DEVELOPING COUNTRIES AND COPYRIGHT IN THE INFORMATION AGE

The Functional Equivalent Implementation of the WCT[*]

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1 Introduction

The Internet has changed from a quiet means of communication among academic and scientific research circles to a major global data pipeline through which large amounts of 'locked' intellectual property and proprietary information are moved. Whereas earlier technologies such as photocopying and taping allowed mechanical copying by individual consumers, they did so in limited quantities, required considerable time and investment and produced copies of relatively poor quality. Moreover, the copies were physically located in the same place as the person making the copies. On the Internet, by contrast, one can make an unlimited number of copies, virtually instantly, without any perceptible degradation in quality.[1] And these copies can be transmitted to locations around the world in a matter of minutes. The Internet has been described as "the world's biggest copy machine".[2]

The Internet and digital technology provide opportunities and pose threats to public and private interests in intellectual property rights. Opportunities for private rights include the global market for works and expanded exposure of

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1 Indeed, in the earliest discussions concerning the Internet and its implications for copyright, some commentators argued that the copyright protection of works could not be enforced on the Internet, and authors would have to find new ways to receive equitable remuneration for the exploitation of their works in cyberspace. See Anon 1995 *Economist* 95; Dreier 2005 *Copyright World* 36.

2 See Anon 1997 *PC Week* 3.

authors; the threats include the danger of unauthorised adaptations and distribution of the works to millions of users.[3] The users' opportunities lay in the unparalleled and virtually limitless access to works from global authors; the threats in the increased legal and technological protection measures that grant copyright owners the power to dictate who may access their works, when, and in what manner. Wiese[4] notes that the other threat to users is law-specific. Legislators that are confronted with new technologies often propose technology-specific and narrow rights and limitations. For example, the reproduction right is worded so broadly that it easily applies to digital technology.[5] Limitations and exceptions are defined narrowly and cannot adapt so easily to changing technologies.[6]

2 Legislative responses to the digital agenda

Technology started to play a leading role in addressing the heightened threat of piracy of works protected by copyright. Authors increasingly took advantage of technology to protect their intellectual property. Technological protection systems include anti-copy devices, access control, electronic envelopes, proprietary viewer software, encryption, passwords, watermarking, fingerprinting (user authentication), metering and monitoring of usage and remuneration systems.[7]

This approach is bolstered by the WIPO Copyright Treaty[8] which entered into force on 6 March 2002. It provides for protection against the circumvention of

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3 Dreier 2004 http://www.intellecprop.mpg.de/ 26 Apr.
4 Wiese 2002 *Comms L* 146-154.
5 See Khaw 2005 *EIPR* 55; Wiese 2002 *Comms L* 146-154.
6 Dreier 2005 *Copyright World* 36; Wiese 2002 *Comms L* 146-154.
7 Albert *Cyberspace* 265-271; Khaw 2005 *EIPR* 55-64*;* Norman *Education* 45. Refer to Price and Verhulst *Self-Regulation* 146-148 on the use of technology to regulate content and control access.
8 In December 1996 the "WIPO Diplomatic Conference on Certain Copyright and Neighbouring Rights Questions" that met in Geneva culminated in the adoption of the WIPO Copyright Treaty (WCT). The WCT entered into force on March 6, 2002, in accordance with a 20 of the WCT. See WCT 2001 http://www.wipo.int/ 10 Mar (hereafter referred to as the 'WCT').

technological protection measures applied to works protected by copyright. Article 11 of the WCT requires Contracting Parties to provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are not authorised by the authors concerned, or permitted by law.

As was noted by the delegate for South Africa, speaking for the African group of countries when introducing the wording of article 11 at the 1996 diplomatic conference, the WCT focuses on the act of infringement rather than the device that facilitates infringement.[9] Furthermore, the test relates to what is "not permitted by law".[10] It is in line with the nature of copyright protection and preserves the copyright balance. In the tradition of international intellectual property treaties, the WCT states only the minimum level of protection. Contracting Parties may enact more extensive protection. However, where Contracting Parties enact more extensive protection the delicate balance negotiated in the WCT is upset.

