

Intellectual Property Protection and Online Privacy in the Cyber Age

Ching-Yi Liu*, Tamkang University, Taiwan

Abstract

It has become commonplace to say that we have entered the cyber age, or, the age of information. These fancy words imply that a new wind is blowing in intellectual property and privacy laws. This Essay explores the technological transformation of legal regimes for intellectual property and privacy. It first reviews briefly the intellectual property protection controversies brought up by the popularity of the Internet. It is followed by an examination on the legal and technological efforts to solving the conflicts raised by the free exchange of information on the Internet. The rest of this Essay focuses specifically on what the currently developed intellectual property protection technologies might contribute to the legal discourses of intellectual property and, furthermore, what implications they might have for online privacy, which is another significant emerging concern in the cyber age. This part also looks into the argument as to whether the availability of intellectual property protection technologies such as trusted systems has proven that the conventional wisdom that the advent of digital technologies implies the need of stronger intellectual property protection laws is incorrect. It further argues that intellectual property protection technologies should be regulated in the public interest so that the balance of intellectual property protection and online privacy won't be undermined. This Essay concludes with some observations as to why legal discourses should be more focused on drawing upon theoretical ideas the new political economy of intellectual property and privacy brings to us.

I. Introduction

Ithiel de Sola Pool wrote more than 15 years ago that “...For copyright, the implications (of electronic publishing) are fundamental. Establishing notions about copyright become obsolete, rooted as they are in the technology of print. The recognition of a copyright and the practice of paying royalties emerged with the printing press. With the arrival of electronic reproduction, these practices become unworkable. Electronic publishing is analogous not so much to the print shop of the eighteenth century as to word-to-mouth communication, to which copyright was never applied.”¹ It is true that the ability to transform intellectual property into digital form becomes problematic for copyright lawyers.

*Assistant Professor of Law, Tamkang University; J.S.D., The University of Chicago Law School, 1997; LL.M., Harvard Law School, 1994. This is the version 0.1 of the paper. More detailed arguments will come in a later version.

¹ ITHIEL DE SOLA POOL, TECHNOLOGIES OF FREEDOM 214 (1983).

The ease with which digital information can be copied and distributed is why people predict that human knowledge and culture could be transported in the farthest reach in history.² However, it also gives rise to the vision that the digital revolution made true by the Internet undermines copyright law and leads some commentators to announce the death of copyright and the need for a new intellectual property paradigm.³

Intellectual property rules have evolved to achieve the delicate balance between public and private interests. With this understanding in mind, the question we should ask are: what is the reality of the digital revolution for intellectual property and how should we look at it? Based upon some recent technological developments, this paper illustrates that the conventional wisdom of intellectual property law is not entirely correct. It argues that copyright is not dying, it is undergoing a process of being replaced by technology. Consequently, we should take a closer look at the fact that technology is replacing law in the regulation of intellectual property. This paper concludes that given copyright protection technology is powerful enough to undermine the balance of copyright law and threaten electronic privacy, we should consider more carefully as to how technology could be regulated in public interest.

In Part II, this paper examines the technological transformation of intellectual property and focuses particularly on copyright protection. It addresses the conventional wisdom of intellectual property rights about the threats of the Internet.

In Part III, this paper proceeds to introduce copyright protection technologies. It demonstrates briefly that emerging technologies make it easier for copyright owners to control their digital works and thus illustrates why the conventional story about the vulnerability of digital content on the Internet might be wrong. This paper addresses online privacy concerns raised by the use of copyright management systems in Part IV. Part V concludes with some preliminary observations on the future of intellectual property and online privacy in our cyber age.

II. The Technological Transformation of Intellectual Property

Commentators began to think about the implications of digital technology for intellectual

²Mark Stefik, *Letting Loose the Light*, in *INTERNET DREAMS: ARCHETYPES, MYTHS, AND METAPHORS* 220-21 (Mark Stefik ed., 1996).

³See, e.g., John Perry Barlow, *Selling the Wine Without Bottles: The Economy of Mind on the Global Net* (Dec.1993), available online at http://www.eff.org/pub/Publications/John_Perry_Barlow/HTML/idea_economy_article.html; Esther Dyson, *Intellectual Property Value*, *HOTWIRED* (July 1995), available online at <http://www.hotwired.com/wired/3.07/features/dyson.html>.

property rights when the vaporous nature of the Internet captured worldwide attention.⁴ This section describes what threats the Internet poses to traditional copyrights and how the conventional wisdom of intellectual property evaluates and interprets the threats.

