

INTELLECTUAL CAPITAL
IN THE INFORMATION SOCIETY

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1 Intellectual capital

“Everyone has the right [...] to enjoy the arts and to share in scientific advancement and its benefits.

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.”¹

Intellectual property rights have historically played an important role in protecting creators of all kinds in scientific, commercial and artistic endeavour. However, as knowledge and creativity have begun to supersede the boundaries of traditional media – particularly due to the emergence of the Internet and the increased capacity of electronic networks – new challenges to the established copyright models have been raised. Insofar as the right to own copyright incurs a financial cost, it can also constitute a barrier to the free flow of information and knowledge and to the development of trade and investment.

So far, the relatively high cost of Internet connections remains the major barrier to wider Internet access. However, as the new information economy develops, and knowledge becomes a fundamental source of wealth, the cost of Internet *content* may become also a major factor affecting affordability for developing countries. There is therefore a need to promote initiatives to ensure a fair balance between intellectual property rights (IPR) and the interests of users of information.²

Despite the existence of international conventions, fundamental differences in national and regional regulations and concepts of IPR exist. The preparatory process of the United Nations World Summit on the Information Society (WSIS), to be held in Geneva in 2003 and in Tunis in 2005, offers a unique forum to discuss these new topics. This paper forms part of the *Visions of the Information Society* project which has been set up in parallel to the Summit preparations (<http://www.itu.int/osg/spu/visions/index.html>), and offers some background information to participants in the Summit, providing a broad overview of the subject, trying to highlight some of challenges and opportunities posed by the impact information and communication technologies (ICT) are having on increasing access to information. References to documents and materials that have been elaborated at the national and international level on the subject of copyright can also be found in the study, or on the *Visions* website.

1.1 Introduction: definition of intellectual capital

We are living today in a knowledge society, a society shaped by the information revolution and advanced by communication technologies. At the dawn of this new age, the concept of “intellectual capital” has been used for the first time to explain the importance of intellectual resources - such as information, knowledge, and experience - in the modern economy.

Many authors have explained the importance of intellectual capital, comparing it to technological advances in the past.. Since the beginning, developments of sciences and technology improvements have been the precursors of change in society and the economy: in the past, steam, electricity, transport, all contributed to the creation of new social and economic development, generating original forms of business, working processes and products.

Today we have completed the transition to a service economy and are *en route* towards an information economy, where the primary sources of wealth are considered to be information. This includes notably scientific knowledge, but also communication, entertainment, services, news, information sharing and working processes.³

Intellectual capital therefore is an intangible asset that has supplanted industrial machinery and natural resources, and is today considered one of the most valuable factors for the creation of wealth, being at the same time source and final product. The management of intellectual resources has thus become the most important task of business, governments and people in contemporary society .

1.2 Intellectual capital and ICTs

The upsurge of information communication technology and, in particular, the development of computer networks, such as the Internet, contributed greatly to the emergence of the information era.

Information and communication technologies can be defined, for the purpose of this study, as a collection of technologies and applications which enable processing, storing and dissemination of information by electronic means to a wide variety of users or clients, thus increasing the efficiency of information-related human activities. ICTs are also characterised by the speed of their technological advance, and the rapidly increasing range of applications in many sectors of professional and personal life. Additionally, thanks to digitization, it is today possible to reduce all sorts of information and data to binary digits – a series of zeros and ones – that can then be processed, stored, copied, and shared, using different applications, and can travel seamlessly over electronic networks, enabling intellectual capital to be transferred efficiently. The improved capacity provided by broadband technology is opening the way for further development of virtual content trade, fostering the creation of original forms of business and the growth of “virtual” markets.⁴ Because of the high economic benefits expected from ICTs, these have become a popular focal point of public policy in an information age.

Technological innovations have the potential to democratise access to and use of information, but at the same time represent a threat to equal access and information dissemination. Private companies are willing to enter the new information economy, and exploit the potential benefits of e-commerce, in consequence the amount of protected (paying) information that is put on the Internet will grow, together with the price of this content.⁵ Information processing, transmission, or storage, using ICTs is creating new issues, which will be examined in the following paragraphs.

1.3 The new challenges of the information society

The most important technological changes behind the information revolution are in respect of improvements in data storage, manipulation and transmission of information. ICTs have transformed the perception of “utilization” of a work, blurred the lines between reading (or listening or watching) and copying, and caused a shift from “sale” of products to their “licensing”.⁶

The new economic and social order is therefore generating a growing body of laws and regulations, and fostering discussion within the international community.

The main concern for policy-makers, operators and users, therefore revolves around the management of intellectual capital in the information society. This includes two priorities: the need to protect intellectual creation and the need to respect the principles at the basis of our society, such as the right of freedom of expression and of access to information, stated in the [Universal Declaration of Human Rights](#),⁷ and renewed in the [UN Millennium Declaration](#).⁸ Information and communication technologies, and in particular the Internet, should contribute to closing the gap between the information “haves” and “have-nots”, not to widening it.

New technologies are breaking the mould of traditional IP protection, and legal cases involving the dissemination of online music or digital books have often hit the headlines. These cases may relate primarily to commercial issues affecting developed economies at present, with no obvious relevance to less developed ones. But their outcomes in terms of international legislation, technological innovation, consumer rights, competition and public interests will be global, and will inevitably have an impact on access to information in developing and least developed economies.

2 A framework for the protection of intellectual capital: Copyright

“While intellectual property rights play a vital role in fostering innovation in software, e-commerce and associated trade and investment, there is a need to promote initiatives to ensure fair balance between IPRs and the interests of the users of information...” ([The Tokyo Declaration](#))

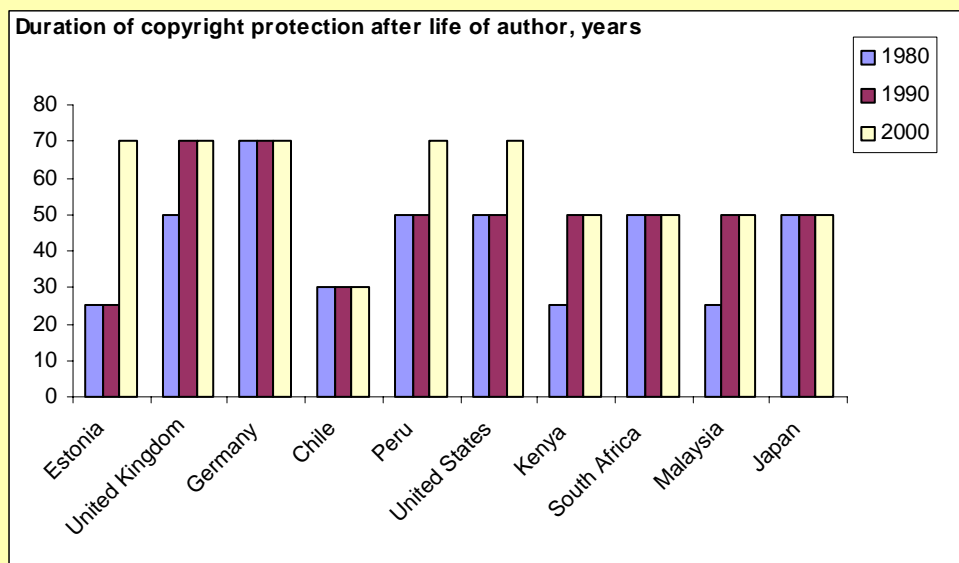
The protection of intellectual property has a central role in our economy, which is increasingly based on information and knowledge. The digitization of information and the development of information and communication technologies, however, are posing new and far-reaching challenges to traditional copyright laws.⁹ Intellectual works no longer need to be distributed as hard copies, but can be digitized and then travel seamlessly around the world. Copyright protection has been broadened to include new knowledge products, such as computer programmes and electronic databases. New forms of management of rights on digital information are being created.

2.1 Definition of copyright

Intellectual property (IP) rights can be defined as the protection given by a government to creativity and innovation. IP law protects original ideas, creative forms of expression, or new inventions, and it can be divided to four main branches: patent, trademarks, copyrights and trade secrets. Each form of IP has its standards and procedures, which establish the role and scope of protection, its conditions and limitations, and the possible remedies against infringement. This paper will concentrate on **copyright**, which is the right to *literary* property.¹⁰ **Copyright** is the legal term to design a set of exclusive rights given to creators of “literary and artistic works”, over reproduction, distribution, and public performance and display of their works. Under the Berne convention of 1971, copyright protection encompasses diverse forms of creativity, such as, for example, writings, musical compositions, films, drawings, photography or architectural creations.¹¹ More recently, the WIPO Copyright Treaty of 1996 (WCT) added to the previous list computer programmes, considered as literary works, and compilation of information and data, which, by reason of the selection or arrangement of their contents can “constitute intellectual creations”.¹²

Copyright grants authors a series of limited exclusive rights over the use of their creations, for a fixed period of time. This typically corresponds to the lifetime of the author plus 50-70 years, at the expiration of which the work will fall into the public domain and therefore become freely available to the public. The author can also grant, or even sell, his or her rights to others. Today authors usually sell their rights to publishing, recording or movie picture companies, in return for an economic reward. Copyright law, however, does not protect ideas – as patents do – but rather the expression of them, their arrangement and appearance in works, musical notes and so on.

Figure 1: Growth in the duration of copyright protection after life of author



Source: T. Reynolds, "Quantifying the evolution of copyright and trademark law", 2003 [unpublished].

Technological advance can promote the development of innovative avenues for social and political expression and give the opportunity for the whole population to access information. Access to information, however, is influenced also by copyright, which has emerged as one of the instruments that can regulate the international flow of knowledge and ideas. Information technologies and digitization risk deepening the divide between people who can afford access to information and knowledge and those who cannot. As the Parliamentary Assembly of the Council of Europe stressed in its Recommendation 1586 of 2002, it is necessary to ensure "fair access to digital material for educational and other socially necessary purposes".¹³

To guarantee adequate and affordable access to knowledge and knowledge-based products, the right balance should be found between rewarding copyright holders and protecting the public interest in accessing information. This issue is particularly critical for developing and least developed countries: the ownership of today's intellectual property rights is often in the hands of the major industrialized nations and of wealthy corporations. Low-income countries have considerable difficulties in obtaining these products, but it is precisely these that are so essential for the development of their economies in the first part of the twenty-first century.¹⁴ Equally, there is little protection afforded to traditional or indigenous knowledge, such as herbal medicine.

The way in which these new challenges may be finally resolved may have important implications for access to and use of information. The issues of ownership and control of information in the digital age will be analysed in the following paragraphs, introducing the general principles at the heart of copyright and their scope and limitation.

2.2 The scope of copyright protection: limits and exceptions

The [World Intellectual Property Organization](#) (WIPO) conventions, state that the principal objective of the organization is to "encourage creative activity"¹⁵ by protecting the rights of authors in their literary and artistic works. Copyright protection, therefore, has the purpose to provide authors with a legal guarantee that they would profit from their labour, making it worthwhile to be creative.

However, it is difficult to determine how much control rights holders should be able to exercise to reach a balance between keeping the copyright incentive meaningful, and not stifling the dissemination of information and knowledge. Additionally, this balance is not unalterable, but can be altered by technological changes, which may therefore induce legal adjustment.

In order to balance these different instances, copyright laws incorporate a variety of limitations to the authors' exclusive rights, in particular in relation to the right of reproduction.¹⁶ Copyright, in fact, allows the author to benefit from limited rights (in duration, extension, object, etc), which leave room for the utilisation of the work by others, thus enriching the public domain and promoting access to information.¹⁷

The public domain is a common property of the public, made up of all these works that are not, or are no longer subject to proprietary rights, such as copyright, and are therefore freely available to all users.¹⁸ The utilisation of such resources cannot in theory be restricted, and there are no royalties to be paid to any right holder. Considering that knowledge is the product of an ongoing cumulative effort, each new creator should be able to build on the works of those who came before; hence the existence of a robust public domain is essential to allow access to information, maintain creativity and promote innovation.¹⁹

The scope of copyright protection, in particular with reference to new markets fostered by ICTs, should be delineated, in order to limit the application of copyright and clearly define the extension of information which are in the public domain and therefore available to all.

2.2.1 Copyright does not protect ideas

As mentioned above, copyright law protects the expression of ideas, which can be embodied in whichever means, for all possible uses, but not the underlying idea in itself.²⁰ Additionally, facts, news information and mere data are also excluded from protection.

Following this rationale, the Berne Convention limits the extent of its protection to compilation of information and data – databases – to those works which, “*by reason of the selection and arrangement of their contents, constitute intellectual creations*” and denies it to “*news of the day or to miscellaneous facts having the character of mere items of press information*” and to data and materials arranged in a non-selective and non-creative way (for example in alphabetical order).

In 1996, however, the European union introduced a Directive on the legal protection of databases,²¹ which has the aim of protecting the substantial investment²² of the owner of the database, instead of the originality of the creation.²³ The Directive separately protects database contents through *sui generis* rights that give the database's owner the right to prevent extraction and/or re-utilization of the whole or significant part of the database by others.

While the protection of database is meant to promote the investment of developed countries' companies in this field, to create more comprehensive database, the same protection could have the contrary effect on less developed economies,²⁴ for which these rules could be particularly burdensome and stifle their technological and scientific progress, as they may not be able to afford the access to such sources of information and knowledge.²⁵

Furthermore, researchers, teachers, journalists or librarians – also from developed countries – may be obliged to conclude licensing agreements with rights holders also to use data which would be freely available, making more difficult and costly the development of scientific research and education.²⁶

In the United States the situation is different. Compilation of information and data are protected only in the measure these data are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship²⁷ and not on the basis of the investment done by the owner.²⁸ Databases that do qualify for copyright protection, therefore receive a protection limited to the organization of material that display the stamp of author's originality – the “expression”.

“Copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work. [...] This principle, known as the idea-expression or fact-expression dichotomy, applies to all works of authorship.”²⁹

The development of electronic databases deserves the attention of legislators, at national and international levels. However, it will be necessary to consider that the subsistence of the public domain is as important for innovation and creation as the legitimate return of investment and the reward of authors' work. WIPO and other interested entities have been – or are in the process of – developing several studies on this topic, and the idea of a “database treaty” has been inserted in the WIPO agenda.³⁰

2.2.2 Time limitation

A further limitation to the extent of copyright protection is the limited duration of such rights. As established in the Berne Convention, and furthered in national laws, the duration of copyright is not perpetual: after a certain period of time the work will not be protected anymore and will therefore fall into the public domain. This limitation has been established in the authors lifetime plus 50 years by the Berne Convention, and then enhanced by single countries: in Europe and in the United States the protection amount today to seventy years after the death of the author.