In terms of article 10 of the WCT, Contracting Parties may carry forward and appropriately extend limitations and exceptions to the digital environment. The Agreed Statement concerning article 10 of the WCT emphasises the need to maintain a balanced copyright regime:

> It is understood that the provisions of Article 10 permit Contracting Parties to carry forward and appropriately extend into the digital environment limitations and exceptions in their national laws which have been considered acceptable under the Berne Convention. Similarly, these provisions should be understood to permit contracting parties to devise new exceptions and limitations that are appropriate in the digital network environment.
>
> It is also understood that Article 10(2) neither reduces nor extends the scope of applicability of the limitations and exceptions permitted by the Berne Convention.

9 Van Copenhagen 2003 *SALJ* 433.
10 See Wealde 2001 *JILT* http://elj.warwick.ac.uk/ 10 Mar 10.

It has been noted that the WCT, and in particular the anti-circumvention provisions, have had a 'transformative' impact on the scope of copyright law as it had over-reached and created 'super-copyright' or 'para-copyright'.[11]

3 Implementing the WCT: Technological measures

The WCT retained the delicate balance between public and private copyright rights. The private rights include the exploitation rights of authors. The public rights limit the authors' economic and moral rights and ensure access to works for purposes of review or criticism and academic research.[12] Traditionally, the limits and exceptions to the exclusive rights of copyright owners have ensured an appropriate sense of balance between the private interests of the copyright owner and the interests of the public.

It has been noted that where article 11 of the WCT tiptoes where it might legitimately tread, the anti-circumvention legislation of the US and the EU trample roughshod over copyright limitations and exceptions.[13] In 1998, the United States Congress passed the *Digital Millennium Copyright Act*.[14] The DMCA adds to the minimum level of protection required in the WCT: it strikes at both acts and devices that enable the circumvention of technological protection.[15] The Act states in section 1201(A)(1)(A) that no person may circumvent a technological measure that effectively controls access to a copyright work. A technological measure, in turn, has been defined as a measure that effectively controls access to a work if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the author, to gain access to the work.[16] To circumvent a technological measure means to descramble a

11 See Geist 2006 *Lex Electronica* http://www.lex-electronica.org/ 8 Mar 2.
12 Wiese 2002 *Comms L* 146.
13 Van Coppenhagen 2003 *SALJ* 442.
14 *Digital Millennium Copyright Act* of 1998 105 Pub L No 304 112 Stat 2660 (hereafter referred to as 'DMCA').
15 Correa *IIC* 570-585.
16 See DMCA § 1203(B). See Albert *Cyberspace* 265-271.

scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure without the authority of the author.[17] The DMCA contains six specific exceptions for the purpose of evaluation of material for acquisition by a non-profit library or educational institution, reverse engineering, encryption research, protection of minors, personal privacy and security testing.[18]

The US argued that the rule against circumvention is in the public interest. It is noted that the nub of this argument is economic, as the public interest is equated with the price at which access to works may be lawfully attained.[19] It was also argued that while such protection attaches to works in the public domain such protection attaches only to those particular copies (or those works in digital format) and not to the underlying works in them.[20] The DMCA was opposed by many critics. Geist notes that the US's DMCA and its experience with technological protection measures demonstrates the detrimental impact of this policy approach as free speech and user rights have suffered.[21]

The European Union adopted the WCT in its Copyright Directive.[22] Member States are obliged to provide adequate legal protection against acts of circumvention. Member States must also prohibit the dealing in products or services that are primarily designed for circumvention of technological protection measures or that have limited use other than circumvention. The Copyright Directive contains one compulsory exception related to temporary copying[23] and a number of prescriptive non-mandatory exceptions.[24] Article 6.4 provides that the governments of Member States may intervene to enable a beneficiary of an exception to benefit. However, where there is an agreement

17 See § 1203(B).
18 See DMCA § 1201.
19 See Wealde 2001 *JILT* http://elj.warwick.ac.uk/ 10 Mar 11.
20 Albert *Cyberspace* 264-265. See Wealde 2001 *JILT* http://elj.warwick.ac.uk/ 10 Mar 11.
21 Geist 2006 *Lex Electronica* http://www.lex-electronica.org/ 8 Mar 6.
22 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright law in the information society (Copyright Directive).
23 See a 5(1).
24 See a 5(2)-5(4). These exceptions include (free or paid for) exceptions relating to the photographic reproduction of material, private copying, illustrations for teaching, etc.

