

Changing Mechanisms in Copyright Ontology: Digital Rights Management

Sangharsh Pandey¹

Debate over the DRM started with the culture clash between the copyright owning community and the Internet generation. The Internet generation believes that access should be universal and sharing should be free. Whereas, the copyright owning community believes access should be controlled and copying paid for. This Article depicts the technical as well as practical aspects of copyright law in the digital world. The very concept of fair use and fair dealing poses a big question in the digital environment. It demonstrates that, how internet has changed the very approach of the copyright law and how it works from a digital copyright perspective. This paper takes into account the changes and developments in the U.S. laws. It also deals with the challenges posed to the concept of 'fair use' by the DMCA (Digital Millennium Copyright Act). This paper examines the contribution of DMCA in controlling access to digital works. It deals with the Indian position in reference to DRM through the prism of Indian Copyright Act, 1957 and The Information Technology Act, 2000. It also reveals the recent developments in the Google's controversy in its quest to create the world's largest online library. This paper also articulates its opinion on the future of DRM. The Article concludes with the recommendations and suggestions in order to balance the conflicting interests. It portrays itself with such simplicity and straightforwardness, which even a layman can understand.

...there is an inherent logic to using the Internet to buy and sell intangible products that need never be more than digital "bits." At the same time, however, there is a commensurate need for effective intellectual property protection that can address the international dimensions of this commerce. [...] This commerce in intangible products raises a number of issues for intellectual property, in addition to those that would arise in respect of physical goods. For example, there a growing role to be played by technological measures in protecting the rights of intellectual property owners.

-Premier on Electronic Commerce and Intellectual Property Rights²
WIPO, Geneva, May 2000

Introduction

Revolutions in technology have often led to evolution in copyright law. Such advances have in part challenged the constitutional balance between the interests of copyright

¹ Sangharsh Pandey, Final Year Student, Hidayatullah National Law University, Raipur, C.G. 495001.

² Christopher Heath and Anselm Kamperman Sanders, Intellectual Property in the Digital Age, Chapter 3- Copyright Issues of Techno-Digital Property, p.65.

owners in the exploitation of their works and society's interest in the free flow of information.

It is settled that copyright does not protect ideas. Courts have developed the so called 'idea/expression' dichotomy to help set the boundary between what is in the 'public domain' and so common to others to freely copy and exploit, and what can be proprietary and 'privatized'. So copyright is said only to protect the expression of ideas, not ideas themselves.

Common law recognizes that not all copying and exploitation of copyright works ought to be treated as infringements of copyright. There are certain 'fair dealing' exceptions to copyright, such as the right to copy materials for private study and research, for criticism and review, and for news reporting. For instance in USA and also in India courts have developed a broad 'fair use' defense to copyright infringement. But, the very concept of fair use and fair dealing poses a big question in the digital environment. For example, whether copying millions of internet images in order to operate an Internet 'visual search engine' can be called as 'fair use'.

In simple words management of copyright in the internet is known as digital rights management. Digital Rights Management is a technology designed to track and/or copy protect digital copyright content; includes **Secure Distribution**³ mechanisms which generally use **Encryption**⁴ and **Digital Watermarks**⁵. DRM typically controls the exploitation of content by 'meta tagging' content with the relevant usage rules (license rights) prior to the content being encrypted. It can only be unlocked by a user who has access to the necessary **decryption**⁶ technology and used within the permitted usage rules.

³ Secure Distribution is a means of distributing digital content which is typically encrypted and contains embedded usage rules; a 'trusted device' is then required to access the content. The device may only be activated, for example, once payment for the content has been made.

⁴ Encrypt/Scramble means to convert into unreadable form (without the right Decryption key).

⁵ Digital Watermark: Data embedded in digital content which will identify the copyright proprietor and usage rules; it also refers to code placed into a content file (text, audio, visual etc) which makes the content difficult to copy or destroys it if an attempt is made to copy or use the content without permission.

⁶ Decrypt/Descramble is the opposite of Encrypt/Scramble.

