Revision of Anti-Circumvention Rules

TOWARD A MORE BALANCED MODEL:
THE REVISION OF ANTI-CIRCUMVENTION RULES

by (Jerry) Jie Hua*

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*Associate (Legal Assistant title) at Deacons (Hong Kong); Ph.D. (Intellectual Property Law), The University of Hong Kong; L.L.M. in Comparative Law, University of Florida (Gainesville); L.L.B., China Foreign Affairs University (Beijing, China). This article is based on chapters in the Ph.D. thesis titled “Toward A More Balanced Approach: Rethinking and Readjusting Copyright Systems in the Digital Network Era” submitted to The University of Hong Kong for partial fulfillment of the Ph.D. degree. The author wishes to thank the University of Hong Kong for its Graduate Studentship in financial support of the research.
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I. INTRODUCTION

The development of digital network technologies simplifies and speeds reproduction and distribution of copyright works. Anyone who has access to computers, mobile phones, and the Internet can simply obtain, exploit, and disseminate information without copyright owners’ authorizations. Rampant piracy, however, has made copyright owners distrust the effectiveness and enforcement of the original copyright legal regime that was born and developed in a paper and analog technology age. Copyright owners began to widely adopt digital rights management (DRM) and technological protection measures (TPMs) to impede access to and use of their works without their authorizations. These self-help measures did effectively stem piracy at the beginning, but as hacking technologies and devices were developed to circumvent or undermine original DRM, such self-help measures were no longer able to perfectly protect copyrighted works. The same copyright owners who once sat back and relaxed, trusting in self-help DRM technologies, again had to lobby their governments to enact new legislation that could protect the existing technological measures against circumvention. Anti-circumvention law was thus promulgated to satisfy copyright owners’ interests for strong copyright protection in the digital network era. The protection granted to DRM and TPMs, then, is related to but quite different from copyright protection. Copyright law is the first layer that protects copyright owners’ exclusive rights from the legal aspect; DRM and TPMs are the second layer of protection from the technological aspect; and, finally, the anti-circumvention law is the third layer that protects the DRM technologies.

Private self-help measures often interact with public remedies in areas of law to better achieve objectives, provided that the private remedies do not exceed the necessary scope and force of public initiatives. The adoption of DRM technologies by copyright owners just conforms to the legal
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trend and brings copyright law into the fold.\(^1\) Although the adoption of DRM by copyright owners as a self-help alternative is reasonable, the proliferation of strong legislation on the protection of DRM will negatively influence many issues, such as exceptions and limitations to copyright, access to information, consumers’ interests in using copyright products, and protection of privacy. Current anti-circumvention law faces challenges and criticism resulting from its overprotection of DRM and TPMs, which subverts the balance between copyright owners and public users under copyright law. The legislative process leading to the anti-circumvention rules pushed by the United States at both the domestic and international levels has been called out by Professor Peter Yu as “back-door lawmaking,” and, “a process of outsourcing the legislative process to an international forum of unselected representatives in an effort to create laws that the domestic legislature would not have otherwise enacted.”\(^2\)

As early as 1995, the “White Paper on Intellectual Property and the National Information Infrastructure” issued by the Clinton Administration acknowledged copyright owners’ substantial investment in the adoption of DRM technologies that could better protect their copyrighted works from serious piracy. As well, it supported the issuance of new laws that could prohibit the manufacturing and distribution of technologies whose primary purpose was to circumvent DRM and TPMs. At the same time, the United States went to the international forum, the diplomatic conference held by the WIPO in 1996, to propose that the anti-circumvention rule be included in a draft international treaty on copyright protections.\(^3\) After receiving strong domestic opposition against the White-Paper-proposed anti-circumvention rule, the United States turned to support a more neutral law, later adopted by the WIPO Copyright Treaty (WCT), that required member countries to provide adequate protection and effective remedies for DRM and TPMs.\(^4\) This was the first “back-door” called out by Professor Peter Yu, under which international standards were created “based on laws that its domestic legislature was reluctant to enact.”\(^5\) The results of the international conference and treaty were then taken back to the United States as legal obligations that required its compliance. The enactment of the Digital Millennium Copy-


\(^4\) Id. at 2.

\(^5\) Yu, supra note 2, at 55.
right Act (DMCA) in 1998, therefore, was the response of the United States to its domestic implementation of the WCT.

In the enactment process of the DMCA, opponents from technological intermediaries such as ISPs focused on alleviating the strict liability for their subscribers' infringing activity. They spent the majority of their energy in negotiating with copyright industries to incorporate a safe harbor rule. This was to ensure that they would not have to worry about being indirectly liable for their users' copyright infringement as long as they immediately took down the alleged infringing material upon having knowledge of the infringement. After reaching a compromise with the copyright industries on a safe harbor for ISP liability, technological intermediaries made little effort to redress the overprotection of TPMs granted by the anti-circumvention rule, even though this meant that some big companies with encryption research groups, such as AT&T, would be negatively affected by the anti-circumvention rule.6 The anti-circumvention rule in the DMCA thus remains in a form that principally reflects copyright industries' interests.

In addition to the domestic lawmaking on the anti-circumvention rule, the United States exported its legislative model through bilateral or multilateral free trade agreements to prompt the adoption of similar DMCA-like anti-circumvention laws by other countries. This is the "second back-door" noted by Professor Peter Yu.7 Through these free trade agreements, many jurisdictions incorporated their own anti-circumvention laws in the legislative model of the United States. These countries include Australia, Bahrain, Chile, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Jordan, Morocco, Nicaragua, Oman, and Singapore. Even without bilateral or multilateral free trade agreements with the United States, some countries such as China assimilated the DMCA model to create anti-circumvention laws through legal transplant in order to fulfill the obligatory requirements from the WIPO Internet Treaties. Pushed by these contractual obligations from bilateral agreements or international conventions, the domestic anti-circumvention legislation of the United States has become international. The imbalance hidden in the DMCA anti-circumvention rule has now widely spread to developing countries where access to information is perhaps more important and urgent than for their developed counterparts.

This article aims to explore an appropriate way to revise the anti-circumvention rules in order to restore the balance of interests between copyright owners and public users in general, as well as guarantee access to information and knowledge in less developed countries, with a particu-

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6 Samuelson, supra note 3, at 2.
7 Yu, supra note 2, at 55.
lar focus on China. The second part of this article will introduce a basic understanding of protection of DRM and TPMs. Relevant provisions in the WIPO Internet Treaties and domestic legislation will be examined in order to demonstrate the concept, scope, and conditions of legal protection of DRM and TPMs in general. The third part will specifically analyze the anti-circumvention rule under the United States DMCA, as it represents the typical legislative model regarding TPM protection adopted by many jurisdictions. The analysis of the limitations and exceptions of the anti-circumvention rule and its existing problems that negatively influence the interests of public users points out the need to address the drawbacks embodied in current anti-circumvention law. The fourth part of the article then will suggest solutions for the shortcomings of current anti-circumvention legal design from a diverse range of aspects, including technological improvements for setting up minimum use of technologically protected material, legislative revision of anti-circumvention rules and the development of judicial discretion in TPM-circumvention cases. These suggestions will be provided for revising the DMCA model anti-circumvention law in general, and for recovering appropriate access to copyrighted information in developing countries such as China.

II. BASIC UNDERSTANDING OF PROTECTION OF DIGITAL RIGHTS MANAGEMENT AND TECHNOLOGICAL PROTECTION MEASURES

The WIPO Internet Treaties are the main international conventions that address the issue of the protection of TPMs and DRM information. Articles 11 and 12 of the WCT obligate member states to provide effective protection to technological measures and DRM information used by authors in their copyright works. Similarly, articles 18 and 19 of the WIPO Performances and Phonograms Treaty (WPPT) oblige member states to effectively protect technological measures and DRM information used by performers and phonogram producers in their performances and phonograms. The following introduction and analysis will use provisions in the WCT to illustrate the international obligations of supplying protection on TPMs and DRM information, note the difference between TPMs and DRM information, and highlight the key factors that need to be stressed in the international obligations.

A. Conventional Protection of Technological Measures and Rights Management Information

As to the obligatory protection on technological measures, article 11 of the WCT clearly expresses that “contracting parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in
connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.”

As to the obligatory protection on DRM information, article 12 of the WCT targets two kinds of actions done by any person with knowledge or having reasonable grounds to know that these actions will induce or facilitate infringement of any right covered by this Treaty or the Berne Convention: removal or altering DRM information without authority, and the dissemination of works or their copies knowing that DRM information has been removed or altered without authority. Although article 12 of the WCT provides a definition of DRM information as information that identifies works and ownership, DRM has much broader functions than merely providing identification information.

According to Professor Peter Yu, one must distinguish DRM from TPM, as “the latter focuses narrowly on mechanisms used to protect copyrighted contents, such as passwords, encryption, digital watermarking, and other protection techniques,” while “the former includes a large set of technological tools that not only protect the content, but also monitor consumer behavior and facilitate payment for content usage.” By distinguishing between DRM and TPM, Professor Yu anticipated that DRM should not only protect copyrighted works against unauthorized use, but should also properly serve the interests of consumers and users. If properly designed, the DRM system can encompass the rights enjoyed by both copyright owners and public users.