between the parties the governments cannot intervene, which effectively limits this to paper-based works.[25]

4 The implementation of the WCT in developing countries

Seven countries in Africa have deposited their instruments to join the WCT. The seven countries are Botswana, Burkina Faso, Gabon, Guinea, Mali, Senegal and Togo.[26] Botswana acceded to the WCT in January 2005 after a review of its copyright law.[27] The Botswana *Copyright Act* provides for the legal protection of technological protection measures and effective legal remedies against the circumvention thereof.[28] However, the Botswana *Copyright Act* does not make any provision for users to benefit from limitations and exceptions that are relevant to the digital environment.[29]

The general practice of adhering to strict technological protection measures, but failing to devise limitations and exceptions, is also followed by developing countries from other continents. A study has been made of the copyright laws of eleven developing countries in the Asian Pacific that have implemented technological protection measures.[30] The review of the copyright protection in these countries reveal that all eleven countries' laws grant protection to copyright owners beyond what is required for compliance with the WCT. Far-reaching rights have been granted to copyright owners to prevent the circumvention of technological measures that protect their works against unauthorised copying. However, the copyright laws of the eleven countries under review contain very limited limitations and exceptions to these copyright owners' rights. In these countries, the users' right to circumvent technological protection measures in order to access works were eroded.

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25 See a 5(5); a 6(4).
26 See Nwauche 2005 http://www.codesria.org/ 20 Apr text at n 90.
27 See the Botswana *Copyright and Neighbouring Rights Act* 2000 (hereafter referred to as the Botswana *Copyright Act*).
28 See Nwauche 2005 http://www.codesria.org/ 20 Apr 2.
29 This is unfortunate as Africa is a net consumer of copyright goods. See Nwauche 2005 http://www.codesria.org/ 20 Apr text at n 132.
30 CI Report 2006 http://www.cr-international.com/ 13 Mar.

The WCT has not been implemented in South African copyright law. The *Copyright Act*[31] has not been amended to address the impact of digital technology on copyright law. However, aspects of the WCT have been adopted in South African law. The anti-circumvention provisions were embraced in South Africa's efforts to wage war against cyber crime. Section 86 of the *Electronic Communications and Transactions Act* of 2002[32] creates a new cyber offence relating to the unauthorised access to, interception of or interference with data. This is, in essence, an anti-circumvention prohibition. The anti-circumvention prohibition applies to data messages, namely electronic representations of information in any form.[33]

Access is defined in section 85 of the ECT Act as follows:

> 'Access' includes the actions of a person who, after taking note of any data, becomes aware of the fact that he or she is not authorised to access that data and still continues to access that data.

This definition is not useful as access is defined by reference to access. Furthermore, it is unclear at what point a person must become aware of the fact that access is unauthorised and continue to attempt to gain access for her actions to within the ambit of the prohibition of section 86.[34] A person who intentionally accesses or intercepts any data without authority or permission to do so, is guilty of an offence in terms of section 86(1).[35]

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31 See the South African *Copyright Act* 98 of 1978.

32 *Electronic Communications and Transactions Act* 25 of 2002 (hereafter referred to as 'ECT Act').

33 See the definition of data message in s 1 of the ECT Act.

34 Compare for example the definition of access in the *Customs and Excise Act* 91 of 1964. 'Access' is defined in s 101A of this Act as gaining entry into, instructing or communicating with the logical, arithmetical or memory function resources of a computer, computer system or computer network.

35 The provisions of s 86(1) is subject to the *Interception and Monitoring Prohibition Act* 127 of 1992 (now repealed). It is not clear what the ambit of this offence is. Can access as defined above ever be authorised? What is the prohibited action – access or interception, with what type of consequences? Interception should be described or defined to refer to the non-public transmission of computer data to or from a computer system and the electromagnetic emissions from a computer system carrying data. See Altini 2002 http://www.cliffedekker.co.za/ 1 Mar.