For a long period of time, authors sold copies of their works to the public and that was how they made money. The individual who purchased the work owned the copy but not the copyright. The purchaser could place the book in a personal library, read it at leisure, loan the copy to a friend, or give it away.

But in a digital world, works are less frequently sold and more often licensed. Combined with the fact that, in an online environment, works are placed on remote servers and users pay a fee to access them, licensing and access are the core concepts of copyright exploitation in the digital millennium.

Changes and developments in U.S. Laws

While dealing with the management of copyright on Internet it is not possible to lose account of the changes and developments in the U.S. laws. The first Act in U.S.A. which introduced the law regarding DRM was **Copyright Act of 1976**⁷. It was amended in 1980, which expanded the concept of literary work to include programs, as well as computer databases that “exhibit authorship”. Because of rapid advances in the field of digital technology, the 1976 Copyright Act has been amended on a number of occasions. In 1998, two important amendments were made to this Act, both of which are controversial: the Copyright Term Extension Act (CTEA) and the Digital Millennium Copyright Act (DMCA).

First, the CTEA extended the length of copyright protection from the life of the author plus 50 years to the life of the author plus 70 years. Unlike CTEA, the DMCA does not increase the amount of time that a copyrighted work is protected; rather it extends the kinds of rights that had previously been protected under copyright law. And because of the manner in which the DMCA has expanded these rights, it is worried that that the development and use of digital technology will be severely restricted. The “anti-circumvention clause” of DMCA is highly controversial, which forbids the development of any software or hardware technology that circumvents (or devises a technological workaround) to copyrighted digital media. This clause is controversial because of its

⁷ It was the major copyright legislation in U.S.A updating the 1909 Copyright Act to reflect technological and international developments.

implications for the principle of fair use, which is an important element of copyright law in that it provides a “balancing scheme.”

While the DMCA prohibits the circumvention of access control measures, it does not prohibit the circumvention of use control measures. Access controls deter unauthorized access to a protected work, but use controls help prevent unauthorized use. A user might have legitimate access to a work, but a “use control” may limit that user’s ability to print or copy that work. Paradoxically, however, it is also forbidden to manufacture, distribute, or traffic in devices that circumvent use control measure. There are certain exceptions to these provisions. Reverse engineering in order to achieve interoperability is allowed (subject to certain conditions). The DMCA also incorporates an exception for “good faith encryption research” or for security research. The researcher must make every effort to obtain permission from the copyright holder before implementing the circumvention device. Despite these exceptions, critics have highlighted many problems with the DMCA, such as its implicit subversion of the fair-use exemption.⁸

Challenges to “Fair Use” by DMCA

A different kind of challenge to the principle of fair use is illustrated in a case involving Dimitri Sklyarov and the DMCA, which demonstrates how the DMCA threatens our ability to use and exchange electronic books in the manner people have become accustomed to with physical books.

Facts- Sklyarov had written a program, while he was a graduate student in Russia, which was able to decrypt the code for an electronic book reader developed by Adobe, a U.S. based Software Company. Adobe’s “e-book reader” is a software product that enables computer users to read digital books. Adobe worried that with Sklyarov’s program, computer users would be able to read e-books for free. The software company also believed that Sklyarov’s program was illegal under the DMCA, and it decided to press charges against Sklyarov. The U.S. government was eager to prosecute this case because

⁸ Richard A. Spinello & Herman T. Tavani, *Intellectual Property Rights in a Networked World, Theory and Practice*, Chapter I Intellectual property Rights from Theory to Practical Implementation, p. 34.

it wanted to test the “anti-circumvention” provision of the DMCA; even though the Act was officially passed in 1998, it was not enforceable as a law until 2000. Federal authorities arrested Sklyarov in the summer of 2001, while he was attending a conference in Nevada, and confiscated Sklyarov’s brief case which contained a copy of his controversial program. This case never went to trial, however, because Adobe soon dropped its charges against Sklyarov.

