August 2007
No. 9

Policy Brief

The Threat of Technological Protection Measures to a Development-Oriented Information Society

I. Introduction

In the digital age, developing countries are faced with enormous opportunities and challenges on access to knowledge and information. Digital technology is rapidly expanding the possibilities for communication, processing and dissemination of information at reduced costs. Most notably, the Internet has evolved into a mass medium and global information market available to the public that can reach, connect and empower populations globally and facilitate collaborative learning, research and innovation.

The essence of the information revolution is encapsulated in the Declaration of Principles of the World Summit on the Information Society:

"We declare our common desire and commitment to build a people-centred, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving their quality of life, premised on the purposes and principles of the Charter of the United Nations and respecting fully and upholding the Universal Declaration of Human Rights…"[1]

The main challenge of building the Information Society is to make effective use of available

Executive Summary

The new digital environment offers both opportunities and challenges for developing countries. New international legal requirements with respect to the protection of technological measures that can be used by copyright owners to control access and use of their works can hinder the ability of developing countries to promote access to knowledge for development. This policy brief explains the current international legal framework for their protection and national experiences in their implementation. It highlights that developing countries should use the flexibilities available to narrowly implement anti-circumvention obligations in such a way that can reduce the threat they pose on access to knowledge.

Table of Contents:

technologies for sustainable development and improvement of livelihoods. The need to bridge the 'digital divide' is one element of such challenge.[2] A second element of the challenge is to develop an enabling institutional and policy framework for the Information Society.

The extent to which knowledge and information is used, accessed, shared and produced is increasingly shaped by intellectual property (IP) policy. The ultimate objective of the IP system is to stimulate the diffusion of knowledge and incentivate innovation and creativity. To do so, IP policy must achieve an appropriate balance between incentives for innovation and creativity via the grant of exclusive private rights to authors and creators and the social benefits of widespread access and diffusion of knowledge goods. It also must balance between material subject to protection and the public domain.[3]

One of the challenges for developing countries is thus to establish balanced IP systems that facilitate access to knowledge and new technologies while complying with their international obligations. In this respect, the expansion of IP law to the digital environment is an issue of growing concern and debate. The realm of copyright is expanding mainly in response to the interests of copyright owners. Publishing and other copyright-based industries face increased difficulties in effectively controlling the use of their works in the digital environment given the ease with which these can be reproduced and distributed. Content can be transferred from one device onto another (i.e. music from a CD to a computer), converted to different formats and recorded for viewing or listening at a later time, etc. In response, copyright-based industries have pushed for the development of para-copyright rules to enable them to increase control and exploit further commercial value from the use of their copyrighted works.

Paradoxically, while on the one hand access is greatly facilitated by digital technologies and global networks such as the Internet, digital technologies may also be used to limit and/or block access to works, even when these may not be subject to copyright protection or for uses that are generally permitted under copyright law. Digital technologies also allow copyright owners to monitor and record the use of the works by the consumer, seriously threatening private rights.

The expansion of protectable subject matter, rights and term of protection of copyrighted works combined with the development of para-copyright rules to enforce copyright in the digital environment will likely limit the opportunities for the full development of the Information Society and in particular for developing countries to access knowledge goods.

II. Understanding Digital Rights Management

Copyright-based industries are utilizing copy protection technologies as additional tools to control and/or restrict the use of and access to copyrighted content in the digital environment. The technologies utilized to protect copyright online are commonly known as Digital Rights Management (DRM). However, DRM systems in the broadest sense refer to multiple tools for the management of rights in the digital environment, including two core components: 1) defining the usage rules (rights) associated with the content that may be in digital form, and 2) limitations to copying and other usages that are imposed through electronic devices (i.e. via technological protection measures) to enforce the usage rules.

One of the characteristics of DRM systems is that the usage rules for IP-protected works that are downloaded online or on to a receiving device such as a computer by consumers can be set by right-holders (i.e. licensing terms). It is also a core element of DRM that it is right-holders who determine how their rights are enforced, that is, they are free to choose among DRM technologies. Although the technologies are still developing, there are already many DRM technology applications on the market.

