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WORLD INTELLECTUAL PROPERTY ORGANIZATION
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PRIMER ON ELECTRONIC COMMERCE AND INTELLECTUAL PROPERTY ISSUES

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SUMMARY OF CONTENTS

INTRODUCTION

1. In just five years, the digital revolution has taken much of the world by storm. The Internet has proven itself to be the fastest growing communications phenomenon, ever.[1] The innovations that have made this possible have not only brought fundamental change to communications, but have also fueled dramatic developments for the new digital economy, reflected in financial markets and trade flows, innovative models for business, as well as in new opportunities for consumers.

2. The remarkable scope of these developments has made electronic commerce a subject of significant economic, policy and social importance. Commerce conducted across electronic media is not new. However, the advent of the Internet, a "network of networks" using open standards, has given rise to a prodigious international expansion in the number of users and range of applications relevant to our daily lives. In many regions of the globe, it has begun to change significantly the ways in which individuals, companies and governments organize their affairs, interact and conduct business.

3. This Primer on Electronic Commerce and Intellectual Property Issues is part of WIPO's ongoing mandate to examine the evolving relationship between electronic commerce and intellectual property. Electronic commerce is very much in its early stages of evolution. This evolution is taking place within a technological and commercial environment characterized by rapid change. The evaluation of electronic commerce and its relationship with, and effect upon, intellectual property is therefore likely to be an intensive and ongoing process, which will require vigilant monitoring of developments in order to assess whether action is necessary or appropriate to preserve and enhance the effectiveness of intellectual property in this new digital environment.

4. The definition of issues and appropriate responses is no small task. It is already clear that intellectual property both affects and is affected by electronic commerce in a multiplicity of ways. Indeed, defining the proper scope of intellectual property rights in relation to the new and rapidly evolving digital technologies and content, and devising means for the protection of those rights that are appropriate in light of the international dimensions of electronic commerce, is a venture that will engage the intellectual property discipline for years to come.

5. The aim of this Primer is to commence with the definition of the issues and responses, with a view to examining those developments that have already begun to occur, and those that would appear most relevant and imminent within the next several years. Given the speed of change, it is unrealistic to extend our considerations beyond this period. The Primer also discusses some of the responses that are either in progress or under consideration, and in particular reviews the work of WIPO in this regard.

6. The Primer is organized into six chapters:

- *Chapter I* focuses on the new digital phenomena that comprise electronic commerce, providing definition to the term as well as general background on its scope and growth.

- *Chapter II* provides an introduction to a series of issues –electronic contracts, jurisdiction and applicable law, and enforcement – that have broad implications beyond the immediate precincts of intellectual property.

- *Chapter III* addresses the impact of electronic commerce on intellectual property, namely, copyright and related rights, patents, and trademarks and unfair competition, as well as some of the responses that have developed to date. The Chapter also includes a topic that has become integral to any discussion of intellectual property and digital networks: domain names and their relationship to trademarks.

- *Chapter IV* examines the issues as they relate to developing countries, such as the disparities in infrastructure development, the different levels of awareness, and the resulting differential levels of participation in electronic commerce and ability to benefit from intellectual property. It also discusses the opportunity that awaits those developing countries that undertake to facilitate the development of electronic commerce for their constituents, and highlights WIPO's initiatives in this regard.

- *Chapter V* discusses progress being made toward the electronic delivery of intellectual property services by WIPO, focusing in particular on the implementation of the WIPONET and other systems being developed for the administration and delivery of WIPO's services. While these activities may not be considered electronic commerce *per se*, similar conceptual approaches and technical systems are being used to bring networked access to intellectual property services.

- *Chapter VI* closes with the WIPO Digital Agenda, a set of guidelines and goals first outlined by the Director General of WIPO at the International Conference on Electronic Commerce and Intellectual Property in September 1999,[2] and which subsequently received the approval of WIPO's Member States at their annual Assemblies.

7. WIPO's member States, at their last two annual General Assemblies, endorsed a number of proposals for activities of the Organization that are intended to generate a greater awareness of the ways in which electronic commerce is affecting intellectual property and to assist in formulating a timely response to those issues. The publication of this Primer is among the measures approved. The Primer does not purport to be final or definitive, because the subject is constantly changing. Accordingly, this Paper may be viewed as a starting point in a series of discussions that WIPO intends to foster, leading to better understanding of the issues and the consideration of new responses.

I. GLOBAL ELECTRONIC COMMERCE: ITS EMERGENCE AND GROWTH

8. The term "electronic commerce" has, in just the last few years, achieved widespread recognition, becoming a highly visible symbol in the contemporary language of the information technology culture that brought profound changes in the final years of the last millennium.[3] The words are commonly used in the media, in business, and in casual conversation to refer to a broad class of activities which we generally understand to be associated with the use of a computer[4] and the Internet to trade goods and services in a new, direct and electronic manner.

9. This Chapter seeks to provide an understanding of electronic commerce, and to report on its growth. This background is essential to a discussion of the issues and responses that are emerging in the field of intellectual property.

Defining Electronic Commerce

10. By now, a number of studies and publications have addressed different aspects of electronic commerce. Several of these have provided a definition of this new mode of commercial activity. The definitions generally attempt to describe the electronic means used, and to say something about the nature of the commercial activities themselves.[5] For measurement purposes, given the rapid evolution in the activities that is underway, it may not yet be possible to arrive at a precise definition of electronic commerce.[6] For purposes of this Primer, the phenomena may be usefully explained by addressing separately the two words, "electronic" and "commerce."

11. *Electronic*. The term "electronic" can be taken to refer to the global infrastructure of computer and telecommunication technologies and networks upon which the processing and transmission of digitized data takes place. The development from the early, private and proprietary networks, on which electronic transactions have been commonplace for several decades, to open networks with non-proprietary protocols, such as the Internet, has been well documented.[7] In common among the proprietary networks is that they are operated for specifically defined purposes and managed exclusively for the designated participants.

12. The Internet, by contrast, allows communications and transactions to take place over an "open network,"[8] with no required security apparatus, between a potentially unlimited number of participants who may have had no pre-existing contacts. The Internet has rapidly evolved from a scientific and academic network into a network whose principal feature, the World Wide Web, has brought mass adoption.[9] It is the open nature of this network, along with its multifunctional character and increasingly low-cost access, which has galvanized the potential for electronic commerce.[10] At the same time, the open network is providing access to a digital medium in which multiple perfect copies of text, images, and sounds can be easily made and transmitted, and trademarks easily misused, posing new challenges for intellectual property owners.

13. *Commerce*. The word "commerce" in this context refers to an expanding array of activities taking place on the open networks – buying, selling, trading, advertising and transactions of all kinds – that lead to an exchange of value between two parties. Some common examples include on-line auctions, banking and other financial services, sales of

software, and an ever-increasing diversity of Internet sites offering a broad range of consumer goods or services. In the consumer area, a commercial web site that, early on, achieved widespread recognition is that of a site associated with the sale of books, through which a consumer can place an order for a book (and elect to pay by electronic means such as credit card) that will be delivered physically by postal mail to the individual's address.[11] Other media, such as music, is now being made available for purchase by direct download in digital form to the consumer's computer (or other digital device).[12]

14. While these examples show how individuals may engage in transactions over the Internet, most of the growth in electronic commerce is being driven by the less visible business-to-business sector.[13] Here, the Internet is acting as a powerful means for improving the quality of management and service, thereby enhancing existing or establishing new customer and supplier relationships, while bringing new efficiency and transparency to operations. It is potent mechanism for reducing costs across-the-board, including those associated with production, inventories, sales execution, distribution and procurement.