Sklyarov’s arrest generated considerable controversy and protest in the summer of 2001, especially among many software engineers who realized the implications of the DMCA for the process of reverse engineering. While many believed that Adobe had a legitimate concern, they were also concerned about the manner in which the principle of fair use was being technologically undermined by Adobe and legally undermined by the DMCA.

Other “balancing” issues at stake in the DMCA related controversy surrounding Adobe’s e-book reader involve the principle of first sale, as well as the informal policy of being able to lend and borrow books. It should be noted that in the case of a physical book, an individual has the legal right to transfer the book once he has purchased or otherwise legally acquired it. For example, one can resell the book to a 3rd party, lend it to a friend, or give it away for free. However, under the provisions of DMCA, one would not have the right to transfer an electronic version of that book because of the increased protection granted to copyright holders of digital media.

DRM and Infringement of Copyright on Internet

Debate over the DRM started with the culture clash between the copyright owning community (some creators) and the Internet generation. The Internet generation believes that access should be universal and sharing should be free. Whereas, the copyright owning community believes access should be controlled and copying paid for. Thus, the battle line was drawn. At the core of the legislative debate over passage of the DMCA⁹

⁹ Digital Millennium Copyright Act (DMCA) - It is the comprehensive copyright reform legislation enacted in 1998 to update U.S. copyright law to reflect technological developments since the Copyright Act of 1976.

was essentially the issue of access. Controlling access to digital works is the significant contribution of the DMCA.

Among the clashes that have marked the early days of the DMCA, Napster.com is one of the most important.

Napster.com- This site became a synonym for the Internet debate. At its peak, more than 40 million subscribers worldwide logged on to Napster and, utilizing the searching facilities of the website, identified computers around the globe that contained files of published songs and effected a file transfer. The file of music was copied and sent from one computer to others without clearance or compensation to the owners. The largest recording companies launched a coordinated legal attack against Napster and prevailed in a copyright infringement case that effectively shut down the site.

Infringement of copyright on the internet takes place either by ignorance or willfully. In a tangible medium, it is easy to determine whether a 'copy' of a protected work has been made, or whether infringement of any of the exclusive rights of the copyright owner has occurred. However, in the digital environment, it is a debatable issue whether data transmitted through the various modes of the networks comprising the World Wide Web (www) is 'copied' for the purposes of copyright law. Even if one assumes that a 'copy' has been made, determining where that copy actually exists in the network may prove extremely difficult. Thus, determining that whether the 'copy' has been distributed or displayed publicly becomes difficult. Once it is proved that a copy has been made and exists in digital form somewhere on the computer network, it may be considered that the digital copy is an infringing copy of the original copy and the exclusive rights of the copyright owner have been violated.

Copyright infringement in cyberspace may be categorized as follows:

- (i) Posting or uploading of materials on the website:
- (ii) Linking;
- (iii) Framing;

(iv) Caching; and

(v) Archiving.¹⁰

Under UK law the copyright owner has a bundle of exclusive rights which he can prevent others from exercising. These so-called ‘restricted acts’ include the right to:¹¹

(a) Copy the work (the reproduction right);¹²

(b) Issue copies to the public (distribution right);¹³

(c) Perform, show or play the work in public;¹⁴

(d) To rent or lend the work to the public;¹⁵

(e) To communicate the work to the public (includes broadcasting and on-demand transmissions);¹⁶

(f) To make an adaptation of the work or do any of the above in relation to the adaptation.¹⁷

Copyright in a work is infringed by a person who, without the license of the copyright owner, does, or authorizes another to do, any of the acts restricted by copyright.¹⁸

In addition to DMCA and CTEA, some other laws regulating and controlling digital copyright in United States are Acts like NET (No Electronic Theft) Act and UCITA (the Uniform Computer and Information Transactions Act). The NET makes the dissemination of copyrighted information by electronic means a criminal act. In other

¹⁰ Don W Martens and Stacey R Halpern, ‘Intellectual Property Law in Cyberspace’, Paper presented at the Seminar on Cyber Law organized by International Chamber of Commerce, New Delhi, 29 April 1997, cited in Biju TM, ‘Copyright in Cyberspace’ in AK Koul and VK Ahuja (eds), Law of Copyright: From Gutenberg’s Invention to Internet, 2001, p. 289.

