

INTELLECTUAL PROPERTY AND E-COMMERCE
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I. INTRODUCTION

I would like to begin by thanking the World Association for small and medium sized enterprises, and my colleagues in the World Intellectual Property Organization (WIPO) for inviting me on behalf of the Copyright, e-commerce, technology and management division to this very important seminar on practical intellectual property rights issues, where we have a chance to get together with very eminent people from the business community worldwide.

I have been asked to speak today about Intellectual Property and e-commerce. As you are aware, the legal term Intellectual property ("IP") refers to industrial property and to copyright and related rights. Even though industrial property is a key element of e-commerce through the protection of patents, trademarks, industrial designs and other form of IP rights, this presentation will be orientated to the field of copyright and related rights, approaching the legal aspects of the new technologies that have facilitated the digitization of works of intellectual property, by a process that reduces text, visual images and sound to computer-readable binary code of '0's and '1's, grouped in bits and bytes that can travel over the networks, that has enabled intellectual property to transfer so efficiently to the Internet.

- E-Commerce, more than other business systems, often involves selling products and services that are based on IP and its licensing. Music, pictures, photos, software, designs, training modules and education, films, systems etc., can all be traded through E-Commerce, in which case, IP is the main component of value in the transaction. IP is important because the things of value that are traded on the Internet must be protected by IP laws and using technological security systems, or else they can be stolen or pirated and whole businesses can be destroyed.
- Also, IP is involved in making E-Commerce work. The systems that allow the Internet to function - software, networks, designs, chips, routers and switches, the user interface, and so on - are forms of IP and often protected by IP rights.

II. THE INTERNET AND THE DEVELOPMENT OF THE DIGITAL SOCIETY

When the World Wide Web was first developed in the 1990s, it transformed the Internet from a technological infrastructure into a popular network linking people in diverse communities throughout the world. Information technologies have accounted for a large share of investment and made a significant contribution to economic growth, supported by an intellectual property system that has provided effective protection for digital technologies in the new economy. Businesses, individuals and governments have all profited from the benefits delivered by the ever-increasing and broadening use of the Internet. The explosion of the Internet, and the

increase in .com enterprises, has profoundly shaken the economic world and has generated new commercial models; they have also affected the legal world by posing new problems, *inter alia*, in relation to the protection of intellectual property on the Internet.

1. *Internet users in the world*

The explosion of the Internet and digital technologies has profoundly shaken the world. The number of countries connected to the Internet has increased significantly in the past ten years. About 10% of the world's population is now online, representing more than 605 million users.¹

This figure is increasing more quickly than earlier foreseen, given that 1999 forecasts envisaged 250 million Internet users in 2002. Certain optimistic forecasts even estimate that the world online population could reach one billion by 2005²

2. *Geographical Distribution of On line Population*

The number of countries connected to the Internet has increased significantly in the past ten years. Whereas at the beginning of the 1990s, a little over ten countries were connected to the Internet, this figure stood at 214 at the end of 2001. However, the rate of Internet penetration still remains imbalance throughout the different regions of the world. The regions with the largest numbers of users are mainly the North American (37%), Asian (31%) and European (29%) regions.

However, recent statistics demonstrate that the regional pattern in terms of number of Internet users is changing. In May 2002, the countries or regions with the highest level of Internet penetration were located primarily on the European continent: Sweden (64.6%), Denmark (60.3%), Netherlands (58.07%), United Kingdom (56.88%) and Norway (54.4%); in the Asian region: Hong Kong, SAR of China (59.58%); and in North America: United States (59.22%) and Canada (52.79%). By contrast, although the number of users has increased slightly in Africa, the lack of telecommunications infrastructure means that this region of the world still represents less than 2% of the world online population.

3. *Online Activities of individuals*

According to the OECD, in most countries the Internet is used mainly for e-mail and searching for information relating to goods or services. In the United States of America, for example, e-

¹ See Nua Internet Surveys, Nua.com report, "More than 600 million people have Net access," (November 1, 2002), at <http://www.nua.com/surveys>.