Professor Yu’s differentiation between the protection on DRM information and TPM illustrates that the serious imbalance of rights between copyright owners and public users due to the installation of technological tools is principally due to the overemphasis on developing TPMs by electronic technology industries and the legislative protection of TPMs against unauthorized circumvention. Designing DRM systems in the future to reflect both copyright owners’ and consumers’ rights is a promising way to recover the balance of interest in the copyright regime through technological assistance, but the current priority in weakening strong TPM protection is to readjust the current anti-circumvention law through legislative revision. Therefore, the following discussion on the substantial elements of convention obligations will focus on the relevant provisions of TPMs protections in order to further clarify the subject matter and scope of anti-circumvention laws.

8 Id. at 61.
9 Id.
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B. Key Terms in the Protection of Technological Protection Measures

It is important to understand the key terms in the TPM protection provisions under the international conventions in order to acknowledge the implementation of anti-circumvention rules in domestic laws. According to the WCT article 11, protected TPMs are adopted by “authors.” “Authors” in the conventional provision should not be interpreted as only creators who directly apply TPMs to their works. More expansive situations, such as complete or partial copyright assignment, should be taken into consideration so that “authors” includes successors, assignees, licensees, agents, or other intermediaries on behalf of the original authors. After fully understanding the subject of using TPMs, let us now examine the scope of protection of TPMs and international anti-circumvention rules through the analysis of the key terms and phrases.

First, article 11 of the WCT requires that technological measures adopted by authors should be “effective.” This article of the WCT, however, does not provide any definition of effective technological measures because it was difficult for the WCT drafters to decide whether they should choose a specific or general definition to cover TPMs. Thus, the drafters changed their emphasis on the purpose and effect that TPMs would be used to achieve, finally providing no definition at all. In fact, the principal purpose when copyright owners use TPMs is to control the free access and use of their works without authorization. The definition of TPMs in the European Union Information Society Directive indicates as much. In the directive, a TPM is considered effective “where the use of a protected work or other subject-matter is controlled by the rightholders through application of an access control or protection process, such as encryption, scrambling or other transformation of the work or other subject-matter or a copy control mechanism, which achieves the protection objective.”

Therefore, TPMs will not be deemed effective if they can neither control access to nor the copying of copyrighted works.

To evaluate the effectiveness of TPMs, it makes better sense to take an integrated consideration of the unauthorized parties’ ability to conduct circumvention, the intent of copyright holders, the specific TPMs installed, and the actual effect of the TPMs. For example, if an ordinary user can circumvent a TPM through his common skill without any assistance from any specific technological tool, such a TPM cannot be deemed effective. For example, in the case where a CD-protection technology manufacturing

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company, SunnComm, attempted to sue a student for his online paper explaining a simple method of circumventing SunnComm’s technology by clicking the shift key when loading a CD into a computer, the CD-protection technology against unauthorized copying could not be regarded as effective.

Second, the effective TPMs are used by authors “in connection with the exercise of their rights under the WCT or the Berne Convention.” This phrase indicates the important connection between TPM protection and copyright protection. The adoption of TPMs should guarantee the protection of copyright owners’ exclusive rights embodied in the WCT and the Berne Convention. For example, the act of circumventing TPMs that restrict unauthorized reproduction of copyrighted works is prohibited by the WCT, but circumvention of TPMs that protect public domain material is not banned, because the latter TPMs are not used to protect any copyright interest given by the international copyright conventions. Thus, the requirement of intensive connection between anti-circumvention and copyright protection closely relates to the justification for access-control TPMs. As the WCT does not intend to create any new intellectual property right and the expression of article 11 relates to the exclusive rights in other provisions under the WCT, the WCT does not provide an access right for copyright owners to prohibit circumvention of access-control TPMs per se. As to whether article 11 includes access-control TPMs, the article does not draw a clear line but rather leaves the problem for member states to determine on their own.

Third, article 11 prohibits acts of “circumvention” of TPMs and the “restriction of acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.” “Circumvention” acts in the WCT generally mean acts of removing, breaking, bypassing or otherwise interfering with the function of a TPM. However not all circumvention acts are prohibited by the WCT, as the prohibited acts cannot be authorized by authors or permitted by law. Hence, users can engage in circumventions that are authorized by copyright owners, used to exploit public domain material, or for the purpose of achieving limitations and exceptions to copyright protection for the interest of public users.

Problems arise when determining whether circumvention and restricted acts should not only include the circumventing act itself, but should also cover preparatory acts such as manufacturing and providing technology and devices that could facilitate circumvention, because one cannot simply determine copyright infringements without knowing the end

13 Efroni, supra note 11.
use of the circumvention-facilitated technology and devices. On the one
hand, circumvention technology and devices can be used for legitimate
purposes. Broad bans on the supply of circumvention technology and de-
vices could impede legitimate use of these tools and stifle the development
of useful new technologies. On the other hand, if the provision is narrowly
interpreted as merely prohibiting the circumvention act itself, or allowing
supply of technology and devices as long as they have non-infringing uses,
the protection of TPMs cannot be deemed sufficient and effective, because
controlling the supply of circumvention tools is an important and costless
way to stem the circumvention of TPMs. Therefore, the WCT did not
expressly name circumvention devices at all, leaving room for member
states to decide the scope of prohibited acts in domestic laws.

Fourth, article 11 requires member states to provide “adequate legal
protection and effective legal remedies” against the circumvention of
TPMs. As discussed above, although some commentators argue that with-
out the prohibition on the manufacturing and dissemination of circumven-
tion tools, the protection of TPMs cannot be deemed as adequate and
effective, the WCT did not require contracting parties to totally outlaw the
trafficking of circumvention tools. More alleviative measures could be in-
troduced to compensate copyright owners without having to absolutely
ban the distribution of tools that can be used to circumvent TPMs.

In addition to these concerns, there are still two other issues that need
to be addressed in this discussion. First, the WCT does not mandate mem-
ber states to incorporate anti-circumvention rules into their copyright
laws. No explicit requirement is included to compel member states to im-
plement anti-circumvention rules through amending domestic copyright
statutes. Instead, more general laws could be used to grant protection to
TPMs, such as sui generis law or competition law. Second, the WCT does
not oblige member states to install mandatory TPMs on consumer equip-
ment. Member states have the freedom to determine whether they would
like to impose mandatory installation of TPMs as part of their anti-circum-
vention law.

Because of the flexibility embodied in WCT article 11, the concern
over whether the balance of interests between copyright owners and pub-
lic users can be maintained under the environment of TPM protection re-
lies on the implementation of anti-circumvention rules introduced by
different jurisdictions in their domestic legal systems. Despite the accom-
plishments of the international conventions, it remains to be seen how leg-
sislative protection for TPMs through national implementation can
effectively prevent unauthorized access and use of copyright works on the
one hand and guarantee the free flow of digital information on the other.
Since the United States’ legislative model of the DMCA broadly influ-
ences a large number of jurisdictions, including less developed countries
such as China, examination of the anti-circumvention rules of the DMCA can illustrate whether current anti-circumvention law achieves the proper balance of interests between rights holders and consumers, and, if not, what problems exist in the current legal design.

III. BALANCED OR UNBALANCED: THE ANTI-CIRCUMVENTION RULES OF THE DIGITAL MILLENNIUM COPYRIGHT ACT

Anti-circumvention rules were incorporated into the United States Copyright Act through the enactment of the DMCA in 1998. Specifically, the new Chapter 12 deals with the issue of copyright protection and information management systems in the digital network environment. Section 1201 was designed to address the issue of circumvention of technological measures with the purpose of fulfilling the international obligations compelled by article 11 of the WCT.

A. The Contents of the DMCA Anti-circumvention Rule

Section 1201 divides technological measures into two categories: measures that prevent unauthorized access to a copyrighted work and measures that prevent unauthorized copying of a copyrighted work. Generally speaking, there are three major principles prohibiting circumvention of technological measures that control access and protect the exclusive rights of copyright owners. Section 1201(a)(1) prevents the act of circumventing technological measures that control access to a protected work. Section 1201(a)(2) prohibits the production and distribution of any technology, service, or device that is primarily used to circumvent the technological measures controlling access to a protected work. Section 1201(b) forbids the production and distribution of any technology, service, or device that is primarily used to circumvent the technological measures protecting exclusive rights of copyright owners in a copyrighted work.

