [digitalconsumer.org](http://digitalconsumer.org), and [publicknowledge.org](http://publicknowledge.org) are intensifying and increasingly speaking in terms of anarchy, "copyfights," and manifestos. See, e.g., Posting of Siva Vaidhyanathan to SIVACRACY.NET, 90% Crud: The (Poor) State of Copyright Activism, [http://sivacracy.net/blogarchive/2004\\_06\\_02\\_blogarchive.html](http://sivacracy.net/blogarchive/2004_06_02_blogarchive.html) (June 2, 2004) ("How can we have a revolution if we don't have a manifesto?"). Others, such as the copyleft movement, dismiss the copyright model altogether. See generally Ira V. Heffan, Note, *Copyleft: Licensing Collaborative Works in the Digital Age*, 49 STAN. L. REV. 1487 (1997).

<sup>12</sup> Of course, large areas of law are also reactive to technological changes. For instance, new technologies often present new issues for tort law. Although several observations in this Article apply equally to other instances where law and technology interact, this Article focuses squarely on the copyright implications of technology that creates new means of copying and distributing copyrighted content.

<sup>13</sup> See, for example, the legal battle brought by the RIAA against Diamond Multimedia as a result of its production of the "Rio" MP3 player. The RIAA accused Diamond of a multitude of intellectual property violations, including the production of a digital audio recording device that did not meet the requirements set forth by the Audio Home Recording Act of 1992 (AHRA), Pub. L. No. 102-563, 106 Stat. 4237, 4244, the failure to employ Serial Copyright Management System (SCMS) technology, and the failure to pay royalties on revenue earned from the sale of its device. The court dismissed the claim, holding that general computer technology is not governed by the AHRA. See *Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys., Inc.*, 180 F.3d 1072, 1075, 1078-79 (9th Cir. 1999).

Despite copyright law's historic tendency to respond to new technological developments by adjusting the scope of copyright law (continuing from the printing press to digital applications), our theoretical understanding of the effects of technological changes on copyright law remains relatively undeveloped. Notwithstanding the general awareness of the intricate relationship between technology and copyright law, scholarship provides little insight into the causal dynamics between the two. As a result, with each new technological breakthrough, we are confronted with difficult questions about the relationship between the new technology and copyright law. For example, does the Internet present a challenge to copyright enforcement that is mostly related to the scale of infringements, or does it present a qualitative change that necessitates shifting the paradigm of copyright law? Is it simply that innovation leads the way and copyright follows? If so, can we understand the future of copyright law by looking ahead and anticipating changes in technology? Has technology created a paradigm shift in copyright law, and do current events simply exemplify the notion that laws are slow at adapting to evolving social norms?

This Article seeks to enhance our understanding of the intricate relationship between copyright law and technology in general and to examine the formative effects of technology on copyright rules in particular. I argue that technology, by creating an environment of rapid and unpredictable change, establishes two major conditions that have a profound effect on copyright law: legal delay and legal uncertainty.

Legal delay is caused by the dynamic and unpredictable nature of technological innovation. Delay is further amplified in a fast-changing technological environment because (1) uncertainty postpones the timing of lawmaking and (2) copyright law requires open-ended standards rather than specific rules. As a result, the legal adaptation of copyright law necessarily lags behind technological change. Legal uncertainty results because the general social and economic ramifications are typically unknown when a new technology is introduced. As these ramifications become clear, the process of legal classification faces many ambiguities and difficult issues of interpretation. In copyright law, breakthrough technologies make it more difficult to apply existing rules by analogy. Even when courts seek to apply the relatively bright-line rules of copyright doctrine, the exact entitlement of rights may be surprisingly uncertain when applied to a novel technology.

Uncertainty and delay impose significant societal costs. Any variance in the assessments of how existing rules apply to a new technology may divert behavior away from the social optimum. If a legal standard

is uncertain, some individuals may overestimate the legal constraints and forego beneficial actions, while others may underestimate the very same constraints and carry out costly actions. Excessive compliance induces cultural impoverishment, especially when it causes artists to avoid incorporating copyrighted material even though the use might be considered noninfringing. In other instances, uncertainty may induce underdeterrence, leading to litigation costs and further polarization between copyright holders and users of technology.

More fundamentally, in Part II, I explain how uncertainty and delay catalyze the actions of copyright owners and users, thus providing insight into the formation of copyright law. Specifically, I argue that uncertainty and delay (1) have an enabling effect on anticopyright sentiments, (2) lead to a greater reliance on self-help efforts by content providers and users, and (3) induce legislative involvement in the area of copyright law. First, because technological innovation and new uses precede legal adaptation, technological innovation affects social norms. By the time that legal issues of copyright scope are solved with regard to a new technology, users of that technology are no longer neutral bystanders. Individuals internalize the use of a new technology and therefore experience loss when a previously “free” use is banned. As a result, copyright enforcement is frustrated by the stickiness of social norms<sup>14</sup> and the counterproductive effects that result from resisting already internalized norms. Second, the uncertainty and delay increase the reliance on self-help by both users and copyright owners alike. When copyright owners feel that the law adapts too slowly and fails to offer adequate protection, they invest in antipiracy-protection technologies.<sup>15</sup> This investment, in turn, motivates users to invest in circumvention technologies, creating an arms race between content owners and pirates in which the very technology that is used to create a lock can be used to pick it. This process leads to recurring lapses in enforcement and increases the polarization between the camps. Third, the hesitation of courts to quickly adapt copyright law to new technology often translates into judicial defer-

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<sup>14</sup> See generally Geoffrey Neri, Note, *Sticky Fingers or Sticky Norms? Unauthorized Music Downloading and Unsettled Social Norms*, 93 GEO. L.J. 733 (2005) (arguing that the recording industry’s attempts to curb illegal file sharing through educational campaigns, lawsuits, and legislation are ineffective because of the “stickiness” of prodownloading social norms).

<sup>15</sup> For a critical examination of the effects of self-help measures, see John A. Rothchild, *The Social Costs of Technological Protection Measures*, 34 FLA. ST. U. L. REV. 1181, 1198-1203 (2007).

ence to Congress. Legislative rulemaking in copyright law may have particular significance for the shaping of copyright law over time, as it opens the door for greater influence by interest groups. The potential difficulty of reaching political compromise may further extend periods of legal uncertainty in copyright law. By prolonging legal uncertainty, judicial deference gives additional breathing room to the internalization of anticopyright norms by users and the reliance on self-help efforts by copyright owners.

Part III concludes by examining normative proposals for copyright reform. As I argue, the growing complexity and rate of technological innovation might call for a greater degree of regulatory governance in copyright law. Like the potential conflict between pollution controls and economic growth in environmental policy, efforts to secure copyright protection may interfere with progress in the technology sector. Regulatory approaches may be better suited to balance the interests in promoting new technology by responding to the changing technological landscape and by balancing competing core principles, all while providing promise in terms of reducing uncertainty and delay.

Together, legal uncertainty and delay present interrelated complications that inhibit the enforcement of copyright law: anticopying technology never accomplishes perfect protection, social norms complicate enforcement efforts, and legal adaptation is slow. An analysis of these intrinsic constraints provides an improved understanding of the enforcement problems faced by copyright law.

#### I. DELAY AND UNCERTAINTY IN COPYRIGHT LAW

Copyright law has a symbiotic relationship with technology. Generally, new technology enables novel ways to enjoy copyrighted content, which opens new markets for artists to sell their licensed works.<sup>16</sup> When technology creates new means of copying or communicating copyrighted works, difficult questions arise about the relationship between existing copyright law and the use of the copyrighted content made available through the new technology.<sup>17</sup> One of the most

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<sup>16</sup> The origin of copyright law lies in technology. Investments in the printing press prompted the development of the legislation that granted the first copyrights to publishers of written works. *See, e.g.*, Hal R. Varian, *Copying and Copyright*, J. ECON. PERSP., Spring 2005, at 121, 122 (noting the impact of the printing press on the development of England's Copyright Act of 1709).

<sup>17</sup> Some describe the development of copyright law as the emergence of "awkward ambiguities and widening areas of legal dispute . . . created by the application to new technological developments of laws pertaining to . . . copyrights." Paul A. David, *Intel-*



prominent legal issues in copyright law pertains to fair use: does the new use fall within the legal category of free use, or is it within the exclusive right of copyright owners and therefore in need of a license?<sup>18</sup> As such, most pages in the history of copyright law involve drawing boundaries around new uses of content created by technology. And so, time after time, technological advancements have affected copyright law by demanding answers to difficult questions regarding the scope of the law. For example, is a person who stores copyrighted music files on her computer in publicly accessible folders liable for infringing upon the copyright owner's exclusive right to distribute? Is a software developer vicariously liable for copyright infringement when it distributes technology that enables individuals to share both copyrighted and noncopyrighted material?<sup>19</sup> Can companies be held liable for selling technology that enables users to skip commercials with the click of a button?<sup>20</sup> In each of these cases, courts are asked to ascertain the "limits of statutory language" through judicial interpretation and interpolation.<sup>21</sup> Although this basic understanding of the relationship between technology and copyright law is correct, it only goes so far in that it ignores important effects that result from the relationship between copyright law and technological change.

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*lectual Property Institutions and the Panda's Thumb: Patents, Copyrights, and Trade Secrets in Economic Theory and History*, in GLOBAL DIMENSIONS OF INTELLECTUAL PROPERTY RIGHTS IN SCIENCE AND TECHNOLOGY 19, 19 (Mitchel B. Wallerstein et al. eds., 1993).

<sup>18</sup> See, e.g., Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COLUM. L. REV. 1600, 1614 (1982) ("Fair use is one label courts use when they approve a user's departure from the market."); see also Christopher Alan Hower, *Reviving Fair Use: Why Sony's Expansion of Fair Use Sparked the File-Sharing Craze*, 7 CHI.-KENT J. INTELL. PROP. 75, 76-86 (2008) (discussing the application of fair use to file sharing); R. Terry Parker, *Sold Downstream: Free Speech, Fair Use, and Anti-Circumvention Law*, 6 PIERCE L. REV. 299, 300-02 (2007) (describing fair use as a "safety valve" for free speech).

<sup>19</sup> See *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 936-37 (2005) (requiring "clear expression or other affirmative steps taken to foster infringement" for secondary liability, not "mere knowledge of infringing potential"); *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1024 (9th Cir. 2001) ("Napster's failure to police the system's 'premises,' combined with a showing that Napster financially benefits from the continuing availability of infringing files on its system, leads to the imposition of vicarious liability.").