Section 86(2) provides that a person who intentionally and without authority to do so, interferes with data in a way which causes such data to be modified, destroyed or otherwise rendered ineffective, is guilty of an offence. The specific prohibition reads as follows:

A person who unlawfully produces, sells, offers to sell, procures for use, designs, adapts for use, distributes or possesses any device, including a computer program or a component, which is designed primarily to overcome security measures for the protection of data, or performs any of those acts with regard to a password, access code or any other similar kind of data with the intent to unlawfully utilise such item to contravene the section, is guilty of an offence.

This sub-section 86(3) is significant as the Act for the first time provides for a criminal offence such as hacking. The Act outlaws the production, distribution and use of devices and applications designed primarily for the purpose of overcoming data protection security measures. However, this sub-section should refer to the use of devices with the intent that it be used to commit any offence established by the preceding sections, namely access, interception or system interference. Reference to "the contravention of this section" is inadequate.[36] Section 86(4) provides that a person who utilises any device or computer program mentioned in subsection (3) in order to unlawfully overcome security measures designed to protect such data or access thereto, is guilty of an offence.[37]

36 See Altini 2002 http://www.cliffedekker.co.za/ 1 Mar.

37 As noted under the discussion of s 86(3) above, this section should refer back to the basic offence of illegal access interception or system interference.

5 Impact of technological protection measures on developing countries

5.1 Limitations on access to works

The greatest advantage of the Internet is supposed to be access to millions of sources of information and unlimited opportunities. But dynamic tensions are caused by copyright owners' ability to use technological protection measures to protect their works against unauthorised use, but which also counter users' legitimate right to access such works. In the physical world, we can access materials protected by copyright without infringing copyright. We can borrow a book from a library, for example. The application of traditional copyright law to open, public, global networks such as the Internet is hindered by the fact that copyright law was designed to protect works in tangible form. Online, each access to such material involves an act of copying. The simple act of viewing a website requires your computer to make temporary local copies of the data in your computers' random access memory.[38]

Existing copyright law recognises the tension between the needs of society and the rights of creators by permitting a defence against charges of infringement on the grounds of fair use of copyrighted works for non-commercial educational and research purposes. Current trends in copyright law have upset the balance between the protection of copyright owners' rights and public interests. Dynamic tensions are caused by copyright owners' abilities to use digital rights management and similar technologies to protect their works against unauthorised use, but which also to impede users' legitimate rights to access such works. Technological protection measures offer authors complete control over the market for their works.

Access to digital works is increasingly governed by contract on a pay-per-view system.[39] Also, increasingly works protected by copyright are not sold in the

38 RAM.
39 See Owen *Selling Rights* 247-248.

way that books or videocassettes were sold in the past. These days they are licensed subject to certain terms and conditions of use. The increased use of licensing and technological protection measures has tipped the scale in favour of the right holders.[40] Licence agreements frequently override copyright exceptions and licensors are not obliged to consider public policy relating to fair use and exceptions.[41] Furthermore, where a licensee becomes unable to continue to subscribe to a digital resource, access to future as well as past editions of that electronic resource are terminated. Subscribers to on-line resources, such as electronic journals, are thus 'tied in' to continue to subscribe as termination will result in a loss of past investments.

Authors can effectively control access to their works and demand payment for access to not only their original expressions of ideas, but also of vast collections of information. This has the potential to limit the size of the public domain as non-copyrightable works as well as works that have entered the public domain as their copyright protection expires, may remain practically inaccessible due to technological protection measures.[42] This is contrary to one of the fundamental arguments for copyright protection – encouraging the publication of works and thereby enhancing society's level of knowledge. This, in turn, impacts on the application of exceptions and limitations. The traditional checks and balances of the copyright system, aimed at preserving the rights of consumers and the public interest, have become vulnerable to abuse. This trend affects information users everywhere, but it has an even greater effect on those in developing countries. Africa is a net consumer of intellectual property.[43] If access to knowledge is dependent on the individual's ability to pay, the less privileged will be placed at a distinct disadvantage.[44]