² See Nua Internet Surveys, at <http://www.nua.com/surveys>.

mail and information searches represent the most common uses of the Internet, constituting 84% and 67% respectively of individuals' activities online. There is, however, a trend toward other categories of activities, such as purchasing of goods and services, watching films, or listening to the radio. These developments in Internet use inevitably have an impact on intellectual property, insofar as these activities involve works protected by intellectual property laws.

III. NEW BUSINESS MODELS

The Web now contains several billion pages of information, growing at the rate of more than seven million pages each day³. It is this ready availability of information on every conceivable subject, combined with advancements in digitization, that has made the Internet such a revolutionary tool and has facilitated new ways of conducting business:

1. *Trade of physical objects and services*

There are numerous .com companies that rely on business models that trade in physical objects of intellectual property. The online traders Barnes and Noble and Amazon, for example, utilize vast databases of book, video and music titles and user-friendly purchasing systems to attract consumers away from the shopping mall, and then send these products (each a work of intellectual property) to consumers using postal mail.

Travel sites and airline companies such as EasyJet and RyanAir and entertainment ticket sellers such as Ticketmaster, profit through saved overheads by conducting sales online, using e-ticketing or mailing tickets to purchasers. Numerous small and medium sized enterprises have used the Internet in this way, as a marketing tool to locate buyers for their products in a huge global marketplace.

Even though IP is not the main component of value in the transaction. IP is involved in making E-Commerce work in this type of business model. The systems that allow the Internet to function - software, networks, designs, chips, routers and switches, the user interface, and so on - are forms of IP and often protected by IP rights.

2. *Trade of "Intellectual Property Works"⁴ over the internet*

³ See Cyveillance Study Report "Internet Exceeds 2 Billion Pages," (July 10, 2000) at <http://www.cyveillance.com/web/newsroom/releases/2000/2000-07-10.htm>.

⁴ The term "Intellectual Property Works" refers to: Literary and Artistic works" included in article 2 of the Berne Convention, Paris Act of July 24, 1971 and objects of related right protected under the Rome convention, October 1961

It is, however, the digitization of works of intellectual property that has enabled intellectual property to transfer so efficiently to the Internet.

The character of the intellectual property system is evolutionary and while the nature of the rights themselves, to control and exploit the products of one's creativity and innovation, remains relatively constant, the manner by which they are expressed and exchanged is constantly adapting to developments in the underlying technologies. Intellectual property has gained importance in this digital environment as, increasingly, business assets are reflected in intellectual as opposed to physical property. The value of many online companies, for example, may be found in their vast databases of customer information, which may be the subject of intellectual property protection.⁵

This migration of intellectual property onto the Internet can be seen with respect to each species of rights. In the field of copyright, vast numbers of works of literature, film and art, and notably computer programs, have already transferred to the digital environment. Software, protected as a form of intellectual property by copyright law, underlies the operation of all digital technologies⁶. Systems software, including utilities and operating systems, enable our computers to operate, while utilities software provides us with the programs that make the digital networks so useful.

Textual works such as books and newspapers are ideally suited to digitization and, although online publishing of popular literature has had a mixed reception with a public accustomed to paper and ink, there is evidence of a growing demand for e-books. Demand has also grown for the online collections of more than 7,300 libraries that have provided free remote access to the texts of hundreds of thousands of e-books, with particular demand for non-English language texts. Online newspaper publishing is also prolific, although many of these initially free sites are now seeking to introduce subscription access. In September 2002, for the first time, The New York Times received more visitors to *nytimes.com* (1.28 million daily), than its weekday paper circulation (1.2 million daily). Increasingly, numerous journalists and aspiring writers have engaged in online publishing to post 'blogs', Web logs or journals, that allow

⁵ The European Union Database Protection Directive (No. 96/9/EC of March 11, 1996), according to the legislative history of Section 71, defines a database as "a collection of independent works, data or other materials arranged in a systematic or methodical way or individually accessible by electronic or other means" and requires Member States' database protection laws to protect the owners of databases from the "repeated and systematic extraction and/or reutilization of insubstantial parts of the contents of the database by implying acts which conflict with a normal exploitation of that database."