This limitation is, again, aimed at balancing the interest of the author, who will be able to benefit from exclusive rights on his or her work, and therefore to gain compensation; and from the public, to whom the work will be available – free of royalties and other copyright-related rights – after the expiration of the term. For this reason the recent [Copyright Term Extension Act](#) (CTEA),³¹ has been so criticized in the United States. In fact, despite the stated purpose of the Act to provide fair legal protection to original works - thus encouraging the utilisation and restoration of older creations - it provoked the dissent of the public, in particular among those people and organizations that relied upon the growth of the public domain to pursue their endeavour.³² This prolongation has been seen by some people as a violation of the constitutional principles underlying intellectual property protection, and as an unjustified burden on the public interest in access to information, shifting the balance between creators' property rights and the public interest.

2.2.3 Exceptions to copyright protection (“fair use”)

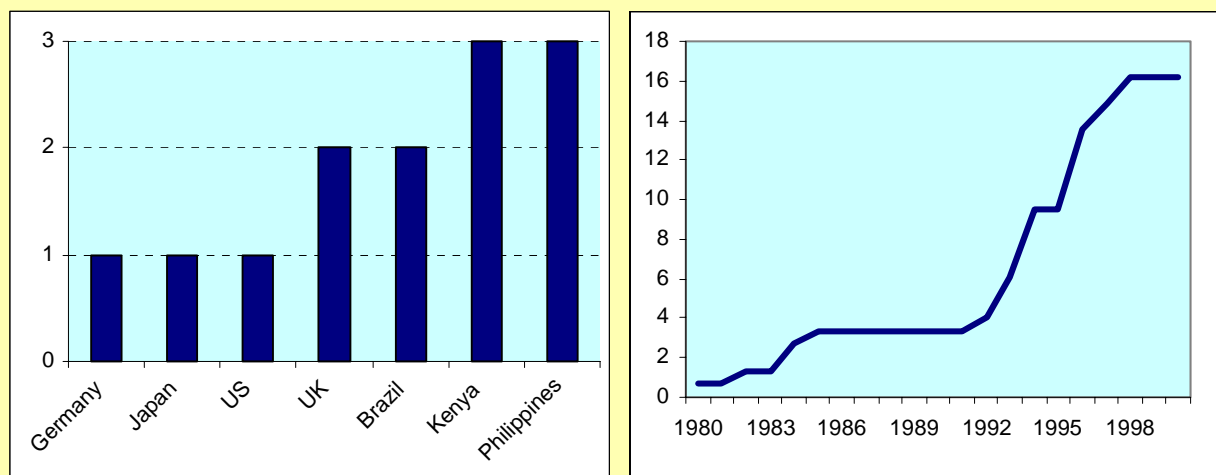
The exclusive right granted to the owner of original works include, principally, the right of reproduction, adaptation, public distribution and public performance (digital performance included). However, to balance the need for protection of the legitimate rights of the creator with the need of the public to access information, copyright laws incorporate a variety of exceptions limiting the author's rights. These exceptions permit, in certain special cases, the use of copyrighted resources without the consent of the copyright owner. The Berne Convention leaves to national legislation the task of finding such a balance, allowing the reproduction of protected works in “*certain special cases*”, provided that such reproduction “*does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author*”.³³

These “special cases” are defined in a more detailed way by the stringent EU legislation,³⁴ while in the United States they are based on more general principles, and their further elaboration is carried out on a case-by-case basis. The basic principles in both cases include, principally, the purpose of the utilisation – which, in any case, should be non-commercial, and preferably for educational or research purposes – and the amount of the copyrighted work used, which has to be limited to a portion of the total work. Additionally, this utilization should take into account the legitimate interest of the right holder, and therefore should not constitute a threat to the potential market for the work.³⁵

The advent of information and communication technologies, however, has shifted the balance between the user's needs for access to information and the legitimate rights of the creator and the publisher (the right holders), providing new opportunities on both sides. ICTs, in fact, give end users the possibility to access information more easily, irrespective of geographical location and through different technological means, and allow authors and publishers to exploit new markets, and innovative mechanisms for distribution. At the same time, however, users can utilise technology to create and distribute unauthorized, perfect copies of protected works at virtually no cost, and producers can exercise increased control over the utilisation of these (digital) works.

Box 1: Copyright exceptions – also defined as “fair dealing” or “fair use” exceptions in the US³⁶ – are principally designed to protect fundamental freedoms (freedom of expression, freedom of the media) and promote important public interest values, such as education, research and public access to information.³⁷ Furthermore, exemptions from copyright are also accepted for limited private utilisation. These last exceptions are justified also because the transaction cost of entering into a license agreement for any utilisation would be too high for the parties, and also for the simple reason that right holders were not able to control any single utilisation of a product. These cases cover limited non-commercial uses of works, such as the reproduction of a CD on an audio cassette, home video recording of a TV show or the photocopying of a few pages of a book at a library.³⁸ In some countries, the possibility of limited private utilisations of a work protected by copyright, are leveraged by taxes imposed on media equipment such as blank CDs or videotapes. The amount collected is then distributed among the right holders – such as music and films companies.

Exceptions to copyright in different countries (2000) (left chart), and Percentage growth of tax levy on media equipment (right chart)



Note: Left chart: 3- full use allowed 2- private study or fair dealing 1- use but with tax on devices or media 0- no private use allowed or mentioned.

Source: T. Reynolds, “Quantifying the evolution of copyright and trademark law”, 2003 [unpublished].

The result is a general atmosphere of diffidence, or hesitation, where users are at risk of seeing their freedom to access and use knowledge limited considerably, and producers feel threatened by these technologies, which may hinder their capacity to obtain adequate compensation for their work. In consequence, it is necessary to review the status and the scope of fair use exceptions in the light of the new opportunities and threats introduced by ICTs.

This situation is not new in the relation between technology and intellectual property. In the past, many technological innovations have been considered a threat to authors’ rights, and their diffusion encountered the strong opposition of publishers and distributors. This is the case, for example, of video cassette recordings (VCR)³⁹: film distributors asserted that VCR would enable people to record movies and see them without limits, thus “killing” cinema. The US Supreme Court, however, considered the utilisation of VCRs at home, to record TV programmes to be seen in a successive moment (home videotaping for time-shifting) a permitted and fair use.⁴⁰ Consumers have therefore been able to continue to use VCRs, and film companies have discovered a new means to distribute their product: the videotape. In this case, technological innovation corresponded to a re-balancing of copyright rules and their exceptions, and the elaboration of a new business model.⁴¹

In the case of digital communication technologies, the problem seems similar. The answer probably cannot be found only in regulation, but it will be a mix of technical, market and regulatory solutions. Some of the new challenges posed to copyright in the information society will be dealt with in the following paragraphs.

2.3 Recent moves of international regulation of copyrights

“The promotion of innovation and the protection of its products is the goal of intellectual property law, more imperative than ever in this digital age” (WIPO survey)

The significant increase in the online exploitation of intellectual property, and the growing role of the Internet in international trade, has created the need to revise and update the current legislation on copyright, to make the Internet a suitable channel for global e-commerce.

Traditionally, laws governing the protection of copyrights extend only to the national boundaries of the nation where the inventor has filed for protection. However, more recently, nations have attempted to expand the protection of copyright beyond their boundaries and into international markets, as the growing internationalization of the trade of knowledge and the possible future developments of e-commerce, make it necessary to harmonize copyright legislation around the world. Additionally, national legislations are no longer sufficient to deal with the global market for digital knowledge-based products, created by information and communication technologies (ICTs), and innovative regulation is therefore necessary so that intellectual work can be commercialized through the Internet receiving an appropriate protection.

Before the advent of ICTs, the disparities in national copyright regimes for knowledge-based products have been always a concern. However, at that time users could not copy and re-distribute these works on the scale permitted by communication technologies today. For example, a journal article, which is protected by copyright and accessible only under the payment of a fee, may be accessed by a user, who can then send it to a person in another country where copyright laws are less restrictive where it can be published on a web page which will be accessible not only by the population of the second country, but worldwide.

For this reason, national governments – in particular from developed countries – have been pressing for the elaboration of an international system for copyright protection, to safeguard their authors also in the global Internet economy.⁴² National laws cannot be extended outside national boundaries, and international dispute settlement mechanisms are often particularly complex and time consuming. In addition there are problems relating the definition of the appropriate territorial jurisdiction in a domain, such as the Internet, where boundaries are only “virtual”.⁴³

To answer to the challenges of the new information and communication society, in 1996 WIPO, which is in charge of administering and updating the Berne Convention, adopted two new treaties, also called the “Internet treaties”. To these treaties should also be added the World Trade Organization’s (WTO) Trade-Related Aspects of Intellectual Property Agreement (TRIPS Agreement) of 1994, which, integrating some of the provisions of WIPO treaties (in particular of the Berne convention), tried to create a global minimum standard of intellectual property protection for products in electronic form.⁴⁴

2.3.1 The WTO agreement on trade-related aspects of intellectual property rights (TRIPs)

The TRIPS Agreement, which came into effect on 1 January 1995, is a multilateral agreement setting up a trade-related intellectual property system which also allow for a more effective dispute settlement resolution system based on WTO’s procedures. The agreement, reached during the 1986-1994 Uruguay round of trade negotiations, was promoted in particular by the United States, the European Union and Japan.⁴⁵

The agreement requires WTO members to provide minimum standards of protection for a wide range of intellectual property rights, including copyrights, patents, trademarks, industrial designs, and geographical indications. TRIPs incorporates many of the substantive provisions of existing international IP agreements such as the Berne Convention, extending their application to all WTO members. It also introduces a number of new obligations, in particular covering IPR enforcement and dispute settlement, and applies the principles of national treatment and most favorite nation (MFN) status to the field of intellectual property, to eliminate discrimination at national and international levels.⁴⁶

The TRIPs expressly mention articles 1 to 21 of the Berne convention, as modified in 1971, and its Appendix, which allows developing countries, under certain conditions, to make some limitations to the right of translation and the right of reproduction. Notwithstanding the special provisions foreseen to favour the participation of developing and least developed countries (LDCs),⁴⁷ the utility of this agreement for these economies is still controversial. Many authors maintain that the TRIPs is an attempt to import intellectual property laws from a developed countries to underdeveloped ones. Considering the very low level of

development of certain countries and the delay they accumulated in the system protecting intellectual property rights, putting in place a world-class IPR regime could be a burdensome task for them. Furthermore, the alignment of their IPR regime, with those of more industrialized countries in itself is not sufficient to induce investment and development. Intellectual property is not an end in itself, and most of the work has to be done at the local, more than the global, level. In the view of many commentators, instead of a “one-size-fits-all” approach, developing nations should be free to elaborate their specific system for the protection of intellectual property, appropriate for dealing with their particular needs.⁴⁸

“[T]he danger with TRIPS is that it will mostly hurt the developing countries’ access to ideas”⁴⁹

In addition to requiring compliance with the basic standard provisions of the convention, the TRIPS adds certain points relating specifically with computer programmes (software), which, following a number of precedents established by national laws, became protectable under copyright as literary works, and therefore are protected for a minimum term of 50 years.⁵⁰

The inclusion of software under “literary creation” however, created some discussion of its inadequacies in protecting “functional works”. The problem arises in particular regarding the practice of the “reverse engineering” and the applicability of proprietary right to user interfaces (also defined as “look and feel”, being the “sensorial” contact between the programme and the user).

The solution of these issues is left to national legislations by the TRIPS. The agreement, in fact, incorporates principles on the basis of which it is the expression that is protected, and not the underlying idea (art. 9.2). This legitimates the reverse engineering of computer programmes, at least when it does not result in a copy of the original programme and is needed to achieve interoperability.⁵¹ In the same way, national legislation can decide which regime to apply to user interfaces.⁵² In this regards exceptions have been studied for developing countries, which should have a greater flexibility in the utilization of reverse engineering.

The agreement also make specific reference to the protection of databases and other compilation of data and materials, which should be protected even where the data included are not protected as such by copyright. Databases, however, should be protected only when, by reason of the selection or arrangement of their contents, constitute intellectual creation. Furthermore, the provision confirms that any form of database is protected, whether digital or other form. Again, it is not the content of the database (i.e. data) to be protected in itself.⁵³

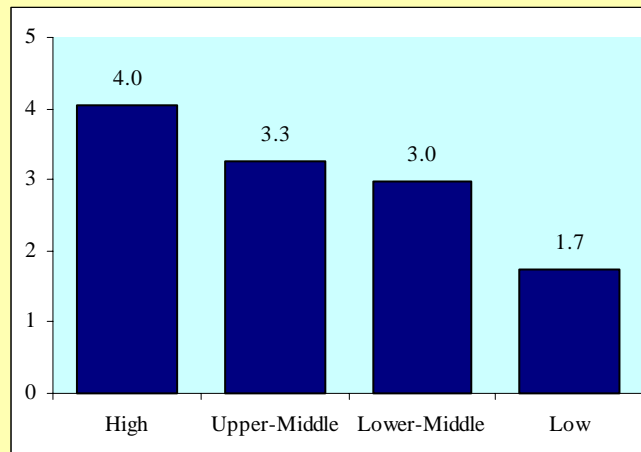
2.3.2 WIPO treaties

The World Intellectual Property organization (WIPO), established with the Stockholm Convention of 1967, is the international organization dedicated to promoting the use and protection of intellectual creations. It administers international treaties relating to different aspects of intellectual property protection, and promotes the harmonization of intellectual property all over the world through cooperation among States.