Specifically, section 1201(a)(1) protects technological measures that effectively control access to a copyrighted work. Under section 1201(a), acts of circumvention measure include descrambling a scrambled work, decrypting an encrypted work, or otherwise avoiding, bypassing, removing, deactivating, or impairing a technological measure without the authority of the copyright owner. An effective access-control technological measure should in its ordinary operation require “the application of infor-
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mation, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.\textsuperscript{16}

Sections 1201(a)(2) and 1201(b) are so-called anti-device provisions, as they stipulate that “no person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof” that controls the access to or copying of a protected work.\textsuperscript{17} The devices that are prohibited are primarily designed for circumventing effective access or copy control technological measures, have limited commercially significant purpose other than circumvention, or are marketed with the producer or distributor’s knowledge of their circumvention use.\textsuperscript{18} According to the statutory explanation for section 1201(b), technological measures that effectively protect rights of a copyright owner are measures that, in their ordinary operation, prevent, restrict, or otherwise limit the exercise of the rights of a copyright owner.\textsuperscript{19} Therefore, section 1201(b) applies to infringers who may lawfully get access to the copyrighted works, but thereafter aid in the circumvention of copy-control measures embodied in the protected works. Some commentators hence refer to section 1201(b) as the “post-access copyright control” anti-circumvention rule.\textsuperscript{20}

The enactment of anti-device provisions was pushed forward by a lobby of powerful copyright owners. From the viewpoint of copyright owners, circumvention technologies, even though they can be used for non-infringing purposes or for other public interests, still pose great danger to copyright protection in the digital environment. In addition, it is difficult and costly to investigate every circumvention act conducted by individuals. Instead, banning the trafficking of circumvention devices is a more practical and less costly way for copyright owners to enforce their rights. Introducing anti-device provisions into national law is necessary to control the rampant piracy caused by convenient hacking of technological measures.

Confronted with the copyright owners’ self-interest, individuals, educational and research institutions, as well as certain nonprofit organizations, realized the danger that the anti-circumvention law poses to the fair or non-infringing use of copyrighted material, free access to information in the public domain, fair competition, and online privacy rights. However these concerns were not given much attention by legislators, because on the one hand, these organizations did not have lobbying power as strong as the ISPs, and on the other hand, technology developers were no longer

\textsuperscript{16} Id. § 1201(a)(3)(B).
\textsuperscript{17} Id. § 1201(a)(2), (b).
\textsuperscript{18} Id.
\textsuperscript{19} Id. § 1201(b)(2)(B).
\textsuperscript{20} YIJUN TIAN, RETHINKING INTELLECTUAL PROPERTY: THE POLITICAL ECONOMY OF COPYRIGHT PROTECTION IN THE DIGITAL ERA 221 (2009).
motivated to persuade the government to make further changes after successfully introducing a safe harbor for their indirect liability for online copyright infringement.

B. Balanced Designs: the Exceptions under the Anti-circumvention Rule

Despite the weak lobbying from technology developers and individual consumers, the government was still concerned about maintaining the balance of interests between different stakeholders. There are several systematic designs in the DMCA anti-circumvention rules that reflect such concerns, but whether these designs adequately offset the negative effects of the anti-circumvention rules remains to be seen.

First, as to the prohibition on the act of circumvention, the provisions only prevent circumventing access-control technological measures, not the copy-controls. One of the reasons for this distinction is that unauthorized circumvention of copy-controls will in many cases violate copyright law. It is therefore not necessary to include such a superfluous prohibition into anti-circumvention law. A more significant reason for the provision is that the legislators intended to leave room for the public to make fair or otherwise non-infringing uses of the protected work, because the public sometimes can copy protected works without the right owners’ authorization under the copyright limitations and exceptions.

Second, there is a more general provision in section 1201, stipulating that “nothing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title.”21 Some commentators believe that this provision is the saving clause that could guarantee fair use or other exceptions in the TPM environment.22 Additionally, a “no mandate” provision is included to ensure that equipment manufacturers will not be obliged to produce designs or components that comply with any particular technological measure.23

Third, section 1201 contains a list of specific exceptions to the prohibition on circumvention and the trafficking of circumvention devices. The seven exceptions include: (1) exemption for nonprofit libraries, archives, and educational institutions; (2) law enforcement, intelligence, and other government activities; (3) reverse engineering; (4) encryption research; (5) preventing the access of minors to certain material on the internet; (6) collection or dissemination of personally identifying information; and (7) security testing.24 All seven exceptions apply to the prohibition on circumvention of access-controls regulated under section 1201(a)(1). These

22 See, e.g., DMCA SUMMARY, supra note 14, at 5.
24 Id. § 1201(d)–(j).
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exceptions are narrowly tailored in regards to the anti-device provisions. Some of them are applicable to one kind of anti-circumvention rule, but not to others. The exceptions for law enforcement and reverse engineering apply to the prohibition on trafficking of devices that facilitate circumvention of both access-controls and copy-controls. The exceptions for encryption research and security testing only apply to the prohibition on trafficking of devices that can circumvent access-controls. The coverage of these exceptions attaches to specific circumstances prescribed in the provision. Circumventors or traffickers cannot be immunized from infringing liability if copyright infringement is involved in the acts of circumvention or trafficking of circumvention devices.

Finally, the United States Congress established an on-going administrative rule-making proceeding to evaluate the impact of the prohibition against the act of circumventing access-control measures. The anti-circumvention rule for protection of access-controls is subject to exceptions for users of a particular class of works, who are, or are likely to be, adversely affected in their ability to make non-infringing uses of the works by virtue of such anti-circumvention rules. Such exceptions are determined through a triennial rulemaking by the Librarian of Congress (LOC). Up until now, the LOC has already had five sessions of rulemaking that resulted in five different sets of exceptions. There were two exceptions in the 2000 Rulemaking, four exceptions in the 2003 Rulemaking, six exceptions in the 2006 Rulemaking, and six exceptions in

25 Efroni, supra note 11.
26 DMCA SUMMARY, supra note 14.
28 Id. § 1201(a)(1)(C)–(E).
29 Rulemaking on Exemptions from Prohibition on Circumvention of Technological Measures That Control Access to Copyrighted Works, COPYRIGHT, http://www.copyright.gov/1201/anticirc.html (last visited Oct. 2, 2011). The two exceptions are: (1) compilations consisting of lists of Web sites blocked by filtering software applications; and (2) literary works, including computer programs and databases, protected by access control mechanisms that fail to permit access because of malfunction, damage, or obsolescence.
30 Rulemaking on Exemptions from Prohibition on Circumvention of Technological Measures That Control Access to Copyrighted Works, COPYRIGHT, http://www.copyright.gov/1201/2003/index.html (last visited Oct. 2, 2011). The four exceptions are: (1) compilations consisting of lists of Internet locations blocked by commercially marketed filtering software applications that are intended to prevent access to domains, Web sites or portions of Web sites, but not including lists of Internet locations blocked by software applications that operate exclusively to protect against damage to a computer or computer network or lists of Internet locations blocked by software applications that operate exclusively to prevent receipt of email; (2) computer programs protected by dongles that prevent access due to malfunction or damage and which are obsolete; (3) computer programs and video games distributed in
formats that have become obsolete and which require the original media or hardware as a condition of access; and (4) literary works distributed in ebook format when all existing ebook editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling of the ebook’s read-aloud function and that prevent the enabling of screen readers to render the text into a specialized format.

31 Rulemaking on Exemptions from Prohibition on Circumvention of Technological Measures That Control Access to Copyrighted Works, COPYRIGHT, http://www.copyright.gov/1201/2006/index.html (last visited Oct. 2, 2011). In addition to the three exceptions that are the same as the categories (2)–(4) of the 2003 Rulemaking, the remaining three exceptions are: (1) audiovisual works included in the educational library of a college or university’s film or media studies department, when circumvention is accomplished for the purpose of making compilations of portions of those works for educational use in the classroom by media studies or film professors; (2) computer programs in the form of filmware that enable wireless telephone handsets to connect to a wireless telephone communication network, when circumvention is accomplished for the sole purpose of lawfully connecting to a wireless telephone communication network; and (3) sound recordings, and audiovisual works associated with those sound recordings, distributed in compact disc format and protected by TPMs that control access to lawfully purchased works and create or exploit security flaws or vulnerabilities that compromise the security of personal computers, when circumvention is accomplished solely for the purpose of good faith testing, investigating, or correcting such security flaws or vulnerabilities.


33 Exemptions to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, COPYRIGHT, https://www.federalregister.gov/articles/2012/10/26/2012-26308/exemption-to-prohibition-on-circumvention-of-copyright-protection-systems-for-access-control#h-14 (last visited Jun. 25, 2013). The five exceptions are: (1) literary works distributed electronically, to permit the blind and other persons with print disabilities to use screen readers and other assistive technologies; (2) computer programs on wireless telephone handsets, to enable interoperability of software applications (“jailbreaking”); (3) computer programs on wireless telephone handsets that were acquired within ninety days of the effective date of the exemption, for the purpose of connecting to alternative networks (“unlocking”); (4) motion pictures on DVDs or distributed by online services, for purpose of criticism or comment in noncommercial videos, documentary film, nonfiction multimedia ebooks offering film analysis, and for certain educational uses by college and university faculty and students and kindergarten through twelfth grade educators; and (5) motion pictures and other audiovisual works on DVDs or distributed by online services, for the purpose of research to create players capable of rendering captions and descriptive audio for persons who are blind, visually impaired, deaf, or hard of hearing.
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Each rulemaking issued exceptions, valid for a certain period, to permit the circumvention of technological measures that control access to specific classes of copyrighted works.