15. At least two defining characteristics of this commerce taking place over the digital networks can be mentioned here. First, there is the international character of electronic commerce. The electronic means described above have created a global, borderless medium, such that any business offering goods or services on the Internet need not target a specific geographical market. Instead, the establishment of a commercial web site can provide even a small business with access to markets and Internet users worldwide. The second characteristic is the interdisciplinary nature of electronic commerce, and the corresponding impact that this element brings to the forces of convergence. Both large and small enterprises are finding that some of the traditional lines between business sectors—which have been founded on the different physical manifestations for the goods or services offered and the different physical means for their distribution (e.g., books, films, CDs, television, radio and web broadcasts)—are becoming less clear. This is generating new competitive pressures for restructuring within and across industries, confronting businesses with opportunities as well as challenges.[14]

16. Within the commercial sphere, issues of intellectual property that have had such relevance in the physical (off-line) world, involving rights in respect of patents, trademarks and copyrights, among others, also arise in relation to electronic commerce, but with different aspects to be addressed and, in many cases, shorter timeframes. Trademarks, for example, which provide consumers with an accessible symbol associated with the goodwill of an enterprise, are playing an important role in the electronic commercial environment where in-person dealings are infrequent. With respect to patents, the creative business methods that are being developed to conduct commerce over the digital networks raise new questions of patentability. Further, the shorter life cycles of many of the products and services associated with the Internet and digital technologies call for the timely acquisition and enforcement of such intellectual property rights.

17. There is a further distinction of particular relevance to intellectual property, especially copyright and related rights, in respect of commerce on digital networks: as noted, the Internet facilitates both commerce in physical products and commerce in intangible products. For commerce involving physical products, the Internet functions as a global system facilitating sales, in which the placing of an order and the making of payment can (but does not necessarily have to) take place online, while the goods themselves are delivered separately through a postal or other delivery service. For commerce involving intangible products, the

Internet serves not only as a system to promote sales, but also as a system to effectuate the delivery of the intangible product itself, such as a piece of music or software, a film or a publication. This distribution can take place almost instantaneously, and the intangible product may travel virtually without restriction across national borders. Indeed, this aspect of electronic commerce may be its most compelling dimension: there is an inherent logic to using the Internet to buy and sell intangible products that need never be more than digital "bits." At the same time, however, there is a commensurate need for effective intellectual property protection that can address the international dimensions of this commerce.

18. Already, the largest segment of business-to-consumer electronic commerce involves intangible products that can be delivered directly over the network to the consumer's computer.[15] While these intangible products, by their very nature, are difficult to measure, an increasing amount of the content that is being offered is subject to intellectual property rights.[16] This commerce in intangible products raises a number of issues for intellectual property, in addition to those that would arise in respect of physical goods. For example, there is a growing role to be played by technological measures in protecting the rights of intellectual property owners. In addition, questions of the scope of rights and how existing law applies, jurisdiction, applicable law, validity of contracts and enforcement become more complex when the products offered have no necessary, physical manifestation. All of these subjects are discussed later in this Primer.

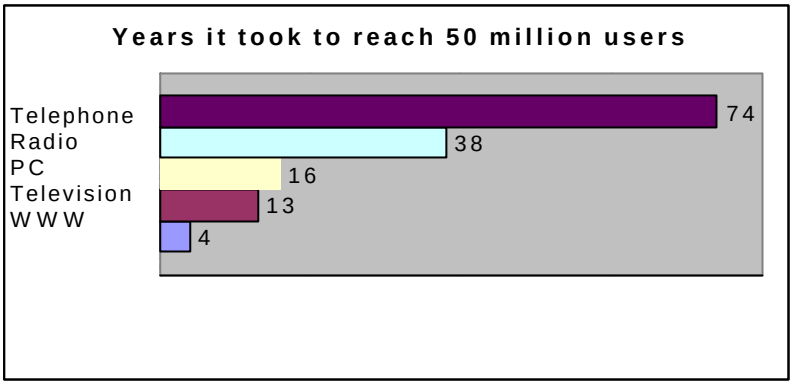
19. This Primer adopts the above-described, broad-based understanding of *electronic* means used to effectuate the conduct of *commerce,* focusing in particular on the expanding and international commercial activities that are taking place over the open network that is the Internet. From the intellectual property perspective, this focus is particularly appropriate, for while open networks generate great potential for new commercial opportunity, they also pose significant risk for infringement of protected rights.

Growth of the Internet and Electronic Commerce

20. The growth of the Internet and electronic commerce has been nothing short of meteoric, and the impressive pace does not appear to be slowing down. New facts and estimates have appeared in the popular media and other publications, particularly in the last three years, to document this growth. As a general observation, the stream of projections that have addressed this growth has been subject to a steady series of upward revisions, reflecting a tendency (now diminishing) to underestimate future growth.

21. It is not the purpose of this Paper to delve deeply into these research and data. The Internet is now widely viewed as the fastest growing communications phenomenon of all time. The comparative chart below places into context the dramatic pace of growth of the

World Wide Web, a central feature of the Internet for most users.[17]



ITU, January 1999[18]

22. At the moment there are roughly 150-200 million persons around the globe connected to the Internet.[19] In just one year, between 1998 to 1999, it is reported that the number of users worldwide increased by 55 percent.[20] The global online population is predicted to exceed 250 million users in 2002, and to reach the range of 300-500 million by 2005.[21] There are more than 100 and 35 million users in the United States of America and Europe, respectively, and the fastest rate of growth in the next several years is expected to take place in Asia and Latin America.[22] In China, for example, it is reported that the number of Internet users is expected to grow from 2.1 million in 1998 to 6.7 million by this year, and to increase to 33 million in 2003.[23]

23. Traffic on the Internet continues to double in volume every 100 days.[24] The number of registered domain names now exceeds 15.5 million.[25] In various regions, Internet usage has reached critical mass proportions such that businesses can no longer afford to remain off the network, particularly if they wish to maintain their market presence. Some commentators believe this growth will continue apace for the next twenty years, driven in particular by the technology advances and the falling costs of computing and telecommunications.[26]

24. The growth in revenue has been equally impressive, with forecasts subject to a steady stream of upward revisions. A review of leading estimates indicates that, starting from basically *zero* in 1995, total electronic commerce grew to US$26 billion in 1997 and US$43 billion in 1998; is expected to reach US$330 billion by 2001-02; and projected to attain a remarkable US$2-3 trillion in 2003-05.[27] The vast majority of this growth stems from business-to-business transactions,[28] whereas the growth of consumer transactions is still affected by widely held perceptions concerning security of payments, potential for fraud, and privacy issues associated with the collection of personal data.[29]

25. Thus far, the global benefits of this new commerce have been dampened by the disparity in access among geographic regions. Starting with just a handful of countries in 1990, it is striking that more than 200 nations were connected by mid-1998. At the same time, however, the distribution of Internet hosts – with over 88 percent located in North

America and Europe – illustrates the differential participation of the various regions:

Distribution of Internet Hosts	**Percent**
Canada and the United States	64.0
Europe	24.3
Australia, Japan and New Zealand	6.3
Developing Asia-Pacific	3.4
Latin America	1.6
Africa	0.4

ITU, January 1999[30]

II. THREE LEGAL ISSUES OF BROAD APPLICATION POSED BY ELECTRONIC COMMERCE

26. Electronic commerce has already begun to have an extraordinary impact on the architectonics of our markets and regulatory structures. These changes, however, have not begun to come without challenges. This Chapter addresses three areas in which the challenges from electronic commerce have already had an impact, raising issues that implicate different sectors of legal interest. In these areas, in particular, the international dimensions of electronic commerce complicate the development of solutions and caution against national interventions that would ignore potential cross-border impacts. While these subjects have significant importance for the intellectual property field, they also have "horizontal" implications for other areas of law and policy:

- Paperless Environment—Electronic Contracts
- The Internet—Jurisdiction and Applicable Law
- Digital Technology—Issues of Enforcement and Privacy

Paperless Environment—Electronic Contracts

27. As noted above, electronic commerce generates interactivity and transactions between parties that may have had no previous contact. Even small businesses may now be considered as multi-national enterprises, in a "zero gravity" digital environment in which they can enter into agreements with parties located all over the world. These dealings can occur in real-time over the network between businesses, or between businesses and consumers. Many of these transactions may be nothing more than "one-off" agreements, in which there is no immediate contemplation by either party that a continuing relationship will result from the transaction.

28. These transactions need rules to govern the relationship between the parties. The primary vessel for these rules is the agreement itself – the contract. There is an increasing recognition of the pivotal role that contracts can play in the international market of electronic commerce.[31] As a means of giving expression to the principle of party autonomy, and allowing for decentralized decision-making in relation to commercial rights and obligations, the contract provides a flexible yet legally enforceable mechanism. In this respect, the contract can be viewed as perhaps the most important self-regulatory measure available to parties engaging in electronic commerce.

29. Many contracts in electronic commerce implicate the intellectual property rights of one of the parties to the contract. A contract for the exploitation of intellectual property rights may assume various forms. Licenses, assignments, distribution and franchising agreements, and joint venture arrangements are some of the most common forms.[32] For example, a license is a contract that authorizes the licensee to do something that, in the absence of the license, would normally constitute an infringement of the licensor's intellectual property right. When consumers on the Internet access a musical composition, they may do so pursuant to a license agreement. The business distributing the music, in turn, may hold licenses from the copyright owner and the producer of the sound recording. Given the many countries in which participating businesses and consumers may reside, and the numerous national and local laws concerning both the law of contracts and intellectual property, contracting in the digital

medium has the potential to be a more complicated endeavor the contracting in the offline world.

30. In an early initiative to introduce certainty with respect to the legal environment for electronic contracts, the United Nations Commission on International Trade Law (UNCITRAL) completed work on a Model Law on Electronic Commerce in 1996.[33] As stated in the Recitals to the Model Law, UNCITRAL recognized that "an increasing number of transactions in international trade are carried out by means of electronic data interchange *and other means of communication*,[34] commonly referred to as 'electronic commerce,' which involve the use of alternatives to paper-based methods of communication and storage of information."[35] UNCITRAL furthermore indicated that its decision "to formulate model legislation on electronic commerce was taken in response to the fact that in a number of countries the existing legislation governing communication and storage of information is inadequate or outdated because it does not contemplate the use of electronic commerce."[36] The Model Law aimed to establish equal treatment under the law for online and off-line contracts (i.e., a "media neutral environment"[37]), by providing norms and rules that serve to validate contracts formed through electronic means, define the characteristics of a valid electronic writing and signature, and provide guidance on the legal recognition of data messages (i.e., the admissibility and evidential weight to be given to data messages).

31. The Model Law's Guide to Enactment notes that the Model Law "is not intended to interfere with the law on formation of contracts, but rather to promote international trade by providing increased legal certainty as to the conclusion of contracts by electronic means."[38] Contracts in electronic commerce should continue to meet with the traditional, technology-neutral principles that are necessary for validity. The establishment of these principles has usually been the province of national or local law.

32. Generally speaking, an offer by one party and an acceptance of that offer by the other party is necessary for the formation of a contract. In this respect, the Model Law provides in Article 11 that:

> "In the context of contract formation, unless otherwise agreed by the parties, an offer and the acceptance of an offer may be expressed by means of data messages. Where a data message is used in the formation of a contract, that contract shall not be denied validity or enforceability on the sole ground that a data message was used for that purpose."[39]

33. An exchange of consideration (i.e., something of value) is also necessary to transform the agreement from merely a set of promises into a binding and enforceable contract. However, what may be considered to be "valuable consideration" is an expanding concept, with many new applications, in the context of electronic commerce.

34. Electronic commerce raises questions concerning some of the new modalities used for achieving an offer and acceptance in the online environment.[40] It places a premium on the clarity and transparency of the contractual terms and conditions, particularly as electronic contracts may involve parties from different parts of the world who may have had little or no interaction with each other apart from their communications online. Given these limitations, parties drafting contracts and those parties who would accept them, must be thoughtful about certain terms, such as disclaimers, choice of law and jurisdictional forum (discussed below), consumer protection,[41] limitation of liability issues and questions of mandatory local law. A

failure to give these matters due regard may result in a surprising upset in the expectations of the parties.

35. With respect to contractual and evidentiary formalities, there is an increasing consensus that, so long as an electronic communication has a sufficient measure of reliability, durability, and integrity as to its content, no particular form or formal procedure is required in order to ensure its effectiveness for the purpose for which it is created. The Model Law provides that "[w]here the law requires information to be in writing, that requirement is met by a data message if the information contained therein is accessible so as to be usable for subsequent reference."[42] With respect to a legal requirement that information be in "original form," this requirement is met if "there exists a reliable assurance as to the integrity of the information from the time when it was first generated in its final form, as a data message or otherwise."[43] Further, regarding a signature requirement, it is sufficient if the method used in an electronic communication to identify a person and indicate that person's approval of the information contained in the message "is as reliable as was appropriate for the purpose for which the data message was generated or communicated, in light of all the circumstances, including any relevant agreement."[44]

36. The increasing recognition under the law of electronic means for contracting is an important step that will facilitate the continuing development of electronic commerce. However, even when parties observe the requisite contractual principles and formalities in their online agreements, this does not guarantee that they have minimized their potential problems in contracts for the exploitation of intellectual property. As the following sections of this Chapter explain, questions of jurisdiction, applicable law and enforcement should be carefully considered – at the time of contracting – to bring added certainty, and where possible limit potential exposure, for businesses and consumers engaging in electronic commerce on global networks.

The Internet—Jurisdiction and Applicable Law

37. The Internet is multi-jurisdictional. Users can access the Internet from almost any place on Earth. Because of packet-switching technology and the complex weave of digital networks and telecommunications infrastructure, digitized information may travel through various countries and jurisdictions, each with its own legal system, in order to reach its destination.[45]

38. In light of the impact of this international medium on a world made up of separate countries, the jurisdictional issues loom large, especially in the context of intellectual property. These issues, however, extend beyond the precincts of intellectual property to implicate other areas, such as contracts (discussed above), fraud and tortious behavior of all kinds, consumer protection, taxation, and the regulation of online content relating to obscenity and criminal law. The following cross-cutting issues arise in the context of private international law:

- jurisdiction to adjudicate a dispute at a particular location (i.e., the forum or *situs*);
- the law applicable to the dispute (also referred to as choice of law or conflicts of law); and
- the recognition and enforcement of judgments in courts in foreign jurisdictions.