<sup>20</sup> See Ned Snow, *The TiVo Question: Does Skipping Commercials Violate Copyright Law?*, 56 SYRACUSE L. REV. 27, 81 (2005) (concluding that using a digital video recorder to skip commercials violates copyright law and arguing that device manufacturers should be contributorily liable); see also *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 454-55 (1984) (permitting "time-shifting" as fair use).

<sup>21</sup> Jessica D. Litman, *Copyright, Compromise, and Legislative History*, 72 CORNELL L. REV. 857, 858 (1987).

As this Article explains, rapid technological change creates two major conditions that determine the direction and evolution of copyright law: legal delay and legal uncertainty. As I describe below, the uncertainty as to how to apply existing copyright law to emerging uses catalyzes the actions of copyright owners and users. The remainder of this Part further discusses legal delay and legal uncertainty in copyright law. Part II describes the effect that these conditions have on the behavior of the major stakeholders in copyright law.

#### A. *Legal Delay in Copyright Law*

Technological change is characterized by a high rate of innovation<sup>22</sup> and an inherently unpredictable outcome. The unpredictable path of innovation is demonstrated best by the many examples in which the social and economic impacts of a revolutionary technology were unforeseen, even by their own creators. Famous anecdotes include the decision of the CEO of Kodak to dismiss a copying process brought to him by a research employee who then left and became the founder of Xerox,<sup>23</sup> and the historical mistake of IBM to dismiss the notion of a market for home computers.<sup>24</sup>

Because innovation is rapid and unpredictable, the adaptation of copyright law lags far behind the introduction of new technological advancements. Four central factors contribute to the lag that occurs when copyright law responds to a new technology. First, the creation of new legal rules takes time. Lawmaking is a complex process that involves various procedural safeguards and many different institutions and actors. While innovation can also be the result of a long, elaborate, and planned process, many innovative breakthroughs are spontaneous and quick, such as the invention of the Post-it Note, which was accidentally created by a researcher attempting to develop a durable bonding

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<sup>22</sup> In the computing field, the rapid pace of innovation is said to be governed by Moore's Law, which states that the number of transistors that may be placed on an integrated circuit grows exponentially and doubles approximately every two years. It has become a general signpost of the speed of technological progress. See Gordon E. Moore, *Cramming More Components onto Integrated Circuits*, ELECTRONICS, Apr. 19, 1965, at 114, available at <http://download.intel.com/research/silicon/moorespaper.pdf>.

<sup>23</sup> Karen Garst, *Our Paradigm Shift*, OR. ST. B. BULL., Oct. 1998, at 47, 51.

<sup>24</sup> See Robert Merges, *Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents*, 62 TENN. L. REV. 75, 86 n.41 (1994) (noting that IBM initially regarded computers as having only scientific applications).

agent.<sup>25</sup> Especially in the age of digital technology, where the distribution of innovative products does not necessarily require elaborate planning and financial investment,<sup>26</sup> the gap widens between the application of innovation and the consolidation of its copyright legal status.

Second, the dynamic and unpredictable nature of technological innovation makes it difficult for lawmakers to predict or anticipate forthcoming inventions. In other words, it is difficult to reduce delay by writing copyright laws to anticipate coming trends, especially since past innovations are not always reliable indicators of what is to come.<sup>27</sup> This fact complicates efforts to reduce legal delay by acting proactively.

Third, the unpredictability of innovation necessitates the deployment of open-ended standards in copyright law. While such rules reduce error costs and enable copyright decision makers to be more flexible, these open-ended standards increase the amount of decision making at the judicial level,<sup>28</sup> which further contributes to legal delay.

Finally, the initial ambiguity as to the potential social and economic implications of a novel technology is the fourth contributing factor to legal delay in copyright. Often, the implications of novel uses of copyrighted content only materialize in the minds of copyright owners once the use has already become widespread and visible.<sup>29</sup> It must first become apparent that the use of novel technology entails substantial opportunity costs to producers—that is, that there are “gains to be internalized.”<sup>30</sup> The initial ambiguity of the socioeconomic implications of a new technology can be illustrated, for exam-

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<sup>25</sup> See Rochelle Cooper Dreyfuss, *Nonobviousness: A Comment on Three Learned Papers*, 12 LEWIS & CLARK L. REV. 431, 439 (2008).

<sup>26</sup> See Yochai Benkler, *Coase's Penguin, or, Linux and The Nature of the Firm*, 112 YALE L.J. 369, 400-15 (2002) (discussing open-source software and peer production).

<sup>27</sup> For example, the introduction of the audio tape presented no indication to lawmakers of a future in which all content would be playable in digital formats. This is evidenced by the fact that the AHRA did not account for such a change and thus became virtually obsolete after the court in *Diamond* stated that a computer hard drive is not within the meaning of a “digital audio recording device.” See *Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys.*, 180 F.3d 1072 (9th Cir. 1999). See generally Nika Aldrich, *An Exploration of Rights Management Technologies Used in the Music Industry*, 2007 B.C. INTELL. PROP. & TECH. F. 051001, at 5, [http://bciprf.org/index.php?option=com\\_content&task=view&id=30](http://bciprf.org/index.php?option=com_content&task=view&id=30).

<sup>28</sup> See *infra* text accompanying notes 82-87.

<sup>29</sup> Historically, copyright owners have always tolerated minor infringements. See generally R. Anthony Reese, *Innocent Infringement in U.S. Copyright Law: A History*, 30 COLUM. J.L. & ARTS 133 (2007).

<sup>30</sup> On the evolution of intellectual property rights, see Ben Depoorter, *The Several Lives of Mickey Mouse: The Expanding Boundaries of Intellectual Property Law*, 9 VA. J.L. & TECH. 1, 34-41 (2004).

ple, by peer-to-peer music exchanges. The music industry discovered that huge profits could be made by delivering music in a compressed format (MP3) only after such exchanges were already relatively common.<sup>31</sup> More than a year passed between the introduction of Napster, the widely used file-sharing application, and the onset of litigation by the recording industry.<sup>32</sup> Only when the opportunity costs of unregulated use become apparent will copyright owners seek the expansion of copyright law through litigation and legislation.<sup>33</sup> While copyright owners seek to extend the reach of intellectual property laws so that they include emerging technological applications, both copyright owners and users of new technologies operate in a vacuum of considerable legal uncertainty.

To illustrate legal uncertainty, Table 1 provides an overview of ten major innovative breakthroughs that gave rise to copyright issues. The two columns on the left indicate the type of technology and the year that it was introduced. The three columns on the right indicate the final resolution of the main copyright questions (either by way of judicial decision or new legislation), the year of the decision, and the number of years between the introduction of the technology and the final outcome of the legal issue. As can be concluded from the table, the average time that it takes to ascertain an innovation's copyright status is approximately seven years and two months.<sup>34</sup>

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<sup>31</sup> See Peter S. Menell, *Envisioning Copyright Law's Digital Future*, 46 N.Y.L. SCH. L. REV. 63, 99 (2002) ("Even with the introduction and rapid popularity of digitally-encoded compact disks (CDs) and the proliferation of microcomputers beginning in the early 1980s, the record industry did not appreciate the dramatic changes that would be brought about by the emerging digital technologies.").

<sup>32</sup> Napster counted 26.4 million users as of February 2001. See Press Release, Jupiter Media Metrix, *Global Napster Usage Plummet but New File-Sharing Alternatives Gaining Ground*, Reports Jupiter Media Metrix (July 20, 2001), available at <http://www.comscore.com/press/release.asp?id=249>.

<sup>33</sup> Jane Ginsburg colorfully describes this first formal step in the expansion of copyright law as copyright holders' "Pavlovian" response to new technology. Jane C. Ginsburg, Essay, *How Copyright Got a Bad Name for Itself*, 26 COLUM. J.L. & ARTS 61, 66 (2002).

<sup>34</sup> Legal delay was calculated for copyright issues involving the following innovations: the cassette tape, the VCR, the CD, the digital audio tape (DAT), the DVD, Bulletin Board System (BBS) boards, the MP3 format, the Rio, centralized file-sharing software (Napster), and decentralized file-sharing software (Grokster). Some innovations created multiple copyright issues, leading to multiple decisions made by courts at different times. Most cases, however, involved a similar question: whether the new technology's novel means of sharing or distributing copyrighted content fell within the bundle of rights held by copyright owners. Note that the calculations in Table 1 serve merely to illustrate legal delay and to give a sense of the average length of the copyright adaptation period. Individual differences between cases may largely depend on factors unrelated to technology. For instance, individual differences in time between

**Table 1: Average Legal Delay**

Technology	Year Introduced	Legal Resolution	Year Resolved	Years Elapsed
Audio Cassette	1963	Sound Recording Amendment of 1971 <sup>35</sup>	1971	8
VCR	1972	<i>Sony Corp. of America v. Universal City Studios, Inc.</i> <sup>36</sup>	1984	12
CD	1982	Audio Home Recording Act of 1992 <sup>37</sup>	1992	10
DAT	1986	Audio Home Recording Act of 1992 <sup>38</sup>	1992	6
DVD	1996	<i>DVD Copy Control Ass'n v. Bunner</i> <sup>39</sup>	2004	8
BBS Boards	1979	<i>Playboy Enterprises, Inc. v. Frena</i> <sup>40</sup>	1993	14
MP3 Format	1993	<i>UMG Recordings, Inc. v. MP3.com, Inc.</i> <sup>41</sup>	2000	7
Diamond Rio	1998	<i>Recording Industry Ass'n of America v. Diamond Multimedia Systems</i> <sup>42</sup>	1999	1
Napster	1999	<i>A&amp;M Records, Inc. v. Napster, Inc.</i> <sup>43</sup>	2001	2
Grokster	2001	<i>Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.</i> <sup>44</sup>	2005	4

innovation and legal adaptation may likely be influenced by changes in procedural laws that have taken place between the various cases.

<sup>35</sup> Pub. L. No. 92-140, sec. 2, § 101(e), 85 Stat. 391, 392 (“[D]iscs or tapes for use in mechanical music-producing machines adapted to reproduce copyright musical works, shall be considered copies of the copyrighted musical works . . .”).

<sup>36</sup> 464 U.S. 417, 456 (1984) (holding that Sony’s sale of Betamax equipment did not constitute contributory negligence).