DRM systems are not standardized. In addition to creating drawbacks for consumers in terms of access and usage restrictions, the multiplicity of DRM technologies utilized by right holders can render inoperable different DRM products and

services in the digital environment. DRM technologies fall into two main categories:

1. Access control technologies, such as encryption, where content is locked unless decrypted. Access to the keys (i.e. password) for decryption is made conditional to payment and/or certain terms and conditions of use (i.e. license agreement). Examples include: 1) the Content Scramble System (CSS) that is used to encrypt video content on DVDs, and 2) the use of watermarks or tattoos to digital content, such as those utilized by the Secure Digital Music Initiative (SDMI) on compressed audio content (MP3s). In order to control the free sharing of MP3 music by consumers, industries use the SDMI standard based on watermarking to control access to content. The watermark can effectively control access where SDMI-compliant playback and/or record devices can read and interpret the watermark.

2. Technological protection measures (TPMs). TPM technologies control the copying and/or other uses of digital content, such as viewing, printing and altering once users have access to the work. Examples include: 1) Serial Copy Management Systems (SCMS) that use copy control flags that allow digital copies to be made from a master, but not from a copy of that master. SCMS are used, for example, on CDs and computer software. 2) Digital Transmission Copy Protection (CTCP) used to protect content during digital transmission from one consumer device to another.

"The expansion of protectable subject matter, rights and term of protection of copyrighted works combined with the development of para-copyright rules to enforce copyright in the digital environment will likely limit the opportunities for the full development of the Information Society and in particular for developing countries to access knowledge goods. "

III. The International Legal Framework for Copyright in the Digital Age

In response to the concerns and lobbying of copyright-based industries[4], in the mid 1990s the World Intellectual Property Organization (WIPO) took on the task of adapting copyright law to the digital age. The result of the exercise was the conclusion of two new international copyright treaties in 1996, known as 'The Internet treaties'. The WIPO Copyright Treaty (WCT) and the WIPO Performers and Phonograms Treaty (WPPT) entered into force in 2002. While only around 60 countries have acceded or ratified each treaty, many of these are developing countries.

Any developing country that has ratified the WCT and WPPT is bound to the obligations with respect to DRM/TPMs. Moreover, several regional and bilateral free trade agreements (FTAs) among developing countries and the US and among developing countries and the European Community (EPAs) are reinforcing these obligations.

Pressure by the EU and US to uphold DRM systems at the global level is also evident in the WIPO discussions on a potential new treaty on the protection of broadcasting organizations. The EU backed by the US proposed that parallel or firmer anti-circumvention provisions of the WCT and WPPT be extended to broadcasting and cablecasting organizations. Such protection would broaden further the spectrum of DRMs and pose additional threats to consumers, researchers and technological innovation.

III.1. The WIPO Internet Treaties

The WCT and WPPT created for the first time international legal rules that back the use of technological protection measures (TPMs) by IPR holders. This development stemmed from the position of right holders that neither legal measures nor technology alone could provide a solution to copyright infringement in the global digital environment. DRM technology can be cracked or defeated. Backed by legal measures, including prohibition on circumvention of TPMs and legal remedies, right holders gain greater control over content.

The new system for international copyright protection that emerged from the WCT and

WPPT is composed of three main components: i) traditional copyright extended to the digital environment, ii) technological measures to control/restrict access (i.e. TPMs), iii) legal protection against the circumvention of technological measures. Legal measures to protect TPMs against circumvention are mandated in Article 11 of the WCT and similarly in Article 18 of the WPPT.[5] Moreover, Article 12 of the WCT and the parallel Article 19 of the WPPT create obligations for members to ensure legal measures to protect rights management information used to identify copyrighted works and other subject matter.[6]

While the obligations are significant, they are set out in broad terms which allow certain flexibility for their implementation in the national laws of countries that choose to ratify the treaties. For example, not all TPMs are subject to legal protection against circumvention. For a TPM to be considered for legal protection it must comply with the following conditions: (1) be effective, (2) be used to protect a right of the copyright owner, and (3) restrict acts not authorized by authors or permitted by law. Moreover, there are different approaches as to how these conditions should be interpreted to define what TPMs are covered under the provision.

There are also different interpretations as to what is required to comply with the obligation to provide "adequate legal protection against circumvention" under Article 11 of WCT and Article 18 of WPPT. Members can decide what types of legal anti-circumvention measures are required and under what legislation they should be dealt with (i.e. copyright law, criminal law or competition law).