39. In electronic commerce, these issues are complicated by the fact that one or more of the parties involved (or processes used) in the commercial activities – including Internet users, service and content providers, buyers, sellers, businesses (and their assets), technology systems and computer servers – may be located in different countries. Not only may uncertainty arise as to *where* the relevant activities are taking place, but the activities themselves can have *intended* and *unintended* consequences all over the globe, resulting in uncertainty when it comes to questions of localizing the dispute, determining the applicable law, and the practicalities of pursuing enforcement or adequate dispute-settlement alternatives. Owners of intellectual property seeking to manage their rights through licensing agreements, or to enforce them against infringement, are confronted with complex issues. In the case of a license to cover rights on the Internet, one must consider which laws in which countries may have a bearing on the agreement, including laws addressing electronic contracts, consumer protection, intellectual property, disclaimers and privacy aspects. In the case of rightsholders seeking to enforce their rights, they will need to decide not only who (or what)[46] to proceed against,[47] but also the proper forum, and under which applicable laws.

Evolving private international law

40. In the international context, 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 is nonetheless one of a patchwork of complex provisions.[48] In the context of electronic commerce, the goal of resolving intellectual property disputes in an efficient manner is not well served by such an environment, as it allows infringements to take place with no clear and convenient jurisdiction in which the rightsholder can file suit, and encourages forum shopping, with its attendant uncertainties and potentially conflicting determinations.[49]

41. *The Hague Conference on Private International Law*. In June 1997, the Hague Conference on Private International Law[50] convened a Special Commission to address international jurisdiction and the effects of foreign judgments in civil and commercial matters. Through a series of meetings, the Special Commission has developed a "Preliminary Draft Convention on Jurisdiction and Foreign Judgments in Civil and Commercial Matters."[51] The goals of the draft Convention are twofold: first, to harmonize jurisdictional rules and limit the places where proceedings can be instituted to a few appropriate fora, thus avoiding an unnecessary multiplicity of proceedings as well as the possibility of conflicting judgments; and second, to simplify and expedite the recognition and enforcement of judgments, provided that they comply with provisions of the draft Convention.

42. The Special Commission notes in its Preliminary Draft that it has thus far deferred consideration of electronic commerce.[52] A meeting of experts, hosted by the Canadian Government, was held in February 2000 in Ottawa to discuss the issues of electronic commerce and international jurisdiction. The outcome of that meeting will be taken into account at the next meeting of the Special Commission of the Hague Conference, scheduled for May 2000. The Special Commission is also planning to hold a similar experts' meeting on the issues of intellectual property and international jurisdiction. While it had been planned that the draft Convention would be considered for adoption during a diplomatic conference initially scheduled for the Fall of 2000, it is now likely that the conference will be re-

scheduled so that, inter alia, the new commercial practices of electronic commerce, as well as the issues of intellectual property and jurisdiction, can be more fully evaluated.

43. *European Commission Proposed Regulation on Jurisdiction and Enforcement of Judgements*. The European Commission has also recently addressed the need to update and harmonize the private international law rules concerning jurisdiction and recognition and enforcement of judgments. In July 1999 it issued a "Proposal for a Council Regulation on jurisdiction and enforcement of judgements in civil and commercial matters."[53] The proposed Regulation is intended to replace the Brussels Convention of 1968 (and its Protocol), with the objective of improving and expediting the free movement of judgments in civil and commercial matters within the European market. It closely corresponds to the Brussels Convention and subsumes to a substantial extent the results of the negotiations of an *ad hoc* working party for the revision of the Brussels and Lugano Conventions.[54]

44. As discussed below, the proposed Regulation, for example with respect to consumer contracts, was drafted with at least some of the implications of electronic commerce in mind.

Competent Jurisdictional Forum

45. In a case involving a foreign element, the first matter for a court to decide is whether it is competent to hear the case. Both the draft Hague Convention and the European Commission's proposed Regulation contain provisions intended to harmonize the rules on this subject. It is important that intellectual property considerations, as well as the implications of global electronic commerce, should be taken into account, as these instruments proceed toward their possible implementation and entry into force. In this respect, the six points below are intended to highlight aspects of their provisions regulating the jurisdictional forum.

(i) *General and Special Jurisdiction*

46. The draft Hague Convention divides the bases for jurisdiction into three categories: (i) compulsory grounds for jurisdiction that would become rules of national law as a result of ratification;[55] (ii) prohibited grounds for jurisdiction;[56] and (iii) permitted grounds for jurisdiction under national law, but with the caveat that judgments premised on these grounds are enforceable only as a matter of national law and not under the Convention.[57]

47. Within the first category, Article 3 contains, as a matter of general jurisdiction, the provision that "a defendant may be sued in the courts of the state where the defendant is habitually resident." The jurisdiction is general in the sense that the court is authorized to deal with all claims against the defendant irrespective of their nature. This concept follows largely the approach taken by the Brussels Convention, but modified in that the relevant link is not the "domicile" but the "habitual residence" of the defendant.

48. Article 18.2 (e), which belongs to the second category referred to above, expressly excludes the possibility of assuming general jurisdiction under the national law of a Contracting State solely on the ground of "carrying on of commercial or other activities," but allows for special or specific jurisdiction under national law (see third category in paragraph 46, above) in so far as the dispute is "directly related" to those activities. General jurisdiction in this instance would only be admissible where the commercial or other activities coincide with the fact that the defendant is habitually resident in the State of the forum.[58] Some commentators have indicated that this rule would significantly alter a longstanding ground of

jurisdiction in the United States of America: that is, general jurisdiction on the basis that a defendant is "doing business" in a "systematic and continuous" fashion in a particular jurisdiction.[59]

49. The Regulation proposed by the European Commission is divided into general jurisdiction,[60] and jurisdictional rules that apply in relation to specific areas when a person in one Member State is sued in the courts of another Member State (e.g., consumer contracts, employment contracts and exclusive jurisdiction).[61] Article 2 provides the general jurisdictional rule that persons "domiciled" in a Member State may "be sued in the courts of that Member State," subject to the other provisions of the proposed Regulation (e.g., exclusive jurisdiction, see below).[62]

(ii) Intellectual property infringements: torts and delicts

50. Intellectual property infringements, such as an infringement of a patent, trademark or copyright, belong to the category legally known as "torts" or "delicts," that is, activity in violation of a legal duty which results in an injury or other civil wrong. The draft Hague Convention provides for a non-exclusive special jurisdiction for this category, specifying that a plaintiff may bring an action "in tort or delict" in the courts of the State where (a) the act or omission that caused injury occurred or (b) the injury arose, unless the person claimed to be responsible could not *reasonably have foreseen* that the act or omission could result in an injury of the same nature in that State.[63] Similarly, the European Commission's proposed Regulation provides for jurisdiction in "the courts for the place where the harmful event occurred or there is the risk of it occurring."[64]

51. The consequences of applying these terms to disputes involving infringements on the Internet are less than clear. The difficulty stems from a reliance, as has generally been the case in private international law, on physical "points of attachment" – such as "the State...*in which* the act or omission...*occurred*" or "*in which* the injury arose" – for determining jurisdictional competence. This approach may not sit well with the essentially "de-localized" character of the Internet and the activity conducted on it.