Disparity is created between the level and forms of protection of works in digital format as opposed to those of works in outdated formats. Two examples: First,

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40 Norman *Education* 48.
41 See CLM 2004 http://www.ifla.org/ 09 Mar.
42 See Geist 2006 *Lex Electronica* http://www.lex-electronica.org/ 8 Mar 6.
43 See Nwauche 2005 http://www.codesria.org/ 20 Apr 2.
44 See CLM 2004 http://www.ifla.org/ 09 Mar.

the content owner may through technological protection measures regulate the use of and access to works in digital form. Secondly, the content owner obtains the right to decide if fair use will be allowed and to what extent. Technological protection measures do not distinguish between uses which are not authorised by the owner, but permitted in law (fair dealing) and uses which are not authorised by the owner, but which are also infringing.[45] In the paper-based world the work is issued to the public once published. The author cannot dictate who may use the work, or how it should be used. Users of a work protected by copyright have the right to use the work fairly; the author does not have the right to refuse her work being used fairly. Technological protection measures prohibit all forms of copying and this grants her the right to refuse that fair use is made of her work. The blunt instrument of technology can be used to prevent all copying.[46]

Under existing law, the doctrine of first sale states that once an individual copy of a work has been sold, the owner of that particular copy may sell or otherwise dispose of that copy without the permission of the copyright owner.[47] The ability of libraries to lend is based on this doctrine.[48] Concerned that license restrictions will prohibit the digital equivalent of examining the contents of or borrowing a book or journal without purchase, some libraries argue that a digital first sale equivalent is essential to the teaching and research enterprise. The protection of access-controls empowers right owners to charge for individual access to encrypted works again and again.[49] Instituting pay-per-use mechanisms without any exceptions for research and teaching have the potential to lock out most citizens of developing countries.

Knowledge has an important role to play in development.[50] Development can be seen as a process which involves fairness of opportunity between countries

45 CLM 2004 http://www.ifla.org/ 09 Mar; Owen *Selling Rights* 242-243.
46 Geist 2006 *Lex Electronica* http://www.lex-electronica.org/ 8 Mar 6.
47 For more information on the first sale doctrine, refer to Hoffmann *Cyberspace* 37-38; Lee *Copyright Guide* 47.
48 Without this exception, libraries could not loan books or re-sell them.
49 See Sun 2005 *IIC* at 204.
50 Shashikant 2005 http://wsispapers.choike.org/ 8 Mar 1.

and non-discrimination between people within that country.[51] Access to information, as a fundamental human right, should shape the legal framework for the needs of the new information society. Several studies have pointed to the profound impact that DMCA-like legislation have on developing countries and on enlarging the digital divide, or the gap between the information rich as opposed to the information poor. The threat to the free flow of scholarly communication is obvious.[52] It has been noted that without exceptions copyright owners will have a complete monopoly over learning and thus control access to knowledge in the digital age.[53] In the absence of effective public interest exceptions, the great divide between the information rich and the information poor in both the developed and developing nations will increase.[54]

5.2 Political responses

The UK Commission on Intellectual Property specifically calls on developing countries to resist efforts to restrict fair use of material made available on the Internet for research and educational purposes.[55] Note should also be taken of the WIPO Development Agenda and its focus on the role of copyright in restricting access to information.[56] Access to information and the expansion and exchange of the knowledge commons form the core of the Treaty on Access to Knowledge or 'a2k'.[57] The A2K Treaty has a strong human rights perspective, access to information is viewed as the default position rather than the exception.[58] In the "WSIS Plan of Action"[59] it is stated that ICT should allow