<sup>37</sup> Pub. L. No. 102-563, sec. 2, § 1008, 106 Stat. 4237, 4244 (“No action may be brought under this title alleging infringement of copyright based on the manufacture, importation, or distribution of a digital audio recording device . . . or based on the noncommercial use by a consumer of such a device . . .”).

<sup>38</sup> *Id.*

<sup>39</sup> 10 Cal. Rptr. 3d 185, 196 (Ct. App. 2004) (concluding on remand that the issuance of an injunction prohibiting the distribution of DVD-decoding software was an abuse of discretion).

<sup>40</sup> 839 F. Supp. 1552, 1556-59 (M.D. Fla. 1993) (holding that the bulletin board infringed Playboy’s exclusive rights of display and public distribution, and that fair use did not apply).

<sup>41</sup> 92 F. Supp. 2d 349 (S.D.N.Y. 2000) (holding that defendant’s online posting of MP3 files for access by individuals who could prove that they owned a CD copy was not protected fair use).

<sup>42</sup> 180 F.3d 1072, 1081 (9th Cir. 1999) (denying, on appeal, the RIAA’s motion for a preliminary injunction, because the Rio is unable to make copies from transmissions).

<sup>43</sup> 239 F.3d 1004, 121-24 (9th Cir. 2001) (holding that Napster had sufficient knowledge of the availability of infringing material to impose contributory and vicarious liability).

It is important to note, however, that legal delay can sometimes be justified. Properly conceived, lawmaking is similar to an investment decision in that timing is of the essence.<sup>45</sup> In this sense, at any given time there are both costs and benefits to changing the law. Acting too rapidly creates the risk that the new rule will be premature. Doing so will likely increase error costs, as the rules will be ill-suited to govern the future of the developing relationship between technological innovations and copyrighted materials. By contrast, waiting may lead to increased future benefits by enabling legislation that is better adjusted to the new technology.<sup>46</sup> On the other hand, waiting increases legal uncertainty and postpones the realization of any short-term gains that result when a legal rule is tailored to the most recent developments. Therefore, to strike a balance, lawmakers should consider the opportunity costs of immediate investments in new legal rules in addition to the potential benefits of waiting.

There are a number of reasons that some delay in copyright law might be favorable. As mentioned earlier, the field of copyright law is heavily influenced by underlying technology.<sup>47</sup> Because technological cycles of innovative products are highly unpredictable,<sup>48</sup> there is a real

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<sup>44</sup> 545 U.S. 913, 936-37 (2005) (holding that distributing software with manifest intent to promote copyright infringement can render the software's distributor liable for the infringing actions of third parties).

<sup>45</sup> Francesco Parisi & Nita Ghei, *Legislate Today or Wait Until Tomorrow? An Investment Approach to Law Making*, 23 J. PUB. FIN. & PUB. CHOICE 19 (2006). As with regular investments in assets, lawmaking decisions involve a degree of (1) irreversibility, (2) uncertainty over future returns, and (3) discretion with regard to the timing of those investments.

<sup>46</sup> *Id.*

<sup>47</sup> See *supra* text accompanying notes 16-21.

<sup>48</sup> Although there is considerable debate regarding the causes of innovation, it may suffice to note that the technological cycle of an innovative product is highly unpredictable. For instance, technological innovation is only partially susceptible to external influence. Although it is widely recognized that market forces help shape the course of innovation, scholars recognize that innovation also runs an independent course. On the former position, see generally Jacob Schmookler, *Economic Sources of Inventive Activity*, J. ECON. HIST., Mar. 1962, at 1. Evidence in support of the theory of technological opportunity suggests that markets often follow innovations, and not vice versa. See generally JOSEPH A. SCHUMPETER, *THE THEORY OF ECONOMIC DEVELOPMENT* (Redvers Opie trans., 1934); F.M. Scherer, *Demand-Pull and Technological Invention: Schmookler Revisited*, 30 J. INDUS. ECON. 225 (1982). This is known as the debate on technology demand-pull versus technology opportunism. For an overview of empirical work on whether social and economic conditions drive innovation or whether societal economic forces trace independent innovation, see Thomas B. Åstebro & Kristina B. Dahlin, *Opportunity Knocks*, 34 RES. POL'Y 1404 (2005).

likelihood that the value of a new copyright regulation will increase over time.<sup>49</sup> First, because copyright law is a field dominated by rapidly changing technology, any newly adopted rule might prove to be ineffective or rendered obsolete as a technology becomes outdated or is replaced by new innovation.<sup>50</sup> Second, technological changes have rapid growth rates along paths that are notoriously difficult to predict ahead of time. This unpredictability increases the benefits of delaying final judgment until the ramifications of a new technology can be ascertained with some confidence. Third, lawmaking involves costs, such as those created by learning and rewriting statutes. Fourth, any potential mistake is likely to be very costly given the economic and cultural impact of copyright industries.<sup>51</sup>

One possible drawback to waiting is that it forgoes any potential benefits that could be gained from legal experimentation. By awaiting further developments, the legal system loses the opportunity to intervene and possibly produce socially desired effects. In the field of technology, however, it is often said that technological maturation is a process that runs its own course. Legal experimentation in this process might simply delay maturation of the technology and the revelation of its true social and economic impact.<sup>52</sup> Moreover, early legal intervention might affect the course of technological change, a potentially irreversible consequence.

Contrary to contemporary legal scholarship, which has mostly neglected the value of waiting, courts often recognize the value of defer-

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<sup>49</sup> See Francesco Parisi et al., *The Value of Waiting in Lawmaking*, 18 EUR. J.L. & ECON. 131, 134 (2004) (U.K.) (arguing that adopting a law is akin to investing in that the value of the law depends on its discounted future benefits).

<sup>50</sup> Consider, for instance, how the Audio Home Recording Act became virtually obsolete with the emergence of personal home computers after the court in *Diamond* held that a computer's hard drive is not a "digital audio recording device" under the Act because audio recording is not the personal computer's "primary purpose." *Recording Indus. Ass'n of Am. v. Diamond Multimedia Sys.*, 180 F.3d 1072, 1078 (9th Cir. 1999).

<sup>51</sup> In 2001, copyright industries (including those involved in movies, television programs, home videos, business and entertainment software, books, and music and sound recordings) contributed an estimated \$535.1 billion to the U.S. economy, accounting for approximately 5.24% of GDP. STEPHEN E. SIWEK, COPYRIGHT INDUSTRIES IN THE U.S. ECONOMY: THE 2002 REPORT 3 (2002), available at [http://www.iipa.com/pdf/2002\\_SIWEK\\_FULL.pdf](http://www.iipa.com/pdf/2002_SIWEK_FULL.pdf). On the role of copyright in the American economy, see the sources cited in Ginsburg, *supra* note 33, at 61 n.1. A similar trend emerges on a global scale. See generally OECD, THE KNOWLEDGE-BASED ECONOMY: A SET OF FACTS AND FIGURES (1999).

<sup>52</sup> See, e.g., Aldrich, *supra* note 27, at 5 ("[W]hile the DAT machine was released in 1986, . . . the threat of litigation prevented the machines from entering the market for nearly seven years.").

ring final judgment until technology matures or until the direction of technological change becomes apparent.<sup>53</sup> For instance, in *Grokster*, Judge Thomas cautioned against steadfast legal adaptation in times of rapid technological change:

[A]s we have observed, we live in a quicksilver technological environment with courts ill-suited to fix the flow of internet innovation. The introduction of new technology is always disruptive to old markets, and particularly to those copyright owners whose works are sold through well-established distribution mechanisms. Yet, history has shown that time and market forces often provide equilibrium in balancing interests, whether the new technology be a player piano, a copier, a tape recorder, a video recorder, a personal computer, a karaoke machine, or an MP3 player. Thus, it is prudent for courts to exercise caution before restructuring liability theories for the purpose of addressing specific market abuses, despite their apparent present magnitude.<sup>54</sup>

As will be discussed further, courts' hesitance to quickly adapt copyright law to new technology shifts the timing decision to the legislative branch, which may result in additional delay. The ripple effects of legal delay are explored in further detail in Part II. First, however, I examine the second condition of copyright formation with regard to technology: legal uncertainty.

### B. *Legal Uncertainty*

When a new technology that enables novel uses of copyrighted content is introduced, its social and economic ramifications are still generally unknown. These ramifications, however, become clear soon afterwards, and the process of legally classifying the novel uses must begin. When attempting to apply existing copyright laws to new technological developments, many ambiguities and difficult issues of interpretation emerge. Thus, the introduction of a new technology is always followed by a period of legal uncertainty in copyright law.

What I mean by legal uncertainty is the difficulty of perfectly predicting *ex ante* how the courts will apply the law to new circumstances

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<sup>53</sup> See, e.g., *Sporty's Farm L.L.C. v. Sportsman's Market, Inc.*, 202 F.3d 489 (2d Cir. 2000). Judge Calabresi, writing for a unanimous panel, delayed his decision, awaiting the Anticybersquatting Consumer Protection Act (ACPA), which would eventually become effective while the case was pending before the Court of Appeals. *Id.* at 496-97. The ACPA resolved most issues surrounding the allocation of domain names involving cybersquatting. See 15 U.S.C. § 1125(d)(1)(A) (2006).

<sup>54</sup> *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster Ltd.*, 380 F.3d 1154, 1167 (9th Cir. 2004) (citation omitted).



ex post.<sup>55</sup> In a broader sense, legal uncertainty may also refer to the difficulty of perfectly predicting ex ante how courts or legislators will categorize actions in new statutes.<sup>56</sup> By contrast, legal certainty refers to a condition in which a legal system is presumed to be without any gaps. In such instances, abstract laws can be seamlessly applied to concrete cases by way of logic, and all conduct can thus be accurately categorized as either complying with or violating the law.<sup>57</sup>

Of course, legal uncertainty pervades all areas of the law.<sup>58</sup> Some argue that the law is so inherently indeterminate that authoritative legal texts and judicial precedents generally permit multiple answers to lawsuits.<sup>59</sup> Still, while many areas of law adjust to gradually evolving social and macroeconomic changes, copyright law constantly needs to respond to issues raised by technological advances that are often more erratic and more difficult to predict. Also, many of the legal ambiguities created by novel technologies go to the very heart of the balance of rights in copyright law, such as issues of copyright subject matter, the scope of rights, and the boundaries of the public domain. For instance, new technology regularly poses fundamental questions of definition, such as “is this a copy?”<sup>60</sup>

<sup>55</sup> Note that there is a distinction between risk and uncertainty. Individuals are subject to risk if (1) an event may or may not happen in the future, and (2) the chance that the event will happen is known. By contrast, an event is uncertain if (1) it may or may not happen in the future, and (2) we do not know the chances that it will happen. *See generally* FRANK H. KNIGHT, *RISK, UNCERTAINTY AND PROFIT* (1921).