52. The problem is clearly illustrated in the case of an Internet-based copyright infringement. When a user in one country or users in multiple countries download an allegedly infringing copy of a copyrighted work from a foreign web site, has a tort "occurred" in the user's forum (i.e., the copying of the work into the memory of the user's computer or other digital device), thus triggering jurisdiction? Or does the tort (unauthorized copying or distribution) occur in the foreign State where the computer server hosting the web site is located, with only an impact in the forum of the user? In the latter case, the foreseeability test (in the draft Hague Convention) may be implicated to determine whether the foreign party would have reasonably foreseen that the publication of the work would have an impact (i.e., cause an injury to the copyright owner) in the user's forum State.[65]

53. Similar questions may arise in respect of the alleged infringement of a trademark on the Internet. If a company in one country operates a web site using a sign that has not been registered there by any third party, but nonetheless offers commercial services in connection with the use of the sign in an allegedly infringing manner in other countries where a corresponding trademark is registered, where has the infringement occurred, and where does jurisdiction lie? Without an appropriate regulatory framework, someone using a trademark on

the Internet may potentially be sued in court in any country of the world, and courts will have to determine whether a sufficient nexus exists to justify the exercise of jurisdiction.[66]

54. Trademark rights, like copyright and related rights, are legal creations that are fundamentally territorial in nature, such that if a trademark is not entitled to protection in a country, it may there be viewed as legally non-existent.[67] Under Article 10 of the draft Hague Convention, one view is that the *act* which caused the infringement and any resulting injury (see Article 10.1(a) and (b)) could only have *occurred* in the States where the mark is protected (e.g., the allegedly infringing sign appeared on computer screens), and jurisdiction would thus lie in those places. Alternately, the trademark holder, under the draft Convention's general jurisdiction provision,[68] could presumably bring suit against the alleged infringing company for all harms at the company's "habitual residence," but the court there may have difficulty in determining whether to apply its own law or the law of the other jurisdictions (see discussion of choice of law below). Last, it should be noted that under Article 10.4 of the draft Convention, the trademark owner, lie a copyright owner, would be permitted to sue for all harms at the place "in which the injury arose," provided that the foreseeability test, noted above, is met and the trademark owner has its "habitual residence in that State."[69]

55. It may take some time before a common understanding is achieved in the context of electronic commerce, concerning the appropriate "points of attachment" and those harms that should be considered "reasonably foreseeable" for purposes of jurisdiction. Determining the location of the publication or distribution of an infringing work over digital networks, or of the infringing use of a trademark, may require that a choice be made between multiple points generated as a result of digital dissemination. Moreover, for an infringement taking place on the Internet, the scope of the remedy that is claimed in a particular forum may, absent jurisdictional grounds such as the habitual residence of the plaintiff, be territorially restricted to those acts that can be localized in the forum. The complexity of these issues in the context of constantly changing technologies (which themselves can be manipulated to achieve deception) can lea, at a minimum, to uncertainty, and in more egregious cases, to the frustration of attempts to locate a proper and convenient forum for comprehensively resolving such problems in a single suit.[70]

(iii) Disputes involving contracts where no choice of forum is made

56. Some of the same issues arise under the draft Hague Convention and proposed European Commission Regulation, regarding disputes arising from *contractual relations* in which the parties have failed to specify a forum for resolving their disputes. The draft Hague Convention provides that an action in contract may be brought in the courts of a State in which the goods or services were supplied in whole or in part, or, in matters relating to both goods and services, where "performance of the principal obligation took place in whole or in part."[71] The proposed Regulation similarly provides that, for matters relating to contract, a person in one Member State may be sued in another Member State in the courts "for the place of performance of the obligation in question."[72] The "place of performance" is defined, in relation to goods or services respectively, as the place where, under the contract, they are delivered or provided (or should have been delivered or provided).

57. For transactions in which an order is placed online, but the goods or services are physically delivered offline to the customer, the existing rules of private international law remain relevant. However, for transactions that are performed completely online, the place of

performance may be difficult to ascertain. Would it coincide with the location of the purchaser's computer (e.g., software that is downloaded to the customer's computer), or the seller's system (e.g., the on-line purchase of securities, which takes place through computing processes on the seller's server)? To avoid these potential issues, online agreements should, whenever possible, designate the place where performance under the contract may be deemed to have taken place, or, better yet, specify the court or courts which the parties agree will have jurisdiction if a dispute arises.[73]

(iv) Contractual agreements for choice of forum

58. Both the draft Hague Convention and the proposed Regulation of the European Union respect the principle of party autonomy,[74] by permitting the parties to choose for themselves the court or courts that will have jurisdiction to settle any dispute arising in connection with their legal relationship.[75] Both, however, limit this contractual basis for choosing jurisdiction in several respects, two of which are discussed below.

59. The approach taken in these instruments with respect to the formalities for the validity of an electronic agreement is liberal. Both indicate that such agreements will be considered valid as to form if they meet minimum indicia of reliability.[76]

(v) Consumer contracts

60. For contracts involving consumers, both instruments give weight to the prerogatives of the consumer as a party deserving special treatment. The draft Hague Convention provides that a consumer may bring suit "in the courts of the State in which it is habitually resident," if the consumer's claim relates to "trade or professional activities that the defendant has *engaged in or directed to* that State, in particular in soliciting business through means of publicity."[77] Of course, a consumer would also be free to initiate court proceedings at the place where the business is "habitually resident."[78] A claim *against* a consumer can only be brought in the courts of the State of the habitual residence of the consumer.[79] The proposed Regulation is to the same effect, providing that (i) a consumer may bring proceedings against the other party to a contract "either in the courts of the Member State in which that party is domiciled or in the courts for the place where the consumer is domiciled," and (ii) proceedings may be brought against a consumer only in the courts where the consumer is domiciled.[80] These draft instruments allow no departure from this approach, except by an agreement that is entered into after the dispute has arisen.[81]

61. For this provision, the Explanatory Memorandum of the European Union's proposed Regulation notes some of the difficulties presented by electronic commerce. Unlike the draft Hague Convention, the proposed Regulation omits a requirement that the consumer must have taken steps necessary for the conclusion of the contract in his home State.[82] For contracts concluded via an interactive website, "the place where the consumer takes these steps may be difficult or impossible to determine, and they may be irrelevant to creating a link between the contract and the consumer's State."[83] Instead, the focus is on the business that "pursues commercial or professional activities in the Member State," or "*by any means, directs such activities* to that Member State."[84] The Explanatory Memorandum further notes that this wording has given rise "to certain anxieties among the part of industry looking to develop electronic commerce," since businesses engaging in such commerce will have to contend with potential litigation in every Member State, or specifically disclaim that their products or services are intended for consumers in certain countries.[85] Moreover, the notion of "directing

activities" on the Internet toward a particular country or region may still be difficult to comprehend.