A. Threats to Enforcing Copyright Rights on the Internet

As we have well known, the Internet poses threats to copyright owners' ability to enforce their copyrights. This phenomenon even leads critics like John Perry Barlow and Esther Dyson to predict the end of the current regime of intellectual property. From the economic point of view, it is true that digital copies of intellectual property can be produced without any loss of quality.⁵ In addition, there is no meaningful marginal costs of reproduction or distribution of intellectual property on the Internet.⁶ What makes the situation worse, it is said, is the use of anonymous remailers and other technologies by copyright pirates leaves no traceable trail of activities.

Consequently, the first legally significant feature of digital information is that it must be reproduced to be accessed. For one computer to access an intellectual property stored on a network, it must first copy some or all of that intellectual property into RAM. This feature of digital technology gives rise to the controversy as to whether we need a new definitional scope of reproduction for the cyber age.⁷

Second, a user must display or perform the digital information to see it on a monitor or hear it from speakers attached to the computer. To the extent the display or performance is "public", the use might violate the exclusive rights of the copyright holder.

Until recently copyright law has been able to balance the public and private interests surrounding intellectual property. It seems fair to say that intellectual property rules have evolved to achieve balance that promotes progress in science and useful arts, ensures broad access to information, rewards creators with limited monopoly rights, and encourage technological innovation. However, with the above controversies raised by the advent of the Internet age, we suddenly pay a lot attention to the claim that individual end users do not observe copyright rules in their daily behavior. Under the context, the question we should ask becomes whether this delicate balance has been disturbed. If it is true, it is worthwhile

⁴See, e.g., Douglas J. Masson, *Fixation on Fixation: Why Imposing Old Copyright Law on New Technology Will Not Work*, 71 IND. L. J. 1049, 1054 (1996).

⁵Eric Schlachter, *The Intellectual Property Renaissance in Cyberspace: Why Copyright Law Could be Unimportant on the Internet*, 12 BERKELEY TECH. L. J. 15, 19-20 (1997).

⁶*Id.* at. 20.

⁷See, e.g., Information Infrastructure Task Force, *Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights* 66 (Sept.,1995).

to ask a further question as to how law and technology we have now respond to the disturbance.

B. The Conventional Wisdom of Intellectual Property Rights

As noted above, it has been argued that laws designed to protect the physical manifestations of expression might not be applicable to a world in which intellectual property could be disseminated in an intangible form. It is followed that the only sensible solution was to acknowledge the death of copyright and the need for a new paradigm under which copyright holders would be forced to distribute their products for free but seek compensation for services related to the work distributed.

Given the myriad problems briefed above, it is perhaps no surprise that the prediction on the death of copyright emerges. But, the reason copyright is dying might not be digital works on the Internet are unprotectable. The following Part will show the current copyright regime might be in danger because digital works are too protectable under the emerging technological architecture.

III. Technologies in Controlling Intellectual Property

This Section describes how new technologies---trusted systems or copyright management systems⁸---are outweighing the law's ability to maintain the stable equilibrium between the public interest and the private control long preserved in the history of intellectual property. It first briefs the features of the new technologies and then explores their potentials in shaping the future of intellectual property regime in the information age.

A. Copyright Management Systems

A copyright management system (CMS), or, trusted system, is a piece of software or hardware that "can be relied upon to follow certain rules."⁹ These rules, often called usage rights, are defined by what is known as a rights language, a machine readable code attached to a digital work. The technology of trusted systems is capable of following digital rights language¹⁰ and thus allows computers to protect and distribute information in more secure

⁸ It has been argued that copyright management systems is a misnomer because technological protections like trusted systems should be distinguished from copyright law in that they grant far more protection to the intellectual property owner than copyright provides. See Mark Gimbel, *Some Thoughts on the Implications of Trusted Systems for Intellectual Property Law*, 50 STAN. L. REV. 1671, 1672 fn.4 (1998)

⁹ Mark Stefik, *Trusted Systems*, Sci. Am., Mar. 1997, at 78.