¹¹ S 16 CDPA.

¹² S 17 CDPA.

¹³ S 18 CDPA.

¹⁴ S.19 CDPA.

¹⁵ S.18A CDPA.

¹⁶ S. 20 CDPA.

¹⁷ S.21 CDPA.

¹⁸ S.16(2) CDPA.

words, it criminalizes behavior involving the distribution of copyrighted material, which traditionally could only be contested in a civil court. Whereas the UCITA have been designed to improve uniformity across states and to govern computer/information transactions, including contracts for the development, sale, licensing, maintenance, and support of computer software. It is an attempt to develop a single national framework that would help states address issues such as warranties and software licenses. For example, the law would turn the consumer license that comes with shrink-wrapped software into a binding contract. Till date, UCITA has been enacted into law only in the states of Virginia and Maryland. UCITA's critics assert that further enactment of this law by additional state legislatures will have negative consequences for consumers and for the general public. Whereas UCITA's defenders include companies such as Microsoft and AOL who have lobbied hard on behalf of UCITA.¹⁹

Digital Challenge to Copyright²⁰

Digital technology poses a number of challenges to copyright. The two most significant aspects are first the digitisation of copyright works (so a photograph, for example, can be scanned into an image file) and the creation of new purely digital products (such as software). Second, the growth of networks such as the Internet which allow the rapid global transmission of digital information.

Characteristics of digital technology which pose challenges to management of copyright in an digital environment:-

1. ***Ease of replication***- the technology used to create and view/use a digital work can be used to make multiple 'perfect' copies of that work.
2. ***Ease of transmission and multiple use***- networked computers potentially facilitate the widespread piracy of works. The ongoing development and implementation of broad bandwidth fixed and mobile networks to deliver content-rich 'multimedia' works facilitates this further.

¹⁹ Richard A. Spinello & Herman T. Tavani, Intellectual Property Rights in a Networked World, Theory and Practice, Chapter I Intellectual property Rights from Theory to Practical Implementation, p.36.

²⁰ Samuelson, Digital Media and the Changing Face of Intellectual Property Law (1990) 16 Rutgers Computer & Tech LJ 323.

3. ***Plasticity of digital media***- users can easily modify, enhance or adapt works in digital form.
4. ***Equivalence of works in digital form***- all works look alike once in code: this means it is easy to combine digital works into new products such as ‘multimedia’. This is also an aspect of convergence- the merger of media, technology and networks in areas such as the Internet, digital broadcasting, cable services and so on.
5. ***New Search and link capabilities***- Internet Sites can be easily linked.
6. ***Compactness of works in digital form***- a whole library can be stored on a few CD-ROMS; this feature also assists in the creation of new works or assemblages of printed and graphic materials.
7. ***No human author (sometimes)*** – the digital work may be computer-generated as opposed to being created with the aid of a computer; copyright law is rooted in the concept of an identifiable, personal author.²¹

Understanding Internet

To understand digital copyright law it is essential to look in general terms at how the internet works from a digital copyright perspective. To cite a practical example, let’s consider what steps take place when an image is loaded onto a website. When the image in question, a photograph (‘Work’), is scanned into computer memory using a digital scanner the Work will be copied and if the Work is in copyright, this will amount to an infringement of copyright.²² Once in electronic form numerous further copies of the Work can be made, for example on to floppy disk, hard disk- they would also infringe copyright under the CDPA. Also, transitory copies of the work will be made- for example, if the work is viewed on-screen a copy of the work will be made in computer RAM (Random Access Memory) memory- both this copy but not necessarily the on-screen ‘copy’ will infringe copyright.

²¹ Stokes, Simon, Digital Copyright-Law and Practice, Chapter One- “Why Digital Copyright Matters”, Second Edition, p. 9.