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51 Ovett 2006 http://www.3dthree.org/ 9 Mar 3.
52 Refer, e.g., to the Open Society Institute's Budapest Open Access Initiative and Statement at BOAI 2001 http://www.soros.org/ 10 Mar and BOAI 2002 http://www.soros.org/ 10 Mar; and the Bethesda and Berlin declarations aim to cerate open access scholarly exchange of information. The Max Planck Society is also part of this initiative. See Herrington *Controlling Voices* 91-111.
53 CLM 2004 http://www.ifla.org/ 09 Mar 6.
54 CLM 2004 http://www.ifla.org/ 09 Mar 16. Also see Norman *Practical* 153.
55 See UK CIPR 2002 http://www.cptech.org/ip/wipo/uk-iim.doc 22 Jun.
56 See Ovett 2006 http://www.3dthree.org/ 9 Mar 3-7.
57 See Bollier 2006 http://onthecommons.org 12 Mar.
58 Armstrong and Ford 2005 http://www.common-sense.org 10 Mar. See part 3 and part 5 of the A2K Treaty.
59 WSIS is an acronym for World Summit of the Information Society. See WIPO Contribution 2003 http://www.itu.int/ 10 Mar.

people anywhere in the world to access knowledge and information. It is important to note that WSIS explicitly upholds the respect for intellectual property rights whilst the promotion of access to knowledge and information is advocated.[60]

Access to information is at the core of human rights such as the right to respect, the right to education, the right to seek, receive and impart information, the right to freedom of expression, and the right to enjoy the benefits of scientific progress and its applications.[61]

It is explicitly recognised in the founding document of the New Partnership for Africa's Development[62] that digital technologies and interconnected networks have an important role to play in expanding and improving education, putting knowledge and research outputs into the public domain and facilitating collaborations among tertiary institutions and research bodies.[63] But there is concern that the digital, networked environment is not yielding as much benefit

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60 See Shashikant 2005 http://wsispapers.choike.org/ 8 Mar 11. Also refer to WSIS 2003 http://www.itu.int/ .

61 Ovett 2006 http://www.3dthree.org/ 9 Mar 7. See Nwauche 2005 http://www.codesria.org/ 20 Apr 2. A 27(2) of the Universal Declaration of Human Rights (hereinafter, Universal Declaration) (GA Res 217A UN Doc A/810 1948) provides that: "everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author".
The UN Covenant on Economic, Social and Cultural Rights (CESCR). The United Nations, International Covenant on Economic, Social and Cultural Rights, GA Res 2200 A (XXI), 21 UN GAOR Supp (No 16) at 49 (UN Doc A/6316 (1966), 993 UNTS 3) (entered into force 03 January 1976). A 2(1) of CESCR provides that States must: "take steps, individually and through international assistance and co-operation, especially economic and technical, to the maximum of its available resources, with a view to achieving progressively the full realization of the rights recognized in the present Covenant by all appropriate means, including particularly the adoption of legislative measures."
A 15(1)(c) of CESCR provides: "The States Parties to the present Covenant recognize the right of everyone (…) to benefit from the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author."
Also refer to a 19 of the UN Covenant on Civil and Political Rights (CCPR) (The United Nations, International Covenant on Civil and Political Rights, GA Res 2200A (XXI), 21 UN GAOR Supp (No 16) at 52, (UN Doc A/6316 (1966), 999 UNTS 171) (entered into force 23 March 1976). CCPR obliges Contracting States to protect freedom of expression and information.

62 See The New Partnership for Africa's Development (NEPAD) 2001 http://www.nepad.org/ 5 May.

63 See NEPAD 2001 http://www.nepad.org/ 5 May at Part B: Programme of Action (sectoral priorities) wherein it is stressed that the digital divide and the 'education gap' must be bridged by investing in information and communication technologies; see also the discussion by Armstrong and Ford 2005 http://www.common-sense.org 10 Mar 39.

for African education as it could, and that many of the practices of large publishing and content houses, supported by international and national intellectual property law, are to blame. For instance, it is argued that the inexpensive and widespread diffusion of education materials made possible by digitisation and digital networks is being undermined by the continuing vagueness and restrictiveness of 'fair dealing' (called 'fair use' in the US) exception rules in national copyright laws and regulations.[64]

6 The Functional equivalent approach

Copyright law has emerged as one of the most forceful means of regulating the flow of ideas and knowledge-based products.[65] It has been noted that it is crystal clear that both the US and the EU will not give up their endeavours to strengthen and expand the copyright protection of information products.[66] Difficult questions are posed of how copyright exceptions can effectively be accomplished under conditions of technological protection measures without exposing users to unreasonably high transaction costs and how the ability of the general public to seek and find important information can be preserved. Developing countries should devise their own strategies to cope with the proliferation of protectionism within the context of the widening digital divide.