C. Unbalanced Designs: the Existing Problems in the Anti-circumvention Rule

Although the DMCA has established several exceptions that legitimize certain circumvention acts and trafficking of circumvention devices, such an approach to creating exceptions cannot totally eliminate the negative influence caused by the anti-circumvention rule on non-infringing uses and other personal privileges. There are two major problems embodied in section 1201 concerning users’ privileges under the traditional copyright system. One is the prohibition of circumventing access-control technological measures; another is the anti-device rule that bans trafficking of circumvention technologies and tools. Furthermore, the anti-circumvention rule may result in other problems that exist outside the spectrum of intellectual property, such as fair competition, protection of consumers’ rights, and protection of privacy.

1. Restriction on Non-infringing Uses by Anti-circumvention on Access-Controls

First of all, the DMCA prohibits circumvention of access-control technological measures. Although the legislation does not ban circumvention of copy-controls with the purpose of maintaining space for fair or other non-infringing uses, one cannot reproduce a work without at first acquiring access to the work. The so-called general “savings clause” and specific exceptions are extremely narrow and restricted. Following the general “savings clause” does not mean that circumvention of access-controls is generally permitted, as long as the end use is fair or for non-infringing purposes. Otherwise, the prohibition on circumvention of access-control technological measures would become meaningless. Although the seven specific exceptions allow for the circumvention of access-control technological measures upon satisfying statutory conditions, they exclude many potential fair or non-infringing uses outside the scope of the seven exceptions. The LOC rulemaking procedure is unable to address all possible users’ privileges.

The analysis of Professor Jerome Reichman, Graeme Dinwoodie, and Pamela Samuelson illustrates that the LOC rulemaking “is not a sufficient safety valve” for several reasons.34 According to these scholars, first, the

valid period for each set of exceptions is short, as it only lasts three years. At each rulemaking, the categories of exceptions will be revised and renewed. Second, the rulemaking exceptions list classes of works rather than classes of uses where the latter are more relevant in determining fair or non-infringing uses. Third, the burden of proof is heavily shouldered by the advocates of the exceptions to show adverse effects from the anti-circumvention rule, not by the copyright owners or the government. This allocation of the burden of proof will exacerbate the disadvantageous situation of public users and future novice creators.

The ineffectiveness of DMCA exceptions is also shown in judicial decisions. In the landmark case *Universal City Studios v. Reimerdes*, the plaintiff produced an encryption technology called Content Scramble System (CSS) which protected motion pictures on DVDs from being copied or played on non-compliant DVD players or computer drives. The defendants were sued under Section 1201 of the DMCA for posting and linking to a software utility known as DeCSS which functioned to decrypt CSS. The district court ruled in favor of the plaintiff, concluding that CSS was an effective access-control technological measure protected by the DMCA, because in order to gain access to the motion pictures, one needed to obtain the access-control key via a license or by the purchase of an authorized DVD player or drive. Thus, the court rejected the defendants’ “weak encryption” argument, ruling that DeCSS was a circumvention device prohibited under Section 1201(a)(2) since it was primarily designed for the purpose of circumventing CSS. According to the court, the defendants were liable for their infringing conduct under Section 1201(a)(2), on the grounds of offering the circumvention device to the public.

In this case, Judge Lewis Kaplan denied the general fair use defense by declaring that: “if Congress had meant the fair use defense to apply to actions, it would have said so. The decision not to make fair use a defense to a claim under Section 1201(a) was quite deliberate.” The Second Circuit also denied that section 1201(c)(1) was a fair use “savings clause,” ruling that such an interpretation was not only outside the scope of the provision, but was also clearly refuted by the statute’s legislative history. Upon being made aware of judicial denial of the general fair use defense, copyright owners may use permanent technological measures to control

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37 *Id.*
38 *Universal City Studios*, 111 F. Supp. 2d at 322.
39 Reichman, Dinwoodie & Samuelson, supra note 34.
access to copyrighted works and argue for legal protection under anti-circumvention law.

2. Restriction on Non-Infringing Uses by Anti-Device Provisions

Second, the DMCA contains anti-device provisions under which the trafficking of devices that facilitate both access-control and copy-control technological measures is prohibited. Although the specific exceptions and LOC rulemaking procedure legitimize circumvention of access-control technological measures under certain circumstances, users must have the adequate knowledge and skill to conduct the circumvention act by themselves. Otherwise they cannot effectively enjoy their rights under the exceptions to anti-circumvention law, as manufacturing and providing access-control circumvention devices are unconditionally prohibited whether or not the final use is infringing.

After obtaining lawful access to the protected works, users still cannot freely reproduce works for fair use or other non-infringing uses if they lack the knowledge and skill to circumvent the copy-control technological measures, as the trafficking of copy-control circumvention devices is also unconditionally disallowed. Although users who accept technological circumvention assistance are free from infringing liability, providers of those circumvention devices will violate sections 1201(a)(2) and 1201(b). Since most circumvention devices are not available publicly, it remains very difficult for users to bypass technological measures for fair or other non-infringing uses.

Both the access-control anti-circumvention rule and anti-devices rule distort the traditional copyright principles of limited duration of protection and restricted protectable subject matters. Under the traditional copyright system, the protection of copyright is subject to a limited duration, often fifty to seventy years after the authors’ death. There is, however, no time limitation for protection of technological measures under the anti-circumvention law. Copyright owners thus can install technological measures to protect their works permanently, since not all users are capable enough to circumvent TPMs without technical assistance from any third party even if the work has entered into the public domain. In addition to the duration issue, copyright protection is granted to original works of authorship, but not to “any idea, procedure, process, system, method of operation, concept, principle, or discovery . . . .”40 However, by using access-control technological measures, copyright owners can protect both copyrighted and non-copyrightable material. The circumvention of access-controls that protect both copyrighted and public domain works, in order to use the latter, will violate the anti-circumvention law anyway. Hence, anti-

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circumvention law largely shrinks the scope of public domain works originally free for public use.

3. Restriction on Free Competition

Third, the anti-circumvention laws could badly influence free competition in the secondary market for interoperable devices by providing protection for technological measures that control access to copyrighted computer programs embodied in the products in the process of their normal operation. Competitors who distribute interoperable devices that can circumvent the access-controls in the original products will be held liable under the anti-circumvention law, even though they may not infringe any copyright. Cases such as Lexmark and Chamberlain in the United States and Beijing Jingdiao in China sufficiently illustrate this problem.

In Lexmark International v. Static Control Components, Lexmark, a manufacturer of computer printers and toner cartridges claimed that its authentication sequence installed in its printers and toner cartridges was an access-control measure that made Lexmark printers function only with authorized Lexmark cartridges. Lexmark argued that Static Control’s production and distribution of the chips designed for circumventing the authentication sequence, which enabled unauthorized cartridges to function with Lexmark printers, violated Section 1201(a)(2). The district court relied heavily on Reimerdes to find that Static Control was liable under Section 1201(a)(2) for its trafficking of devices that circumvented an access-control technological measure. The Sixth Circuit reversed the trial court decision, reasoning that the DMCA applied only to technological measures that control access to the copyrighted works, not the functional aspects of the printers. In the future, companies like Lexmark will not be able to use the DMCA in conjunction with copyright law to restrict competition in manufactured goods.

As in Lexmark, the plaintiff in Chamberlain Group v. Skylink Technologies also attempted to limit competition in its relevant market by filing litigation under the DMCA’s anti-circumvention rule. Chamberlain claimed that Skylink’s universal remote transmitter circumvented the access-control on the computer program it installed in its electronic garage-door opening devices. They argued that Skylink violated section 1201, using the support of precedents such as Reimerdes and the district court deci-

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41 Efroni, supra note 11.
42 387 F.3d 522 (6th Cir. 2004).
44 Lexmark Int’l, 387 F.3d at 540-41.
45 381 F. 3d 1178 (Fed. Cir. 2004).
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The lower court disagreed with Chamberlain’s argument and granted summary judgment to Skylink, concluding that Chamberlain authorized the circumvention of its access-control due to the failure to notify consumers that the computer programs were limited to transmitters manufactured by Chamberlain only. The decision of the lower court was upheld by the Federal Circuit with further interpretation of the DMCA. According to the federal court, the “statutory structure and legislative history both make clear that Section 1201 applies only to circumventions reasonably related to copyright protected rights. Defendants who traffic in devices that circumvent access controls in ways that facilitate infringement may be subject to liability under Section 1201(a)(2). Defendants whose circumvention devices do not facilitate infringement are not subject to Section 1201 liability.” Therefore, the court opined that the DMCA did not protect access-controls per se. Unless it is proven that the circumvention devices correlate with the danger of copyright infringement, anti-circumvention liability shall not be imposed. The Federal Circuit further stated that allowing “any manufacturer of any product to add a single copyrighted sentence or software fragment to its product, wrap the copyrighted material in a trivial encryption scheme, and thereby gain the right to restrict consumers’ rights to use its products in conjunction with competing products” would “allow virtually any company to attempt to leverage its sales into aftermarket monopolies.”