<sup>56</sup> A more precise, but also more limiting, definition of uncertainty pertains to situations where a given act is “said by informed attorneys to have an expected official outcome at or near the 0.5 level of predictability.” Anthony D’Amato, *Legal Uncertainty*, 71 CAL. L. REV. 1, 2 (1983).

<sup>57</sup> MAX WEBER, *ON LAW IN ECONOMY AND SOCIETY* (Max Rheinstein ed., Edward Shils trans., 1954).

<sup>58</sup> *See generally* D’Amato, *supra* note 56 (describing a trend toward greater uncertainty); Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. LEGAL STUD. 257 (1974) (examining the optimal level of precision for rules and standards); Werner Z. Hirsch, *Reducing Law’s Uncertainty and Complexity*, 21 UCLA L. REV. 1233 (1974) (discussing considerations involved in, and obstacles to, reducing uncertainty); Jason Scott Johnston, *Uncertainty, Chaos, and the Torts Process: An Economic Analysis of Legal Form*, 76 CORNELL L. REV. 341 (1991) (examining how rules and balancing approaches evolve out of litigation).

<sup>59</sup> For a critique of this strand of thought, which is most prevalent in the area of critical legal studies, see Ken Kress, *Legal Indeterminacy*, 77 CAL. L. REV. 283 (1989).

<sup>60</sup> Consider how the questions of copyright and fair use with regard to peer-to-peer networks resemble a hypothetical scenario in which a new technology (for instance, low-air travel with jet packs) would allow new ways of trespassing over real property boundaries. To understand the major effect of technology on copyright law, imagine further that millions of people would be engaging in such acts of trespass

Moreover, technological breakthroughs, by their nature, make it more difficult to apply existing rules by analogy. The legal struggle over the sharing of music on peer-to-peer networks illustrates the unexpected ambiguities that are regularly presented by new technology. The introduction of file-sharing software, high-level bandwidth access to the Internet, and advanced compression technology vastly expanded individuals' opportunities to exchange music.

As a result of these combined advancements, the sharing of copyrighted content began to occur on an unprecedented scale, creating many difficult questions about the potential liability for copyright infringement on behalf of intermediaries (the creators of peer-to-peer software and Internet service providers) and end users. Specifically, file sharing challenged the boundaries of noncommercial music borrowing. On the one hand, peer-to-peer file-sharing activities are very different from the conventional notion of piracy: infringements lack a commercial purpose, there are no conventional intermediaries, and the technology has applications that are clearly noninfringing. On the other hand, because of the scale of online music sharing and its alleged negative effect on entertainment-industry profits,<sup>61</sup> it became obvious that file sharing could not be treated as analogous to sharing music among friends—a practice traditionally tolerated by copyright holders. Despite many years of intense litigation over the legal consequences of peer-to-peer technology, many copyright questions remain unresolved.<sup>62</sup>

An important consideration, the consequences of which I will address in more detail,<sup>63</sup> is that new technologies often present so much

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while courts were debating whether the new technology amounted to trespass and whether property owners were allowed to prevent such encroachments. Although such definitional cases are certainly not unheard of in areas such as property law, they are few and far between. For example, mass air travel created the legal issue of whether individual landowners can prevent airlines from flying over their property. *See United States v. Causby*, 328 U.S. 256, 260-61 (1946) (concluding that federal statutes create a public highway above certain altitudes).

<sup>61</sup> *See* Stan J. Liebowitz, *File Sharing: Creative Destruction or Just Plain Destruction?*, 49 J.L. & ECON. 1 (2006) (identifying file sharing as the cause of declining record sales); *see also* RIAA, For Students Doing Reports, <http://www.riaa.com/faq.php> (last visited Apr. 15, 2009) (“One credible analysis by the Institute for Policy Innovation concludes that global music piracy causes \$12.5 billion of economic losses every year, 71,060 U.S. jobs lost, a loss of \$2.7 billion in workers’ earnings, and a loss of \$422 million in tax revenues, \$291 million in personal income tax and \$131 million in lost corporate income and production taxes.”).

<sup>62</sup> For a review of various current issues, *see generally* Electronic Frontier Foundation, <http://www.eff.org> (last visited Apr. 15, 2009).

<sup>63</sup> *See infra* Section II.A.

legal ambiguity that (self-serving) users of the technology deem the novel uses to be noninfringing under their own understandings of copyright law.

To further illustrate the considerable uncertainty in copyright law, consider the sequence, timing, and outcome of the litigation in *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.* It took almost five years to establish that developers of decentralized peer-to-peer technology could be held vicariously liable for copyright infringements on their networks.<sup>64</sup> Moreover, prior to the Supreme Court's development of the "inducement" theory in *Grokster*, both the trial court and the Ninth Circuit had firmly decided that developers of decentralized peer-to-peer technology could not be held accountable under existing copyright law.<sup>65</sup> Thus, in a period of five years, the legal status of decentralized file sharing shifted entirely.

Generally, during periods of uncertainty, copyright holders and users of new technology assume either that (1) the new technology is encompassed by the current intellectual property laws (by relying on analogy or precedent) or (2) the new technology is sufficiently different from existing technology that analogy is not warranted (the differentiation position). As we will see below, an individual's normative beliefs and viewpoints about the purpose of copyright law are likely to influence the position that she takes while awaiting judicially or legislatively established certainty.

## II. THE BEHAVIORAL EFFECTS OF DELAY AND UNCERTAINTY

As outlined above, the inherent uncertainty surrounding a technological innovation may delay the adjustment of existing laws. Such delays engender considerable uncertainty as to the legal status of the developing uses of copyrighted content created by the new technology. In this Part, I outline the various actions that are set in motion by legal uncertainty and delay.

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<sup>64</sup> The complaint was filed on October 2, 2001. See Complaint for Damages and Injunctive Relief for Copyright Infringement, *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster Ltd.*, 259 F. Supp. 2d 1029 (C.D. Cal. 2003) (No. 01-8541). The Supreme Court reached its decision on June 27, 2005. *Metro-Goldwyn-Mayer Studios Inc. v. Grokster Ltd.*, 545 U.S. 913 (2005). Final disposition on remand did not occur until September 27, 2006. *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster Ltd.*, 454 F. Supp. 2d 966 (C.D. Cal. 2006). This chronology does not include the litigation that is now taking place to establish the boundaries and precise meaning of the "inducement" theory established by the Supreme Court.

<sup>65</sup> 259 F. Supp. 2d at 1031-32, *aff'd*, 380 F.3d 1154 (9th Cir. 2004).

A. *The Emergence of Anticopyright Norms*

Most revolutionary technological advances are followed by periods of uncertainty about how existing copyright law applies to the new technology. As described in Section I.A., the resolution of emerging issues in copyright law takes time, and difficult questions need to be answered before any official changes can or should take place. Those making the legal adjustments must consider the timing of lawmaking. On top of that, it takes time to move matters through the adjudicative or legislative process.

During this time, the application of copyright principles to new technology is highly uncertain. As a factual matter, however, new technological uses of content often proceed in settings where there is little to no enforcement of copyright law. Take, for instance, the sphere of open-access file sharing that users of Napster enjoyed in the initial years. Legal action against the developers of Napster and its users lagged because it was not immediately obvious to copyright holders that peer-to-peer file sharing would become widespread. Even when the impact of file sharing began to become clear, enforcement remained virtually nonexistent because any legal action undertaken by the music industry awaited judicial validation—that is, a judicial determination regarding copyright law's relation to the new technology.

How do such conditions of ambiguity affect the behavior of the new technology's users? Sometimes uncertainty will induce risk-averse behavior. Directors of independent movies or budget documentaries, for instance, are likely to apply for licenses for small segments or to remove content if it is uncertain whether the fair use doctrine applies.<sup>66</sup> If there is any chance of incurring liability on the basis of copyright infringement, there might simply be too much to lose (and too little to gain) from using a small amount of copyrighted content.

But uncertainty might also lead individuals to proceed on the assumption that a novel technological use does not constitute copyright infringement. Legal uncertainty may induce this default reaction in the following manner. First, as commentators have noted, "legal uncertainty can lead to inefficient risk seeking behavior."<sup>67</sup> Second,

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<sup>66</sup> See James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116 YALE L.J. 882, 884, 896-99 (2007) (arguing that a "[b]etter safe than sued" mentality leads to customary licensing practices, which ultimately find their way into legal doctrine).

<sup>67</sup> Howard Latin, "Good" Warnings, Bad Products, and Cognitive Limitations, 41 UCLA L. REV. 1193, 1240 (1994); see also John E. Calfee & Richard Craswell, *Some Effects of Uncertainty on Compliance with Legal Standards*, 70 VA. L. REV. 965, 965 (1984) (analyzing

when facing a certain (low) probability of enforcement, as when downloading music on a peer-to-peer network, legal uncertainty further discounts this initial probability because there is some chance that the alleged illegal activity will in fact not be deemed copyright infringement by courts at a later stage. This additional reduction of the probability of effective enforcement might tip the balance well in favor of downloading—even for individuals who are not disposed to take risks. Third, new technologies may create enough legal ambiguity that, in the minds of (self-serving) users of the technology, such novel uses are considered noninfringing. Even if the issues are relatively clean-cut for legal experts, there may be enough latitude for laypersons to develop self-serving interpretations of copyright rules as applied to the new technology.

Psychological theories provide insight into the behavioral effects of uncertainty on individuals.<sup>68</sup> These findings highlight individuals' inclinations to construe facts in ways that align with their own preconceptions.<sup>69</sup> And, as cognitive psychology demonstrates, many personal beliefs originate in self-interested behavior. For instance, the benefits derived from freely downloading music online can easily lead to a normative belief that file sharing should be legal. File sharers might therefore engage in self-interested norm adjustments as a type of self-serving bias (e.g., "I want to download music, so I think prohibiting peer-to-peer activities is unjust").<sup>70</sup> Similarly, a recent study on tax avoidance found that individuals "adjust their own beliefs so as to justify their behavior as right and ethical. They then generalize these

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"ways in which uncertainty about the application of legal standards can give parties economic incentives to 'overcomply' or to 'undercomply'—that is, to modify their behavior to a greater or lesser extent than a legal rule requires"). For more details, see *infra* Section III.A.