The extension of equivalent qualification of owners' rights into the digital environment with appropriate safeguards against abuse is supported.[67] These principles should be independent of particular technologies. In the digital environment, storage, distribution and use are accomplished by algorithms instead of copies, and practices sanctioned by law in the paper environment may have significant unintended consequences. Accordingly, legislative efforts

64 Armstrong and Ford 2005 http://www.common-sense.org 10 Mar 38-39.
65 See Sun 2005 *IIC* at 211.
66 See Sun 2005 *IIC* at 211.
67 University of California 1996 http://www.ucop.edu/ 13 Mar 1.

to extend print practices into the digital environment should focus on objectives rather than on strictly analogous practices.[68]

The principles of contract law are old – they were formed in a paper-based world that ran on paper and ink. The meeting of minds in cyberspace was never envisaged and the validity and effect of the use of electronic messages in commercial communications were never contemplated. The advent of the use of electronic communications for commercial transactions posed unexpected and complex legal problems. It is noted that the uncertainties relate not so much to the fact that legislation requires pieces of paper and therefore excludes electronic alternatives, but rather the fact that legislation was written in an era when technologies did not exist to replace documents in 'writing' with e-mail messages, or signatures with encrypted data blocks.[69]

This need for legal certainty prompted the United Nations Commission on International Trade Law to establish a Working Group to draft legal rules on electronic commerce.[70] The UNCITRAL Model Law on Electronic Commerce[71] was adopted on 12 June 1996 and aims to create a more secure legal environment for what has become known as 'electronic commerce' by providing a tool for states to enhance their legislation as regards paperless communication and storage of information.[72] In May 1997, the “Guide to Enactment” was published.[73] The Guide states that disparities among, and uncertainty about, national legal regimes governing the use of such communication techniques may contribute to limiting the extent to which businesses may access international markets.[74]

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68 See University of California 1996 http://www.ucop.edu/ 13 Mar 3.
69 See Walden 2001 *ELR* 537.
70 Glatt 1998 *IJLIT* 57.
71 See UNCITRAL Model Law on Electronic Commerce 1996 with additional a 5 *bis* as adopted in 1998 (General Assembly Resolution 51/162 of 16 December 1996) (hereafter Model Law).
72 See Glatt 1998 *IJLIT* 34.
73 The Guide to Enactment 1996 (hereafter UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr) was considered by the Working Group on Electronic Commerce and its final form is the substance of the policy considerations, and recommendations of that Working Group.
74 UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr 4.

The Model Law relies on a new approach, sometimes referred to as the "functional equivalent approach", which is based on an analysis of the essential purpose and function of a traditional paper-based requirement with a view to determining how those purposes or functions could be fulfilled through electronic-commerce techniques.[75] Essentially, it involves the determination of the criteria which the equivalent electronic communication must meet in order to be given the same legal recognition as the corresponding paper-based document enjoys, where both the paper-based document and the electronic communication are performing the same function.[76] It is also important to note that it is one of the objectives of Model Law that the adoption of the functional-equivalent approach should not result in imposing on users of electronic commerce more stringent standards of security (and the related costs) than in a paper-based environment.[77]

The requirement of 'writing' or a 'document' is imposed or implied by laws in most jurisdictions. The Model Law singles out basic functions of paper-based form requirements with a view to providing criteria, which, once they are met by data messages, enable such data messages to enjoy the same level of legal recognition as that of paper documents performing the same function.[78] Model Law adopted a flexible standard, taking into account the various layers of existing requirements in a paper-based environment: when adopting the 'functional-equivalent' approach, attention was given to the existing hierarchy of

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75 UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr par 16. It is noted in par 16 that paper documents fulfil the following functions: to provide that a document would be legible by all; to provide that a document would remain unaltered over time; to allow for the reproduction of a document so that each party would hold a copy of the same data; to allow for the authentication of data by means of a signature; and to provide that a document would be in a form acceptable to public authorities and courts. It should be noted that in respect of all of the above-mentioned functions of paper, electronic records can provide the same level of security as paper and, in most cases, a much higher degree of reliability and speed, especially with respect to the identification of the source and content of the data, provided that a number of technical and legal requirements are met.