²² S 16 CDPA (Copyright, Designs and Patents Act 1988 (the Current UK Copyright statute)).

Also, if the electronic copy of the Work is loaded onto a computer server (itself an act of copying) made accessible on the world-wide web. A person browsing the relevant website would, through instructions sent by that person's computer, download a copy of the work into RAM in his PC. Again, this would be an act of copying.

The Internet is best viewed as a global computer network which allows computers to talk to each other. The viewer's (browser's) computer transmits a request to the server computer holding the website which is being browsed to forward a copy of some particular material that it is storing. This material is not passed directly to the browser's computer. It is broken into packets, each with an address, and sent across the Internet. It is then passed from one computer on the Internet to another, all of which could be said to make a copy, until all the packets are received at the browser's computer. So the Internet works by copying.

Thus, the exploitation of works in digital form is likely to involve the generation of a number of potentially infringing copies. Copying may also take place in several countries, for example, if the server in question is located in Country A and the person browsing in Country B then if the copyright laws of A and B differ this may lead to a different degree of protection between countries. In practice, however, provided if the digital copy of the work is lawfully made available for browsing then those browsing ought to benefit from an implied licence- i.e., the law will imply a licence from the circumstances.

One of the developments associated with the Internet has been that valuable copyrighted works, such as new musical CDs and movies, are posted at renegade sites for anyone to download without paying a fee. This practice has driven some copyright owners to the courts for relief. However, since the source of the infringements is often an untraceable site in cyberspace, an alternative defendant has been the Internet Service Provider that links customers to these sites.²³

Position in India

In India, the Copyright Act deals with the infringement of copyright. The Copyright Act does not provide for the liability of the ISPs as such. Section 51, which deals with the

²³ P. Lutzker, Arnold, "Content Rights for Creative Professionals", Chapter 8, Online Service Providers: Gateway or Traffic Cop, p.65.

infringement of copyright, provides that copyright is deemed to be infringed when any person, without a licence granted by the owner of the copyright or the Registrar of Copyrights.

The issue whether the liability of ISPs can be fixed for the infringement of copyright under the aforesaid provision is debatable even though the provision may interpreted in such a way as to fix their liabilities. It is also noteworthy that it might not be the intention of the legislature to apply the aforesaid provision to fix the liabilities for the ISPs.

The issue to fix the liability of the ISPs has been redressed under the Information Technology Act 2000. Section 79 of the Information Technology Act 2000 exempts the network service providers from liability in certain cases. It provides that any person providing any service as a network service provider is not to be made liable for any third party information or data made available by him if he proves that the offence or contravention was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such offence or contravention.

The problem with the Information Technology Act is that it was enacted to provide legal recognition for e-commerce and does not deal with the infringement of copyright as such.²⁴

Napster from Indian point of View:- Under Indian law, the activities of Napster would not amount to direct copyright infringement on the face of it, as they are not:

- (1) Reproducing the copyright works, or storing them;
- (2) Selling or hiring works;
- (3) Issuing copies of the works to the public;
- (4) Performing the works in public or communicating them to the public;
- (5) Making any translations or adaptations of the works.

The Indian courts have held in *Garware Plastic and Polyester Ltd. v. Telelink* in a case pertaining to the showing of video films over a cable network, that such an action amounts to broadcasting or communicating it to a section of the public. The Hon'ble Supreme Court also held that such broadcasting of the programme directly affected the

²⁴ Dr. V.K.Ahuja, Law of Copyright & Neighbouring Rights, National & International Perspectives, p.257, LexisNexis Butterworths, 2007

earnings of the author and violated his intellectual property rights. The case also held that assisting in infringement would amount to the infringement of copyright.

On the basis of this case, it may be possible for some to argue that Napster facilitates unauthorised copying and hence, should be liable for contributory and vicarious infringement of copyright. However, the *Garware* case may be distinguished from the *Napster*, as *Napster* is not ‘broadcasting’ the music to any of its subscribers. It is merely providing software that may be used to locate songs for copying over the Net. The legal position in India is as yet unclear and much would depend on the facts and interpretation of these facts by the court.