<sup>68</sup> See, e.g., Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role Of Self-Serving Biases*, 11 J. ECON. PERSP. 109, 111-13 (1997). The authors assigned participants in a study to be either the plaintiff or the defendant in a tort case regarding a car accident with a maximum potential damages payment of \$100,000. The plaintiffs' prediction of the likely judicial award was on average \$14,500 higher than the defendants'. The plaintiffs' suggestion of a 'fair' figure was \$17,700 higher than the defendants'. *Id.*

<sup>69</sup> Dan M. Kahan & Donald Braman, *More Statistics, Less Persuasion: A Cultural Theory of Gun-Risk Perceptions*, 151 U. PA. L. REV. 1291, 1314-15 (2003) (stating that when an individual is presented with "competing factual claims," she is most likely to accept those proposed by individuals "who share [her] cultural outlooks").

<sup>70</sup> See Daniel S. Nagin & Greg Porgarsky, *An Experimental Investigation of Deterrence: Cheating, Self-Serving Bias, and Impulsivity*, 41 CRIMINOLOGY 167, 171 (2003) ("[S]elf-serving bias [is] the tendency for individuals to shade judgments in a manner favorable to themselves.").

views to others, presumably to gain further social support.”<sup>71</sup> Current research on the causality of norms and behavior sheds insight into possible underlying psychological processes. According to the theory of cognitive dissonance, when humans

sense something in the world that is inconsistent with the cognitive frame through which we see the world, we initially (unconsciously) ignore or distort our perception. If that becomes impossible, we eventually amend our cognitive frame (i.e., the way we see and understand the world) to incorporate our new perception.<sup>72</sup>

When file sharers notice that file sharing is pursued in courts, it might not correspond with their view of the world, and therefore they might ignore copyright litigation for some time. Despite the obvious self-interested origin of such anticopyright norms, “people assert that interests have nothing to do with their behavior in following various norms.”<sup>73</sup> As I will discuss in more detail, such *ex post* rationalizations of self-interested anticopyright conduct have important policy implications.

An interesting indirect effect of uncertainty and delay thus relates to the enabling effect that it has on copyright social norms. By the time that legal questions of copyright scope are solved with regard to new technologies, users of the new technology are no longer neutral bystanders. The time between a perceived free use of technology and the determination of its legal status allows for individuals to get accustomed to the use of a new technology. This effect likely affects the preferences and behavior of users in at least two ways. First, after a certain period of time, the evaluation of one’s behavior is internalized.<sup>74</sup> As a result of this process of norm internalization, the norm becomes more robust and presents a more ardent challenge to legal enforcement efforts.<sup>75</sup>

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<sup>71</sup> Michael Wenzel, *Motivation or Rationalisation? Causal Relations Between Ethics, Norms, and Tax Compliance*, 26 J. ECON. PSYCHOL. 491 (2005). In this pioneering study on tax evasion, Wenzel observes “bi-directional causality between ethics/norms and compliance.” *Id.* at 504. He concludes that, for taxpayers, tax-evasion conduct feeds back into personal and social norms. *Id.*

<sup>72</sup> Joshua D. Rosenberg, *The Psychology of Taxes: Why They Drive Us Crazy, and How We Can Make Them Sane*, 16 VA. TAX REV. 155, 201 n.113 (1996).

<sup>73</sup> Russell Hardin, *Law and Social Norms in the Large*, 86 VA. L. REV. 1821, 1831 (2000).

<sup>74</sup> On the internalization of social norms, see generally Robert Cooter, *Do Good Laws Make Good Citizens? An Economic Analysis of Internalized Norms*, 86 VA. L. REV. 1577 (2000).

<sup>75</sup> See Neri, *supra* note 14, at 748 (“[P]eople’s behavior generally conforms more closely with internalized social norms regarding how people should behave than with laws dictating behavior . . .”).

Second, users of new technology might experience loss when the previously “free” access to content made available by the new technology is suddenly subject to licensing fees or obstructed altogether.<sup>76</sup> The endowment effect might further affect the sentiments of users of that technology.<sup>77</sup> Research shows that individuals value something that they lose after possessing more than they would value the exact same thing if they had never possessed it at all. The self-serving perception of free use, as enabled by uncertainty and delay, may thus amplify norm effects in copyright law.

Indeed, several studies have documented the emergence of an anticopyright culture.<sup>78</sup> It is well settled that file sharing, for instance, has an overwhelmingly strong normative component.<sup>79</sup> Many users of peer-to-peer applications operate under a metanorm that file-sharing technology is wealth maximizing and that copyright law is outdated or biased towards music publishers.<sup>80</sup> Data show that norms among young people between the ages of thirteen and seventeen are strikingly anti-

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<sup>76</sup> This brings to mind the famous statement of Attorney General Robert Kennedy that “the poor man looks upon the law as an enemy, not as a friend. For him the law is always taking something away.” Robert Kennedy, Att’y Gen. of the U.S., Address at the University of Chicago, May 1, 1964, *quoted in* Hirsch, *supra* note 58, at 1247.

<sup>77</sup> This effect is compounded by inherent product uncertainty in content industries. As one commentator noted, “one of the reasons that business people in Hollywood are so nervous is that they never really know what’s going to win or what’s going to lose.” Posting of Paul Schmelzer to Eyeteeth: A Journal of Incisive Ideas, *The Anarchist in the Library: Discussing Cultural Democracy with Siva Vaidhyanathan*, <http://eyeteeth.blogspot.com/2003/04/anarchist-in-library-discussing.html> (Apr. 21, 2003).

<sup>78</sup> These studies have also documented the strong norm component of downloading and file sharing. See, e.g., Daniel J. Gervais, *The Price of Social Norms: Towards a Liability Regime for File-Sharing* 12 J. INTELL. PROP. L. 39, 51 (2004) (noting that legal changes in copyright clashed with the social norms at play in online music sharing); Lior Jacob Strahilevitz, *Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks*, 89 VA. L. REV. 505, 549 (2003) (discussing how computer code may solve collective action problems). The definition of “social norm” is somewhat elusive. For the purpose at hand we side with the notion that a social norm is a social regularity, a behavior that is widely adopted in society. Social norms, however, are not merely what people do; they also correspond with a conception within society, or a subgroup thereof, of what people should do. See Richard H. McAdams, *The Origin, Development, and Regulation of Norms*, 96 MICH. L. REV. 338, 350-51 (1997) (offering a definition of “norm”).

<sup>79</sup> See Yuval Feldman & Janice Nadler, *The Law and Norms of File Sharing*, 43 SAN DIEGO L. REV. 577, 605-12 (2006) (examining how the creation of new laws influences both social norms and the social perception of illegal downloading).

<sup>80</sup> See Ku, *supra* note 9, at 268 (“The economics of digital technology also suggests that the exclusive rights created by copyright are inconsistent with society’s interest in promoting the creation of new music and making music widely available to the public.”).

copyright. Prior to the RIAA's heavily publicized lawsuits against consumers for illegal downloading, only twenty percent of teenagers under the age of seventeen believed that it was "wrong" to download a song without permission from the author, compared to forty-eight percent of individuals between thirty-five and fifty-four and sixty-three percent of individuals over fifty-five years old.<sup>81</sup> These internalized norms have created significant obstacles to copyright enforcement. In recognizing the robustness of these anticopyright norms and the difficulties experienced in trying to change such norms, scholars have increasingly suggested that social norms have tipped so far in favor of file sharing that old business models are now outdated and must be replaced with models built specifically around file-sharing norms.<sup>82</sup>

### B. *Copyright Self-Help*

A second effect of uncertainty and delay relates to the emergence of a technological arms race between content holders and developers of information technology. When copyright holders feel that legal adaptation to technological developments is too slow or inadequate to offer them protection, they are likely to take matters into their own hands. The uncertainty and delay of enforcement is thus likely to increase reliance on self-help by both users and copyright owners alike.

Specifically in the field of digital music and movie content, copyright holders have included structural blocks within their content to physically stop end users' infringement.<sup>83</sup> For instance, at the beginning of the digital revolution, some publishers felt so strongly that the law left them vulnerable that they threatened to withhold the release

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<sup>81</sup> Press Release, E-Poll, E-Poll Study Looks at Consumers [sic] Attitudes Before and After RIAA Lawsuits (Nov. 4, 2003), available at <http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/11-04-2003/0002050963&EDATE>. Even after the lawsuits, slightly less than one-third of teenagers thought that downloading music was "wrong." *Id.*

<sup>82</sup> See Robert C. Piasentin, *Unlawful? Innovative? Unstoppable? A Comparative Analysis of the Potential Legal Liability Facing P2P End-Users in the United States, United Kingdom, and Canada*, 14 INT'L J.L. & INFO. TECH. 195, 198 (2006) (arguing that striking a balance between the wants of both end users and copyright owners is the most effective means of regulating file sharing).

<sup>83</sup> See Edward K. Cheng, *Structural Laws and the Puzzle of Regulating Behavior*, 100 NW. U. L. REV. 655, 703 (2006) (contending that improving copy protection to make illegal downloading more difficult will curb behavior, and will thus shape social norms—a task that the "fiat-only regime" is too weak to accomplish.).



of their products in digital formats until digital-rights-management tools could be secured against circumvention.<sup>84</sup>

As sophisticated prevention technology became more effective, however, the development of devices capable of circumventing the protection measures quickly followed. As of today, no technology has proven to be terribly effective at preventing copying. In most instances, the very technology that is used to create a digital lock can be used to pick (“hack”) that lock.<sup>85</sup> The circumvention of DVD Content Scrambling Systems, RealNetworks’s streaming protection measures, Adobe’s eBook reader, and the security code of the Xbox game console illustrate that for every enhancement in technological protection of intellectual property, some specialist will be able to circumvent that technology.<sup>86</sup>

This process resembles an arms race between content providers and hackers.<sup>87</sup> At different intervals in the encryption-decryption arms race, one camp is ahead while the other is playing catch-up. The cyclical nature of the technological struggle for control of digital content thus creates voids in the enforcement of copyright law.