76 See Howland 1997 *Euro TL* 703.

77 UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr par 16.

78 See UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr par 18; Livermore and Euarjai 1998 *JILT* http://elj.warwick.ac.uk/ 10 Mar 1-2.

form requirements, which provides distinct levels of reliability, tractability and inalterability with respect to paper-based documents.[79]

The Model law translates the requirements of reliability, tractability and inalterability in order to give electronic transmissions the same legal status as writings. Article 5 provides that where a rule of law (national laws) requires information to be in writing or to be presented in writing, or provides for certain consequences if it is not, a data message satisfies that rule if the information contained therein is accessible so as to be useable for subsequent reference. For example, a data message cannot, in and of itself, be regarded as an equivalent of a paper document as it is of a different nature and does not necessarily perform all conceivable functions of a paper document. Furthermore, the requirement that data be presented in written form (which constitutes a 'threshold requirement') is not to be confused with more stringent requirements such as 'signed writing', 'signed original' or 'authenticated legal act'.[80]

The Model Law may be used as a tool for interpreting existing international conventions and other international instruments that create legal obstacles to the use of electronic commerce, for example by prescribing that certain documents or contractual clauses be made in written form.[81] It should be possible to graft a technology neutral solution for the interface of copyright and new technology. The main principles of the Model Law – functional equivalence and technology neutrality – are the key here. One may argue that drafting functional equivalent provisions, adapted to address fair use in the digital world, was envisaged by the WCT. Article 10 permit Contracting Parties to carry forward and *appropriately extend into the digital environment* limitations and exceptions as adopted under the Berne Convention.[82] Contracting parties are

79 See UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr par 17.
80 UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr par 16-17.
81 UNCITRAL Guide 1996 http://www.uncitral.org/ 20 Apr par 5.
82 Berne Convention for the Protection of Literary and artistic Works of September 9, 1886 (as revised at Paris on 24 July 1971).

also permitted to devise new exceptions and limitations that are *appropriate in the digital network environment*.

Equivalent qualification of owners' rights should be extended into the digital environment with appropriate safeguards against abuse.[83] These principles should be independent of particular technologies. In the digital environment, storage, distribution and use are accomplished by algorithms instead of copies, and practices sanctioned by law in the paper environment may have significant unintended consequences.

7 Conclusion

Copyright law is playing an ever-increasing crucial role in the Information Society. The implementations of the WCT and anti-circumvention provisions in developed countries have disturbed the copyright balance. Content owners have gained the right to control both access to and use of copyright works in digital form through technological means. Encryption and the use of various digital locks effectively protect copyright owners against the piracy of their digital works. However, technology is blind and cannot distinguish between fair use for the purpose of research or private study and unfair use for commercial gain: all forms of unauthorised uses are barred. This has upset the delicate equilibrium between private and public rights.

This trend is especially harmful to developing countries as the net importers of information products. Access to information leads to knowledge and empowerment which are indispensable for sustainable development. The rights of owners and users should be functionally equivalent irrespective of the media of embodiment.[84] Public access rights should be enjoyed irrespective of the

83 University of California 1996 http://www.ucop.edu/ 13 Mar.

84 The approach followed in the implementation of the WCT in Luxembourg is a case in point (See Neuen 2005 *RIDA* 138-163). In terms of s 71 *quinquies* of the *Copyright, related rights and database rights Act* of 2001 of 18 April 2001 as amended by the law of 18 April 2004 (Memorial OJ - A no 50 of 30 April 2004 1024-1056) right holders are required to

form of the work's material embodiment. It may be argued that the same code (i.e., technical protection measures) could and should lock and unlock content. The balance between private and public rights may be restored if a functional, equivalent approach, similar to that which was followed by the drafters of the Model Law, is adopted.

take the necessary steps, including by contractual agreement or by deactivating the technological measures, to guarantee to the beneficiaries of certain exceptions the unimpeded exercise of these exceptions. S 81 provides that authors who are in breach of this obligation infringe the rights of beneficiaries.

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