It is subject to debate whether legal protection must be aimed at targeting the act of circumvention or rather at the preparatory activities for the act of circumvention, such as the production and distribution of circumvention-enabling devices, or whether both are required.[7] In other words, whether the form of legal protection should consist of: i) a prohibition against acts of circumvention (conduct), ii) a prohibition against trade in circumvention devices and/or services, or iii) a prohibition against both types of activities. The general consideration is that compliance with the obligation in the WCT and WPPT does not require prohibition of devices or services that can defeat TPMs.

There are also different approaches on what exceptions can apply to the legal protection against the circumvention of TPMs. While the WCT and WPPT do not specify possible exceptions and limitations to the rights granted to right holders in the treaties, it is generally understood that at the least these include those widely accepted in traditional copyright law, affected by the application of the three-step test as set out in the Berne Convention. Namely, those confined to 1) certain special cases that 2) do not conflict with a normal exploitation of the work and 3) do not unreasonably prejudice the legitimate interests of the author. Moreover, the WCT and WPPT allow members to devise new exceptions and limitations that are appropriate in the digital network environment.[8]

III.2. Implementation of WCT and WPPT DRM-related obligations in National Laws

Different approaches can be taken when implementing the DRM-related obligations established in the WCT and WPPT. Such flexibility is made evident by the existent divergences among national legislations that have implemented the obligations. Such important differences can be seen, for example, in comparing the national legislation of developed countries such as the United States (US), the European Union (EU), Australia and Canada. A survey undertaken by WIPO in 2003 with respect to 22 national laws implementing the TPM anti-circumvention and rights management information provisions also found that there is wide diversity among approaches on these issues.

The US was the first to implement the WCT and WPPT obligations in its 1998 Digital Millennium Copyright Act (DMCA), followed by the EU in its 2001 Copyright Directive. Hence, these are often referenced as model laws for members of the WCT and/or WPPT that are in the process of implementing the provisions or countries preparing to join the treaties. Obligations based on the US DMCA and EU Copyright Directive are also often incorporated in US FTAs and EU EPAs with

developing countries.

The US is the worlds' largest producer and exporter of copyrighted works and therefore securing strong anti-circumvention provisions is central to their trade agenda. However, developing countries should carefully consider whether it is appropriate to model their laws on the US DMCA, given that: 1) the US DMCA goes far beyond what is requested by the WCT and the WPPT and 2) there is growing evidence that DRM-related laws in the US and EU have not been effective at stopping or curtailing the unauthorized copying and distribution of works online and yet have curtailed consumers' personal and fair use rights, hampered freedom of expression and scientific research, impaired competition, and stifled technological innovation.[9]

The US DMCA contains two prohibitions. One, it prohibits the act of circumventing technological measures used by copyright owners to control access to their works (not to those that prevent copying). Two, it prohibits the manufacturing, sale, distribution, etc. of devices and technology designed to circumvent a technological measure. Any breach of these rules carries significant consequences, as both civil and criminal penalties can apply.

Legal observers have noted that the protection of technical measures controlling access to works in effect grants copyright holders a new right outside of copyright: the right to access. Such a right goes beyond the intended coverage of the WCT and WPPT. It also means that in the US, DRM technologies are protected irrespective of whether the act being prevented would actually infringe copyright in the work or not, given that the requirement is only that the DRM is used to prevent unauthorised access. The definition of an "effective technological protection measure" as defined in US legislation includes access control measures which breaks the link with traditional copyright, as liability could arise from conduct independent from whether it constitutes or not a copyright infringement.

The US DMCA thus strongly favours the interests of right holders that use DRM to prevent unauthorised access to their works over the public interest to access works.

The DMCA does provide for some limitations and exceptions to the general prohibition on the act of circumvention, including for non-profit libraries, archives and educational institutions, reverse engineering solely to achieve interoperability, encryption research and security testing, and protection of privacy and minors. However, the limitations and exceptions are narrowly tailored and generally may only be applied if the right holder authorises access, given that technical measures cannot distinguish whether the circumventing purpose is lawful or not. Moreover, given that the DMCA bans the tools and technologies to circumvent technical measures, the limitations and exceptions can be rendered meaningless as there can be no means to gain access to a work even for lawful use.

The EU 2001 Copyright Directive also goes beyond the requirements of the WCT and WPPT by prohibiting not only the act of circumvention of technological measures but also the manufacture and trade in devices that may be used to circumvent.[10] However, the person undertaking the act of circumvention must know it is undertaking a circumventing offence. Moreover, while the 2001 EU Copyright Directive requires that EU members must also take appropriate measures to ensure that acts that do not constitute copyright infringement at the national level can be exercised, the ban on circumventing devices again may affect the exercise of legitimate uses by consumers, researchers, librarians and others that fall under limitations and exceptions.