Overall, this process contributes to the problem of enforcement by increasing the costs of both owners and users and by generating

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<sup>84</sup> The passage of the Digital Millennium Copyright Act (DMCA), Pub. L. No. 105-304, 112 Stat. 2863 (1998), provided some peace of mind for those publishers who held significant doubt about the future. For a detailed look at the Act’s provisions, see generally David Nimmer, *A Riff on Fair Use in the Digital Millennium Copyright Act*, 148 U. PA. L. REV. 673 (2000).

<sup>85</sup> See *Competition, Innovation, and Public Policy in the Digital Age: Is the Marketplace Working to Protect Digital Creative Works? Hearing Before the S. Comm. on the Judiciary*, 107th Cong. 89-92 (2002) (testimony of Edward W. Felten, Associate Professor of Computer Science, Princeton University).

<sup>86</sup> See Menell, *supra* note 31, at 178-79. The most embarrassing illustration that every lock can be picked is the faltering of the Secure Digital Music Initiative (SDMI). The SDMI held a competition for hackers, testing their ability to crack the latest anti-circumvention technology, the digital watermark. Edward Felten, an expert in computer science, accepted the offer and successfully cracked the protection technology. He drafted his findings in a paper that he planned to present until he was threatened with a lawsuit by the SDMI. Felten fired back with his own lawsuit requesting a declaratory judgment, which was subsequently dismissed. Felten finally went forward with the presentation of his paper after he received assurance from the Justice Department that the threats of a DMCA violation were invalid. See FISHER, *supra* note 9, at 96-97.

<sup>87</sup> See, e.g., Press Release, Steve Jobs, Apple Inc., Thoughts on Music (Feb. 6, 2007), available at <http://www.apple.com/hotnews/thoughtsonmusic> (“It is a cat-and-mouse game.”); see also Lee Kovarsky, *A Technological Theory of the Arms Race*, 81 IND. L.J. 917, 932-37 (2006) (exploring the relationship between the technological arms race and copyright law and addressing the options available to content providers who wish to exclude consumers from their expressive assets).

further polarization between the two camps. Uncertainty and delay provide fertile ground for the politically charged environment in copyright law.

### C. *Copyright and Congress*

Given the fast-changing and unpredictable nature of technology, courts are sometimes confronted with legal disputes about technology that has not fully matured. In those instances, judges may not always feel comfortable providing a final judgment, given the ambiguous copyright implications of the developing technology.<sup>88</sup> It might simply be too difficult for the judge to align the goals of copyright law with an emerging technology, particularly if the social and economic repercussions are not fully clear. There is also the chance that a premature ruling may adversely interfere with the development of the technology.<sup>89</sup> For that reason, courts may defer judgment on the copyright status of new technology. Although courts are compelled by law to provide judgment in every case, there are various ways in which courts can decide a dispute while reserving judgment on the broader issue. For instance, a judge can limit the reach of the ruling by reducing the scope of the holding or limiting the breadth of the ruling.

As indicated in the previous Section, courts frequently defer their decisions on the copyright status of new technology by including language that transfers accountability to the legislature. The standard formulation of this disposition appears in the Supreme Court's opinion in *Sony-Betamax*.<sup>90</sup> The Court spoke quite clearly about Congress's role in applying copyright law to new technology: "The direction of Art. I is that *Congress* shall have the power to promote the progress of science and the useful arts. When, as here, the Constitution is permissive, the sign of how far Congress has chosen to go can come only from

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<sup>88</sup> See, e.g., *AT&T Corp. v. City of Portland*, 216 F.3d 871, 876 (9th Cir. 2000) ("The history of the Internet is a chronicle of innovation by improvisation, from its genesis as a national defense research network, to a medium of academic exchange, to a hacker cyber-subculture, to the commercial engine for the so-called 'New Economy.' Like Heraclitus at the river, we address the Internet aware that courts are ill-suited to fix its flow . . .").

<sup>89</sup> See *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 955 (2005) (Breyer, J., concurring) (observing the importance of permitting software with substantial noninfringing uses for the protection of the development of technology).

<sup>90</sup> *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1983).

Congress.”<sup>91</sup> Similarly, the Court’s decision in *Grokster* illustrates an example of judicial deference in copyright law. In his concurring opinion, Justice Breyer perhaps best formulated the position in favor of judicial deference in copyright law: “[A]s *Sony* recognized, the legislative option remains available. Courts are less well suited than Congress to the task of ‘accommodat[ing] fully the varied permutations of competing interests that are inevitably implicated by such new technology.’”<sup>92</sup>

By inducing judicial deference, technological uncertainty thus contributes to the significant level of legislative rulemaking in copyright law. Empirical evidence supports the notion that legislative rulemaking in copyright law is more prevalent than judicial decision making. For instance, a study conducted by William Landes and Richard Posner concludes that the history of copyright law includes more legislative changes than does any other field of intellectual property law.<sup>93</sup> It also found that the average length of legislative documents in copyright law is substantially longer than that of similar acts in other areas of intellectual property law. In a recent study, Clarisa Long similarly discovered that legislative activity, measured over a range of indicators such as the number of amicus briefs, is more intense in copyright law than other fields.<sup>94</sup>

The fact that legislative rulemaking overshadows judicial lawmaking in copyright may have particular significance for the shaping of copyright law over time. Consider the following four effects of judicial deference on the evolution of copyright law.

First, because legislative and judicial institutions rely on different principles and procedures, legislative outcomes are often likely to be different from judicial ones. While legislative drafting is a democratic process that ideally weighs various constituents’ interests against the social and economic purposes of the prospective rule, judicial rulemaking is more strongly beholden to its own prior judgments through judicial precedent.

Second, and perhaps most salient, an emphasis on legislative rulemaking opens the door to greater influence by interest groups. In a legislative framework, financially strong repeat players are able to

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<sup>91</sup> *Id.* at 456 (quoting *DeepSouth Packing Co. v. Laitram Corp.*, 406 U.S. 518, 530 (1972)).

<sup>92</sup> *Grokster*, 545 U.S. at 965 (Breyer, J., concurring) (quoting *Sony*, 464 U.S. at 431).

<sup>93</sup> WILLIAM M. LANDES & RICHARD A. POSNER, *THE POLITICAL ECONOMY OF INTELLECTUAL PROPERTY LAW* 2-3 (2004).

<sup>94</sup> Clarisa Long, *Political Economy of Intellectual Property Law* (2009) (unpublished manuscript, on file with author).

organize lobbying efforts more effectively, while judicial lawmaking, although not entirely immune to organized influence, is more insulated from the organized action of interest groups.<sup>95</sup> Indeed, there is some consensus among scholars that legislative decision making in copyright law disproportionately reflects the interests of those who are able to organize and lobby Congress most effectively—the entertainment industry. By this account, technological uncertainty might provide another explanation for the amount of legislative activity in copyright law and the consequences thereof.

Third, judicial deference to legislative decision making in copyright law has an effect on the timing of lawmaking and, consequently, on the duration of legal uncertainty. Deference to the legislature not only postpones decision making to a later point in time but also places the final resolution of a copyright issue in the lap of a slower rule-maker. Although both legislative and judicial decision making involve elaborate procedural safeguards, legislative decision making, by the nature of its democratic processes, involves more deliberation and,

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<sup>95</sup> The rationale is that judges, especially those not subject to election, are influenced less by considerations unrelated to the substance of the litigation. Some commentators have argued that judge-made law provides more efficient outcomes because inefficient legal decisions are more likely to induce repeat litigation than efficient outcomes. See, e.g., RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 251-52 (4th ed. 1992) (noting that common law doctrines “form a system for inducing people to behave efficiently, not only in explicit markets but across the whole range of social interactions”); Paul H. Rubin, *Why is the Common Law Efficient?*, 6 J. LEGAL STUD. 51, 51 (1977) (“[E]fficient rules may evolve from in-court settlement, thereby reducing the incentive for future litigation and increasing the probability that efficient rules will persist.”). But see George L. Priest, *Selective Characteristics of Litigation*, 9 J. LEGAL STUD. 399, 410 (1980) (contesting the ability of “the efficiency standard to explain all common law decisions” by considering the impact of settlements); George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1, 3 (1984) (noting that Posner’s conclusion on common law efficiency “requires the presumption that there are no cases involving alternate liability standards that were settled prior to appeal”). Others have argued, however, that the comparative advantage of judge-made law is somewhat exaggerated. As with legislation, litigation can be manipulated by those with a greater financial interest and long-standing experience. As such, well-organized interest groups can more efficiently organize and pool litigation efforts, and they can also rely on prior experiences to make strategic decisions to settle disputes unlikely to result in favorable judicial precedents. See Marc Galanter, *Why the “Haves” Come Out Ahead: Speculations on the Limits of Legal Change*, 9 LAW & SOC’Y REV. 95, 97-104 (1974) (discussing the advantage that repeat legal players have over “one-shotters”); Paul H. Rubin & Martin J. Bailey, *The Role of Lawyers in Changing the Law*, 23 J. LEGAL STUD. 807, 807 (1994) (“[T]he law is driven by the preferences of attorneys, not of litigants or of judges . . . .”); Todd J. Zywicki, *The Rise and Fall of Efficiency in the Common Law: A Supply-Side Analysis*, 97 NW. U. L. REV. 1551, 1553 (2003) (“[C]hanges in [the] institutional framework have made the common law more susceptible to rent-seeking pressures, which have undermined the common law’s pro-efficiency orientation.”).

ideally, the consultation of a wide range of stakeholders. Legislative decision making might also be further delayed because of politically strategic reasons or because of difficulties in reaching a consensus between various stakeholders.

Finally, it is important to note that, by prolonging legal uncertainty, judicial deference allows the behavioral effects discussed in the previous two Sections—users' anticopyright norms' becoming internalized and content holders' resorting to self-help efforts—to be reinforced.

### III. UNCERTAINTY, DELAY, AND COPYRIGHT REFORM

Until now, this Article has made a modest attempt at explaining several recurring patterns in the evolution of copyright law. In the remainder of this Article, I provide a number of normative reflections.