During the WIPO diplomatic conference on certain copyright and neighbouring rights, held in Geneva in 1996, participants reached the consensus over the establishment of two new treaties, the [WIPO Copyright Treaty](#) (WCT) and the [WIPO Phonograms and Performances Treaty](#) (WPPT).⁵⁴ Another proposed draft treaty ([Treaty on Intellectual Property Rights in Databases](#)), which would have provided protection to non-original databases, did not get discussed, and got postponed to an extraordinary session.⁵⁵ The treaties came into force in 2002. However, though 30 countries ratified them, some of the world's biggest economies are not in the count. The European Union (comprising 15 countries) Japan and China haven't yet agreed to adopt the framework (see Figure).⁵⁶

In particular, it is necessary to mention a provision introduced by the WCT, which specifically regards the communication of copyrighted works over the Internet. The WCT, adopting a proposal by the European Union, extended the right of communication to “*any communication to the public [...] by wire or wireless means in such a way that members of the public may access these works from a place and at a time eventually chosen by them.*”⁵⁷

Figure 2: Average number of international copyright treaties signed by WIPO member countries, 2001.



Note: Six copyright treaties have been taken into consideration for this chart, namely, the Berne Convention for the Protection of Literary and Artistic Works (1886); the Universal Copyright Convention of (1952 and 1971), the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organisations (1961); the Geneva Convention for the Protection of Producers of Phonograms Against Unauthorized Duplication of Their Phonograms (1971); and the Brussels Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite (1974). It is worth noting that the two last WIPO treaties (WTC and WTTP) have been approved only by one country appertaining to the high-income group, Japan, while the rest of the forty-one ratifications are distributed mainly between lower-middle and low-income countries (until 13 March 2003)

Source: T. Reynolds, “Quantifying the evolution of copyright and trademark law”, 2003 [unpublished].

2.3.2.1 Scope of the right of communication

The utilization of the term “communication”, while broad enough to include the Internet and new communication systems, raised some concerns regarding its scope, in particular to determine the eventual responsibility for copyright infringement of Internet service providers (ISPs). The WIPO Expert Committee considered that the term “communication” involves “making the work available, *not* the mere provision of server space, communication connections, or facilities for the carriage and routing of signals [emphasis added]”.⁵⁸

The distinction between content and carriage, and therefore the exclusion of the responsibility of ISPs for the content they deliver particularly important, as if ISPs are constantly afraid of being sued because they provide access to the wrong content, they will tend to provide content only from the safest sources, therefore unnecessarily restricting users’ access to information.⁵⁹ An example of the possible consequences can be found in the United States, where ISPs are not held responsible for the content which is hosted on their servers, in principle, however, if a right holder deems that one of his or her works is being used in violation of copyright law by a website hosted by a certain ISP, he or she can send a letter of “cease-and-desist”, after which, if the ISP does not block access to the allegedly infringing website, it can be taken to court, together with the author of the website, for copyright infringement. As a result, many ISPs block the website before even being sure that it is actually an infringement, and not a permitted fair use. An example is given by the case of Earthlink, an Internet service provider which, following a complain from Miramax, immediately shut down the website concerned, only notifying the owner of the allegedly infringing website afterward the fact.⁶⁰

Fixation and reproduction of digital works was another point discussed during the WIPO diplomatic conference. In some countries “fixation”, including reproduction, of a protected work exists even when data are only temporarily stored in electronic medium, as it happens when uploading or downloading works from or to the memory of a computer. These acts have therefore to be authorised by the right holder. This interpretation was not incorporated in the WCT, which did not consider that the temporarily copying of a

protected work in the computer's random access memory (RAM) as a copyright infringement.⁶¹ However this question gave rise to debate in the United States, following the approval of the Digital Millennium Copyright Act.⁶²

2.3.2.2 *Anti-circumvention measures*

A further risk to fair use is posed by the article relating to legal protection of technological measures (TMs). Actually, an implication of new technological developments is that while they facilitate an almost unlimited access to protected works, and the making of inexpensive perfect copies, they offer also the technical means to manage such access. Technological measures and rights management information provide a fundamental support for the efficient application of copyright in the digital environment, allowing rights holders to control the uses of their works and consequently to impede the unauthorized exploitation of their creations.

During the WCT preparatory work, however, participants argued that technology is not enough to block the growth of unauthorized digital reproduction, because there will always be another technology capable of defeating the protection. For this reason TMs have to be legally protected against circumvention.

Article 11 of the Treaty is dedicated to the protection of TMs and states that member countries should provide the appropriate *“legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law.”*⁶³

With this article, the convention gives an additional protection to copyrighted materials, establishing the prohibition to circumvent technological measures, but only in the case those last are restricting acts *“which are not authorized by the authors concerned or permitted by the law.”* This means that, for example, the circumvention of a TM that restricts copying that qualifies as fair use would be permitted by the convention.

Legally-protected TMs can indeed help rights holders in protecting their creations, being the most valid answer to the threat coming from new communication technologies, and hence constitute a necessary step to building a secure digital information and communication environment and to fostering the development of the digital economy and of new e-business models.⁶⁴

Technological measures, however, may also allow copyright holders to control – and charge a fee for – each and every instance of access to and use of a digital knowledge-based product, nullifying in practice the principle regarding copyright exemptions and fair use exceptions.

This is the main concern of that part of the doctrine considering copyright as the right of the creator to receive compensation for their work, and not the right to control any kind of utilization by the consumer of the product.⁶⁵ For these authors, technological measures might limit excessively the possibility of the user to enjoy the product that has been legally acquired, and shift the balance of copyright in favour of the right holder.

This could create new barriers to access for libraries, educational institutes and in general for all users of digital knowledge. Libraries are facing growing problems in the management of the different digital subscriptions, online publications are more expensive than the traditional ones and often their utilization is subject to many more conditions, which are impairing the public service and therefore the diffusion of information and knowledge.

3 Copyright implications for the information society

From international treaties to national laws, the problem of finding a fair balance between the rights of the owners of intellectual property and those of end-users is not new. Those countries that responded by creating new ad hoc legislation still face the new features of online communication and transmission of intellectual works.

New regulatory initiatives are often animated by large right holder groups, such as publishing and recording companies, which find themselves in an ambiguous situation vis-à-vis information and communication technologies. They feel threatened by new technologies, which enable users to make perfect copies of works and distribute them seamlessly, but are also captivated by the innovative market opportunities that these same technologies open.⁶⁶

Several problems and attempted solutions are presented in the following sections, with particular attention to the legislation of the United States and of European countries. These are promoters of stricter copyright rules and have recently implemented new pieces of legislation, the effects of which are the source of animated debate. The debate in the United States is particularly centred on the scope of copyright protection. Initially the objective of copyright protection had been to promote the development of science and knowledge through the protection of creators' work. Regulation aimed at finding a balance between different interests. Today we are moving from the protection of authors to the protection of investors, as has been clearly affirmed by the EU database directive.⁶⁷

Without entering into the detail of copyright regulation in the United States, in the following sections a series of legislative initiatives which have a direct impact on the access and use of copyrighted materials in the Internet will be mentioned. These acts are the Sonny Bono Copyright Term Extension Act, the Digital Millennium Copyright Act and the not-yet-adopted database protection legislation.

In European countries the situation is slightly different, with European countries trying to harmonise legislation that, historically, present many differences. Recently the European Union has been quite active in the field of intellectual property, implementing a Directive on database protection and other instruments for the protection of software and copyright.⁶⁸ Moreover, the Commission has recently presented a proposal for a Directive on the enforcement of intellectual property rights, of particular interest to Internet users.⁶⁹

3.1 Threats to fair use in the digital society

It has been said that "*the answer to the machine is the machine*"⁷⁰ meaning that technology that technology should be able to propose solutions to problems raised by technological change. Modern technologies permit right holders to exercise control over access to copyrighted digital works, and also to control and regulate the utilization of such works once accessed by providing access barriers or anti-copy mechanisms. These technological measures (TMs) constitute then a sort of "electronic fence", which can help in fighting against piracy and allow owners of digitalized intellectual works to seek payment for the access or utilization of them.⁷¹ This could be part of the exercise of their legitimate right to be rewarded, and could help the development of electronic commerce. However, it may also represent a powerful means which could allow absolute control over copyrighted works, permit right holders to impose barriers to access without respecting statutory exceptions, and prevent access to information and knowledge, even for fair use purposes. Also, thanks to these technologies, right holders are now able to interact directly with users, therefore the utilization of contractual agreements to regulate the access to and the utilization of copyrighted works is growing: today each single use of a work can be negotiated and licensed. The owners of digital intellectual works, suitable of being distributed over the Internet, are relying more and more on a mix of contract law (licenses) and technological measures to charge end-users for accessing their products. This is mostly due to the wide presence in the consumer market of products encumbered by intellectual property rights, which created a shift in the traditional licensing methods of works. Intellectual creations are branded and sold as mass-market products, and right holders, wishing to maintain the advantages of control over use and reproduction associated with IPRs, have the interest to emphasize the difference between the sale of a product and the licensing of a work. The "sale" of a product – a book, a film or a simple article from a newspaper – which does not imply the transfer of author's copyrights to the buyer, but allows them to use the product as he prefers, is being gradually substituted by the "licensing" of the product, meaning that the degree and scope of the utilization will be regulated by the right holder.⁷²

This approach may be more suitable for an environment that is changing constantly and rapidly, making it difficult for legislation to follow its evolution. However, it is also necessary to develop the appropriate body of regulation to the new situation, preserving the principles inspiring the exceptions to copyright and defending the right of the users to access information at an affordable price.⁷³

Leaving access to copyrighted works to the contractual process opens up the possibility for right holders to unilaterally impose their own conditions, overruling those exceptions foreseen by the law. "Shrink and wrap" and "click-on" licenses, which are already used for software and other digital products, may be an example of how the public could be left without choice other than to accept or reject contractual terms, or even with a product that they will not be able to use fully because of imposed restrictions. Although users can always seek protection against abuses, the procedure would be too burdensome for the average customer, who will often accept terms without the possibility of negotiation, And in many cases without even reading them.⁷⁴

In the light of these developments, legislation can play different roles in defining the rules governing the relative rights of authors and users, and hence influencing the development of online “knowledge” services. Legislation needs to give guarantees to copyright owners regarding their compensation, but must also respect the right of the population to access information to allow the development of knowledge and innovation. This is particularly true for developing and least developed countries, for whom digital technologies represent a tremendous opportunity from which they cannot afford to be excluded.⁷⁵ The same is true for users in all parts of the world which have been relying upon on fair use principles for educational and research purposes. The following section provides an overview of the current issues arising from the application of copyright laws to the Internet environment.

3.1.1 Extending the duration of copyright protection: Internet amplifying effect.

In 1998, the Congress of United States passed the Sonny Bono Copyright Extension Act (CTEA), which extended the term of copyright for twenty additional years. Although the term had already been extended several times in the past forty years, and the extension has no direct relation with the utilisation of digital and communication technologies, the act had an impact on the Internet community.

The Internet is an inexpensive means of mass communication, and offers an alternative model for the communication and diffusion of information and knowledge. Once a creative work has entered the public domain, it can be available immediately, and at no charge, in electronic format on the Internet. This gives the opportunity to other people to extract further benefits from that work, or even to create on the basis of that work.⁷⁶

Despite its stated purpose to provide fair legal protection to creative works and thereby encourage distribution and restoration of older works, in the view of some authors, the extension of the term for an additional twenty years, may create a “copyright black hole”, where copyrighted works may linger unfree for over a century. It has been estimated that with this latest extension, only 2 per cent of works copyrighted between 1923 and 1942 will continue to be available to the general public, as the other 98 per cent is out of print. Reproduction is no longer commercially viable but copyright protection means they cannot enter the public domain.⁷⁷

Among the people affected by this extension was Eric Eldred, the proprietor of the unincorporated [Eldritch Press](#), a website which is a sort of online library, containing electronic copies of public domain works of literature. In January 1999, Eric Eldred challenged the CTEA⁷⁸ arguing that it violated the limits imposed to the Congress by the US Constitution, establishing that Congress have the power to secure authors and inventors exclusive rights for their creations, only for a limited period of time.⁷⁹

Although the US Supreme Court recently rejected the arguments of Eldred,⁸⁰ his challenge forced a reconsideration of the basis of copyright law, and of the nature of the public domain in the information era. Both parties supported their reasons with the necessity of finding a balanced regime for copyright protection. Lawrence Lessig, for the petitioners, affirmed that the Internet is an instrument “enabling a much broader range of individuals to draw upon and develop [...] creative work without restraint”. However, he observed that following the emergence of Internet “copyright law will increasingly control ordinary uses of creative content in activities that before the Internet were not even remotely within the reach of copyright” and that therefore “the extensions of copyright law are closing off this medium to a broad swathe of common culture”.⁸¹ Conversely, the respondent, in the person of the Solicitor General T. Olson, gave a different interpretation, affirming that “[...] digital media have lowered copying costs, new markets and media have increased the value and commercial life of works; and losses due to piracy have increased” and therefore “under traditional copyright policy, each of those changes tends to justify a longer term.”⁸²

Considering the importance of education and the dramatic possibilities given by the Internet for the diffusion of information, the opportunity to have easy and inexpensive access to books online would help greatly in meeting the needs of less developed economies. The presence of a larger number of books freely available in the public domain could help reduce costs for developing countries and could form a fundamental element for the development of “digital library” services.⁸³

3.1.2 Legal protection of technological measures: there will still be room for fair use?

Another piece of legislation that has provoked an animated debate in the United States is the Digital Millennium Copyright Act,⁸⁴ which introduces new national copyright regulation, mainly in two aspects:

establishing detailed provisions against the circumvention of technological measures protecting access to copyrighted works, and requiring ISPs to remove, upon request, any hosted content that supposedly infringes the work of a copyright holder, regardless of whether the reproduction of materials is permissible under existing copyright law.