¹⁰ See, e.g., Mark Stefik, *Shifting the Possible: How Trusted Systems and Digital Property Rights Challenge Us to Rethink Digital Publishing*, 12 BERKLEY TECH. L. J. 137, 138-40 (1997).

and reliable ways. Some companies, including Xerox and IBM, are in the process of developing rights languages.¹¹ For example, Digital Property Rights Language (“DPRL”), developed by Xerox, has different categories. It includes render rights, transport rights, derivative rights, and file management rights.¹² Each of the rights may be granted unconditionally, granted for a particular period of time, conditioned on the payment of a fee, restricted to a particular set of users, and so on.

In other words, the technology of CMS brings many benefits to the world. It allows the traditional bundle of property rights to be split and facilitates online payment systems. A trusted system is a perfect access control mechanism which uses technology as a lock. By implementing the rights and specifications, trusted systems make it possible for right holders to exercise unprecedented control over their digital properties. At the same time, it also enables exclusion, limitations on distribution, consumer tracking, and invasion of privacy. Under this regime, traditional copyright law rules will certainly undergo dramatic changes.

B. The Architecture of Intellectual Property under the Regime of Technological Controls

Copyright law grants a monopoly to authors for the purpose of encouraging “the progress of science and useful arts,” but the monopoly must be a limited one so that the public good would be advanced.¹³ Copyright owners have tried to change the balance but have met with restrictions in the history of intellectual property. The technology of trusted systems will help copyright owners to overcome these restrictions and provide a level of intellectual property protection that the law has never been able to provide. Simply put, with its increasing capabilities, the technology of trusted systems is tipping the scale away from the public interest and towards private control. It is also conceivable, or, inevitable, that the architecture of trusted systems will replace laws in offering protections for intellectual property.

First of all, to help libraries and similar institutes make information available at minimal cost, traditional copyright law has developed First Sale Doctrine to limit the copyright owner’s control over copies to the first time they are sold. However, with the technology of trusted systems copyright holders will be able to circumvent First Sale Doctrine, one of the most important limitations on the distribution right of copyright owners, in many ways.¹⁴

¹¹ Id. at 140-41.

¹² See generally Mark Stefik, *The Digital Property Rights Language: Manual and Tutorial* (Version 1.08, Feb. 3, 1997).

¹³ U.S. Const. Art. I, § 8.

¹⁴ For example, by withholding all transport rights, a copyright owner could effectively prevent all distribution

Similarly, Fair Use Doctrine could be eliminated by specifying a fee for any usage. It is also true that copyright owners could circumvent the rule allowing software owners to make free copies for archival purposes.

Under the technological regime, copyright owners will put their faith in the use of technology and have substantial incentives to charge for the rights we take for granted in the physical world. Ironically, traditional copyright rules will then become increasingly irrelevant and will be useful only when technology is threatened. Consider the Digital Millennium Copyright Act,¹⁵ a landmark copyright act that is viewed as a key component of U.S. government's agenda for fostering electronic commerce but changes one of the traditional premises of copyright in the digital age¹⁶, which was signed into law in the United States in late October of 1998.¹⁷ This Act makes it illegal to crack through the digital wrappers or encryption technologies that protect intellectual property on the Internet. It further outlaws the manufactures and sale of devices used to crack those technologies. The Provision takes effect two years from now and violators could be charged up to \$2,500 per act of circumvention.

To address the fair use concerns of those who opposed the legislation, U.S. Congress indeed made a number of exceptions to the anti-circumvention provision. For example, the new law includes exemptions for security and encryption researchers, whose jobs focus on cracking technologies to make them better. and software developers who must take apart other companies' products to ensure compatibility. It also sets up a process for anyone who finds they no longer have access to materials they did under traditional fair use rules to appeal for an exemption.

Consider what our online lives would be like under the emerging new regime. It seems fair to say that what we see in the new law is a framework for placing a very broad prohibition on a huge range of previously legal conducts. Under this regime, we would have to rely on exceptions to the broad prohibition to legalize our online activities that were legal in the physical world. My sense is that this kind of law will have remarkable effects on intellectual property rules in cyberspace. Most of the effects might be bad because they would discourage innovation by device makers, and, more significantly, deter lawful use of copyrighted work.

beyond the first sale. Copyright owners also could specify a fee for all transfer and loan transactions to extend royalty rights beyond what the current law provides.

¹⁵ Available online at <<http://ftp.loc.gov/thomas/c105>> (visited Oct. 30, 1998).