But, even today, in Indian legal system western thought is readily acceptable. The Indian position is unique among Asian and developing nations. Litigation and enforcement tools and concepts have found ready acceptance. For example, *Anton Piller Orders* and *Mareva* injunctions have been employed with success in India. Nonetheless, the following points should be kept in mind. There is no common law duty of care parallel to the duty imposed by the statute not to infringe copyright. In addition, there is no distinct tort of procuring or inciting the infringement of copyright.

Anyone who sanctions, approves or countenances an infringement may be liable. Even indirect permission or countenancing of infringement would be sufficient to constitute authorising. (Section 48(4) and 48(6) of the UK Act of 1956).²⁵ There is no parallel section in the Indian Copyright Act 1957.

It has also been held that indifference, exhibited by acts of commission or omission, may reach a degree from which authorisation or permission may be inferred.²⁶ A dealer who has placed orders with a manufacturer for the supply of a quantity of a particular article which was manufactured and supplied to him, has authorised their manufacture and accordingly authorised infringement of copyright in the drawings of the article.²⁷

²⁵ See section 25 of the UK Copyright, Designs and Patents Act 1988, for parallel provisions under the present law.

²⁶ *Moorhouse v. University of NSW* [1976] RPC 151; *PRS v. Ciry* [1914] 1 KB 1, p.9.

²⁷ *Standen Engineering v. Spalding* [1984] FSR 554; *Moorhouse v. University of NSW* [1976] RPC 151; *RCA v. Fairfax* [1982] RPC 91.

In addition, there are common law judgments on the ‘incitement of others to infringe copyright’. There is no doubt that these precedents would find ready acceptance by Indian courts.

Indian law has a similar provision to the ‘personal, non-commercial’ fair use exception set out in the United States Home Recording Act 1992. This is set out in s. 52 of the Indian Copyright Act 1957, which provides that use of a work will not amount to infringement of copyright, if it is private use, or for criticising or reviewing the musical work, or for taking back-up copies, reporting the work in a newspaper or for judicial or legislative proceedings, etc. Therefore, it may be possible for Napster to run the argument of non-infringement, as the Napster subscribers are only using the music for their private use.

However, Napster would not be able to claim immunity under the ‘network service provider’, provision of the Indian Information Technology Act 2000²⁸ as the provision stipulates that a network service provider can claim immunity against ‘third party information’ only if he proves that the contravention (in this case, copyright violation by the Napster subscribers) was committed without his knowledge, or that he had exercised all Due Diligence to prevent the commission of such an offence or contravention. Napster is not only aware of such contravention, but is also facilitating it by actively supplying the software and service to its subscribers that makes such a contravention possible.

Recent Developments²⁹ in digital copyright scenario have taken place with China fighting on Internet openness, Google is embroiled in a litigation in which publishers and authors from around the world, including India, have accused it of violating copyright in its quest to create the world’s largest online library. Indian Repographic Rights

²⁸ Section 78 of Information Technology Act 2000 States: For the removal of doubts, it is hereby declared that no person providing any service as a network service provider shall be liable under this Act, rules or regulations made thereunder for any third party information or data made available by him if he proves that the offence or contravention was committed without his knowledge or that he had exercised all due diligence to prevent the commission of such offence or contravention.

Explanation- For the purposes of this section-

- (a) ‘network service provider’ means an intermediary;
- (b) ‘third party information’ means any information dealt with by a network service provider in his capacity as an intermediary.

²⁹ “Googles’s e-library under fire”, Indian Authors Join Global Campaign, Move NY Court over Copyright violation, Sunday Times of India, Mumbai, Jan 31, 2010, p.14.

Organization (IRRO) which is the official copyright society for Indian authors and publishers, and Federation of Indian Publishers (FIP) have also joined a global campaign against the latest version of Global Book Settlement (GBS 2.0) by filing their objections at a New York district court on 28th January, 2010.