62. Businesses, particularly small or medium sized enterprises, offering goods or services (with content subject to an intellectual property title) on a widespread geographical basis over the Internet, must be aware of and understand these provisions and their consequences, should they come into force. With an adequate understanding, they can begin to organize the conduct of their affairs in order to achieve some assurance that they will not be subject to potential lawsuit at multiple and remote locations, or at locations where their intellectual property rights are not given adequate recognition and protection. On the other hand, should they fail to do so, the resulting confusion may discourage enterprises from using this efficient and internationally accessible avenue of commerce.

(vi) Exclusive jurisdiction for certain registered intellectual property rights

63. Both draft conventions contain special provisions for exclusive jurisdiction for certain registered intellectual property rights. Aside from the square bracketed terms below, which have been proposed only for the draft Hague Convention, the provisions are in all substantive respects identical, with both texts being modeled on the Brussels Convention. Exclusive jurisdiction will reside in the courts of the relevant State:

> (i) where the register is kept, for proceedings which have as their object the validity or nullity of entries in public registers; or
>
> (ii) where the deposit or registration has been applied for, has taken place or, under the terms of an international convention, is deemed to have taken place, for proceedings which have as their object the registration, validity, [or] nullity [, or revocation or infringement,] of patents, trade marks, designs or other similar rights required to be deposited or registered.[86]

64. As drafted, these provisions relate only to rights that are required to be deposited or registered. Nonetheless, in relation to the provision in the draft Hague Convention (Article 13.4), several delegations have suggested that it be made explicit that it "shall not apply to copyright or any neighboring rights even though, under certain legal systems, registration of such rights is possible."[87] Moreover, the respective provisions, by their terms, do not cover common law trademarks which require no prior registration.[88]

65. The newly proposed sections of Article 12.4 of the draft Hague Convention – square bracketed above, including revocation and infringement – would broaden the scope of exclusive jurisdiction for certain proceedings involving industrial property rights. This provision would therefore appear to exclude every other ground of jurisdiction, including general jurisdiction at the home of the defendant ("habitual residence") under Article 3 or specific jurisdiction at the place of the occurrence of a tortious act (*forum delicti commissi*) under Article 10. At the same time, newly proposed Article 12.5 (quoted in note 88) would create an exception to this exclusive jurisdiction for patents. It is arguable whether there is adequate justification for treating patents and trademarks differently in this respect. In light of these and other concerns, the Special Commission indicated that a group of experts, including intellectual property specialists, as noted above, would be convened to address these questions.

Applicable Law

66. Once a court determines that it possesses jurisdiction to hear a case, it must then decide which substantive law should be applied to decide the merits of the dispute. This can become a complex inquiry when a foreign element is involved in a case. Determining the applicable law involves many of the same questions discussed above in relation to determining the proper jurisdictional forum; indeed, the conflicts of law issues are magnified by the uncertainty in jurisdictional *fora* generated by the Internet and electronic commerce. For example, in the copyright context, when protected material is made available or transmitted to consumers in many different countries, there might not only be uncertainty as to the appropriate jurisdiction for bringing a lawsuit, but also as to which country's law governs the determination of authorship or ownership, the scope of rights, and the validity of contractual agreements? These questions are always challenging, but become more complex in the online environment.

67. Thus, in private international law, the area of applicable law is similarly as complex as, and closely related to, the rules for determining the jurisdictional forum, and, as discussed below, also carries consequence for the protection of intellectual property rights. Even without the impact of electronic commerce, "[c]ontracts in relation to the international exploitation of intellectual property rights have always given rise to complex choice of law problems."[89]

(i) Contractual agreement on choice of law

68. The situation can be greatly simplified if it involves a contract and the parties have designated the law to be applied in case of a dispute. As discussed above, electronic commerce accentuates the importance of including such a choice of law among the contractual terms. For contracts whose terms cover content that is subject to an intellectual property right, such as a licensing agreement for the online delivery of software, the applicable law designation provides both parties with a measure of certainty in case of a dispute.[90]

69. The general regulatory principle, as codified in relevant national and international instruments, is to respect the choice of law made by the parties. In Europe, the Rome Convention on the Law Applicable to Contractual Obligations governs this area, providing generally that a "contract shall be governed by the law chosen by the parties."[91] The United States Government in its 1997 "Framework for Global Electronic Commerce" states that the "U.S. should work closely with other nations to clarify applicable jurisdictional rules and *to generally favor and enforce contract provisions that allow parties to select substantive rules governing liability.*"[92] In the United States the relevant provision in many states,[93] however, has included a limitation that has been viewed as problematic in light of the new digital economy. The Uniform Commercial Code (UCC), a code that serves as a model for state legislation, provides in relevant part that "when a transaction bears a *reasonable relation* to this state and also to another state or nation the parties may agree that the law either of this state or of such other state or nation shall govern their rights and duties." The parties' choice of law has thus been considered valid only if the transaction bears a "reasonable relation" to the jurisdiction of the law chosen. A reasonable relation has been found where the making of the contract or a significant portion of its performance takes place in the designated jurisdiction. For transactions taking place completely online, however, determining the place of contracting or the place of performance can be problematic.

70. In response, there has been an ongoing effort to new rules that would apply to the online environment. The Uniform Computer Information Transactions Act (UCITA), which was adopted by the National Conference of Commissioners on Uniform State Laws in July 1999, drops the reasonable relation test, providing simply that, other than in consumer contracts, "[t]he parties in their agreement may choose the applicable law." [94] Given the difficulty noted above in determining relevant points of attachment, this provision, as well as the provision in the Rome Convention, appear as positive terms for electronic commerce. They reflect a growing consensus that the principle of freedom of contract should be accorded appropriate respect under the law as a means for facilitating electronic commerce and the parties' expectations in a complex international legal environment. The same view may be taken in relation to the international exploitation of intellectual property, subject to any limitations which reflect the public policy of a State.

(ii) Absence of a contractual choice of law

71. In the absence of an agreement on the choice of law to be applied in the case of a dispute, electronic commerce may complicate an already complex situation. Both the Rome Convention and the UCITA provide guidance if the dispute between the parties involves a contractual relationship. The Rome Convention provides that "[t]o the extent that the law applicable to the contract has not been chosen…, the contract shall be governed by the law of the country with which it is most closely connected."[95] Further, it is "presumed that the contract is most closely connected with the country where the party who is to effect the *performance which is characteristic of the contract* has, at the time of conclusion of the contract, his habitual residence..."[96] However, when a contract involves commerce over digital networks, it may not be clear which party is to carry out this "characteristic performance."[97]

72. Section 109(b) of the UCITA provides that in the absence of an enforceable choice-of-law term, the following rules apply:

> (1) An access contract or a contract providing for electronic delivery of a copy is governed by the law of the jurisdiction in which the licensor is located when the agreement is made.
>
> (2) A consumer transaction that requires delivery of a copy on a tangible medium is governed by the law of the jurisdiction in which the copy is or should have been delivered to the consumer.
>
> (3) In all other cases, the contract is governed by the law of the jurisdiction with the most significant relationship to the transaction.

73. The UCITA introduces a rule that attempts to be more finely tuned to the realities of electronic commerce. Sub-section (1) selects the applicable law based on the location of the licensor. The Official Comment explains that this is intended to enhance certainty for online vendors, large or small, in the context of digital networks that make access available to the entire world via the Internet, and that any other rule would require the vendor to comply with the law of all States across the world, since it may not be clear or even knowable where the contract is formed or information sent.[98] Sub-section (2), on the other hand, chooses the law of the consumer's forum, so as not to upset the expectations of the consumer. Here, the

licensor would know where the physical delivery will occur, and must be aware of the consequences for potential exposure to local mandatory consumer protection laws. Sub-section (3) codifies traditional choice of law principles, setting forth "the most significant relationship" test, which allows courts some flexibility in weighing various factors that might be relevant in the online environment.