Similar copyright cases have also occurred in China. In Beijing Jingdiao Company, Ltd. v. Shanghai Naikai Electronic Technology Company, Ltd., the plaintiff Beijing Jingdiao, a company specializing in manufacturing CNC engraving machines, sued Shanghai Naikai, a rival in the same market, for its circumventing acts on Beijing Jingdiao’s software TPMs. Beijing Jingdiao claimed copyright in the encrypted JDPaint software, one of the components of Jingdiao’s self-developed CNC engraving system, which was comprised of three parts, namely, the JDPaint software, the CNC system, and the machine body. The JDPaint software was only used in Jingdiao’s CNC engraving machines. In early 2006, the plaintiff found that the NC Studio software in Shanghai Naikai’s NC-1000 engraving system could read the data files in the encrypted JDPaint software. It then filed litigation against Shanghai Naikai for the manufacturing and distributing of CNC engraving machines that circumvented and destroyed the technological measure used to protect the plaintiff’s copyrightable software.

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47 Id. at 1195.
48 Id.
In its claim, the plaintiff requested the court to halt Shanghai Naikai’s infringing activity and urged Shanghai Naikai to compensate it for its economic loss. Shanghai Naikai, however, defended that it should not be liable for Beijing Jingdiao’s economic loss, because the data file in the JDPaint software was outside of the copyright protection for computer software. Thus developing NC Studio software that could read the unprotected data file by circumventing JDPaint software did not constitute infringement. The court therefore concentrated on the key point of whether the data file should be protected by copyright. According to the investigation of the court and the Regulation of Computer Software Protection, the data file was the outcome of the software object code after running on the computer, not the instruction sequence originally in the software, and, as such, could not be protected by copyright as computer software itself. Eventually, the lower court disagreed that the defendant’s circumvention activity constituted infringement and dismissed the plaintiff’s complaint. The appellate court later confirmed the decision of the lower court with further explanation that the encryption on the JDPaint software used by Beijing Jingdiao aimed to constrain the use of the software to its self-developed engraving machine and to exclude the compatibility of the software with other engraving systems. The high court therefore denied protection of technological measures that restricted fair competition.

In all of these cases, courts were reluctant to grant protection to TPMs that impeded free and fair competition in the marketplace for alternative technology and devices. Such uses of TPMs significantly raise the costs of equipment replacement and create inefficiency in the natural operation of the market. When technology developers file lawsuits to claim legal protection of TPMs that control access to non-copyrightable procedures or devices, the use of TPMs also increases the litigation expenses of enterprises and wastes judicial resources, despite the fact that, in previous cases, courts ruled in favor of the circumvention. The recent 2012 Rulemaking on the exemptions to the prohibition against circumvention of access-control TPMs, which was passed in October 2012, removed the exception that allowed mobile phone users to unlock their cellphones purchased after January 26, 2013. A new cellphone purchaser in the United States, who wants to switch carriers and unlock his/her cellphone, will thus be held liable for infringement under the DMCA anti-circumvention

rules. Such new lawmaking has diminished competition in wireless market and has forced innovators to go overseas where phone unlocking is still legal. New legislative proposals were subsequently introduced to counterbalance the negative influence brought about by the 2012 Rulemaking.

4. Restrictions on Consumers’ Right of Notice and Privacy

Fourthly, the use of TPMs on digital works may undermine users’ consumption experience through constraining the interoperability among different equipment, intentionally concealing the existence of TPMs and monitoring consumers’ usage, which invades personal privacy.

After purchasing digital works, consumers often wish to make copies of the works for the purposes of time- or space-shifting or preparation of backups in case the original copy is destroyed. For example, after people buy music CDs, they may download the sound recordings on the CDs to their personal computers or portable MP3s for their convenience. When time-shifting was determined to be fair use by courts in the Sony case, the increase in consumers’ expectations for more convenient use of purchased copyrighted works was understandable and reasonable. Because of the flexibility and convenience of digital network technologies, consumers not only expect to use the works in the same way as they did in the analog environment, but also expect to be able to remix and recreate the works based on their own ingenuity.

The installation of TPMs seriously limits consumers’ ability to exploit digital copyrighted works in different ways. Unlike copyright law, which only grants copyright owners the rights to control public performances and displays of works, the legal protection on TPMs can control private performances and displays. The time- and space-shifting uses and preparation of backups cannot be easily achieved by consumers, given the control of TPMs. The design of the iTunes Music Store (iTMS) and the iPod music player of Apple Corporation illustrates some of the consumer bafflement.

53 Khanna, supra note 51.
54 Radia, supra note 52; see also Renee Dopplick, Consumer Advocates and Industry Endorse Cellphone Unlocking Bill at House Judiciary Committee Hearing, USACM (June 7, 2013), http://techpolicy.acm.org/blog/?p=2838.
55 Pamela Samuelson, DRM (and, or, vs.) the Law, 46 COMMUNICATIONS OF THE ACM 41, 42 (2003).
caused by TPMs. Because of the installation of TPMs, “songs from iTMS will only play on the iPod and not on other portable digital music devices.” In addition to the problem of time- and space-shifting, TPMs are also used for region coding which limits the authorized distribution of DVDs to a specific geographic region. For example, DVDs with a European Region Code cannot be played on most United States-made DVD players, because these players are encoded to play only DVDs with the United States Region Code. The region coding system is not only used to restrict access to copyrighted contents, but also to limit the operation of functional equipment such as printers and printer cartridges. Thus consumers find that their legitimately purchased DVDs or printer cartridges with region codes in one geographic area cannot function well with corresponding equipment in another region when they travel or change dwelling places.

A more serious impact to consumers’ interests is the intentional concealment of the use of TPMs from copyright owners or equipment vendors. Since copyright owners are likely to know that consumers will not be fond of and willing to accept TPMs, they are inclined to conceal the existence of TPMs in their products in advance. Such intentional hidden enclosure of important information infringes consumers’ right of notice and exacerbates the tensions between product vendors and consumers. The failure to disclose sufficient information and give notice of use of TPMs will decrease consumers’ expectations of digital products because of the lack of interoperability.

The TPMs are also used by copyright owners to monitor the usage of their products and collect personal information from consumers. Monitoring TPMs can “aid in the detection of infringing copies of copyrighted works” and “facilitate price discrimination and profiling about customers that will allow right holders to offer new products and services to them or to sell user profiles to other firms.” Technologically-unsavvy consumers often are not conscious of such monitoring and data collection. Their privacy is therefore seriously invaded because of the unexpected surveillance.

D. Conclusion: Balanced Designs Weighing Unbalanced Designs

By implementing the international obligations of the WIPO Internet Treaties, the DMCA provides much stricter protection on TPMs than the

57 *Id.*
58 *Id.* at 49.
59 *Id.*
60 *Id.* at 51.
simple requirement of “adequate protection and effective remedies.” Going beyond the international conventions, the DMCA explicitly prohibits circumvention of access-control technological measures and trafficking of a technology or device that is primarily designed or knowingly marketed for circumventing TPMs or that has no other commercial purposes than circumventing TPMs.

Considering the negative impact that the anti-circumvention rules may impose on public interests, the DMCA includes general exception provisions that guarantee existing limitations and defenses to copyright infringement including fair use and allows circumvention of copy-control TPMs for non-infringing uses. Specifically, the DMCA lists seven detailed exceptions for activities such as library use, governmental law enforcement, reverse engineering, encryption research, security testing, protection of minors, as well as personally identifying information protection. Additionally, the DMCA contains a triennial rulemaking process carried out by the LOC to determine whether users’ capability to make non-infringing use of a particular class of works will be adversely influenced by the anti-circumvention rule.

Despite the intricate design of exceptions and limitations, the DMCA cannot alleviate its negative influence on the public interest. As already discussed, there are more fair or non-infringing uses that cannot be covered by the DMCA exceptions because of the prohibition on circumvention of access-controls and the trafficking of circumvention devices. Moreover, the anti-circumvention law brings other chilling effects, including restrictions on fair competition and the invasion of consumers’ rights of notice and right of privacy. Just as one cannot restrict others’ personal freedom in order to protect his property, one cannot safeguard his copyright through sacrificing others’ rights of free competition, free speech, and privacy, as well as curtailing the social benefits spurred by technology and cultural development. This shows that the defective design outweighs the exceptions incorporated in the DMCA anti-circumvention law. Such defectiveness subverts the balance between copyright interest and public welfare, resulting in many unexpected and detrimental consequences.

IV. INTRODUCTION OF A MORE BALANCED MODEL OF ANTI-CIRCUMVENTION RULES

Influenced by the DMCA, many countries adopted similar anti-circumvention laws that also embody the unbalanced problems of the United States original. Developing countries that have more demand for access to knowledge and information will suffer more due to the importing of the DMCA-like anti-circumvention model.