¹⁶ See Carl S. Kaplan, *A Major Growth Year for Cyberlaw*, *Cyberlaw Journal*, NEW YORK TIMES ON THE WEB, Dec. 25, 1998.

It seems fair to say that Fair Use Doctrine of traditional copyright law would be changed to a substantial degree under the new regime for copyright. It has never been a crime to access or make a copy of a protected work. What has been punished is the misuse of that information, or the illegal copying or redistribution of that work. The new copyright law simply changes the premise by making it illegal merely to access copyrighted material. Looked at in another way, the Digital Copyright Act indeed suggests that for some fair use purposes it is not illegal to circumvent the technological protections of intellectual property. However, given the trend that technologies might become more and more efficient to make any unauthorized circumvention very difficult, even impossible, there seems no enough legal support for fair use in the cyber age. In this sense, some legal regulations imposed on the use of protection technologies might become necessary.

Moreover, as noted above, the First Sale Doctrine limits the control that a copyright holder has over the public distribution of his copyrighted work. While the First Sale Doctrine works well in real space, it might not be appropriate to extend it into cyberspace. Therefore, it will become important for the protection technology architecture to allow a certain degree of copying which comes close to the cases First Sale Doctrine protects. In other words, we will need a mechanism that preserves the real world value of sharing intellectual property, and make sure, on the other hand, that sharing information on the Internet does not destroy the incentive to create in the first place.

Finally, the concern that the technology of trusted systems has the potential to control access to information for an infinite duration will be more than real under the protection technology regime. The time limit rules of traditional intellectual property are designed to offer incentives for the production of original works. The infinite protection period enabled by trusted systems would not increase any incentives for creators. It might only harm society as a whole by restricting the distribution of information. Under this situation, some technological solutions might be necessary so that a tag could be used to mark contents with an expiration date.

IV. Some Reflections on Electronic Privacy under the Emerging Regime of Technological Controls

This Section explores what kind of electronic privacy concerns rise under the technological control regime. It first illustrates private monitoring enabled by the technology of trusted systems. The second part of this Section will explore reader anonymity and consumer privacy issues surrounding this regime.

¹⁷ Jeri Clausing, *Clinton Signs Digital Copyright Act*, *Cybertimes*, N.Y.TIMES ON THE WEB, Oct. 28, 1998.

A. Private Monitoring Enhanced by Technologies on the Internet

It is said that digital technology facilitates freedom of contract by reducing the costs of searching and negotiating for content.¹⁸ No matter whether this argument is problematic,¹⁹ the technology of trusted systems does have the amazing potential to facilitate private monitoring. Technology creates gateways that can be imposed on the Internet unilaterally, whether Net users like them or not.²⁰ As described by some leading reports, the technology of trusted systems is capable of “detecting, preventing, and counting a wide range of operations, including open, print, export, copying, modifying, excerpting, and so on,”²¹ as well as “captur[ing] a record of what the user actually looked at, copied or printedand sending this usage recordto the clearinghouse when the user seeks additional access, at the end of a billing period or whenever the user runs out of credit.”²² That is, the technology of trusted systems enhances private monitoring in cyberspace in a tremendously effective way. Moreover, the acquired data could be used to generate profiles of particular Net users for use in marketing, or even for sale to other vendors.²³

Since reading and viewing habits reveal a lot about a Net user’s individual taste, preference, belief, and even his association with particular causes, technologies that monitor reading and viewing habits represent a development of not only monitoring human activities, but also monitoring human thought. Consequently, reader anonymity and consumer privacy would become crucial problems for us to resolve under the technological architecture for intellectual property.

B. The Protection of Reader Anonymity and Consumer Privacy

It has been convincingly argued that the freedom to read and view online materials anonymously should be considered a right protected by free speech in a constitutional democracy.²⁴ Whether the technology of trusted systems presents free speech questions, its

¹⁸ Robert P. Merges, *The End of Friction?: Property Rights and Contract in the “Newtonian” World of Online Commerce*, 12 BERKELEY TECH. L. J. 115, 126 (1997).

¹⁹ See generally Gimbel, *supra* note 8, at 1683-85.

²⁰ See Lawrence Lessig, *The Zones of Cyberspace*, 48 STAN. L. REV. 1403, 1408 (1996) (“Code is an efficient means of regulation ...In the well implemented system, there is no civil disobedience.”).