Choice of law for infringements

74. Aside from the general provisions concerning contractual relations, one can look to certain international treaties for guidance on choice of law in the case of infringement disputes.[99] In this context, a case involving the posting of an infringing copy of a copyright work on the Internet, accessible instantly around the world, raises the possibility that the laws of numerous countries are implicated. Similarly, if several trademarks are involved which are registered in different countries, a court in an infringement case may be required to apply for each trademark the law of the country in which it enjoys protection.[100] This might be difficult, in practice, when a multitude of trademarks is involved.

75. Although the Berne and Paris Conventions contain certain choice of law elements, they are generally not regarded as complete, and their precise relationship with national private international law provisions is not always clear.[101] Again, the Internet magnifies the pre-existing predicament in the conflict of laws analysis.

76. For example, the Berne Convention provides that in the case of an alleged infringement of copyright, "the extent of protection, as well as the means of redress afforded to the author to protect his rights, shall be governed exclusively by the laws of the country where protection is claimed."[102] This term has been read to announce either a choice-of-law rule, or merely a principle of nondiscrimination, or both.[103] This ambiguity may be compounded by ambiguity in the meaning of the phrase "country where protection is claimed."[104] While this may be read to refer to the courts of the forum where the infringement suit is located, most commentators have rejected this reading, suggesting that it should be understood to mean "the country *for which* protection is demanded against infringing acts that are transpiring there."[105] This country where protection is needed (i.e., where the alleged infringement takes place) may be the same as the forum for litigation, but this may not always be the case.

77. In any event, if one assumes the prevailing view that this phrase refers to the country where the alleged infringement takes place, a posting on the Internet, as noted above, may implicate a multiplicity of possible laws (i.e., the law of the country from which the communication originated, and the law in each country in which it was received).[106] Thus, in the context of global digital networks, the question has been raised: "Does the Berne Convention require a strictly territorial approach, applying successively the law of each country of receipt, or will it suffice to apply the law of the country of initiation of the infringement?"[107] If the answer is that the law of each country must be applied, the result is either piecemeal litigation in multiple *fora*, or a single comprehensive lawsuit involving a complex country-by-country assessment of the scope of rights, the alleged infringement and appropriate remedies.

78. Recognizing the daunting task that would arise in adjudicating infringements by applying a strictly territorial approach, commentators in the copyright field have suggested that a useful precedent may be found in the context of satellite transmissions, which, by virtue of the technology involved, are also capable of being disseminated instantaneously to multiple

countries.[108] The European Commission, in its Satellite Directive, determined that the country from which "the copyright-triggering act of 'communication to the public' occurs is the country from which the satellite signal is up-linked."[109] This approach may support a view, with regard to Article 5.2 of the Berne Convention, that the country from which the alleged multi-country infringement originated can be considered as the "country where protection is sought." While this analysis might offer the promise, in certain cases, of simplifying choice of law questions arising from the digital dissemination of copyrighted works, issues would nonetheless remain, such as what to do if certain countries become havens for copyright infringement. As the next section explains, the Internet presents circumstances in which it may not be easy to detect the location from which a communication originates (e.g., the source is anonymous), or there may be a separation in the function and location of different necessary elements (e.g., the operator of a web site may locate its computer server or servers in multiple jurisdictions different from the one in which the operator itself is located).

79. The choice of law issues raised by electronic commerce and digital communications will remain complex and difficult in relation to the protection and exploitation of intellectual property. This is an area which, as noted by WIPO's Member States, requires further study and work toward new international responses. WIPO has convened a task force to examine these issues from an interdisciplinary intellectual property perspective, and is engaged in the process of formulating recommendations for a future work program.

Digital Technology – Issues of Enforcement

80. An important pillar of the intellectual property system consists of the provisions and mechanisms aimed at securing respect for the rights provided for by the law. Effective arrangements for the protection of these rights are crucial, as there is little point in establishing a detailed and comprehensive scheme for granting rights, if mechanisms for their enforcement are lacking.

81. Historically, the question of the enforcement of intellectual property rights has been a difficult one, and particularly in recent years, the issue has received increasing attention. A variety of factors in the past decade have contributed to a global upsurge in counterfeit and pirated goods: the dramatic increase in international trade, the dismantling of certain border controls, the difficulties experienced by national enforcement agencies in keeping up with the speed of developments and volume of traffic, and the formidable expansion of technologies. While it is difficult to measure with great accuracy, the extent of the problem is growing and appears to have doubled since the end of the last decade.[110]

82. The Internet generates new challenges in relation to issues of enforcement. All content converges into digital data on the Internet. Text, music and images are reduced to strings of binary code. The digitization of data enables its transmission at speed, in ephemeral form, but with the potential for indefinite storage in the memory of information technology and network devices. As a result, vast amounts of information and intellectual property are being transmitted in digital form, to anyone with access to the network. These changes serve to accentuate the increasing need for speed in relation to the implementation and operation of enforcement measures that serve to put an end to infringements.

Detection, Anonymity and Privacy

83. The first step in enforcing intellectual property rights consists of detecting infringements. On the Internet, this is not a simple matter. The technologies of the digital system allow users to duplicate, manipulate and morph content – perfectly, instantly and infinitely – in ways that may be largely undetectable, thereby greatly expanding opportunities for confusion, fraud and infringement of intellectual property rights. Given the reach of the Internet, content in digital form can be disseminated instantaneously worldwide, thereby vastly increasing the ease with which intellectual property can be infringed, either inadvertently or through piracy and counterfeiting. One publication of protected content on the Internet can lead to its proliferation through rapid copying by third parties, making enforcement an uncertain task of international dimension. While some of the technologies that have given rise to these new issues might also contribute to providing the answers to them, it has, as yet, been exceedingly difficult to monitor the Internet because of its transformation into an ubiquitous medium for "super-distribution."[111]

84. Moreover, digital data is transient. Infringing material may be on the Internet for only a very short period of time, as "hosts" and web page creators can delete files within a matter of hours or days after their posting. Even for unsophisticated users, it is easy to put content on the Internet, as no significant skill or investment is required. A variety of platforms are freely available for this purpose, including the World Wide Web, e-mail, newsgroups, bulletin boards, and chat fora, to name only the most common. Sites that have been ordered to close down in one jurisdiction may easily reappear in another, or may be mirrored across multiple jurisdictions, thereby frustrating the effects of local enforcement proceedings. Under these circumstances, the burden to police the Internet for infringing activity (not necessarily malicious) is a heavy one, and many important players in the intellectual property arena may not even realize that their rights are being compromised in cyberspace. The detection problem is so significant that it has simulated the growth of a new line of business: the professional Internet watch services, whose mission is to monitor the Internet for infringing activity on behalf of rightsholders.[112]

85. Once an infringement has been detected, it is necessary to identify the party who is causing the problem, in order to set in motion the enforcement process. However, the Internet, by its very nature, makes anonymity possible, and tools are available, such as anonymous retailer programs and strong encryption technology, that can make it virtually impossible to detect who is at the source of a particular communication, particularly if a deliberate and concerted effort is made by the user to remain unknown. While many companies that offer services for posting and distributing content on the Internet (such as domain name registrars, bulletin board operators and commercial web page hosts) require their customers to identify themselves and specify contact details, it has been common practice not to take these requests seriously. In a number of instances, no sanctions (e.g., cancellation of a domain name, take down of a web page) have been foreseen or enforced if unreliable contact details are detected.