Among the developing countries adopting the new legislation, China implemented the anti-circumvention rule into its domestic copyright law.
In the Regulation on the Protection of the Right to Network Dissemination of Information (thereafter, the Network Dissemination Regulation), article 4 stipulates that “no organization or individual may purposely avoid or break the technological measures, purposely manufacture, import or provide to the general public any device or component that is mainly applied to avoiding or breaking the technological measures, or purposely provide such technological services to any other person for the purpose of avoiding or breaking the technological measures, unless it is otherwise provided for by any law or regulation that the relevant technological measures can be avoided.”

“Technological measures” are generally defined by the regulation as “the effective techniques, devices and components that are applied to preventing or restricting the browse or appreciation of the works, performance and audio-visual products in the absence of the relevant owner’s permission or in providing the work, performance and audio-visual products to the general public through the information network in the absence of the relevant owner’s permission.”61 The definition and description of “technological measure” is quite vague in Chinese law, as it does not clearly express whether the technological measure is used for access-control or copy-control. The words “browse,” “appreciation” and “provides . . . to the general public through the information network” used in the definition shows that the technological measures in Chinese law refer to both the measures that control access and the copying of the protected works. In addition, Chinese law does not specifically distinguish between the act of circumvention itself and the circumvention-enabling devices. According to the general expression of the anti-circumvention provision, Chinese law prohibits circumvention of both access-controls and copy-controls as well as the trafficking of devices that facilitate circumvention of both access-controls and copy-controls. Such interpretation illustrates that the vagueness of Chinese legal expressions makes the problems inherent in the anti-circumvention rule more severe.

To take care of the public interests, Chinese law includes four specific exceptions which apply to the circumvention act itself only and not to the trafficking of circumvention devices. These four exceptions are for teaching and scientific research, provision of works for the blind, enforcement of governmental official duties, and security testing.62 In addition, there are three general exceptions which apply to making works available through an information network generally. These general exceptions may also be regarded as limitations to anti-circumvention law. They are cre-

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61 Regulation on the Protection of the Right to Network Dissemination of Information art. 26, para. 2.
62 Id. art. 12.
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ated to benefit nonprofit organizations, such as libraries and museums, educational institutions under the national nine-year compulsory education plan, and residents in rural areas for use in their basic cultural demands.63

As one of the many examples of anti-circumvention laws in developing countries, the Chinese regulation model is an example of the ambiguous lawmaking that results in much stricter protection of TPMs with narrow exceptions. It incorporates all of the unbalanced problems hidden in the DMCA and is deficient in the more general exemptions that have already been incorporated into the legislative models of developed countries. Therefore, the introduction of a more balanced legislative model of anti-circumvention rule is important to overturn the current unbalanced situation, and to create more opportunities for access to knowledge, as well as the advancement of technology and mass culture, in developing countries in particular.

Scholars and commentators have suggested proposals for rectifying the problems of the current anti-circumvention system, such as incorporating the anti-circumvention misuse doctrine proposed by Professor Dan Burk to regulate the abusive use of TPMs,64 establishing a reverse notice and takedown regime proposed by Professors Reichman, Dinwoodie, and Samuelson to force copyright owners to remove TPMs upon receiving users' reasonable requests,65 and Professor Peter Yu's proposal of giving up the importation of anti-circumvention laws if less developed countries have not issued such legislation.66 As many of the developing countries do not have adequate resources and expertise to both introduce an anti-circumvention regime and a follow-up correction mechanism,67 the correction proposals should not be too complex and costly for the national governments to implement. It is better to change current strict TPM protection through the readjustment of the legal mechanisms with the assistance of technological development.

My proposal for effective change is to basically amend current copyright law by inserting a general exception provision into the anti-circumvention rule, to guide judges’ decision-making regarding circumvention of TPMs for non-infringing uses based on the general exception, and to import certain requirements under anti-circumvention law into more general area of law, such as competition law. The readjustment of the existing legal mechanism could be assisted by the improvement of technology that installs automatic decoding equipment, which allows for minimum fair use,

63 Id. arts. 7–9.
65 See Reichman, Dinwoodie & Samuelson, supra note 34.
66 See Yu, Anticircumvention, supra note 2.
67 See id.
and for transferring technology so that circumvention devices are available for consumers to circumvent TPMs for non-infringing fair uses.

A. Technological Design: Guaranteeing Minimum Use

A technological mechanism could be installed into TPMs to allow users’ circumvention of access-controls and copy-controls for minimal uses such as browsing or reproducing five to fifteen percent of the protected works. With such a mechanism, users only need ordinary technological knowledge and skill to partially circumvent the TPMs in order to use the authorized minimum portions of the protected works. The partially circumvented TPMs would still function in protecting against the access or copying of the remaining parts of works. The establishment of a minimalist non-infringing use clause could protect free appropriation of a small amount of expression and decrease transaction costs caused by license agreements between copyright owners and public users. Guarantee of minimum use by legislation, which requires or encourages copyright owners, in designing their TPMs, to enable certain minimum use would legalize the minimum unauthorized use of copyrighted works, which would not seriously impact the market for the original works and would grant more certainty of fair use to potential users and future creators.

Although technology cannot completely resolve the problem of copyright limitations and exceptions under the protection of TPMs, it can at least capture some of the fair or non-infringing use privileges. One of the possible protections of fair use is to develop technological procedures that allow users’ circumvention of TPMs in order to access or copy limited parts of the protected works. Such technical design works as a starting-floor rather than limiting-ceiling to guide legitimate circumvention for fair use. Legislative and judicial mechanisms will come into play to decide whether non-infringing uses exist when portions of the protected works that have been circumvented exceed the authorized minimum portions. Therefore, the technical design to guarantee minimum use does not exclude necessary human discretion. With the development and improvement of technology, it is possible to achieve the precise circumvention of TPMs for partial access and use of copyrighted work without seriously undermining right holders’ interests.

To design such a technological arrangement, the issue regarding the creation and invention of appropriate software is left for the technology developers and experts to resolve. Other issues regarding the definition and scope of minimum use for different kinds of copyrighted works could be resolved through negotiations among various stakeholders, including legislatures, copyright owners, technology developers, nonprofit organizations, and consumers. As it may be not easy for copyright owners to reach a satisfactory agreement with nonprofit organizations and consumers, the
participation of legislators will be necessary to help mediate interests among different stakeholders. After achieving consensus on the scope of minimum use, technological experts can then build such agreed use into TPM software. Such technical design may avoid the high expenses caused by follow-up correction mechanisms, as long as a multilateral negotiation process or forum has already been incorporated in the national legislative procedure and minimum use can satisfy a number of consumers’ demands.

B. Legislative Design: Inserting General Condition and Exception

The delineation of specific exceptions under current anti-circumvention laws is far from satisfying the requirement of preserving all potential non-infringing uses. The insertion of provisions into copyright statutes that restrict protection of TPMs and establish a general exception to liability is necessary and important to recover the balance of interests between copyright owners and public users. As proposed by Professor Wang Qian, the legitimacy of a prohibition on circumvention of access-controls should be based on the protection of the legitimate interests of copyright owners in the copyright law.\textsuperscript{68} To my understanding, copyright laws of developing countries in general and of China in particular should set up a general condition on the protection of TPMs as Professor Wang has recommended: only TPMs that guarantee copyright owners’ legitimate interests in the copyright law should be under the statutory protection. In addition, a general exception should be incorporated into copyright laws of developing countries, explicitly articulating that anti-circumvention laws will not constrain or impede limitations and exceptions to the exclusive rights of copyright owners, including fair use or fair dealing. Prohibition on trafficking of circumvention devices should only apply to devices which are primarily designed or produced for the purpose of circumventing a TPM, have only limited commercially significant purpose or use other than to circumvent, and are marketed to be used to circumvent. Provision of devices that are not primarily designed for circumvention and have commercially significant purposes other than mere circumvention should not be banned, even though these devices may be occasionally used to circumvent TPMs.

The major opinions constraining the protection of TPMs and reducing the negative influence of anti-circumvention laws emphasized that copyright law should only grant protection to TPMs that are used to prevent copyright infringement. In the above discussed cases, such as \textit{Lexmark} and \textit{Chamberlain} in the United States, judicial decisions have illustrated that anti-circumvention of TPMs controlling access to non-copyrighted

\textsuperscript{68} See Wang Qian, \textit{The Justification of Protection on Technological Measures in the Copyright Law, 4 Chinese J.L.} (2011).
products should not be supported by courts. Circumvention should result in legal liability only when a reasonable relationship exists between the circumvention act and the infringement of copyright.

When Australia passed the Copyright Amendment (Digital Agenda) Act (CADA) in 2000, protection of TPMs was included into the new law. In the lawmaking process, the definition of a TPM became the focus of multi-stakeholders’ discussion. Copyright users insisted on linking TPMs to copyright infringement. In their argument, “to include access control measures in the definition of effective technological protection measure would be to extend the reach of copyright law, rather than to merely enforce it.”