The Digital Millennium Copyright Act (DMCA) has been enacted to implement the obligations undertaken by the US under the 1996 WIPO Copyright Treaty, and to respond to the concerns of national copyright holders that their works would be widely pirated in the networked digital world. Introducing legal protection for technological measures of protection, the US legislator was aware of the necessity to devise a legal system that would accommodate fair use and other copyright exceptions, at the same time guaranteeing effective protection of the prohibition of circumventing technological measures that restrict unauthorized acts not permitted by the law. In the quest for such a balance, the US Congress finally approved the particularly complex and burdensome DMCA, which went beyond the treaties' requirements, putting a ban on *acts* of circumvention of access controls and on *distribution* of technologies that have primarily circumvention-enabling uses.⁸⁵

The new [Section 1201](#) introduced two new prohibitions. The first (section 1201 (a)(1) and (2)) protects access to a copyrighted work, prohibits any act of circumvention and the dissemination of technologies designed to circumvent access controls. The second bans the dissemination of technologies designed to circumvent measures protecting “a right of copyright owner”, i.e. measures impeding unauthorised copying, adaptation, distribution, etc. (so called copy controls).⁸⁶

With these norms, the DMCA goes beyond traditional copyright prerogatives, distinguishing the right to access a work from a “right of the copyright owner under this title”. The right of access is not foreseen by the WIPO Internet Treaties, which establish a more general “[right of communication](#)”, that also includes the communication of a work over the Internet. The special mention of the right of access in US law seems to respond to the “changing economics of exploitation” of copyrighted works in the information and communication society, and the need to cover possible new forms of commerce.⁸⁷

As regards section (b) of the DMCA, prohibition in this case is limited to the manufacturing and distribution of devices which allow the circumvention of TMs, protecting a right of the copyright owner, and not to the act of circumvention in itself, which seems therefore legal, as long as it does not result in a copyright infringement otherwise protected under the Copyright Act.⁸⁸

These new levels of copyright owner's control, thanks to the legal protection TMs, is, in the view of some stakeholders, necessary to give right holders the assurance their rewards will not be undermined in the new networked environment, so that they will be able to exploit these new markets.

However, these provisions of the Act are criticized for compromising the principles of fair use and first sale.⁸⁹ With legally protected technological measures, the right holder is able to reach every single user, and therefore control the degree of enjoyment of his copy of the work. This control was once exhausted with the first sale. But it is not the same today.

“I would not be permitted to circumvent the access controls, even to perform acts that are lawful under the Copyright Act, such as using my copy [of a video game] in another computer or lending it to a friend – act permitted to the owner of the copy under the “first sale doctrine” codified in section 109(a) of the Copyright Act [...]”⁹⁰

Reproduction for educational purposes has always been considered a fair use, and non-scholarly fair uses could include parody or commentary. Even some kinds of non-commercial copying for private use – the reproduction of a CD, or the copying of a TV programme for time-shift viewing – may be legitimate.⁹¹ Supposing that all new digital products – therefore most of the information and knowledge products present on the Internet – were accompanied by such measures of protection, the user, who is not able to bypass such controls, may be prevented from exercising their fair use prerogatives. Such measures could, at the same time, protect works that are covered by copyright and works that are in the public domain. Also, TMs do not expire with the expiration of the right. Therefore limitation might affect the utilization of a work for unlimited time. Some comments on the effects of the DMCA on fair uses have recently been posted on the United States Copyright Office website⁹²

“First sale”⁹³ rights could also disappear with the new legislation. The copyright holder will be able to control, and therefore graduate, different levels of enjoyment of works, and offer them at different prices. However, this opportunity seems a threat to some, giving to large industries – such as music labels or cinema productions – the power unilaterally to limit (or eliminate) the public’s rights. Of course this is just one scenario, and rights holders may use the new technological opportunities to offer a wider range of services and products, instead of a narrower one. The risk is nevertheless there.

Section 1201 of the DMCA also includes provisions regarding exceptions for certain classes of activities. But these exceptions have been extensively criticized as being too narrow, and libraries and non-profit groups have expressed their concern about the impact of anti-circumvention provisions on the public access to information. To address the concerns of these groups, for example, the Act includes a specific exception enabling non-profit libraries and educational institutions to circumvent technical protection systems to “make a good faith determination of whether to acquire a copy” of a work (“shopping privilege”). Librarians do not see the value of this provision, which has little application in practice, given that vendors of technically protected and copyrighted works generally already give incentives to allow their potential customers to take a decision.⁹⁴ The application of the reverse engineering exception, which permits decompilation of computer programmes only when it is necessary to achieve interoperability of an “independently created computer program with other programs”, is also limited under this section.⁹⁵ The particular weakness of digital information products to unauthorized appropriation may justify some restriction on reverse engineering activities. These protection however should be appropriate, but not excessive, as reverse engineering “is fundamentally directed to discovery and learning” and represents a useful source of information and an instrument for innovation.⁹⁶

Fair use permitted duplication of certain portions for appropriate purposes. These uses are now denied unless the user falls within one of the “special status” exceptions. Thus these new provisions created a difficult environment for users of information and communication technologies, in particular for ordinary fair users.⁹⁷

The anti-circumvention clause of the DMCA was notably the trigger for the arrest of a Russian programmer, Sklyarov, who faced prison after being arrested in the United States in July 2001. He was charged with the distribution of software that could break e-book protections, an act that violates the DMCA (but not the laws of Sklyarov’s own country, Russia). Eventually Sklyarov was released, and the charges against him dropped, but a US attorney continued to pursue the case against the company the programmer had been working for, ElcomSoft, which faced four charges for violating the DMCA by selling a software product that allows users to disable security settings on Adobe Systems’ e-book files, so that they could be printed, shared, or viewed on various devices. The company was finally acquitted from the charges. The case, however, is quite paradigmatic and opens discussion on two main issues relating to DMCA, namely the balance of rights between copyright holders and citizens, and the nature of jurisdiction in the Internet age.⁹⁸

As regards the former, the defence of the software company relied mainly on the fair use principle, maintaining that the device they marketed could allow the public to make lawful uses of the product. The company affirmed that electronic book publishers, in fact, often restrict purchasers’ uses to reading e-books only on one computer. After downloading a book, a reader could not easily transfer it to a second computer or a handheld, and even a blind person is sometimes prevented from using technology to read an electronic book. Sklyarov, who developed the product, affirmed that he wanted to enable people to use legally obtained e-books in any way they chose.⁹⁹

Under US law, however, the simple manufacturing, distributing, etc, of a device to circumvent controls protecting a copyrighted work, constitute a violation of the law, and is therefore punishable, irrespective of the actual violation of the copyright.¹⁰⁰ The victory of the software company in this case showed that the public is unwilling to convict a company just because it created a program that *might* be used to commit acts of copyright infringement: it needs to have some evidence of piracy.

Slightly different is the European discipline on the topic. The European Copyright Directive,¹⁰¹ which has been however criticized as it is seen as an instrument to favour the dominance of large corporations in particular in the sector of software development and manufacturing of technological devices.

The Directive criminalizes the circumvention of technological measures of protection, but foresee also the possibility to apply exception to copyright infringement for special purposes. Article 5.2, amongst others, provides a long list intended to protect academics, and preserve some hypothetical “fair use” for press and

parody. The actual impact of the new regulation, however, will be realized only with the implementation of the opt-outs offered by the Directive.¹⁰²

The principal concern of the user community is therefore that fair use exceptions will be wiped away, and that a small group of large companies would be able to decide what users can and cannot do with the products they legally access. Concern has also been expressed for the possible negative effects on competition in the commercialization of technological equipment,¹⁰³ and for the work of researchers in the field of encryption and TMs. The latter are afraid that in diffusing the results of their researches – as Sklyarov had done – they will incur copyright infringement.

3.1.3 Copyright, Internet and national boundaries

The case of Sklyarov was also seen as a test of the new trend towards the globalization of Internet law. In the case, the manufacture and commercialization of such a software tool was completely lawful in Russia. However, the product was then sold through the Internet in other countries, including the United States, where the device is illegal. It is therefore necessary to understand how (and if) national laws can be stretched to encompass the boundless Internet environment. ElcomSoft was released under the motivation that it could not be deemed responsible for creating a software program that was perfectly legal in the company's country.¹⁰⁴

A similar situation was faced by a Norwegian court, which judged the case of a teenager who developed software enabling him to watch DVD movies on his Linux-based computer. He also posted the software (DeCSS) on the Internet, allowing people around the world to download it and use it to crack the security codes installed on DVDs to protect them against unauthorized copying.¹⁰⁵

An online hacker publication in the United States, *2600 Magazine*, was barred from posting links to the DeCSS decryption application website. The software, breaking the digital security on disks, violated the DMCA's anti-circumvention provisions, and was therefore illegal in the United States.¹⁰⁶

The Norwegian court, however, despite the pressure of the Motion Picture Association (MPA), acquitted the offender affirming that he used the software to crack the codes that prevented him from watching the movie, and that under national law consumers have the right to access legally purchased DVD films, even if these are played in a different way than the makers had foreseen. Although the ruling was based on Norwegian copyright law, it can have international repercussions, as the software is readily available to anybody on the Internet, including in the United States. This situation adds pressure for the creation of a globally harmonized copyright environment.

Box 2: Jurisdiction and online music: The case of Kazaa

The most famous – or infamous – example of jurisdiction “chase” is the one that is currently taking place against [Kazaa](#), a popular file-sharing service delivering encrypted songs, movies, and videogames, to about 60 million users worldwide. Kazaa is currently being sued by the music and movie industry, which however encounter many problems in the localization of the company, as its organizational structure was fragmented among several states. Kazaa, initially based in The Netherlands, was then sold to an Australian investment firm with its assets being split between other countries. Copyright holders are therefore trying to coordinate lawsuits against at least five companies in three countries. Kazaa faced separate lawsuits, brought by national music copyright organizations, in the Netherlands and the United States. Cases like this one, a representative from the [RIAA](#) (Recording Industry Association of America) affirmed, leave national copyright holders with little recourse.

Note: See *infra* paragraph 3.2.1 on peer-to-peer technology.

Sources: “The Race to Kill Kazaa”, Wired News, February 2003, at <http://www.wired.com/wired/archive/11.02/kazaa.html>. See also the case [Toys ‘R’ Us v. Step two](#), and relating articles: “Does Operating a Web Site Confer Jurisdiction?”, LawMeme, February 1, 2003, at <http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=878>; and “Can the ‘World Be Copyrighted?’”, Wired News, February 26, 2002.

In addition, consumer groups are concerned about the risk that content industries – owners of copyright – would use the law to litigate against start-ups, and therefore to control which digital technologies can be viable and therefore available to the public, hence shifting future competition.

An example is provided by a kind of “strategic” lawsuits that have been recently brought to the court in the US on the basis of an alleged infringement of the anti-circumvention provisions of the DMCA.

While the Act in theory has an exception that allows the reverse-engineering of a programme to achieve interoperability “in practice its broad anti-circumvention prohibitions have created a litigation third rail too dangerous for most would-be competitors to touch [...]. In effect, the DMCA has become the magic key – not to opening the doors of competition, but rather to keeping them tightly locked shut [...]. The same restrictive rationale and techniques can be applied to limit safety and reliability inspections for a vast range of critical products - everything from electronic voting machines to security systems to computerized car-engine controllers.”¹⁰⁷

The copyright industry can become, in effect, the censor for public users, controlling the technology as it is developed, as well as the utilization of content. These concerns should be solved by appropriate legislation, whose task, in the field of copyright, has always been to balance the frequent shifting in the relation between consumers’ and producers’ rights, and guarantee the subsistence of fair use exceptions.

3.1.4 What level of liability for online service providers?

The second important innovation brought by the DMCA regards the liability of Internet and online services providers for illicit content hosted on their servers. Section [17 USC 512](#) of the Act foresees that a service provider shall not be liable for infringement of copyright by reason of the provider transmitting, routing or providing connection for materials over its system or network, and for the storage of the material on its system or network. In this case it could be temporary storage or “storage at the direction of the user” as happens for web hosting.¹⁰⁸

The Section then establishes a series of requirements providers have to fulfill to assess their independence from infringing content they transmit or host. In practice, the Act offers a *safe harbour* to ISPs, and at the same time provides strong incentives to the providers to remove immediately and allegedly infringing materials, once they are notified of the alleged infringement.

For the purposes of the law, ISPs are divided into three categories, implying a different degree of involvement of the provider in the management and control of the content. The first two categories in fact may be seen as a codification of the concept of “mere conduit”, while the third category addresses service providers that host third-party content.¹⁰⁹

In the latter case, the prerequisites the provider has to fulfill to be exempted from liability for copyright infringement under the Act, are stricter. The provider must not have “actual knowledge that the material or an activity using the material on the system or network is infringing”; it must not be aware of facts or circumstances from which infringing activity is apparent, and once it becomes “aware” of this infringing activity, it has to “expeditiously remove, or disable access to, the material”. Furthermore, upon notification of claimed infringement by the copyright holder, the ISPs, always to avoid liability for damages, have “to remove, or disable access to, the material that is claimed to be infringing or to be the subject of infringing activity.”

This system has been called “notice and take down” (or “cease and desist” order), and is applied when a person publishes copyrighted material, such as a song, a picture or part of a novel on a Web site without the copyright holder’s permission. In this case the copyright holder can notify the Internet service provider (ISP) hosting the site, who is then required to send an official notice to the Web page owner. If the Webmaster does not take down the copyrighted material or get the copyright holder’s authorization, the ISP can remove or block the access to the Web page with the copyrighted material. In any case, the refusal to utilize the safe harbour provided by section 512 does not presuppose the ISP’s liability, but means only that its position will be evaluated together with the position of the subscriber (for example the website owner).

The problem is that some ISPs, fearful of violating copyright law, do not follow the exact procedures outlined in the Act, and sometime prefer to remove the entire Web site, rather than just the page with the copyrighted material, or take down directly the contentious material without waiting for the official letter from the copyright owner as required by the DMCA.

The provider, after receipt of the notification, and once they have blocked access to the supposedly infringing material, also has to take “reasonable steps promptly to notify the subscriber that it has removed or disabled access to the material.” The subscriber may then send a “counter-notification” to the provider, on the basis of which the latter will then inform the complaining copyright holder that the material will be replaced in ten days. During this time, therefore, the right holder can decide to file an action for copyright infringement, otherwise the content will be put back on the website.