⁶ A 'computer program' is "[a] set of instructions capable, when incorporated in a machine readable medium, of causing a machine having information processing capabilities to indicate, perform or achieve a particular function, task or result." See WIPO Model provisions on the protection of computer software, Geneva, 1978. Refer generally to an article by Daewhan Koo, "Patent and Copyright Protection of Computer Programs," Issue 2, Intellectual Property Quarterly, pp.172 -211 (2002).

individuals to make their views available to the public without the need for intermediation by large publishing houses or distributors⁷.

In the field of fine art, indigenous craft and artifacts, numerous museums and art galleries have digitized their collections and made them available for viewing on the Internet⁸. One such site, Artnet⁹, allows users to access works by over 16,000 artists and in over 1,300 art galleries. Interesting questions have arisen as to whether the digital images of works of art, themselves, become derivative works entitled to copyright protection¹⁰.

IV. COPYRIGHT PROTECTION AND E-COMMERCE

Materials protected by copyright and related rights, spanning the range of information and entertainment products, constitute much of the valuable subject matter of electronic commerce. In the music industry is heavily affected by on-line distribution of music files. Subscription music downloads and streaming services are available through a variety of proprietary systems including, eMusic, MusicNet, FullAudio, Rhapsody, Liquid Audio, Inc. and Pressplay, that seek to replace the popularity of more than 200,000 unauthorized online music sharing sites, including Napster, Morpheus and KaZaA. These 'peer-to-peer' (P2P) networks enable millions of users to upload and share their music and film files via the Internet, often infringing copyright in the works they trade. The online distribution of audiovisual works has been held back until recently by the lack of bandwidth, which has prevented the relatively large data files required to transmit video to be downloaded or streamed at a speed or quality acceptable to consumers. Nevertheless, more than a million users are typically online with Morpheus, a P2P site that enables users to trade video files, and most PCs now come with CD burners that can be used to compress and store films on discs without any significant loss in quality. While the technology is still developing to facilitate accessible video-on-demand and digital pay-per-view, the film industry is yet to match the progress of the music industry, and most legitimate film sites are webcasters that distribute short made-for-online film and animation material which is largely experimental and available free of charge. As in the music industry, copyright owners in the film

⁷ There are currently more than 40,000 blogs (see <http://www.blogfinder.com> and <http://www.daypop.com/top>), the most popular of which may be purchased by large media enterprises. See Andrew Sullivan, "An Honest Blogger Will Never Make a Quick Buck," *The Sunday Times*, p.4 (October 13, 2002); Jonah Goldberg, "Attack of The Blogs," *The Washington Times* (May 24, 2002) at <http://www.washingtontimes.com>; and John C. Dvorak, "The Blog Phenomenon," *PC Magazine* (February 5, 2002).

⁸ The Museum Computer Network (at <http://www.mcn.edu/resources/sitesonline.htm>) and Virtual Library Museums Pages (at <http://vlmp.museophile.com/>) list more than 1,000 museums and museum-related sites globally that maintain digital collections online.

⁹ See Artnet (at <http://www.artnet.com/>).

¹⁰ See Barbara Hoffman, "Public Domain Artwork: Who Owns the Rights?," *IP Worldwide*, pp.52 -58 (2000).

industry are also reluctant to release their audiovisual works online while there is a lack of adequate copy protection that could protect them from rampant piracy.

Difficult issues are raised for this community by the vast availability of intellectual property on the Internet, the ease of copying and distribution of copies and the relative anonymity afforded to these digital transactions. Key among these challenges is the expectation among many users that information and intellectual property source or downloaded from the Internet should be free of charge.

1. Challenges posed by the digital technologies and the Internet

Copyright law has always had to respond to technological change, adapting its core principles to changes in circumstances each time there appeared a new means and ways of creating, using and disseminating works and other subject matters. But the challenges to copyright posed by the convergence of today's computer and communications technologies are more serious and more far-reaching than those posed by the technological developments of the past.

The Internet represents an enormous opportunity for the creators and the industry, but it is also a serious threat on enforcement of rights. When they first appeared, innovations like photocopiers and videocassette recorders dramatically altered the nature of copyright enforcement by making infringement inexpensive and easy. The infringing copies, however, were analog and usually of a progressively lesser quality than the original. Today, technologies permit even easier reproduction and dissemination of works, higher quality copies, and a greater concentration of value.