Although the CADA finally extended the scope of protection to access control measures, it set up a strict prerequisite under which access-controls must be used to prevent copyright infringement. The CADA defines a TPM as “a device, product or component that is designed to prevent or inhibit the infringement of copyright either by ensuring that access to the work or other subject-matter is available solely by use of an access code or process with the authority of the right holder or through a copy control mechanism.” Such definition clearly expresses the prerequisite for protection of TPMs.

In the landmark Australian case Stevens v. Kabushiki Kaisha Sony Computer Entertainment, Sony sued Stevens for the latter’s production and sale of devices that circumvented the Regional Access Codes (RACs) embedded in Sony PlayStation games. Sony claimed that the RACs installed in its games are TPMs and that Steven’s distribution of circumvention devices violated the Australian Copyright Act. At the first trial, Judge Sackville focused on determining whether Sony’s RACs could be regarded as TPMs within the meaning of section 10(1) of the Copyright Act. In his decision, Judge Sackville of the Federal Court of Australia decided that RACs were not TPMs, ruling that they were not designed to prevent or inhibit the infringement of copyright. It is not enough for a technology or device to qualify as a TPM when the technology or device only has “a general deterrent or discouraging effect on those who might be contemplating infringing copyright.” On appeal, the Full Court reversed the


70 Australian Copyright Amendment (Digital Agenda) Act 2000 (Cth), s. 10(1).

71 [2005] HCA 58.


73 Id.
decision in the first trial, but the final decision, granted by the High Court, confirmed Judge Sackville’s opinion, ruling that Sony’s RAC system could not be defined as a TPM. Therefore Stevens was not liable for the trafficking of circumvention devices.

A large number of access-control TPMs, however, are not directly used to prevent or inhibit copyright infringement. Instead, they primarily function by limiting consumers’ rights to read and use the protected works in order to collect remuneration. For example, vendors of Kindles often set up access-control TPMs in case consumers download digital books freely. Before payment, consumers can only browse limited pages of the book. They can only acquire the right to read the whole book within the authorization of the copyright owners by submitting payment. Such TPMs merely prevent unpaid users from reading the work rather than inhibit its reproduction and dissemination through the internet. The adoption of these kinds of TPMs may generally deter potential copyright infringement, but is not primarily intended to deter infringing activities. Another example of limited rights is when copyright owners install both access-control and copy-control measures in online movies. The former TPM blocks an unpaying audience member from watching the movie, while the latter forbids unauthorized downloading. The circumvention of an access-control technological measure will not result in any unauthorized downloading or distribution of the movie. Thus, there will be no copyright infringement even if circumvention takes place.

Unauthorized access to copyrighted works such as watching a pirated movie, listening to pirated music, or reading a pirated book does not constitute direct copyright infringement. However this does not mean that consumers have the right to unrestrainedly carry out such activities, or that copyright owners must bear these activities. In fact, copyright owners can undertake self-help measures that are not prohibited by law to decrease the possibility of unauthorized or unpaid use of copyright works. The interest in requiring consumers to pay for access to works is a justified and legitimate interest under copyright law. Therefore, protection of TPMs should better concentrate on the legitimate interests in copyright law rather than on the direct prevention of copyright infringement, otherwise copyright owners’ interests and incentives will not be well protected. In the case of *MDY Industries v. Blizzard Entertainment*, decided by the United States Court of Appeals for the Ninth Circuit,74 the court refuted the argument connecting protection on access-control technological measures to prevention of copyright infringement as follows: “a linkage requirement would deprive copyright owners of an important enforcement tool, pointing to protections necessary for copyright owners who make

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74 629 F.3d 928 (9th Cir. 2010).
movies or music available online, protected by an access control, in exchange for direct or indirect payment.”

In addition to the condition on TPM protection, copyright law in developing countries should also include a general exception article that allows for the circumvention of TPMs for non-infringing uses. The European Union, in its Information Society Directive, has required that member states should adopt mechanisms that preserve the ability of users to take advantage of certain exceptions and limitations guaranteed by copyright law notwithstanding the application of TPMs. The general exception can embody all potential situations that may be deemed as fair or non-infringing uses in the digital network environment. Furthermore, it can guide judicial decisions on whether the questionable acts of circumvention or the trafficking of circumvention devices violate the copyright law or not.

C. Judicial Design: Reaching Decisions Case by Case Based on Prerequisite and General Exception

When litigation regarding circumvention issues is filed in courts, judges should decide if the use of TPMs satisfies the prerequisite of use of TPMs as protection and whether the acts of circumvention or trafficking of circumvention devices are for uses that fall within the scope of limitations and exceptions to copyright owners’ exclusive rights. In countries where precedent is the legal tradition, courts can refer to the previous landmark cases to examine whether the decision should permit the acts of circumvention. In countries where precedent is not the decisive factor for judicial determinations, such as China, the Supreme Court can release judicial interpretations to specify the norms that courts should comply with when making decisions.

As to cases where the plaintiff sues the defendant for circumvention of access-control technological measures, courts should first determine whether the access-control measure installed by the plaintiff is able to protect the copyright owner’s legitimate interests under copyright law. If not, the court should not support the plaintiff’s argument for prohibiting and punishing the defendant’s act of circumvention. If so, the court should further analyze whether the defendant’s purpose and final use in circumventing the access-control measure is for fair or other non-infringing uses. If fair or non-infringing uses are found, the defendant will not be held liable for his act of circumvention. If, on the contrary, there is infringing use, then the court should rule against the defendant.

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76 Information Society Directive of European Union art. 6(4).
As to cases where plaintiffs file litigation against the defendant’s trafficking of circumvention devices, the court should also first determine whether the adoption of TPMs by the plaintiff satisfies the prerequisite of TPM protection or not. If not, the court should not support the plaintiff’s argument against trafficking of circumvention devices. If meeting the prerequisite, the TPMs used by the plaintiff shall be protected by copyright law and the court should subsequently determine whether the circumvention devices in question are primarily designed or produced for the purpose of circumventing technological measures or have only limited commercially significant purpose other than to circumvent, or are marketed as devices to be used to circumvent technological measures. If the devices provided by the defendant fall within the scope of any of the above three situations, manufacturing and distribution of such devices should be banned by law. If not, sanction should not be applied to the trafficking of such devices, even when the devices can be occasionally used to accomplish circumvention.

Under certain circumstances where users do not possess adequate knowledge and skill to circumvent TPMs for fair or other non-infringing uses, supply of circumvention devices for users is necessary to guarantee the exceptions and limitations to right holders’ exclusive rights. Scholars have recommended importing a correction mechanism that allows users to notify copyright owners of their potential fair or non-infringing uses. Upon receiving users’ notification, which is examined by judicial or administrative organs, copyright owners should supply circumvention devices that can facilitate consumers’ fair or other non-infringing uses. This mechanism may well resolve the problem of users’ lack of circumvention knowledge and skill.

Nevertheless, there will be two major difficulties in implementing the correction mechanism in developing countries. First, costly expenses will be imposed upon judicial, administrative or other special organs if these organs are required to examine every fair use notification from consumers. Second, it is difficult for copyright owners and third-party organizations to know users’ true intentions based merely on the notifications submitted by the users themselves. In some situations, users may take advantage of the notification scheme to deceive copyright owners for the facilitation of circumventing TPMs through concealing the real purpose of the use. Therefore, taking this approach to copyright owners’ provision of circumvention devices for consumers’ fair or other non-infringing uses is not yet feasible or appropriate for developing countries. More suitable methods to resolve the problem of users’ lacking circumvention devices may be discovered in the future.
D. The Scheme Outside Intellectual Property Law: The Importation of the Anti-Circumvention Rule into Competition Law

Apart from the approaches noted above, another way to alleviate the negative effect of the TPMs on the use of copyrighted material is to import anti-circumvention rule into more general laws such as competition law instead of relying on copyright law.

In the process of implementing the international obligations regarding protection of TPMs, Japan adopted a dual system to incorporate anti-circumvention rules. Copyright law only prohibits the circumvention of copy-control measures and trafficking of devices that can circumvent copy-control measures.\(^77\) TPMs are defined under the Japanese Copyright Law as “measures to prevent or deter such acts as constitute infringements on moral rights or copyright or neighboring rights,”\(^78\) because the Japanese government did not plan to grant copyright owners a right to control access to copyrighted works. As copyright owners do not have rights to control access to their works under the traditional copyright regime, a monopoly originating from the protection of access-control TPMs is avoided.

In addition, the anti-device rule in Japan narrows down the scope of what technologies count as circumvention devices, as the regulations only prohibit trafficking of devices whose principle function is circumventing TPMs.\(^79\) The regulatory prohibition only applies to the trafficking of circumvention devices to the public and not to the trafficking of devices to private persons.\(^80\)

The banning of the trafficking of devices that facilitate circumvention of access-control technological measures is regulated under the Unfair Competition Prevention Law based on the rationale of competition law rather than copyright law.\(^81\) The Japanese competition law also contains an anti-device provision for copy-control measures, which overlaps with the copyright law. The competition law extends the protection of copyrighted works to public-domain material as long as the material has com-


\(^78\) Copyright Law of Japan art. 2(XX), § 1 available at http://www.cric.or.jp/cric_e/elj/cl1.html (last visited Nov. 21, 2011).