Although this latter provision is seeking to make it more difficult for copyright owners to oblige ISPs to eliminate suspect materials from their servers, the procedure is still quite burdensome, and damages both ISPs and subscribers, while still leaving room for possible abuses. Providers recently found themselves obliged to respond to hundreds of “cease and desist” orders under Section 512 (c) every month. These orders are frequently based on lists of potentially infringing files which are generated by “bots”, i.e. automatic retrieval systems which works as search-engines does, going through the Web looking for files that appear to match copyrighted materials. These lists therefore contain many errors and often include files that surely do not contain copyrighted materials.¹¹⁰

However, to avoid further problems and time-consuming legal claims, ISPs will often comply with the order and remove even material whose posting was not a violation of copyright law. In this way subscribers will have the burden to respond with a counter-notification, and even then will not be sure to be able to continue to post their content. Recently, a US provider notified to a subscriber that its connection was going to be severed in a few months, due to charges that it violated the DMCA by posting a parody website.¹¹¹ The “notice and take down” practice, therefore, although giving right holders an efficient means to stop unauthorized diffusion of their work online, may also be use to restrict the freedom of speech and of critics.

With a cease and desist order, a copyright holder may also request the names and addresses of the ISP subscribers they suspect to be infringing copyrights.¹¹² This provision offers the possibility to right holders directly to sue users who are infringing copyrights, for example exchanging large amounts of files through file sharing systems (P2P). However, this also poses new threats to privacy on the Internet. Section 512 permits copyright owners to send an order to a service provider to provide information about a customer, and the provider will be obliged to comply immediately with this order, without judicial approval being required first.¹¹³

3.1.5 Contract law as an alternative to copyright?

In the digital communication environment, because every act of usage necessarily involves some sort of copying (to play a CD-ROM or read a website on a computer involves copying it, even if only temporarily, to the hard drive), the rights of intellectual property owners have been extended to include every conceivable act of viewing, transmitting, receiving or simply using a copyrighted work. In the past, not all uses were considered relevant from a copyright perspective: listening to music or watching a movie were not acts controlled in any way by the right holder. As mentioned above, in the information and communication age this has changed fundamentally, and while information is today capable of travelling more efficiently and rapidly than ever, new barriers are posed on the circulation of knowledge, and the balance between copyright and freedom of expression and information is undermined.

Additionally, while technology can facilitate the copying and distribution of digital information, it also grants the owners of digital property an unprecedented degree of control over the use and distribution of information, giving authors more, not less, control over their work.¹¹⁴

As mentioned above, the combination of legal protection and technological measures, together with the possibility to license the utilization of an intellectual product directly to the end-user, forms the basis for the so-called digital rights management (DRM) systems. These systems are capable of controlling, monitoring, and metering almost every conceivable use of a digital content, and are considered the “third pillar” of copyright protection.¹¹⁵ By distributing music using DRM, content providers can collect a fee from users for every copy they download, charge for every time a song is played, limit the locations in which a file can be used, or even programme a file to expire after a certain date.

The development of digital right management systems demonstrates how technology, backed by law, is able to regulate behaviour: while in the real world restrictions are represented by physical barriers, technical standards constrain behaviour in cyberspace. Technological measures, in essence, can interact with law, becoming in turn a type of law.¹¹⁶

DRM can be an enabler for new business models, as it will allow producers to seek payment for their products even when they are distributed in electronic form through the Internet, and therefore foster the development of e-commerce. However, new legal and technological protections confer a degree of control over the design of information rights to private parties, giving them a power over access to and use of copyrighted content that goes beyond the rights afforded by copyright law. This might make it possible for copyright owners also to leverage a “thin” copyright in informational works to protect information that would otherwise be considered in the public domain, and therefore shift the balance between owners and users in a harmful way.¹¹⁷

The main concern relating to contractual licenses is that they may well be used to substitute or complement copyright restrictions, further eroding the existing freedoms, in particular in the case of non-negotiated contracts,¹¹⁸ commonly used in the software market. The relation between contract clauses and copyright law is unclear: the latter should specify if it is possible and to which extent, to “contract around” copyright, and in particular should define the possibility to overrule the exceptions granted by copyright law.

Certain user freedoms, however, reflect fundamental public interests that are constitutionally protected in many countries (such as education and freedom of speech) and clearly cannot be overcome by contractual agreement. A decision in this direction has been recently taken by the New York state Supreme Court, which retained a contract rule restricting the right to publish the results of testing and review of a software product which was included in the license for the utilization of the same software, as “deceptive” because it implied consumers who conducted the reviews would be violating the law, when they would not. In its ruling, the Court prohibited to the software firm from using its end-use licensing schemes to ban product review and benchmark tests, affirming that

“Such clauses censoring speech and criticism chill not only consumers’ speech, but also prevent academics, consumer advocates, and technology experts alike from openly and freely discussing software products. Restrictions like these threaten to hinder the spirit of innovation and critical appraisal the public needs to keep software effective, efficient, and safe.”¹¹⁹

In that case, therefore, it seems there is no reason to apply a different discipline than in case of “analogue” contracts. Where right management systems attempt to impose restrictions on access to or use of informational content that would be improper in a contractual agreement, the restrictions should be viewed as void, because they would be contrary to public policy and public interests.

However, the treatment of contractual clauses restricting the utilization of the products in ways that were not subject to control in the past is still uncertain. As some authors affirmed, certain uses were considered as “free” not for a specific reason or to protect a given interest, but only because there were no means to control them. Following this reasoning, it would seem logical that today’s rights holders can exploit also these new opportunities.¹²⁰

Although this conclusion might appear to be correct from the copyright owner standpoint, it nevertheless neglects to consider two aspects. The first one is the scope of copyrights, which have never been intended, as shown above, to give a complete *monopoly* of work to the author.¹²¹ Secondly, although it is not automatic that giving right holders the opportunity to protect and control their intellectual works that all the products will be over-protected – perhaps it is not even in the interest of publishers to excessively limit the possibility of utilization of a work – the degree of protection would probably depend also on the level of competition in the market. Different publishers can offer products with different limitation on use and at proportionate prices, thus giving customers the opportunity to choose. But considering that consumers does not always have the opportunity to opt for a different product, and that the sector is lead by a small number of large multinational companies, with significant market power,¹²² probably this capacity to choose – and the balance between users right and protection – should be preserved also through copyright law and policy.¹²³

3.2 Revolutions on the web: Peer-to-Peer Networking and Open Source

3.2.1 P2P: from the Napster saga to the Kazaa race: can P2P become a viable legal business model?

The adoption of these national and international legal instrument for the protection of copyrighted works has been supported in particular by the entertainment industry, the sector which, more than others, is affected by the diffusion of new information and communication technologies. The distribution of music and movies channels is growing every month – thanks also to the development of broadband services – however, an appropriate model for distribution has not still been found. Most of the music, films or computer programmes circulating in the Internet are “pirated” copies, distributed in violation of copyright laws.

This has resulted in a drop of 11 per cent in CD sales for the music industry¹²⁴ during the first semester of 2002, while the number of estimated users of Kazaa, the file-swapping system, are growing dramatically, and at the beginning of 2003 amounted to about 22 million in the United States alone. In Europe the situation is not much different, with the music industry reporting a 7.5 per cent average overall downturn in sales in 2001.¹²⁵

Copyright has, since its inception, passed through many innovations, but the balance between public access and creators’ rewards has always been preserved and exceptions to copyright maintained. Even after the diffusion of technological tools that increased the ability to reproduce works, such as the photocopying machine and the video cassette recorder (VCR), copying for private use has always been permitted, as well as copying for educational purposes. However it seems that the balance of this market was in the “imperfection” of the earlier copying methods, which did not permit a perfect reproduction and a large diffusion of the works:¹²⁶ digital and communication technologies have a disruptive effect on this system, breaking its delicate equilibrium.

In particular, since the “Napster saga”, peer-to-peer¹²⁷ technologies (see Box 4) have been seen as a threat by the entertainment industry. When the first P2P software (Napster) was released, its inventor probably did not imagine the reactions it was going to generate. Created as a system intended to link a small group of friends, the utilization of Napster rapidly extended to millions of users. Napster allowed the exchange of music files between different users by diffusing peer-to-peer software (“MusicShare”) and by hosting a centralized directory that responded to searches for particular songs by identifying the matching files of Napster online users. It therefore created a revolutionary way of distributing music through the Internet, shaping a new type of demand – and sending shockwaves among copyright owners and the traditional music industry.

Napster, Kazaa, and other peer-to-peer systems facilitate the distribution of digital content by allowing individuals not only to search for MP3s¹²⁸ on the World Wide Web, but also to search for MP3s and other files stored on the hard drives of individual PCs. Peer-to-peer networking dramatically expands the universe of available music, allowing a person who has recorded a movie on their computer to make this movie available to million of other users simply by connecting to the network. However, if it is true that the dark side of P2P allows its users to easily swap copyrighted materials for free without the authorization of right holders, this technology has also an enormous (and legal) potential.

Box 3: P2P (peer-to-peer) networks

The Internet is essentially a communication network which allows people to connect with each other and to exchange resources and ideas. The World Wide Web is structured around a client-server model, and was not originally designed as a conduit for person-to-person interaction.



Michelangelo, Il Giudizio Universale, Sixtine Chapel, Rome.

The dramatic evolution of networked communications, in both speed and capacity, has today brought the emergence of a new form of communication, no longer based on a client-server hierarchy, but on a equal relationship between groups of users, or peers, i.e. at people at an equivalent level in the Internet hierarchy; hence the expression “peer-to-peer”, abbreviated as P2P.

Systems using peer-to-peer technology, such as Kazaa, today allow for the sharing of files among individual users, and offer to them the possibility to exchange also copyrighted material, such as musical files, facilitating the violation of copyright laws.

A P2P network can be composed either entirely of peers at the same level (decentralised P2P) or a sort of hybrid system of client-server and a peer network (centralized P2P). In the second instance, a centralized server directly links all the connected users together. Without this server there is no network. An example of a P2P network using a centralized technology is Napster, which acted as an intermediary between two peers, facilitating MP3 file seeking.

In a decentralised network, conversely, each PC is a node, which is at the same time both a client and a server. Every computer in the network is connected to every other computer without the need for any centralized server to control the content. Equality among peers is perfect in this case, as the information goes through all the connected computers. Today there are numerous new decentralized architectures, such as Kazaa, Morpheus or Grokster, which have implemented new technologies and enhanced the accessibility and the quality of their services.

P2P allows the exploitation of the potential residing at the edges of the network infrastructure. Before P2P, the million of computers connected to the Internet were not really a part of this network. In fact they were nothing but clients. With P2P, all these computers can become a part of the network.

The P2P model is seen as the key element in the Internet evolution, and many of the most innovative initiatives on the Internet are deriving from the utilisation of this model, the example being the famous Napster or Kazaa. But P2P is also at the basis of instant messaging (IM) services and chat software (such as IRC), of the [SETI](#) (search for extraterrestrial intelligence) project- where the spare capacity of PCs is used for the elaboration of data, it is used for universities cooperation programmes, and helps the exchange of information among researcher. Additionally, as the cost of distribution through the Internet is practically inexistent, a host of unknown artists are likely to use the new potential provided by these technologies to spur their carriers, and be less dependent upon the traditional music distribution system. Peer-to-peer technology in itself can be the vehicle to foster innovation and the spread of new intellectual creations.

The popularity and the ease in the utilization of P2P networking is illustrated by the tremendous growth in the number of users of P2P. However, of all the music downloaded via Napster, a large percentage was in infringement of copyright, and the same is applicable to other sharing systems (and relates not only to music,

but also to films and software). The large number of files exchanged every day over the Internet, however, makes it not worthwhile for copyright holders to pursue single infringers.¹²⁹

*“Hillary Rosen, the president of the RIAA, conceded to me that “there are not enough lawyers in the world to sue all the people we’d have to sue.” (As it is, the association sends as many as thirty threatening letters every day.) Stop fighting to preserve the past, Rosen counsels record labels. It can’t be done. [...] Instead of fighting the trend, she says, the industry should “embrace the opportunities” provided by the Internet. Don’t try to stop the flow of zeros and ones, rechannel it.”*¹³⁰

The legal interest in peer-to-peer revolves around a question of old commerce and new e-commerce. In fact, in the Napster case, the interests of the music industry were so threatened that an alliance, guided by the Recording Industries American Association (RIAA), filed a suit against Napster for the violation of the provisions of the Copyright Act. As mentioned in Box 4, Napster was not an entirely P2P network, as it used a centralized server to allow file-swapping. This centralized architecture was both a technical strength and a legal weakness.

Napster was in fact sued for “*contributory and vicarious copyright infringement*”. The RIAA alleged that the conduct of the company, providing users with the necessary infrastructure, intentionally enabled and promoted the distribution of unauthorized copies of music. Additionally, and here the structure of the technology was critical, it was asserted that Napster, through its central server, was able to control all these infringements.

Napster’s defense, built on the “*Sony case*”, the fair use doctrine and the application of the new *safe harbour* provisions of Section 512(a) of the Digital Millennium Copyright Act, was not successful, and did not impede the negative ruling by the Court. Napster was judged as not comparable to VCR devices, as that technology allowed users to “merely [enjoy] the tapes at home”, while Napster facilitated unauthorized distribution.¹³¹ Additionally, in this case Napster had knowledge of the activities of its users, and was aware that infringing material was available in its system. Also, Napster user’s activities could not be considered “fair use” because they threatened the incentives created by copyright. To avoid liability for copyright violation, Napster had therefore to exclude infringing files from its directory once alerted by the copyright holders, under the “notice and takedown” regime mentioned above. This killed the service in a few months.¹³² The Court decision was accepted with satisfaction by the music industry, which considered it as a necessary step for the development of their own online digital business model.

Despite the termination of Napster, however, supporters of P2P technology did not abandon the elaboration of new architectures based on a decentralized server, to provide new alternatives to file-sharing users, avoiding the legal struggle which Napster incurred.¹³³ Gnutella was one of the first decentralized networks to appear on the Web, quickly followed by many others, and was considered a new menace for the entertainment industry.