#### A. *Evaluating Uncertainty and Delay*

Uncertainty and legal delay impose significant social costs.<sup>96</sup> Some individuals may overestimate the legal constraints and forego activities that the state seeks to encourage, while others may underestimate the very same constraints and engage in undesirable behavior. A lack of certainty may also induce copyright holders to engage in aggressive litigation strategies.<sup>97</sup> For instance, “if the legal standard is uncertain, even actors who attempt to act ‘optimally’ in terms of overall social welfare will face some chance of being held liable because of the unpredictability of the legal rule.”<sup>98</sup> Risk-averse individuals may react by overcomplying—that is, by modifying their behavior beyond the point that is socially optimal.<sup>99</sup> In the context of copyright law, overcompli-

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<sup>96</sup> Although I do not focus on this issue, legal uncertainty often has redistributive effects. See Uri Weiss, *The Regressive Effect of Legal Uncertainty 1* (Tel Aviv Univ. L. Sch. Faculty Papers, Paper No. 30, 2005), available at <http://law.bepress.com/taulwps/fp/art30> (“[A] shift from a certainty legal regime to an uncertainty legal regime transfers wealth from risk-averse parties to risk-neutral parties via the settlement.”).

<sup>97</sup> Generally, by increasing potential disagreement over the outcome, greater uncertainty reduces settlement rates. See Ehrlich & Posner, *supra* note 58, at 265. For a concise but insightful overview of the pernicious effect of uncertainty in the context of fair use, see R. Polk Wagner, *The Perfect Storm: Intellectual Property and Public Values*, 74 *FORDHAM L. REV.* 423, 429-31 (2005).

<sup>98</sup> Calfee & Craswell *supra* note 67, at 966.

<sup>99</sup> Examples in the literature on overcompliance induced by uncertain application of legal standards include commentary on labor regulation and tax compliance. See Debra D. Burke, *Workplace Harassment: A Proposal for a Bright Line Test Consistent with the First Amendment*, 21 *HOFSTRA LAB. & EMP. L.J.* 591, 605 (2004) (“Risk-averse employers’ natural reaction to the vague limits of hostile environment is to over-compensate by

ance may have a chilling effect on creativity and authorship. Artists will avoid incorporating copyrighted materials into their creative works even when incorporating those particular works could well be considered to be fair use and noninfringing.<sup>100</sup>

In other instances, uncertainty may undermine deterrence. Uncertain conditions loosen the connection between behavior and enforcement. When the chance of getting caught for certain behavior becomes more remote, individuals may decide to take the underlying action. In this sense, legal uncertainty may create the tipping point towards noncompliance in environments where there is a low probability of enforcement, as in the case of file sharing on peer-to-peer networks.<sup>101</sup>

Another potential cost of legal uncertainty is that, by enabling self-serving dispositions,<sup>102</sup> uncertainty drives copyright stakeholders into entrenched positions, making it more difficult to reach political con-

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prohibiting words or conduct in the workplace that even come close to bordering on harassment.”); Ehud Kamar, *Shareholder Litigation Under Indeterminate Corporate Law*, 66 U. CHI. L. REV. 887, 889 (1999) (“[L]egal indeterminacy creates liability risk, which risk-averse fiduciaries are in a poor position to bear. Exposing corporate fiduciaries to this risk makes their services more costly and less productive to shareholders.”); Kyle D. Logue, *Tax Law Uncertainty and the Role of Tax Insurance*, 25 VA. TAX REV. 339, 373 (2005) (“Legal uncertainty can induce taxpayers, especially risk-averse taxpayers, to over-comply with the law in various ways[,] . . . such as changing the structure of their transactions, deciding not to engage in the transaction in question, or engaging the transaction as planned but without taking advantage of the more favorable tax treatment to which they are arguably . . . entitled.”). Note that, when overdeterrence is not a concern, some authors have argued that uncertainty can be beneficial by inducing negotiated solutions or by increasing efficiency in law enforcement efforts. See, e.g., Tom Baker et al., *The Virtues of Uncertainty in Law: An Experimental Approach*, 89 IOWA L. REV. 443, 445 (2004) (“[U]ncertain sanctions may be preferable on efficiency grounds because they achieve more deterrence than certain sanctions of the same expected value.”); Nicholas L. Georgakopoulos, *The Vagueness of Limits and the Desired Distribution of Conducts*, 32 CONN. L. REV. 451 (2000) (arguing that vague rules should be preferred over precise rules because they allow “customized compliance”); Linda K. Thomas, *Child Custody, Community And Autonomy: The Ties That Bind?*, 6 S. CAL. REV. L. & WOMEN’S STUD. 645 (1997) (examining the vague “best interest” test used in determining child custody and how the standard causes more private ordering due to its uncertainty).

<sup>100</sup> For example, documentary artists sometimes avoid including any copyrighted materials, even something as remote as a ringtone in the background of a scene. See Nancy Ramsey, *The Secret Cost of Documentaries*, N.Y. TIMES, Oct. 16, 2005, § 2, at 13.

<sup>101</sup> See Henrik Lando, *Does Wrongful Conviction Lower Deterrence?*, 35 J. LEGAL STUD. 327, 334-35 (2006); see also Richard Craswell & John E. Calfee, *Deterrence and Uncertain Legal Standards*, 2 J.L. ECON. & ORG. 279, 299 (1986). Evidence from cognitive psychology suggests that low-risk events are generally either grossly overweighed or neglected altogether. See Daniel Kahneman & Amos Tversky, *Choices, Values, and Frames*, 39 AM. PSYCHOLOGIST 341, 345 (1984).

<sup>102</sup> See *supra* Section II.A.

sensus in copyright issues. This entrenchment can be a good or a bad thing, depending on one's normative viewpoint on copyright law. If one adheres to the view that copyright law disproportionately reflects the interests of copyright holders, the amplifying effect of uncertainty and delay on procopy norms and anticopyright social mobilization provides some counterweight to the political pressure exerted by copyright industries. If, on the other hand, one takes the viewpoint of the entertainment industry that digital technology and file sharing are eroding the much-needed protection of copyright holders, then reducing legal delay and uncertainty holds the promise of reducing the creation and internalization of self-serving social norms that disregard copyright infringements. Reducing uncertainty and delay may also reduce costly protective measures, such as technological self-help, remedial litigation, and political rent-seeking expenditures.<sup>103</sup>

Finally, note that copyright holders and users of new technology sometimes strategically employ the conditions of uncertainty and delay. For instance, by settling cases, copyright owners can intentionally delay unfavorable legal decisions on new technology (for instance, if a finding of fair use with regard to a new technology is likely). Similarly, for representatives of new technologies, it can be useful to prolong periods of uncertainty, as those periods leave more time for users of new technology to begin to incorporate the new technology into their everyday lives and to entrench the norm of free content in the public's perception.<sup>104</sup>

Overall then, the attendant costs and distortions that are induced by uncertainty and delay raise the question whether there are ways to reduce legal delay and uncertainty.

### B. *Reducing Uncertainty and Delay*

To a certain degree, as this Article shows, uncertainty and delay are inevitable byproducts of a rapidly changing environment.<sup>105</sup> The

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<sup>103</sup> See *supra* Sections II.B-C.

<sup>104</sup> See, e.g., Steven Hetcher, *Using Social Norms to Regulate Fan Fiction and Remix Culture*, 157 U. PA. L. REV. 1869, 1880-84 (2009) (discussing the emergence of a norm of socially acceptable digital remixing of copyrighted content against a background of legal uncertainty).

<sup>105</sup> In fact, some scholars suggest that several factors in the legal process create a trend of increasing uncertainty in law over time. See, e.g., D'Amato, *supra* note 56, at 5 (arguing that exceptions and nuances in judicial interpretation and specialized legislation create a trend towards greater complexity); Hirsch, *supra* note 58, at 1245-48 (arguing that the conflicting objectives of lawmakers and courts obstruct the preference for

difficulty of anticipating coming and (ever-changing) technological trends complicates efforts to anticipate and quickly adopt copyright rules. Similarly, detailed interpretations of existing rules are complicated by the ever-changing nature of technological applications of copyrighted content. There is a permanent risk that a premature legal intervention will distort innovative activities. While respectful of the inherent limitations of this endeavor, the remainder of this Part explores a number of institutional possibilities that might reduce the lag between innovation and legal certainty regarding the copyright status of a new technology. What initiatives can one undertake to reduce uncertainty and delay?

### C. Copyright Rules or Standards?

Many important aspects of copyright law are governed by standards rather than rules.<sup>106</sup> Open-ended standards—fair use being the most important example—increase the amount of decision making at the judicial level.<sup>107</sup> As such, copyright law's use of standards may con-

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greater certainty); Peter H. Schuck, *Legal Complexity: Some Causes, Consequences, and Cures*, 42 DUKE L.J. 1 (1992) (arguing that legal professionals benefit from legal complexity).

<sup>106</sup> On the distinction between rules and standards, consider the following:

Legal norms can be precise rules, which are blueprints for action and allow for mechanical decisions by judges and civil servants. Alternatively, they can be vague, mission-oriented standards, which delegate decisions from the maker of the law to the judiciary and the administration. Rules economize on the costs of adjudication and administration. Standards economize on the costs of norm specification.

Hans-Bernd Schäfer, *Rules Versus Standards in Rich and Poor Countries: Precise Legal Norms as Substitutes for Human Capital in Low-Income Countries*, 14 SUP. CT. ECON. REV. 113, 113 (2006). There is not a binary distinction between the two categories. Rather, “[t]he difference between a rule and a standard is a matter of degree—the degree of precision.” Ehrlich & Posner, *supra* note 58, at 258. See generally Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992); Pierre Schlag, *Rules and Standards*, 33 UCLA L. REV. 379 (1985).

<sup>107</sup> The statutory language governing fair use speaks in broad generalities:

In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—

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



tribute to the existing levels of legal delay and uncertainty. Perhaps legal uncertainty and delay in copyright law can be reduced by employing more precise rules. By reducing judicial discretion, potential ambiguities regarding the interpretation of existing rules, as they apply to new technologies, are narrowed. This option would obviously reduce uncertainty as to the application of existing law to new technology. By reducing the breadth of interpretative opportunities, precise rules also reduce the number of instances where delay is a factor. A number of recent proposals have advocated the use of bright-line rules to reduce uncertainty in copyright law, particularly with regard to the application of the fair use doctrine.<sup>108</sup> For example, in an interesting proposal, Gideon Parchomovsky and Kevin Goldman suggest the creation of statutory minimal safe harbors in copyright law.<sup>109</sup> Explicit statements of quantifiable permitted uses promote clear and predictable outcomes.<sup>110</sup>

While the insights of this Article favor the adoption of bright-line rules over open-ended standards, it is necessary to be mindful of the limits of taking copyright law in this direction. To some degree, the unpredictable nature of technology simply necessitates open-ended standards in copyright law.<sup>111</sup> There are at least two major arguments in favor of the adoption of standards in copyright law. First, narrowly tailored rules are likely to increase error costs. In an unpredictable, fast-changing technological landscape, new innovations often do not

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17 U.S.C. § 107 (2006).