\(^79\) Noguchi, *supra* note 77.

\(^80\) Id.

\(^81\) Id.
mmercial value for fair competition. Therefore, not only do copyright owners benefit from anti-device rules under the competition law, but so do entrepreneurs who adopt TPMs to protect their commercial intangible assets.

Inclusion of protection of access-control technological measures in competition law rather than copyright law, as enacted in Japan, does not impose restrictions on non-infringing uses of copyrighted works, as fair or other non-infringing uses are often for personal or private purposes that do not significantly influence the fair competition in the market and the potential benefits generated from the commercial use of the works.

As explained in the report released by the Japanese TPMs protection working group in 2010, whether access-control measures that do not prevent the reproduction of copyrighted works should be protected under copyright law depends on whether the exclusive rights of copyright owners should be expanded so that right holders can control acts that were not covered by exclusive rights previously.\textsuperscript{82}

The issue of whether to include protection on access-control TPMs concerns the impact on the whole copyright system. It is therefore not appropriate to hastily make a conclusion on this issue.

E. Suggestions for the New Round of Reform Regarding Anti-circumvention Rules in China

Currently, China has been launching the third revision to the Copyright Law and widely seeking public opinions. The National Copyright Administration of China (NCAC) released the first Draft Amendment to the Copyright Law and the Brief Explanations on the Draft Amendment on 31 March 2012, and the second Draft Amendment and the Brief Explanations on 6 July 2012. The third Draft Amendment based on the previous two drafts and relevant public opinions was concluded in October 2012 and ready for submission to the Standing Committee of the People’s Congress for final review and promulgation. As opposed to the previous two revisions that were propelled by external pressures, the third revision is the response to China’s national intellectual property strategy to build up an innovative country.

The third revision largely changes the original structure of existing Copyright Law, which contains six chapters and sixty-one articles, and increases provisions to eighty-eight articles contained in eight chapters. These Draft Amendments reflect two areas of legal reform: first, clarifying definitions and expressions in full compliance with international copyright conventions in which China is a member country; second, amending or

\textsuperscript{82} Wang, \textit{supra} note 68.
The Draft Amendments incorporate anti-circumvention rules for protection of TPMs and DRM information from the Network Dissemination Regulation and extend the anti-circumvention rule to off-internet environments. Different from the Information Network Regulation which only grants protection to TPMs that are used to protect the right to network dissemination of information, the Draft Amendments protect all TPMs as long as they are installed to protect copyright. The TPMs defined by the Draft Amendments are effective technology, devices or components adopted by right owners to prohibit reproduction, browsing, appreciation, running, or dissemination via information network of works, performances, phonograms, and radio and TV programs. In simple words, TPMs in the Chinese copyright revision refer to technology and devices that control the access and copying of copyrighted works. The Draft Amendments prohibit three kinds of activities: circumvention or sabotage of TPMs; manufacturing, importing, or providing to the public the devices or components that are principally used to circumvent or sabotage TPMs; or providing technical service for others’ circumvention or sabotage of TPMs. Despite the enduring criticism of the narrow exception in Chinese anti-circumvention rules, the Draft Amendments only offer four specified categories of exceptions, namely, exceptions for classroom teaching or scientific research, visual disabilities, fulfillment of duties by state organs, and security testing.

DRM information in the Draft Amendments refers to information that identifies a work and its author, performance and performer, sound recording and its producer, radio and TV program and radio and TV station, as well as the right owners of the work, performance, sound recording, and radio and TV program, or information concerning the terms and conditions of use, or any number or codes that represents such information. The Draft Amendments prohibit two kinds of activities regarding DRM information: intentional deletion or alteration of DRM information and providing the work, performance, sound recording, or radio and TV program to the public with actual or constructive knowledge that the DRM information has been deleted or altered.

Article 74 of the second Draft Amendment imposes administrative and criminal punishment on circumvention of TPMs, providing circumvention devices, deletion or alteration of DRM information, and providing

83 Copyright Law of People’s Republic of China (2d Draft Amendments) art. 64.
84 Id. art. 65.
85 Id. art. 67.
86 Id. art. 64.
87 Id. art. 66.
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works to the public with the knowledge that DRM information has been deleted or altered. However, current administrative punishment law and criminal law do not contain provisions on anti-circumvention. In order to make laws in China compatible and unified, relevant parts in administrative punishment law and criminal law should also be revised in compliance with the copyright law.

There is no doubt that these Draft Amendments make progress in the expansion of the adoption of TPMs to protect the right to network dissemination of information to all copyright and neighboring rights, and they clearly include copying as one of the acts controlled by TPMs. These Draft Amendments, however, still seriously restrict reasonable access and exploitation of copyrighted works protected by TPMs. The prohibition of circumventing both access and copy controls and of the trafficking of circumvention devices severely limits the public’s privilege to enjoy fair use or fair dealing. The four kinds of exceptions offered by these Draft Amendments confine the non-infringing uses to a very narrow scope and cannot contain all possible reasonable exceptions. More revisions should be made to alleviate the restriction brought by the anti-circumvention rule on fair use or fair dealing, competition and consumers’ right of notice and privacy.

First, the definition of TPMs should be simplified and clarified in Chinese copyright law. TPMs should simply refer to effective technologies, devices or components used by right owners to prevent access and reproduction of copyrighted works without prior authorization, because a series of acts such as browsing, appreciating, running or making available through an information network can be embodied in the general classification of the two categories of acts, namely, access and reproduction. In addition, such simplified language is consistent with the words defining TPMs in many other jurisdictions and will make the terminology easily understood. Emphasis should also be added to point out that TPMs under copyright law protection are only installed to guarantee copyright owners’ legitimate interests under copyright law.

Second, a general exception should be incorporated into Chinese anti-circumvention law, explicitly articulating that anti-circumvention rule will not constrain or impede limitations and exceptions to the exclusive rights of copyright owners, including fair use or fair dealing. The general exception should be able to embody all potential situations that may be deemed fair or non-infringing under the digital network environment and guide judicial decisions on whether or not the questionable acts of circumvention or the trafficking of circumvention devices violate the copyright law. In addition, Chinese copyright law could encourage copyright owners to implement TPMs that guarantee minimum use to be installed in certain kinds of copyrighted works such as literary works, so that users can access and
Third, further explanation and definition should be given to liability for circumvention devices. The prohibition on trafficking of circumvention devices should only apply to devices that are primarily designed or produced for the purpose of circumventing a TPM, have only limited commercially significant purpose or use other than to circumvent, and are marketed to be used to circumvent. Provisions of devices that are not primarily designed for circumvention and have commercially significant purposes other than mere circumvention should not be banned, even though these devices may be occasionally used to circumvent TPMs.

Finally, the judicial system and other areas of law should coordinate in establishing copyright legislation in order to alleviate the negative effects of the anti-circumvention rules. The Supreme Court of China should release relevant judicial interpretations to specify the norms that courts should comply with when making decisions in TPM circumvention cases. Moreover, China should consider whether to adopt the anti-circumvention model of Japan, regulating anti-circumvention of access controls only in competition law.

V. CONCLUSION

With the rapid growth of digital technology and right holders’ desire for protecting their intellectual property against infringement, a large number of TPMs are used by copyright industries and product manufacturers to control the access and use of copyrighted material, office supplies or housewares. The wide-spread adoption of TPMs impedes permissible use of copyrighted works and fair competition. The adoption of anti-circumvention rules in both international copyright conventions and domestic copyright statutes among major jurisdictions hinders the flow of information and normal operation of the market, because of the unbalanced protection of access-control technological measures and the prohibition on manufacturing and dissemination of circumvention devices. The widespread installation of TPMs and importation of anti-circumvention law result in an imbalance of interests between copyright owners and public users. It will be a disaster if the development of technology cannot appropriately accommodate the rights of users and future creators, creating an environment where the intellectual property system intercepts every unauthorized use.

Therefore, it is time to rethink current anti-circumvention laws and to revise the mechanism in a more balanced direction between copyright holder and public user. As Professor Yu has argued, “intellectual property protection is important, but not more important than how we live our
daily life."88 The design of new mechanisms regarding DRM and TPMs protection should consider both consumers’ interests and the feasibility of implementing such mechanisms in less developed societies such as China. Several proposals have been suggested in this article with the goal of recovering the balance in the copyright system, including: implementing a technical design that allows minimal uses; a legislative design that imposes prerequisites on protection of TPMs and a general exception for circumvention of TPMs; a judicial design that imposes judges’ discretion on litigations regarding circumvention of TPMs case by case; and the design outside the intellectual property regime that recommends the inclusion of access-control technological measures into more general legal systems such as competition law.

88 Yu, supra note 2, at 77.