From Napster, to Gnutella, to Kazaa. File swapping has not been stopped by legal constraints, and even with the new instruments offered by the DMCA or by European Copyright Directives, the entertainment industry is not able to adequately face the spread of P2P technologies. Notwithstanding the multiple legal actions it is facing, Kazaa is still providing its services, and countless copies of the software are downloaded every day.¹³⁴

The legal strength of Kazaa is its decentralized network configuration, which does not permit to the company to control or supervise the activity of users.¹³⁵ Additionally, the structure of the firm has been broken up, and control scattered to several businesses in different countries, some of which are well-known safe harbours for intellectual property violation or tax havens.¹³⁶

This to say that, although new and more stringent technical and legal controls have been enacted, it is impossible to stop the evolution of technology. In addition, in the effort to stop piracy, copyright rules have a tendency to proliferate, and become overprotective. In the digital age copyright has expanded to include every conceivable act of transmitting, viewing, receiving, or simply accessing a copyrighted work. Furthermore, the potential of using “code” (technological measures) and contracts clauses as substitutes or additions to copyright, threatens to further erode the existing freedoms and exceptions.¹³⁷

Among the many music-sharing services, there are some companies that have started to develop online music distribution services based on a more classic “client-server” configuration, where users are able to download files on a micro-payment basis. However these systems are not yet producing the desired results, in particular because of the competition from P2P services offering free downloads. Price, however, is not the only problem. At second glance, the unsuccessful deployment of payment-based and legal services seems also due the control music industries are still trying to exert on the music they offer, and the limited extension of the same service.

Online music downloading services are currently provided by a handful of companies such as MusicNet (www.musicnet.com) and PressPlay (www.pressplay.com), respectively backed by Warner, BGM and EMI and by Universal and Sony. These services, started in 2001, are built on proprietary software, and control every utilization, from the download of a song to the listening of the music.¹³⁸ The user, who, for a monthly fee, can download the music from the list, is not free to listen the song on a MP3 player, cannot exchange the music with a friend who is not signed up to the service, and is allowed to burn or transfer music to a portable device only after the payment of an additional fee for each song.¹³⁹

Additionally, these services are not able to provide the same range and variety of music that is currently available for free on Kazaa and services alike, because of the complex copyright licensing system,¹⁴⁰ and the delay with which some time albums are released online, for fear that would affect the sold of CD version. Recent technological developments such as broadband capacity, MP3, digital compression, streaming, and peer-to-peer file sharing, have provided consumers with easy access to music on the Internet and stimulated their interest in using the Internet as a primary way to enjoy music. Communication technology is constantly advancing, and users are demanding downloadable formats and new services, currently offered successfully by P2P networks. Given that P2P systems cannot be blocked, the power to stop online piracy rests with users. The entertainment industry, instead of trying only to block them, lobbying for restrictive copyright laws, suing providers or even single users, introducing restrictive TMs to their products, or “spoofing”¹⁴¹ files in the network, should try to offer improved services and convenient deals. Specifically, they should provide their customers with a better place to go.

Today we are assisting to a situation of – at least partial – market failure, where the demand for music of users is not fulfilled by producers, who cannot find a model to exploit the market. Authors and producers are unwilling to distribute their products online as long as a payment scheme is set up and pirated copies are banned. At the same time, the current services they are proposing are suffering from the complex and overly restrictive schemes they have to follow. Continuing on this path, there will be no improvement, as there is neither an incentive for private users to stop illegitimate file sharing, nor for creators to make their work available online, and no system to allow to online music subscription services to work.

Perhaps, as some authors suggested, it will be necessary to find a different mechanism to reward artists. A mix of compulsory licensing¹⁴² and collective licensing models could provide a solution to the current impasse in the distribution of digital products over the Internet.

Compulsory licensing would help in the development of these services by allowing all online music providers to obtain a license through a simplified one-stop-shopping process. Also, obliging authors, such as singers, to join a collective licensing association, would give users the right to obtain a license to use any piece of music and distribute it over the Internet, while at the same time rewarding rights holders.¹⁴³

A similar objective is the one pursued by Apple, which recently launched its iTunes service,¹⁴⁴ which obtained in its first weeks a considerable success among users. The positive take up of iTunes is apparently to the ease with which customers can access and use the service, and the relative “freedom” of utilization they can enjoy once they buy the music, although, of course, always more limited in respect of free downloads.¹⁴⁵ Apple is trying to utilize a more simple copyright management to strike a deal with major music companies, and also to get smaller independent firms on board, hoping to make music more easily available.¹⁴⁶

These kind of services will have several advantages for users: they will be legal, more easily accessible in respect to the services currently offered through P2P technology, which are often more difficult to use in particular for people not expert with ICTs, and will to offer the a good variety of songs, faster downloads, and other enhanced services, such as additional information on singers, videoclips, etc. Additionally, more freedom should be left to users, which to be willing to pay to download music should have not only a large

choice of songs, but also the possibility to use these songs as they wish, listening to them from their computer, or in a portable MP3 player, or burning them on a CD.

P2P services will be free to exist, and continue to provide an incredible tool for the exchanges of files among users, for examples songs that are no longer available in the commercial circuit, or local productions which are not widely distributed. Additionally, to balance the possible illegitimate uses of copyrighted products that can still survive in the market, a kind of levy tax on broadband access might help. The tax could be collected by ISPs, incorporating it to broadband subscriptions.¹⁴⁷ This method is already applied to blank CDs and videotapes. It is in fact supposed that this equipment will serve, at list in part, for the reproduction of protected works, therefore the amount of the tax is collected and then redistributed to right holders to compensate them of the loss they have suffered. Programmes aimed at raising awareness on the importance of respecting copyright, together with a more “friendly” policy toward the Internet and file sharing, and a creative approach to new solutions, could give artists and music labels greater results rather than their “aggressive fight against piracy” to conquer their “legitimate” monopoly of online distribution.¹⁴⁸

3.2.2 Open source and open society

As seen above, computer programmes are covered by copyright protection, and the author usually allows the utilization of the programme by third parties through licensing agreements, with which they establish the modalities and limits of utilization. Software programmes are typically purchased or received in the form of compiled objects, and do not provide access to the source code, which is the collection of instructions a computer programmer writes to tell a computer what to do. These instructions are written in high-level languages such as C++, Cobol or Java, and can be understood by anyone having a proficiency in that language.

In the early days of software industry (sixties and seventies), many programmes were licensed in source code form, on the grounds that programmes were usually the result of custom development, and therefore designed to work only in a specified environment.

With the emergence of home computers, off-the-shelf, mass-market, computer programmes were developed to run on standardized Personal Computers (PC), and caused the growth of the practice of “closed source” licensing, which nowadays dominates the market. Closed source is preferred by commercial software companies, allowing the licensor to maintain the source code as a trade secret, and impeding users from modifying the programmes, as rewriting would require access to the source code.

This is the essential reason for the development of the “open source movement”.¹⁴⁹ This movement was initiated by a group of programmers who believed that access to the source code is fundamental for the development of better and more efficient computer programmes, and then extended to the entire user community.¹⁵⁰

“Open” or “free” source in this context relates to a source code that is available to all users, which can freely accessible and modifiable, and not to something that is available at no cost.¹⁵¹

“Free software is a matter of liberty, not price. To understand the concept, you should think of “free” as in “free speech”, not as in “free beer.”” (R. Stallman, [GNU philosophy](#))

Also, “open” does not mean necessarily that the software source code is placed into the public domain: programmers may still copyright the code, and then license it according to a particular mass-market licensing model. As *Debian*¹⁵² put it “*To stay free, software must be copyrighted and licensed*”.

This is because software that is placed in the public domain can be cracked and put into non-free programs, becoming therefore unavailable for further modification and improvements. The software author, conversely, uses his own copyright to guarantee that all users may enjoy the same rights by affixing any of a number of standard licensing notices, such as “[Copyleft](#)”¹⁵³ to the code. Well-known examples of free or open source software are the GNU/Linux computer operating system, Perl programming language, the Internet e-mail engine SendMail or the Apache Web server.

User innovation networks, such as open source, have a great advantage over the commercial development systems that are at the basis of current software market: they enable each user, whether an individual or a corporation, to develop exactly what they need rather than being restricted to available marketplace choices or relying on a specific manufacturer’s work. Moreover, individual users do not have to develop everything

they need on their own: they can benefit from innovations developed by others and freely shared within and beyond the user network. The open source movement claims then that by making the source code available, programmers are able to develop higher quality software and fix bugs faster than commercial software developers, and that the resulting software will be less expensive than the commercial ones. At the same time, running a system based on open source software may be technically more complex, and require appropriate management, making it difficult for smaller users to benefit from them.

To obtain an open source license, software has to respect a series of key principles. These principles are embodied in the open source definition, published by the Open Source Initiative, and in sample licenses published by the Free Software Foundation and others, such as the GNU¹⁵⁴ General Public License (GPL) and the BDF (Berkeley Software Design) licence.¹⁵⁵ If a license does not comply with these principles, the software cannot (at least should not) be labeled “open source.”

Many thousands of free and open source software projects exist today and their number is growing rapidly. Pre-packaged support for such projects is now available online, and users are beginning to understand the potential of such software. Implementing new projects is becoming progressively easier and more effective. A warehouse of open source projects, Sourceforge.net, already lists several thousands of projects and registered users.¹⁵⁶ The open source model is beginning to be employed at the governmental level, constituting an attractive alternative to commercially developed software, and it is becoming a threat for traditional software companies, that until now were able to maintain a sort of monopoly in the sector.¹⁵⁷

The possibility of using open source software has met with much interest from developing countries, where the cost of traditional commercial software is often too high for local standards. Additionally, open source software would allow users to adapt the products for the local needs, and foster the development of inter-operating applications, through follow-on innovation. Under TRIPS, developing countries are already permitted to reverse engineer software, however the widespread use of open source software could prove more practical and it is an alternative these countries should consider.¹⁵⁸

4 Conclusions

4.1 Implications for developing countries

Developing and least developed countries are trying to fight against the digital divide to gain the access to information and communication technologies, so to reach the incredible resource of information and knowledge represented by the Internet. However, having a computer connected to the Internet network today is not enough: some of these resources are not, or may not be in the future, available to all users.

Probably this is not much different from the past situation: before the Internet, developing countries also had only to limited access amount of resources and information. Some authors assert that in any case they are able to benefit from the knowledge that is openly disseminated in the Internet, and to some sources for which a local library or university is able to pay.¹⁵⁹

If this conclusion seems logical, given the need to reward the original effort of creators, it is also worth noting that intellectual capital cannot be considered as a mere “property”, and should not be subject completely to the will and wisdom of the owners. Some authors affirm that, given the existence of rights management systems, which are legally protected, and the growing importance of contractual agreements between owners and end-users, legislation will have a residual role in the field of copyrights. This interpretation, however, is probably too radical, as appropriate legislation, created specifically for the need of the country, has a fundamental role to play for the preservation of the right of users to access information and to use them, either for reasons of public interest or for consensual, limited, private uses.¹⁶⁰

New information and communication technologies can be the beginning of a new era for knowledge diffusion, bringing to the elaboration of new business models and to the diffusion of a variety of services, respondent to the users’ more diverse needs. The risk, however, is to create a “pay per view” world, where there will be not room for “exceptions” and fair use, and intellectual property will not be seen as a regime to protect authors and foster creativity and public access to ideas, but only as a means to reward investment.

This shift is already happening. Without a clear and balanced IPR system, the combination between technical and legal measures may ensure unlimited filtering capabilities to digital communication technologies, excluding people from the content needed to make informed judgment and rational decisions, and

“may result in growing barriers to the access to all types of information, which will be increasingly channeled through digital networks. Such barriers are likely to affect not only technology, but also general factual information as well as scientific knowledge. This may consolidate existing trends of not openly diffusing the results of scientific research, and thereby restrict access by developing countries to the pool of scientific knowledge.”¹⁶¹

International treaties and regulations should therefore consider the necessity to devise legal provisions that can accommodate both protection of intellectual work and fair uses and other exceptions to copyright infringement. Furthermore, after ratification, international provision should be implemented appropriately at the national level, and this requires an appropriate legislative framework, without which copyright protection may not have beneficial effects on investment and innovation.

4.2 Can copyright be used to encourage creativity, foster development and allow access to information to everyone?

In their contribution to the WSIS process, several organizations and member countries expressed the need to promote and preserve information in the public domain, suggesting that a more adequate balance between property rights and other social needs (e.g. cultural and educational) should be identified and incorporated in the legal framework, while exceptions to IPR should be clearly defined.

The legal cases which are currently creating so much debate in the ICT community are an example of how the emergence of the Internet put the future of copyright law at a crossroads. Copyright in the information and communication society is not a stand-alone issue, but it can influence access to information, regulating the flow of knowledge and ideas. Copyright is also strictly linked to competition, technological innovation, consumer rights and public interests – all elements that have a fundamental role in the balanced development of society.

Notwithstanding the conflicting views that exist concerning the implementation of some national and international instruments relating to copyright protection, a solid legal framework for copyright protection seems to be an essential tool for preserving the balance between the interests of right holders and those of users, and for the development of ICTs and their applications. Rational copyright legislation is ideally one recognizing that technological advance is too fast for traditional rigid regulation, that takes into consideration the different needs of the country in which it is implemented, balances the interests of all stakeholders, and succeeds in the fundamental role of copyright discipline – i.e. fostering creativity and innovation – while avoiding the creation of new digital monopolies and preserving the public interest, to allow everybody to fully participate in the society of the future

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- ⁶ A typical example of licensing can be found in the software market: when a customer buys a computer programme he or she is buying only the license to use this programme in a certain manner, respecting a series of rules and restrictions. See *infra* paragraph...
- ⁷ See Universal Declaration of Human Rights, art. 19 and 27, online at <http://www.un.org/rights/50/decla.htm>
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- ¹¹ Berne Convention for the Protection of Literary and Artistic Works completed at PARIS on May 4, 1896, revised at Berlin on November 13, 1908, completed at Berne on March 20, 1914, revised at ROME on June 2, 1928, at Brussels on June 26, 1948, at Stockholm on July 14, 1967, and at PARIS on July 24, 1971, and amended on September 28, 1979. Online at <http://www.wipo.int/clea/docs/en/wo/wo001en.htm>.
- ¹² WIPO Copyright Treaty (adopted in Geneva on December 20, 1996), art. 4 and 5. Online at <http://www.wipo.int/clea/docs/en/wo/wo033en.htm>
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- ¹⁵ Convention Establishing the World Intellectual Property Organization (Signed at Stockholm on July 14, 1967 and as amended on September 28, 1979), Preamble and art. 3. Online at <http://www.wipo.int/clea/docs/en/wo/wo029en.htm>
- ¹⁶ The authors of a work protected by copyright and their descendants – for a limited period of time – hold the exclusive right to use or authorize others to use the work on agreed terms. Furthermore, the creator can prohibit or authorize reproduction, public performance, recordings, broadcasting, translation or adaptation of the above-mentioned intellectual work: WIPO, “Copyright and related rights: Frequently asked questions”, online at <http://www.wipo.org/copyright/en/>. On the need for an appropriate balance, see S. Vaidhyathan, *Copyrights and Copywrongs: the Rise of intellectual Property and How It threatens Creativity*, New York University Press, 2001, p. 20.
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- ¹⁸ L. Allman, “Fair use, free use and mega-use of copyright works in the networked digital environment”, UNESCO InfoEthics 2000, at <http://unesdoc.unesco.org/images/0012/001233/123352m.pdf> [hereinafter *InfoEthics*].
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20 In the US system is defined as the *idea/expression dichotomy* one of the traditional limitations to author's exclusive rights. See US Copyright Act, 1976, art. 102 (b): "in no case does copyright protection for an original work of authorship extend to any extend to any idea, procedure, process [...]". Online at <http://www.law.cornell.edu/copyright/copyright.table.html>.