²¹ International Federation of Reproduction Rights Organizations, Committee on New Technologies, Digital Rights Management Technologies, *available online at* <http://www.ncri.com/articles/rights_management>(visited March 12, 1997)

²² Christopher Burns, Inc., Copyright Management and the NII: Report to the Enabling Technologies Committee of the Association of American Publishers 32 (1996).

²³ See generally Joel R. Reidenberg, *Privacy in the Information Economy: A Fortress of Frontier for Individual Rights*, 44 FED. COMM. L. J. 195, 200-06 (1992).

²⁴ See generally Julie E. Cohen, *A Right to Read Anonymously: A Closer Look at “Copyright Management” in Cyberspace*, 28 CONN. L. REV. 981 (1996).

privacy implications are more than clear. Under this context, a question we must ask might be whether and how the technological architecture could be designed in a less invasive way so that reader anonymity and consumer privacy won't be in danger. Furthermore, in the context of access to copyrighted work protected by trusted systems, only by preserving the ability to access information anonymously and eliminating potential risks about centralized monitoring to the most possible extent, consumption of copyrighted work will be encouraged.

Under this technological architecture, the law should require content providers to disclose the extent to which they protect privacy. Tagging technologies could be easily used to achieve this disclosure purpose. It should at least reveal how information collected by the provider will be used, and, more importantly, whether the information collector will grant access of user information to others outside the trusted system. Another alternative is to let consumers on the Internet to exercise local control on their own privacy. The use of anonymous e-cash will help encourage this development. Moreover, if we believe in local control of online privacy by Net users, the proposal that the possibility that Net users might wish to tamper with technologies to preserve their privacy and anti-tampering legislation should consider to what extent the law should apply to such conduct²⁵ deserves more public discourse.

C. The Regulation of Technology for Intellectual Property

In a sense, laws like the U.S. new copyright act suggest not only changes of legal rules for intellectual property, but also endorse technological changes that will help computer code replace law by punishing efforts to escape the code.²⁶ It seems to me whether this kind of regime makes sense turns upon whether technological control should replace law. It also depends upon whether we would like to have a handful of corporations determine the rules of intellectual property and the future of online privacy by their development and use of the technology of trusted systems.

Some commentators have argued that technology will prove more effective than legal rules in correcting market failure because technologies like trusted systems promise to reduce the high transaction costs that discourage efficient use of copyrighted work.²⁷ If this is true, we have to reconsider whether there is a need to regulate technologies that undermine legal

²⁵ Julie E. Cohen, *Some Reflections on Copyright Management Systems and Laws Designed to Protect Them*, 12 BERKELEY TECH. L. J. 161, 186 (1997).

²⁶ See generally Lawrence Lessig, *Intellectual Property and Code*, 11 ST. JOHN'S J. LEGAL COMMENT. 635 (1996).

²⁷ See, e.g., Tom W. Bell, *Fair Use v. Fared Use: The Impact of Automated Rights Management on*

rules. My sense is that if we want to argue that we should leave technologies alone, we need an argument about why it is right to leave technologies alone, just as we need better arguments about whether cyberspace should be governed by real space laws. Before we have a great normative argument about the future of technological architecture, my idea is the law should set some requirements for the use of trusted systems so that the social values of fair use, first sale, limited duration, and user privacy will not be destroyed. In other words, the future of this technological architecture should be regulated in the public interest so that the balance of intellectual property protection and online privacy could be achieved.

V. Conclusion

As the use of the Internet serves as a wake-up call for copyright lawyers, the use of trusted systems invites us to reconsider whether private ordering supported by this kind of technology is appropriate in the context of intellectual property. Entering the cyber age, we face the challenge of figuring out the best form of future architectures for intellectual property to preserve social values and return the scale to careful balance between public interest and private control. As shown in this paper, although the law would become less important for intellectual property protections, it might be transformed into a critical mechanism to regulate the technology that is replacing it. I do not intend to suggest that trusted systems should receive no protections. But I do suggest that the use of technology should be regulated in public interest. In other words, both trusted systems and laws designed to protect them should be more closely examined so that the public could understand the exact bargain they face under the new technological architecture for intellectual property. We must ensure that significant social values are incorporated into the technological architecture supported by trusted systems that control our access to information and monitor our online activities. Only after we have an optimal legal and technological architecture for intellectual property, perhaps by making the process of writing computer code less mysterious and the laws regulating technologies more appropriate, a better cyberspace, or, a better next generation cyberspace, will then come to us.