Digital technology offers the opportunity to make perfect copies with levels of speed, accuracy and volume well beyond what formerly existed. Each copy in turn can be further reproduced and disseminated, again without any loss of quality. Even more significant is the ability of this technology to make works available to the public in large numbers almost instantaneously. Digital networks allow dissemination to many individuals from a single point; each recipient on the network can engage in further dissemination of the work, causing the work to spread exponentially.

Digital technologies also permit a concentration of value. Digital storage is dense and becoming denser. Ever increasing quantities of material can be stored in a single medium. CDs (compact discs), which can store over 600 megabytes of data, are used by commercial pirates to make available entire libraries of computer programs with an aggregate retail value in the thousands of dollars. DVDs (digital versatile discs), both audio and video, are far denser still, allowing more material to be included on a single physical object.

Unlike previous technologies, digital technology also makes it possible for users as well as the original creators to alter and modify works with ease. Moreover, equipment needed to do all these things exists not just in centralized locations and commercial establishments but in private homes – millions of them, spanning the globe.

V. THE WIPO INTERNET TREATIES (WCT AND THEWPPT)

In 1996, two treaties were adopted by consensus by more than 100 countries at WIPO: the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) (commonly referred to as the “Internet Treaties”).¹¹ The treaties, each having reached their 30th ratification or accession, both have entered into force: the WCT on March 6, 2002, and the WPPT on May 20, 2002.¹²

The WIPO Internet Treaties are designed to update and supplement the existing international treaties on copyright and related rights, namely, the Berne Convention¹³ and the Rome Convention.¹⁴ They respond to the challenges posed by the digital technologies and, in particular, the dissemination of protected material over the global networks that make up the Internet. The contents of the Internet Treaties can be divided into three parts: (1) incorporation of certain provisions of the TRIPS Agreement¹⁵ not previously included explicitly in WIPO treaties (e.g., protection of computer programs and original databases as literary works under

¹¹ The WIPO Copyright Treaty (WCT) (1996), at <http://www.wipo.int/clea/docs/en/wo/wo033en.htm>, and the WIPO Performances and Phonograms Treaty (WPPT) (1996) at <http://www.wipo.int/clea/docs/en/wo/wo034en.htm>.

¹² A collection of information resources on WIPO’s work as relates to the WCT and WPPT is at <http://www.wipo.int/copyright/en/index.html>. See generally M. Ficsor, “Law of Copyright and the Internet,” (Oxford, 2001); and Silke von Lewinski and Jörg Reinbothe, “WIPO Treaties (1996),” (Butterworths Law, 2001).

¹³ The Berne Convention for the Protection of Literary and Artistic Works, available at <http://www.wipo.int/treaties/ip/berne/index.html>.

¹⁴ The Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (1961), available at <http://www.wipo.int/treaties/ip/rome/index.html>.

¹⁵ The World Trade Organization (WTO)’s TRIPS Agreement (the Agreement on Trade-Related Aspects of Intellectual Property Rights) came into effect on January 1, 1995, and is the most comprehensive multilateral agreement on intellectual property, covering: copyright and related rights, trademarks including service marks, geographical indications including appellations of origin, industrial designs, patents including the protection of new plant varieties, layout-designs of integrated circuits and undisclosed information including trade secrets and test data. The TRIPS Agreement sets minimum standards of protection to be provided by Members, specifies domestic procedures and remedies for enforcement of intellectual property rights, and makes disputes about TRIPS obligations subject to WTO dispute settlement mechanisms (further information and texts are available on the WTO website at http://www.wto.org/english/tratop_e/trips_e/trips_e.htm).

copyright law); (2) updates not specific to digital technologies (e.g., the generalized right of communication to the public); and (3) provisions that specifically address the impact of digital technologies.

1. Legal Adjustments in response to digital technologies

An important issue was to ensure that the owners of those rights continue to be adequately and effectively protected when their works are disseminated through new technologies and communications systems such as the Internet and to clarify that existing rights continue to apply in the digital environment. It was also necessary to create new online rights. To maintain a fair balance of interests between the owners of rights and the general public, it should be further clarified that countries have reasonable flexibility in establishing exceptions or limitations to rights in the digital environment.