21 The term "database" is defined by the Directive as "a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means." Database Directive, art. 1(2).

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25 See Keith E. Maskus, *Intellectual Property Rights in the Global Economy* (Institute for International Economics: 2000), p. 15 ff.

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34 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001, on the harmonization of certain aspects of copyright and related rights in the information society, art. 5. Official Journal of the European Community L167/10. Online http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32001L0029&model=guichet

35 See C. Correa "Fair use in the digital era", online at http://webworld.unesco.org/infoethics2000/documents/paper_correa.rtf.

36 While having the same result, "fair use" doctrine and exceptions to copyright work differently. In the latter case certain uses of a protected work are allowed by the law itself, while in the former there is an infringement of copyright to which the "fair use" exception can be opposed.

37 *WIPO Copyright Treaty*, Geneva, December 20, 1996, Preamble [hereinafter "WCT"]. Online at <http://www.wipo.org/eng/diplconf/distrib/94dc.htm>

38 On the S. Dusollier, Y. Poulet, M. Buydens "Copyright and access to information in the digital environment", UNESCO (2000), at p.10. See also C. Correa "Fair use and access to information in the digital era", in InfoEthics. Both these articles can be found online at http://webworld.unesco.org/infoethics2000/report_141100.html.

39 See Supreme Court decision in *Sony Corp. v. Universal City Studios* 464 U.S. 417 (1984), at http://www.eff.org/Legal/Cases/sony_v_universal_decision.html.

40 "The average member of the public uses a VTR principally to record a program he cannot view as it is being televised and then to watch it once at a later time. This practice, known as "time-shifting," enlarges the television viewing audience. For that reason, a significant amount of television programming may be used in this manner without objection from the owners of the copyrights on the programs." *Ibid.*

41 On *Sony v. Universal City Studios*, see L. Lessig, *The future of ideas*.

42 TRIPS agreement, opening statement, declaring the objectives of the TRIPS are to "reduce distortions and impediments to international trade".

43 International agreements, say representatives from music labels and entertainment industry, would make it easier to pursue companies which are now evading national legislations, such as the Dutch [Kazaa](#), see *infra* Box 3.

44 On the development of international copyright law, see D. J. Gervais, "The internationalisation of intellectual property: new challenges from the very old and the very new", 12 *Fordham Intell. Prop. Media & Ent. Law Journal* (2002), at 929. About TRIPs see Maskus, chap. 2; Susan A. Mort "The WTO, WIPO and the Internet: confounding the Borders of Copyright and Neighbouring Rights", 8 *Fordham Intellectual Property, Media and Entertainment Law Journal*, p. 173.

45 See E. Su “The Winners and the losers: the agreement on trade-related aspects of intellectual property rights and its effects on developing countries”, 23 Hous. J. L. at 169.

46 See Dreyfuss and Lowenfeld “Two achievements of the Uruguay Round: Putting TRIPs and Dispute Settlement Together”, 37 VA. J. International L. (1997), at 275.

47 Such as, for example, the possibility to reverse engineer programmes for specified purposes of those relating to translation rights.

48 See C.M. Correa, *Intellectual property rights, the WTO and developing countries: the TRIPS agreement and policy options* (2000), K.E. Maskus, *Intellectual property rights in the global economy* (2000); R. Wilder “Intellectual property in development”, online: <http://www.worldbank.org/wbi/B-SPAN/Intellectual%20property/wilder.htm>.

49 J. Sachs, Columbia University. In S. Lohr “On intellectual property, US forgets its own past”, New York Times, October 16, 2002.

50 For discussion relating to the inclusion of computer software under literary works, see P. Samuelson, R. Davis, M.D. Kapur and J.H. Reichman “A manifest concerning the legal protection of computer programs”, Columbia Law Review, Vol. 94, No 8, 1994.

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52 See, for example, two cases regarding the “look and feel” issues in the United States: Lotus v. Paperback, but also Apple v. Microsoft.

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54 On the negotiation bringing to the approval of these two treaties, see generally Pamela Samuelson, “The U.S. Digital Agenda at WIPO”, 37 Va. J. Int’l L. 369 (1997).

55 Treaty on Intellectual Property Rights in Databases, online at http://www.eff.org/IP/WIPO/1996_wipo_copyright_treaty.draft.

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57 WIPO Copyright Treaty, art. 8.

58 P. Samuelson, “The U.S. Digital Agenda at WIPO”, 37 Va. J. Int’l L. 369 (1997). See also WIPO Primer on electronic Commerce and Intellectual Property Issues <http://ecommerce.wipo.int/primer>.

59 See comment on LawMeme, “Hillary Rosen wants ISP Liability” <http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=843>.

60 See A. Kusinsky “Parody of talk magazine upsets Disney”, New York times, July 19, 1999, p. 10: “Alan R. Friedman, general counsel and senior vice president of business affairs at Miramax, complained to Earthlink, the Internet service provider on whose computers the Web site appears. Earthlink immediately shut it down, notifying Mr. Colton by E-mail that the site “is making unauthorized use of copyrighted materials and trademarks owned and controlled by Talk Magazine L.L.C. and/or Miramax Film Corp.”

61 See “Intellectual Property and the National Information Infrastructure: The Report of the Working Group on Intellectual Property Rights”, 15 November 1995.

62 See *DMCA Executive Summary, Section 104 Report* (2001) on the legal status of temporary copies and on temporary incidental copy exception. Online at http://www.loc.gov/copyright/reports/studies/dmca/dmca_executive.html.

63 [WCT art. 11](#).

64 J.C. Ginsburg “Copyright and control over new technologies of dissemination”, 101 Colum. L. Rev. (2001), at 1633.

65 See C. Correa, S. Vaidhyathan, L. Lessig. See also InfoEthics and CIPR reports.

66 See for example the problems linked to the development of broadband content and services: “Birth of Broadband”, ITU, October 2003.

67 US Constitution, art. I, Sec. 8. Online <http://www.law.cornell.edu/constitution/constitution.articlei.html>. *EU Database Directive supra* note 23.

68 http://europa.eu.int/comm/internal_market/en/intprop/docs/index.htm#proposals.

69 Intellectual property: Commission proposes Directive to bolster the fight against piracy and counterfeiting, http://www.europa.eu.int/comm/internal_market/en/intprop/news/index.htm. See also IDG, at http://www.idg.net/ic_1076698_9675_1-5124.html, IT World, at <http://www.itworld.com/Net/4087/030131euanti piracy/>, and negative reaction to the proposal in an article at <http://new.enn.ie/news.html?code=9193231>.

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- 71 "Studios Using Digital Armor to Fight Piracy", New York Times, January 5, 2003. Online at <http://www.nytimes.com/2003/01/05/business/05CONT.html?pagewanted=print&position=top>
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- 73 This point is particularly controversial. In the negotiation for the Declaration and Action Plan for the World Summit on Information Society, some countries are asking for a re-balancing of intellectual property right in the digital environment, while others deem that the balance established by the current international treaties is already appropriate, and should not be re-discussed.
- 74 See C. Correa, "Fair use and access in the information era", in *InfoEthics 2000*, p. 199. On the subject, see also the recent discussion relating to Digital Right Management (DRM): "Studios Using Digital Armor to Fight Piracy", New York times, January 5, 2003, at <http://www.nytimes.com/2003/01/05/business/05CONT.html?pagewanted=print&position=top>; and "Downside to Digital Rights Pact?", Wired News, 16 January 2003, at <http://www.wired.com/news/digiwood/0,1412,57211,00.html>.
- 75 To further poverty eradication, the UN Millennium Declaration committed to "ensure that the benefits of new technologies, especially information and communication technologies [...] are available to all". UNGA Res. 55/2, online at <http://www.un.org/millennium/declaration/ares552e.htm>
- 76 L. Lessig, *The Future of Ideas*, p. 123.
- 77 L. Lessig speech during the Second PrepCom for the World Summit on Information Society, the speech is online (video and audio) at <http://www.itu.int/ibs/wsis/pc2/index.phtml>. See also, L. Lessig, *The Future of Ideas*, at 251, and Siva Vaidhyanathan, *Copyrights and Copywrongs*, at 160 ff. See also "Embrace file sharing or die", Salon.com, at http://archive.salon.com/tech/feature/2003/02/01/file_trading_manifesto/.
- 78 The suit was brought by a group of activist law professors, including [Lawrence Lessig](#), [Charles Nesson](#), and [Jonathan Zittrain](#). At the time the lawsuit was filed, all worked at [The Berkman Center for Internet & Society](#) at Harvard Law School.
- 79 See online <http://www.eldred.cc>.
- 80 Supreme Court of the United States, Eric Eldred, et Al., Petitioners v. John D. Ashcroft, Attorney General [Eldred Decision], 537 US (2003), online <http://research.yale.edu/lawmeme/files/EldredDecision.pdf>
- 81 "U.S. Supreme Court to Determine Legality of Copyright Extension Law", <http://www.law.com/jsp/statearchive.jsp?type=Article&oldid=ZZZO9NZ9WXC>
- 82 See "Justices to Review Copyright Extension", New York times, February 20, 2002, <http://www.nytimes.com/2002/02/20/national/20RIGH.html>; "Limitless Copyright Case Faces High Court Review", Los Angeles Times, 20 February 2002; "High Court Debates Copyright Case", New York Times, online <http://www.nytimes.com/aponline/national/AP-Scotus-Copyrights.html>; "Supreme Court Upholds CTEA in Eldred v. Ashcroft", online at <http://www.techlawjournal.com/topstories/2003/20030115.asp>; for a list of links to articles relating to the discussion over the CTEA, see <http://eon.law.harvard.edu/openlaw/eldredvashcroft/news.html>. See also L. Lessig, *The future of ideas: the fate of the commons in a connected world*, (New York: 2001). Additional online material: Openlaw, <http://eon.law.harvard.edu/openlaw/eldredvashcroft/>; documents (HTML format) at http://www.thinkinglinks.info/converted_legal_docs/eldred/eldred_TOC.html; articles and comments: LawMeme <http://research.yale.edu/lawmeme/>
- 83 These services are currently being developed in Australia, to give access to knowledge resources also to remote villages. See CIPR, p. 106.
- 84 See the Digital Millennium Copyright Act of 1998, U.S. Copyright Office Summary, online at http://www.pcworld.com/downloads/file_download/0.fid.22180.fileidx.1.00.asp.
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- 86 On the DMCA see J. C. Ginsburg, "Copyright legislation for the digital millennium", 23 Colum. VLA J. L. & Arts (1999), at 138 [hereinafter "Digital Millennium"] and "Copyright and control over new technologies of dissemination", 101 Colum. L. Rev., 1613 (2001).
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- 89 "Unintended consequences: Four years under the DMCA", Electronic Frontier Foundation, online http://www.eff.org/IP/DMCA/20030102_dmca_unintended_consequences.html.

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95 P. Samuelson, “Intellectual Property and the Digital economy: Why the Anti-Circumvention Regulations Need to Be Revised”, 14 Berkeley Tech. L.J. at 519; and J. Ginsburg, “Digital Millennium”.

96 P. Samuelson & S. Scotchmer, “The Law and Economics of Reverse Engineering”, Yale Law Journal, 2002, at 1575.

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99 “Elcomsoft programmer takes stand”, BayArea, December 10, 2002. Online at <http://www.bayarea.com>; “All eyes on ElcomSoft Trial” Wired News, December 3, 2002, online at <http://www.wired.com/news/business/0,1367,56673,00.html>; “Verdict Seen As Blow to DMCA”, Wired News, December 18, 2002. Online <http://www.wired.com/news/business/0,1367,56898,00.html>.

100 DMCA, section 1201 (b)

101 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society http://europa.eu.int/comm/internal_market/en/intprop/index.htm. Some comments and further links can be found in the EuroRights website online at <http://www.eurorights.org/eudmca/>.

102 The deadline was on December 22, 2002. For the moment only two countries, Greece and Denmark, have met the deadline incorporate the directive to national law. See Directive 29/2001; see also “Alan Cox attacks the European DMCA”, The Register, April 30, 2002, at <http://www.theregister.co.uk/content/archive/25088.html>; “Does new Europe law mean slammer for DRM crackers?”, The Register, May 13, 2002, and Exemptions exempted in Europe's DMCA, August 16, 2002, online at <http://www.theregister.co.uk/content/archive/25256.html>.

103 “Lexmark Abuses DMCA in Toner Suit”, online at <http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=803>. Lexmark is trying to use the [Digital Millennium Copyright Act's](#) anti-circumvention provisions to prevent third parties to sell toner ink cartridges from providing alternate sources of toner for Lexmark's printers. Apparently, there is some sort of chip on the cartridge, which consents Lexmark printers will recognize and accept the cartridges. This, of course, makes it very difficult for third party vendors to enter the lucrative toner cartridge market. See “[Lexmark invokes DMCA in toner suit](#)”, Wired News, online at <http://news.com.com/2100-1023-979791.html>.