GBS 2.0 gives Google copyright immunity to distribute millions of books online, in exchange for sharing the revenue it generates with the rights holders. The introduction of Apples' iPad Tablet recently is expected to enhance the popularity of digital books, GBS 2.0, which gives a first mover advantage to Google, is being vehemently opposed by the search giant's rivals such as Microsoft, Amazon and Yahoo.

The deal has divided opinion among copyright owners as some of authors and publishers have welcomed it as a fresh stream of revenue. One of the most controversial aspects of GBS 2.0 is "opt out", a mechanism which puts the onus on copyright owners to keep their books out of the purview of this Google innovation. As IRRO's statement put it, "This implies that if a person is silent he is deemed to have consented to an agreement."

According to IRRO, Indian authors, without any representation of their interests, would be affected by the secret negotiations that a few US-based publishers have had with Google. While GBS 2.0 is ostensibly limited to books published in the US, UK, Canada and Australia, the deal would impact the rest of the world too as any author published in any of the four named countries would be covered by it.

The judgment in the Google Case and the policy of the U.S. government will be the milestone and is going to decide to the large extent, "How the rights of copyrights owners will be interpreted in the digital world".

The Future of Digital Rights Management

The European Commission is supporting the development of interoperable technical systems to protect copyright such as digital rights management systems (DRMs). According to the Commission DRMs are technologies that identify and describe digital content protected by intellectual property rights. They can be used to enforce usage rules set by right-holders or prescribed by law for digital content. They can also facilitate legal copying and re-use of content by establishing a secure environment in which right-holders

are remunerated for private copying, on-line content is paid for, and illegal copying is prevented.³⁰

The Commission's High Level Group on DRMs presented a Final Report on 8 July 2004 which reflected a consensus on basic principles and recommendations for future actions in three areas:

- (a) DRM and interoperability- open cross-platform DRM systems and standards are imperative and must be fostered;
- (b) Migration to legitimate services-the abuse and unauthorised file-sharing of copyrighted content must not be tolerated, and consumers must be encouraged to use legitimate services; and
- (c) Private copying levies and DRM- the Commission sees the way forward as a move away from levies on private copying (in some member States right holders receive compensation for private copying based on levies) to a system based on existing, exclusive copyrights backed by technologies (such as DRM) that ensure a secure environment where such rights can be licensed and enforced.

Conclusion

We need to understand the fact that an essential aspect of information is that it is something to be shared, and not merely a commodity of some sort whose value should be determined by forces in the marketplace. But, the rights and motivation given to creators of any copyrighted work cannot be ignored. There is a need to frame more equitable copyright policies that will both: (1) encourage the flow of information and its sharing, and (2) reward fairly the authors and creators of literary and artistic works, as well as software manufacturers.

Content owners will want to use a mixture of digital copyright, technical measures and licences (i.e., contract law) to protect their content. There is a need to develop a uniform version of DRM technology because if there are multiple versions of DRM technology, the end result will be consumer confusion and chaos.

Despite the fact that DRMs will undoubtedly be susceptible to counter measures, the scheme for automation of copyright enforcement is unsettling. For one thing, "DRM

³⁰ See European Commission Information Society Factsheet 20 entitled 'Intellectual Property and Digital Rights Management Systems.'

permits content owners to exercise far more control over uses of copyrighted works than copyright law provides”. For example, DRM systems prohibit access even for fair use purposes.

Many online music stores employ DRM to restrict usage of music purchased and downloaded online. Electronic books read on a personal computer or an e-book reader typically use DRM restrictions to limit copying, printing, and sharing of e-books. E-books are usually limited to a certain number of reading devices and some e-publishers prevent any copying or printing. Some commentators believe that DRM is a reason why the E-book has been a marketing failure.

The policy makers and technology experts should work together to bridge the gap in the existing law and also for the improvement of the technology, so as to reduce the number of copyright infringement disputes. While the normative frameworks may be indeterminate, they can still guide policy makers in making prudent choices that will reward creative labor and stimulate creativity while avoiding further erosion of the intellectual commons.