<sup>108</sup> See LAWRENCE LESSIG, *FREE CULTURE* 295 (2004) (advocating clearer and narrower lines demarcating the scope of protection for derivative works); Joseph P. Liu, *Regulatory Copyright*, 83 N.C. L. REV. 87, 151-52 (2004) (suggesting that the Copyright Office could be given the regulatory authority to promulgate rules and safe harbors). For an interesting account of the potential harms of fair use, see generally Rebecca Tushnet, Essay, *Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It*, 114 YALE L.J. 535 (2004).

<sup>109</sup> Gideon Parchomovsky & Kevin A. Goldman, *Fair Use Harbors*, 93 VA. L. REV. 1483, 1489 (2007).

<sup>110</sup> See *id.* at 1511 (“We propose that for any literary work consisting of at least one hundred words, the lesser of fifteen percent or three hundred words may be copied without the permission of the copyright holder.”).

<sup>111</sup> Several scholars have argued that a flexible fair use analysis is necessary. See, e.g., Dan L. Burk, *Muddy Rules for Cyberspace*, 21 CARDOZO L. REV. 121, 140 (1999) (“The ‘muddy’ four-part balancing standard of fair use allows courts to reallocate what the market cannot.”); Michael W. Carroll, *Fixing Fair Use*, 85 N.C. L. REV. 1087 (2007) (arguing that fair use is sensitive to context); Matthew Sag, *God in the Machine: A New Structural Analysis of Copyright’s Fair Use Doctrine*, 11 MICH. TELECOMM. & TECH. L. REV. 381, 435 (2005) (noting that a flexible fair use standard allows courts to adapt copyright protection to new innovations).

fit within existing concepts and definitions. Consider, for instance, the introduction of the VCR. While private recordings of cable TV shows plainly violated the exclusive right of copyright holders to make copies, the flexibility of the fair use standard enabled courts to exempt the time-shifting features of VCR recorders. By allowing the record function to be maintained on VCR players, the fair use exemption arguably boosted the success of VCR technology, which eventually created a very profitable secondary market in the sale of VHS tapes and rental movies. The fact that VCR technology, with its dual-use character, eventually boosted the revenues of copyright holders plainly illustrates the highly unpredictable nature of the social and economic ramifications of technology.

Second, flexible and open-ended standards are better suited to handle responses from technological innovators in regards to the legal rules. Technological developers are notoriously apt at what Leo Katz has termed legal “avoision.”<sup>112</sup> Developers create technological applications that do not violate legal rules *sensu strictu* but that defeat the very purpose of those rules. Whenever legislation or precedent provides specific language in the copyright statute that speaks to a new technology, technological innovators develop novel applications that exploit the gaps between technological possibilities and the self-described boundaries of law.<sup>113</sup> For example, when the Ninth Circuit in *Napster* established that copyright law implicates developers of centralized peer-to-peer technology by way of contributory liability, developers of file-sharing technology developed decentralized peer-to-peer file-sharing applications that were functionally equivalent to those explicitly prohibited in the *Napster* decision.<sup>114</sup> By removing central servers, which gave rise to contributory liability on behalf of software developers, the developers successfully evaded the legal rule created in *Napster*. Bright-line rules are thus easier for developers to circum-

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<sup>112</sup> LEO KATZ, *ILL-GOTTEN GAINS* 17-30 (1996) (contrasting “avoision” of ethical rules with “avoision” of law).

<sup>113</sup> Such interaction between law and technology can perhaps best be compared to the adaptation of creative tax consultants to the Internal Revenue Service. See Tim Wu, *When Code Isn't Law*, 89 VA. L. REV. 679, 682 (2003) (“The programmer is not unlike the tax lawyer, exploiting differences between stated goals of the law, and its legal or practical limits. He targets specific weaknesses in legal regimes . . .”).

<sup>114</sup> See, e.g., Kristina Groennings, *Costs and Benefits of the Recording Industry's Litigation Against Individuals*, 20 BERKELEY TECH. L.J. 571, 573 (2005) (“The [recording] industry's victory in *Napster* was fleeting as publicity over the issue increased awareness of P2P technology and users flocked to decentralized networks like Grokster and KaZaa, making the tracking of P2P use more difficult.” (footnotes omitted)).

vent, as the developers can create new adaptive technology that does not fit within the existing rule. The lack of analogy between the new technology and the existing legal rules will necessitate the creation of new substantive rules. Open standards, of course, also create ambiguity as to the applicability of the existing rule to a newly designed technology. It can be argued, however, that when applying standards, such ambiguities can be resolved more easily by lower courts, while the adaptation of specific rules requires the creation of a new legal regime—the latter being a more time-consuming process.

#### D. *Copyright Courts or Administrative Agencies?*

Both delay and uncertainty are increased by the slow response of courts and are amplified further whenever courts defer decision making to Congress. This problem raises issues of comparative institutional design. Perhaps there is some promise in delegating copyright governance to decision makers that are capable of acting more swiftly and effectively, thereby reducing overall levels of legal uncertainty and delay.

How do we begin to assess the effects of judicial deference and congressional involvement? Scholarly commentary generally deplores the expansion of copyright law that resulted from legislative action. This Article raises separate concerns related to the higher levels of uncertainty and delay that result from judicial deference. In a legislative framework, copyright law is more likely to preserve the status quo because political compromise is so difficult to reach. Indeed, the political landscape surrounding copyright law has reached a state of significant polarization. New technological advances have increased the stakes in copyright, enhancing the incentive to organize effectively.<sup>115</sup> Moreover, the Internet enables interest groups that oppose the expansion of intellectual property rights to organize themselves at lower cost, creating competition with larger, better-funded interests. The various positions taken by library associations, social-freedom groups, open-software movements, consumer-protection groups, artists' rights groups, civil libertarians, the digital-freedom movement, the academic community, industry, and others makes political compromise harder

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<sup>115</sup> The work of Lawrence Lessig in particular rests upon the notion that cyberspace is a "fundamentally important changed circumstance" in the traditional copyright equation. Because cyberspace makes the public domain so readily accessible, the stakes are raised to keep copyrighted material flowing into the public domain. See Linda Greenhouse, *Justices Hear Arguments on Extension of Copyrights*, N.Y. TIMES, Oct. 10, 2002, at C1.

to attain. Thus, the more active political field may be slowing down legislative decision making in copyright. Of course, legislative inertia may be preferable to those who disparage the expansionary direction of copyright law over the past century. But, by extending uncertainty and delay, legislative inertia simply delays the resolution of new issues in copyright law. This delay increases the familiar social costs described above.<sup>116</sup> Interestingly, legislative inertia also may have a self-sustaining effect. Given the enabling effects of uncertainty on anti-copyright norms and self-help, legal inertia might lead to further polarization, making political compromise even harder to attain.

The objective of reducing uncertainty and delay strengthens the case for regulatory approaches to copyright law. There are a number of arguments that support delegating the administration of novel copyright issues to new regulatory bodies. First, administrative bodies might be better suited to resolve politically entrenched stalemates in copyright. In this sense, commentators have analogized the political and technological developments surrounding copyright law to developments in environmental issues since the 1960s. Political theory suggests that “conflictual demand patterns” for new legislation, as observed in copyright today, are more conducive to outcomes in which Congress delegates resolution of the problem to regulatory agencies.<sup>117</sup> If isolated from political pressure, regulatory agencies might be better positioned to balance the “competing core principles”<sup>118</sup> in copyright law without discouraging the creation and dissemination of new technologies.

Second, technocratic regulatory agencies might be better equipped to handle the growing complexity of technologies and the high rate of technological innovation. As Peter Menell notes, “regulating digital devices in the name of content protection hinders progress of digital technology. Similarly, in environmental policy, legislators came to see that pollution controls could impair economic growth.”<sup>119</sup> In this sense, regulation provides a means to balance competing goals. As such, regulatory bodies are often able to respond more proactively to issues involving the implementation of complex technological standards and to address copyright-related issues involving the application of the technology.

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<sup>116</sup> See *supra* Section III.A.

<sup>117</sup> See Menell, *supra* note 31, at 195.

<sup>118</sup> *Id.* at 196.

<sup>119</sup> See *id.* at 197.

Third, some of the instruments available to regulators might be of particular assistance to the case at hand. For instance, one possible in-road to reducing uncertainty and delay could involve the issuing of agency guidelines that set an explicit understanding of new technology and align the expectations of the copyright implications involved. Although such guidelines might not contain any definite resolution of copyright issues, they might moderate the overextended reactions of copyright stakeholders that are amplified by legal uncertainty. Moreover, guidelines could set default positions that might preempt some of the expectations of free use of new technologies that are a major source of the resentment that produces anticopyright norms whenever a new technology is found to be infringing at a later stage.

Surely, regulatory involvement imposes costs and requires oversight. From the perspective of reducing uncertainty and delay, however, there is ample reason to seriously consider recent proposals to adopt regulatory approaches as a more prevalent mode of governing copyright law in the future.

#### CONCLUSION

This Article examines the relationship between technology and copyright law. Specifically, it explores the formative effects of technological innovation on copyright law. To construct this argument, I examine the formative roles of legal uncertainty and legal delay—two baseline characteristics of a rapidly changing and highly unpredictable technological landscape. I argue that uncertainty and delay have an enabling effect on anticopyright sentiments, provoke a greater reliance on self-help efforts by content providers and users, and induce legislative involvement in the area of copyright law.

Together, legal uncertainty and delay present interrelated complications that inhibit the enforcement of copyright law: anticopying technology never accomplishes perfect protection, social norms complicate enforcement efforts, and legal adaptation is slow. An analysis of these intrinsic constraints provides an improved understanding of the enforcement problems faced by copyright law.

Copyright enforcement is, and always has been, imperfect. Recent technological advancements, such as file-swapping technology and peer-to-peer networks, plainly highlight the practical limits to the enforcement of copyright law. We should understand the actions of copyright stakeholders for what they are: natural responses of actors facing legal uncertainty in a fast-changing technological environment.

Understanding these patterns can guard against exaggerated responses. At the same time, insight into the dynamics of copyright change provides opportunities to make modest institutional improvements that may ameliorate some of the social costs imposed by the current copyright divide.