The implementation of WCT and WPPT anti-circumvention provisions according to US and EU standards is a trend being pushed on developing countries via regional and bilateral FTAs and EPAs. The US DMCA protection standards are included, for example, in the FTAs concluded with Jordan, Singapore, Chile, CAFTA, Morocco and Bahrain. Although some FTAs allow greater flexibility for national implementation than others, none provide an exception to circumvent TPMs for legitimate or

non-infringing uses of protected digital works, such as access to works in the public domain or copying for private use.[11] The EU EPAs may require developing countries to comply with the WCT and WPPT obligations.[12]

IV. Crafting Adequate Policy Responses to Copyright Challenges in the Digital Environment

Right holders have legitimate concerns with respect to the protection of their copyright rights in the digital environment. However, private interest concerns on protection must be balanced with public interest concerns on access. It is particularly important for developing country copyright regimes to reflect this balance to promote access to knowledge goods. Developing countries already face many barriers to access to knowledge, including the digital divide, pervasive poverty and illiteracy and lack of research capabilities.

Moreover, the experience of developed countries with para-copyright DRM systems and legal measures on anti-circumvention shows that these may seriously prevent or restrict access to digital works. Even when limitations and exceptions under national copyright laws allow access for educational purposes, personal use and others, DRM allow private right-holders to prevent their exercise.

By subjecting access to the acquisition of restrictive licenses or contractual terms, the costs of access when authorized by the right holder become too high for developing country consumers to afford, as copyright owners pass on the costs associated with adopting DRM and protection for electronic rights management information to consumers, and foreign copyright owners will wish to extract all possible revenues from developing country consumer markets. It is also very costly for developing countries to design and develop DRM systems aimed at protecting national copyright industries and to enforce DRM-related obligations. Evidence that developed country DRM systems have retarded creativity and technological innovation and stifled competition should also be a cause of concern for developing country national innovation agendas.

Accordingly, it is recommended that developing countries restrain from joining the WCT and WPPT treaties and avoid similar anti-circumvention provisions under FTAs and EPAs or other international instruments. Developing countries that have acceded or are in the process of acceding to the treaties should implement in their national laws only the minimum required in respect to the WCT and WPPT anti-circumvention provisions.

National measures should precise and limit the scope of protection to extend only to the act of circumvention in relation to certain technological measures and not ‘preparatory acts’, clarifying that the aim of protection is linked to that of copyright and does not create an exclusive right of access for right-holders. There is no requirement in WCT or WPPT to prohibit ‘preparatory acts’ to circumvention, such as the manufacture or trade in devices that may allow circumvention. Accordingly, such a prohibition should not be included in developing country national legislation. Moreover, the existence of such devices in the market may be necessary to access or make legitimate use of works according to the limitations and exceptions recognized under national law.

Explicit mention should be made that liability for infringing a technological measure should only arise when the person has knowledge that it is committing such infringement and is doing so intentionally. In determining the scope of legal remedies and sanctions to be accorded, which the WCT and WPPT does not define, the application of criminal law should be avoided.

The use of the flexibilities in the WCT and WPPT could significantly reduce the harmful effects that implementing anti-circumvention measures could have on access to knowledge. It is important that developing countries extend the current limitations and exceptions in national copyright law to digital works and craft new ones considered appropriate for the digital age. A use that falls within limitations and exceptions should not be subject to technological measures.

Accordingly, an important exception would be to allow circumvention for legitimate and non-infringing uses of works protected by technological measures. The WCT and WPPT do not subject the exercise of copyright limitations and exceptions to the authorization of circumvention by the right-holder. New limitations and exceptions for the digital age could include: to permit interoperability among devices and systems, for research purposes related to DRM technology, for educational purposes extending to e-learning, and for non-profit libraries and archives.

Finally, developing countries should avoid accepting anti-circumvention obligations through bilateral FTAs or EPAs or internationally, such as through the proposed treaty on the protection of broadcasting organizations, that extend beyond the scope of WCT and WPPT.

V. Conclusions

Developing countries face multiple challenges on access to knowledge and information for their development. One of the challenges is to develop an enabling institutional and policy framework. The development of digital technology and information revolution offer enormous opportunities for the production and access to knowledge goods. Copyright law plays an increasingly important role in providing incentives to production and promoting access to works.