104 The jury retained that the Russian company's knowledge of US law in the field could not be sufficiently detailed. See “Norwegian teen acquitted in copyright case”, Legal Media Group, 12 January 2003, online at <http://www.legalmediagroup.com/default.asp?Page=1&SID=11856&CH=5&CN=&CountryName=Norway&Type=News>. “Norwegian Teenager Faces Film Piracy Appeal”, 21 february 2003, Reuters Technology, online at http://story.news.yahoo.com/news?tmpl=story&ncid=581&e=2&cid=581&u=/nm/20030121/tc_nm/tech_norway_hacker_dc

105 DVD disks are protected from unauthorized uses by a system (the CSS: Content Scramble System) which would make it difficult for a user to play back a DVD content unless he is using a machine that could properly decode the CSS routines. DVD players have to obtain a license to decrypt DVD contents. The program developed to disable the encryption system on DVDs has been therefore called *DeCSS*. On *DeCSS* see L. Lessig “*The future of ideas*”, at 187 ff.

106 “Studios Score DeCSS Victory”, Wired News, 17 August 2000, online at <http://www.wired.com/news/politics/0,1283,38287,00.html>

107 L. Weinstein, “DMCA: Ma Bell Would Be Proud”, Wired News, January 20, 2003. Online <http://www.wired.com/news/politics/0,1283,57268,00.html>. On the utilisation of DMCA to limit competition, see also “Lexmark Abuses DMCA in Toner Suit”, Lawmeme, January 9, 2003, online at <http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=803>

108 DMCA text at <http://www4.law.cornell.edu/uscode/17/512.html> or <http://www.usdoj.gov/criminal/cybercrime/17usc1201.htm>.

109 These principles has been expressed in the case *Religious Technology Center v. Netcom On-Line Communication Services, Inc.*
See J. Ginsburg, "Copyright Legislation for the Digital Millennium" , 23 Colum. VLA J. L. & Arts, I.B.

110 About the negative effects of the "notice and take down" system and the utilisation of "bots", i.e. a software that goes through
the Web the way search-engine software does, and looks for files that appear to match copyrighted material, see the [RIAA v. Verizon](#)
case, in the Electronic Frontier Foundation at [http://www.eff.org/Cases/RIAA v Verizon/](http://www.eff.org/Cases/RIAA_v_Verizon/), in particular [Motion for Leave to File and Brief Amicus Curiae of United States Internet Service Provider Association in Support of Respondent](#) .

111 "DMCA: Dow What It Wants to Do", wired News, 31 December 2002, online
at <http://www.wired.com/news/politics/0,1283,57011,00.html>.

112 17 US 512 (h): "A copyright owner or a person authorized to act on the owner's behalf may request the clerk of any United
States district court to issue a subpoena to a service provider for identification of an alleged infringer in accordance with this
subsection."

113 See "RIAA wins battle to ID Kazaa user", CNET News, January 21, 2003, at <http://news.com.com/2100-1023-981449.html>.

114 See L. Lessig, *Code and Other Laws of Cyberspace* (Basic Books: June 2000).

115 J. Reinbothe, "A Review of the Last Ten Years and A Look at What Lies Ahead: Copyright and Related Rights in the
European Union"

116 See Berkeley Conference on "The law and technology of digital right management", 27 February- 1 March 2003,
<http://www.law.berkeley.edu/institutes/bclt/drm/>. Lessig, *Code and other law of cyberspace* (Basic books, 2000).

117 "Studios Using Digital Armor to Fight Piracy", New York Times, January 5, 2003, online at
<http://www.nytimes.com/2003/01/05/business/05CONT.html?pagewanted=print&position=top>; For an example of how a
digital rights management system function, see "Windows Media Player Digital Rights Management", [LawMeme](#), September
13, 2002, <http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=335> . D.L. Burk & J.E. Cohen, "Fair
Use Infrastructure for Rights Management Systems", 15 Harvard Journal of L. & Tec., 2001, at 41; "What is Rights
Management: The Nature of Knowledge and Rights Management Systems", at
http://www.iprsystems.com/html/rights_management.html.

118 In mass-market contracts, also called "shrink and wrap" or "click and go" contracts, contract clauses are established
unilaterally by the seller/copyright owner.

119 "Judge orders software developer to remove and stop using deceptive and restrictive clauses", Office of New York State
Attorney E. Spitzer, at http://www.oag.state.ny.us/press/2003/jan/jan17a_03.html; see also "Court: Network Associates can't
gag users", CNET News, January 17, 2003, at <http://news.com.com/2100-1023-981228.html>.

120 Ginsburg "Digital Millennium"; however, see also J. Litman, "Copyright Law and Electronic Access to Information", 1996,
www.firstmonday.dk/issues/issue4/litman/index.html.

121 See paragraph 3.1.2.2

122 It is sufficient to think about Microsoft programmes, or to the music industry: five music labels (the so called "big five") detain
the 75 per cent of the global music market.

123 D.L. Burk & J.E. Cohen, "Fair Use Infrastructure for Rights Management Systems", 15 Harvard Journal of L. & Tec., 2001, at
54.

124 Music labels in the past years have been conglobed in five major groups: Bertelsmann Music Group (BMG), EMI Group, Sony
Music, Vivendi Universal and Warner Music. See "Independents getting into online music", Mercury News, May 29, 2002, at
<http://www.bayarea.com/ml/bayarea/3359413.htm>.

125 IFPI (International Federation of the Phonogram Industry) figure, in "Commission proposes Directive to bolster the fight
against piracy and counterfeiting", European Commission – Internal Market,
http://www.europa.eu.int/comm/internal_market/en/intprop/news/index.htm; "The year the music dies", Wired News, February
2003, <http://www.wired.com/wired/archive/11.02/dirage.html>.

126 See "A fine balance: how much copyright does the Internet need?", The Economist, January 24, 2003.

127 On P2P see "The Heavenly Juke Box", the Atlantic Online, September 2000, online at
<http://www.theatlantic.com/issues/2000/09/mann.htm>; and "Peer-to-Peer: An e-mail exchange with Gnutella developer Gene
Kan", The Atlantic Online, September 2000, <http://www.theatlantic.com/issues/2000/09/mann-kan.htm>.

128 The name MP3 is an audio compression file format, and it is an abbreviation of the term "MPEG-1 layer-3." MPEG is an
acronym that stands for the [Moving Pictures Experts Group](#), a working group formed under the joint direction of the
[International Standards Organization \(ISO\)](#) and the International Electro-Technical Commission (IEC). This system
eliminates part of the song to reduce the size of the audio file. However the sounds eliminated are not normally audible by
the human ear. Therefore the system allows a high level of data reduction while retaining a good quality sound. See "Intellectual
Property in Cyberspace", 2000, online at <http://eon.law.harvard.edu/property00/MP3/> "A three-minute song that would
require about 32 megabytes of disk space in its original form can be compressed utilizing MP3 technology into a file of about 3
megs without a significant reduction in sound quality. Using a 56k modem, the song can then be transmitted over the Internet

in a few minutes, rather than the two hours that would be required had the file not first been compressed.” See “What is MP3?”, CNET News.com, available online at <http://www.cnet.com/internet/0.10000.0-4004-7-294826.00.html>; L. Lessig *The future of ideas*, at 123;

- 129 However, recently the recording industry (RIAA) has filed a suit against four university students who operated file-search services on their school's internal networks and exchanged copyrighted music files. This step is part of the RIAA campaign against campus music swapping. See Cnet News article “Campus file swappers to pay RIAA”. Online at http://news.com.com/2100-1027_3-999332.html.
- 130 J. Mann, “[The Heavenly Juke Box](#)”, The Atlantic Online, September 2000.
- 131 The downloading of copies of songs by users to their hard drives may make the same song available to millions of other users.
- 132 See *A & M Records, Inc v Napster, Inc* (“Napster I”) and *A & M Records, Inc v. Napster, Inc*, 2001 (“Napster II”). On the decision of the Court in the Napster Case see also J. Ginsburg, “Copyright and control over new technologies of dissemination”.
- 133 F. vonLohmann “Peer-to-Peer File Sharing and Copyright Law after Napster” http://www.eff.org/IP/P2P/Napster/20010227_p2p_copyright_white_paper.html
- 134 See “The race to kill Kazaa”, Wired News
- 135 For example, in the Napster case, the Court found that the ability to terminate user accounts or block user access to the system was enough to constitute “control”. In the suit brought against Kazaa in The Netherlands, Kazaa could show that even if the Kazaa servers were switched off, the software was still working for locating and exchanging the files. The additional services provided by Kazaa, though useful, were not indispensable. See U. Sprenger, “Issues in Intellectual Property: Peer to Peer and copyrighted File Swapping”, 2002.
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- 137 “The Baby and the Bathwater: an e-mail exchange with the international copyright expert P. Bernt Hugenholtz”, The Atlantic Online, September 2000. Online at <http://www.theatlantic.com/issues/2000/09/mann-hughholtz.htm>.
- 138 Online music downloading services are currently provided by a handful of companies such as MusicNet (www.musicnet.com) and PressPlay (www.pressplay.com), respectively backed by Warner, BGM and EMI and by Universal and Sony.
- 139 See MusicNet frequently asked questions (FAQ), online at www.musicnet.com.
- 140 Although there are contractual arrangements among these major ventures and with them and independent artists, the choice provided is always more limited if compared to the choice given by “free” P2P services.
- 141 “Spoofing”, a practice adopted in the last year by music companies, consists in submerging online swapping services with false copies of popular songs. In this way music labels aim to disturbing the practice of downloading free music and hope to persuade more people to shell out for a CD at the local record store. See “Music industry swamps swap networks with phony files”, Mercury News, at <http://www.siliconvalley.com/mld/siliconvalley/3560365.htm>.
- 142 The question of compulsory licensing for music on the Internet has already been debated within the United States. During the House Judiciary Subcommittee on Courts, the Internet and intellectual property, held in 2001, it has been affirmed that the opportunity given by ICTs for both consumers and the music industry has been hampered by services providing free access to unlicensed music. However, several witnesses also argued that existing laws are often complex and arcane, that too many permissions are required, and that music is not being made available online, therefore Congress should pass legislation providing for compulsory licensing for online streaming and downloading of music.
- 143 “House Subcommittee Holds Hearing on Compulsory Licensing of Music on the Internet”, Tech Law journal, 17 May 2001, online at <http://www.techlawjournal.com/intelpro/20010517.asp>. However, not all stakeholders agree on this method. Compulsory licensing is a non-market based solution, which can solve the current problem, but also risk to “freeze” future technological development, especially in a sector constantly expanding as the Internet.
- 144 Apple iTunes, online <http://www.apple.com/music/store/>.
- 145 “Broadband, Apple, and the Threshold”, online at <http://blogs.law.harvard.edu/cmusings/2003/06/10>.
- 146 The WIPO Survey on “Intellectual Property on the Internet” noted that “the priority for users of online music file-trading services [is] the availability of a wider number of compositions and ready access”. See online <http://ecommerce.wipo.int/survey/html.introduction.html>.
- 147 Hillary Rosen, CEO of the [Recording Industry Association of America \(RIAA\)](#), suggested that one possible scenario for recouping lost sales from online piracy would be to impose a type of fee on ISPs that could be passed on to their customers who frequent these file-swapping services. See “[RIAA: ISPs should pay for music swapping](#)”, CNET, January 18, 2003. Online <http://news.com.com/2100-1023-981281.html>.

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- 148 The [International Federation of the Phonographic Industry \(IFPI\)](#), in “Music industry to snoop on Napster fans”, February 19, 2001, at <http://news.zdnet.co.uk/story/0,,s2084521,00.html>. However, see C. C. Mann, “The year the Music Die”, Wired News, February 2003, <http://www.wired.com/wired/archive/11.02/dirage.html>
- 149 The system of granting extensive rights to users via licensing began with the free software movement started by Richard Stallman in the early 1980s. Stallman founded the Free Software Foundation (FSF) to respond to the trend towards proprietary development of software programmes without accompanying source code. The open source movement was started in 1998 by a number of prominent computer “hackers” such as Bruce Perens and Eric Raymond. A definition of Open Source can be found at <http://www.opensource.org/docs/definition.html>.
- 150 For an overview of the conflict between supporters of the closed source and open source paradigms see P. Wayner, “[Whose Intellectual Property Is It Anyway? The Open Source War](#)”, New York Times, online at <http://www.nytimes.com/library/tech/00/08/circuits/articles/24free.html>. For a more detailed introduction to the movement, see D. Bollier, “[The Power of Openness](#)” and C. DiBona, S. Ockman, & M. Stone, [Introduction](#) to the book, “[Open Sources: Voices from the Open Source Revolution](#)”. Articles on the topic are also available at the Berkman Center’s [Open Code](#) site, online at <http://eon.law.harvard.edu/opencode/>. A defense of the movement may be found in L. Lessig, “Code and Other Laws of Cyberspace”, an extract of which can be found in “[Open Code and Open Societies](#)”. For constructive criticism of Lessig’s position, see S. Hetcher, “Climbing the Walls of Your Electronic Cage”, online at http://eon.law.harvard.edu/ilaw/Contract/Hetcher_Full.html
- 151 “What Does Free Mean? or What do you mean by Free Software?”, online at <http://www.debian.org/intro/free>
- 152 *Ibid.*
- 153 “What is Copyleft?”, GNU’s Not Unix, at <http://www.gnu.org/copyleft/copyleft.html>
- 154 GNU’s Not Linux.
- 155 For different license models, see for example, Apache License, online at <http://httpd.apache.org/docs/LICENSE>; other models online at <http://www.opensource.org/licenses/apachepl.php>.
- 156 For example, Netscape Communication released its source code to the general public in 1998. See online at <http://home.netscape.com/partners/distribution/index.html>.
- 157 Open Source a Threat, Microsoft Admits, WinInfo, February 6, 2003, <http://www.wininformant.com/Articles/index.cfm?ArticleID=37920>
- 158 Integrating Intellectual Property rights and Development Policy, Report of the Commission on Intellectual Property Rights (CIPR), London, September 2002, at 105. Online at http://www.iprcommission.org/graphic/documents/final_report.htm
- 159 On the limitation of access to information by libraries, see J. Litman, “Copyright law and electronic access to information”, First Monday, issue 4, 1996. online at: <http://www.firstmonday.dk>.
- 160 The Economist “Survey: the Internet society - A fine Balance”, January 23rd, 2003. Online at http://www.economist.com/surveys/displaystory.cfm?story_id=1534303
- 161 C. Correa, *Intellectual Property Rights, the WTO and Developing Countries: TRIPS agreement and Policy Options* (Zed Books: 2000), p. 160.