Technological adjuncts to the rights are also important. These are intended to ensure that rightholders can effectively use technology to protect their rights and to license their works online. The first, known as the “anti-circumvention” provision, tackles the problem of “hacking”: it requires countries to provide adequate legal protection and effective remedies against the circumvention of technological measures (such as encryption) used by rightholders to protect their rights. The second type of technological adjuncts safeguards the reliability and integrity of the online marketplace by requiring countries to prohibit the deliberate alteration or deletion of electronic “rights management information”: that is, information which accompanies any protected material, and which identifies the work, its creators, performer, or owner, and the terms and conditions for its use.

Liability of on-line service providers

During the Diplomatic Conference in 1996, the issue of the potential liability of online service and access providers for infringements taking place through their services was intensively debated. The questions have been the following: are service providers exercising the exclusive rights of right owners themselves, as they engage in acts that cause the material to be copied and transmitted? Regardless of the answer to this question, should service providers be held legally responsible for the unauthorized exercise of those rights by individuals using their services, where the services make the transmission possible, and if so, to what extent?

The ultimate result of the 1996 Diplomatic Conference was that the treaties were essentially neutral on the subject, with the issue of liability left to national legislation to determine. There is, however, one reference to the issue, in an agreed statement to the WCT, which says, “It is understood that the mere provision of physical facilities for enabling or making a communication does not in itself amount to communication within the meaning of this Treaty or the Berne Convention.” The statement is understood to be applicable to the WPPT as well.

Since 1996, a number of legislative solutions have begun to emerge. These statutes differ in whether they address copyright only, or take a “horizontal approach”—that is, a rule governing liability of service providers regardless of the grounds for illegality of the transmitted material. (In other words, the horizontal approach covers not only copyright infringement but also other laws such as libel or obscenity.) Both the European Directive on electronic commerce and the DMCA establish exemption from, and limitation on, liability for service providers in respect of specific types of activities.

Jurisdiction and applicable law

Another important issue is the question of jurisdiction and applicable law. The Internet is multi-jurisdictional. Users can access the Internet from almost any place on Earth. Digitized content may also travel through, and be used in, various countries and jurisdictions, each with its own legal system.

In light of the nature of the Internet, the issues of which court or forum decides a dispute and which law is applied pose significant challenges, especially in the context of intellectual property. These issues, however, extend beyond intellectual property and implicate other areas.

Even without the impact of global digital networks, international exploitation of intellectual property has always raised complex questions of international private law.

At the national level, questions of jurisdiction, applicable law and recognition and enforcement of foreign judgements have been resolved by reference to private international law. In principle, each country determines its own rules of private international law. While in certain regions of the world some of these rules have been harmonized by treaty, the overall picture remains divergent. In order to respond to the growing needs to carefully study the interrelationship between private international law and intellectual property law, WIPO has undertaken several initiatives.

Remaining Issues

While the WPPT does protect the rights of performers, its provisions relate almost entirely to the aural aspects of performances, and not to audiovisual performances. This is because very different systems have evolved to protect audiovisual performers in different regions of the world, some based on legal rights and some based on contract (the latter may be combined with strong unions and collective bargaining). Important developments in technology and marketplace have taken place in the broadcasting sector since the adoption in 1961 of the Rome Convention. In general, the subject has been referred to as broadcasting organizations. Following technological developments, however, new program transmitting entities have emerged, and the question of whether every entity distributing signals and involved in the

distribution of programs would qualify as a broadcasting organization and benefit from the protection has been raised.

Another item on the agenda of the Standing Committee is the protection of databases. Member states of WIPO have been discussing the possible introduction of international protection of unoriginal databases, which presently do not qualify for protection under copyright law. The originality requirement that the database must constitute an intellectual creation “by reason of the selection or arrangement” of its contents, means that some databases are not protected under copyright, even if substantial investments have been made to produce them. It has been discussed whether such investments should also be protected, for example, by a *sui generis* right. Another possibility is to use an approach based on protection against misappropriation or unfair competition.

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