The use of technological measures by copyright right-holders to protect works in the digital environment, combined with new international legal obligations to protect such measures poses a threat for developing countries. The obligations should be rejected, or narrowly crafted in national laws so as to promote access to knowledge for development.

End Notes

1. World Summit on Information Society, Declaration of Principles, Document WSIS-03/GENEVA/DOC/4-E, 12 December 2003, Para 1.
2. The term ‘digital divide’ describes the inequitable access to Information and Communication Technologies (ICT), and in particular access to Internet and its resources among developing and developed countries and within countries. For statistics on the digital divide, see World Society Information Report, 2007, Ch. 2, http://www.itu.int/osg/spu/publications/worldinformationsociety/2007/WISR07-chapter2.pdf.
3. The term "public domain" generally refers to material that is unprotected by intellectual property rights, either as a whole or in a particular context, and is thus "free" for all to use and build upon. See James Boyle, “The Second Enclosure Movement and the Construct of the Public Domain”, 66 Law & Contemp. Probs. 33 (Winter/Spring 2003), p. 33.
4. Pressure for the WCT and WPPT came mainly from the publishing, audiovisual and music industry from the United States and the European Union, where DRM-related legislation first developed.
5. Article 11 of the WCT provides 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 restricts acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.”*

Chemin du Champ d'Arnier17
PO Box 228, 1211 Geneva 19
Switzerland

Telephone: (4122) 791 8050
Fax: (4122) 798 8531
E-mail: south@southcentre.org

Contact us in the web:
http://www.southcentre.org

SOUTH CENTRE

In August 1995, the South Centre was established as a permanent inter-Governmental organization of developing countries. In pursuing its objectives of promoting South solidarity, South-South cooperation, and coordinated participation by developing countries in international forums, the South Centre has full intellectual independence. It prepares, publishes and distributes information, strategic analyses and recommendations on international economic, social and political matters of concern to the South.

The South Centre enjoys support and cooperation from the governments of the countries of the South and is in regular working contact with the Non-Aligned Movement and the Group of 77. The Centre's studies and position papers are prepared by drawing on the technical and intellectual capacities existing within South governments and institutions and among individuals of the South. Through working group sessions and wide consultations which involve experts from different parts of the South, and sometimes from the North, common problems of the South are studied and experience and knowledge are shared.

End Notes (continued)

6. Article 12 of WCT provides that: *"(1) Contracting Parties shall provide adequate and effective legal remedies against any person knowingly performing any of the following acts knowing, or with respect to civil remedies having reasonable grounds to know, that it will induce, enable, facilitate or conceal an infringement of any right covered by this Treaty or the Berne Convention:(i) to remove or alter any electronic rights management information without authority; (ii) to distribute, import for distribution, broadcast or communicate to the public, without authority, works or copies of works knowing that electronic rights management information has been removed or altered without authority. (2) As used in this Article, "rights management information" means information which identifies the work, the author of the work, the owner of any right in the work, or information about the terms and conditions of use of the work, and any numbers or codes that represent such information, when any of these items of information is attached to a copy of a work or appears in connection with the communication of a work to the public."*

7. See K. J. Koelman, "A Hard Nut To Crack: The Protection of Technological Measures", E.I.P.R. 2000, 22(6), p.272-228.

8. See Agreed Statement on Article 10 of the WCT and Article 16 of the WPPT on limitations and exceptions to rights.

9. Consumer groups and public interest NGOs from the US and EU have been at the forefront of bringing to light public access concerns with respect to the development of national DRM systems and legal measures for their protection and enforcement. See for example, EFF, "Unintended Consequences: Seven Years under the US DMCA", April 2006, and "Digital Rights Management: A Failure in the Developed World, A Danger to the Developing World", paper submitted by a group of NGOs to the International Telecommunications Union Working Party 6m Report on Content Protection Technologies, available at www.eff.org.

10. For a detailed analysis of the EU 2001 Information Society Directive in respect to TPMs, see IViR Report, The Recasting of Copyright and Related Rights for the Knowledge Economy, p.165-179.

11. See EFF, Seven Lessons from a Comparison of the Technological Protection Measure Provisions of the FTAA, the DMCA, and recent bilateral Free Trade Agreements, June 2005.
12. See South Centre, Development and Intellectual Property under the EPA Negotiations, Policy Brief No.6, March 2007.