86. At the same time, in view of information technology's potential to collect and exploit commercially valuable data regarding the identity and habits of Internet users, privacy considerations are increasingly shaping the debate concerning the treatment of personal data on the Internet. The need to protect the individual is reflected in new restrictions on the collection, storage and public availability of this data.[113]

87. Tension has arisen as a result of the different international approaches taken to this question. The European Commission and the Department of Commerce of the United States of America have been in discussions for over two years to develop "safe harbor" principles that would provide businesses located in the United States with guidelines in order that they may comply with the European Union's Privacy Directive. The Directive, which went into effect in 1998, allows the transfer of data containing personal identification details to third countries only if they provide an "adequate" level of privacy protection. The United States relies on a largely self-regulatory approach to privacy issues, and there has been a "standstill" in applying the European Directive to disrupt any data flows to the United States so long as the United States Government and the European Commission have continued in good faith negotiations.[114] During the negotiations, the United States Government has developed and posted for public comment several drafts of the "safe harbor" provisions.[115] In an announcement of mid-March 2000, it appears that an agreement has been reached between the two parties that the safe harbor provisions now meet the European Union's criteria.[116]

88. The legitimate concerns of intellectual property right holders to have means for identifying who is at the source of infringing activity have been caught up in, and in some cases overshadowed by, the privacy polemic. For instance, in the WIPO Internet Domain Name Process, discussed in Chapter III below, the questions of whether domain name registrants should be required to provide contact details, and the extent to which this information should be made publicly available, were among the most hotly debated issues. While privacy is emerging as a new area of public policy, appropriate solutions will also need to accommodate the recognized need for intellectual property protection and enforcement.[117]

Legal Frameworks for Enforcement

89. Effective enforcement presupposes an underlying legal framework that is conducive to the enforcement of the rights concerned on the medium where enforcement is sought. The fundamental question is not whether intellectual property law applies to the Internet. Clearly, it does, just as it may apply to any other relevant sphere of human activity. The real issue is how to ensure that its application can be made effective and, in particular, whether it is necessary to adopt new measures, less dependent on the notion of territory, that are aimed at facilitating the enforcement of rights on global networks. As indicated above, the fact that commercial participants in global electronic commerce may be subject to the courts in numerous jurisdictions and to many laws has serious implications for the international protection and enforcement of intellectual property rights.

90. Intellectual property law and its accompanying enforcement mechanisms are fundamentally territorial in nature. The scope of the rights established in each country is determined by that country and the effect of these rights, as well as their protection, are, in principle, confined to the territory of the country.[118] The territorial foundation of the enforcement of intellectual property rights is reflected in various provisions of the Paris and Berne Conventions, as well as in the TRIPS Agreement,[119] and in the underlying premise of these treaties that the national judicial and customs authorities are the primary vehicles for the enforcement of protected rights.

91. While the Paris Convention[120] and the Berne Convention[121] address certain enforcement aspects, these treaties are primarily aimed at the codification of substantive norms. Aware of the growing threat of piracy and counterfeiting in the decades of the 1970s and 1980s, the

international community increasingly became concerned with effective enforcement and ther need to take decisive action internationally. These efforts culminated in the adoption of the TRIPS Agreement, which for the first time at the international level, created a comprehensive scheme for the enforcement of intellectual property rights.[122] When the TRIPS Agreement was adopted, the Internet was still in its commercial infancy, and the promise of electronic commerce was not at the forefront of the negotiators' minds. Since the mid-1990s, however, the Internet has undergone the veritable explosion discussed above, which presents novel challenges to the traditional mechanisms employed for the enforcement of intellectual property rights.

Emerging Responses

92. The Internet may be less of a threat to the rights of intellectual property holders than it is to the means by which intellectual property has been traditionally managed in the physical world. What is required in the age of the Internet are new methods for the creation, exploitation and enforcement of intellectual property that are suited to the nature of the medium. Today, there may not be a single, easy answer to this challenge. Yet commentators have suggested that we should be wary of solutions that risk conditioning future technological possibilities and, thus, stifling, rather than facilitating, their future development. Various measures aimed at facilitating enforcement are now being developed, and several are discussed below.

93. *Technological measures of protection.* The enforcement difficulties associated with digital data and global networks are leading to widespread recognition that enforcement is best achieved not only through legal means, but also through technological measures of protection.[123] These mechanisms are now becoming available on the market and have received legal recognition, as discussed in Chapter III, through the WIPO Copyright Treaties.

94. The techniques under the current state of the technology – such as encryption and watermarking – are intended to permit rightsholders to control access and manipulation of their works, and to track them on the Internet.[124] Encryption allows content to be transmitted through the Internet in a scrambled, illegible format, which can only be decoded by means of a decryption key, the receipt of which may be conditioned upon payment to gain access to the work.[125] Watermarking consists of embedding in a work and its legitimate copies data that permits the identification of rightsholders. The same technique can also be used to prevent a work from being modified (e.g., removing the watermark), because any tampering can be made to result in a visible or audible rearrangement of the data.

95. *Technologies to assist in rights management.* Other technologies allow works to be licensed online, eliminating many of the transaction costs involved in traditional forms of licensing. These techniques can be highly sophisticated, differentiating among different types of uses, for example, allowing a user to perceive the work but not copy it, or copy but not further transmit it. The would-be user need not expend time and energy searching for information, sending letters and awaiting responses. Rather, all information could be easily available online, including different terms and conditions for different types of uses, with the option of an immediate keystroke response. These technologies together should encourage rightholders to provide high-quality, user-friendly and legitimate material.

96. These tools, particularly if they are deployed in the framework of electronic copyright management systems (ECMS),[126] have the potential to contribute significantly to the

enforcement of intellectual property rights on the Internet. They also raise several questions, however, including whether the market will embrace these tools so that they become commercially viable; the extent to which common standards and interoperability are useful or necessary on an international basis; how they will influence the collective administration of rights as currently performed by collecting societies; and the degree to which their tracking and control features are compatible with concerns of privacy.[127]

97. *Alternative Dispute Resolution Procedures*. Putting a stop to harmful activity on a global and fast-moving medium such as the Internet through judicial enforcement mechanisms that are territorial might increasingly prove to be a challenging task. To supplement available court procedures, alternative dispute-resolution (ADR) procedures may usefully be employed to provide rights owners with procedures for fast and effective remedial action, reflective of the ease with which intellectual property infringements can occur on the Internet.

98. ADR procedures offer a solution of international dimension for the jurisdictional concerns raised above. *Arbitration* is a procedure providing a private and binding adjudication, which operates within a well-established and publicly enforceable international legal framework.[128] Arbitration can provide a single solution for multi-jurisdictional disputes arising from commerce over global networks. At the same time, the nature and speed of electronic commercial activities have generated pressure to streamline and reduce the time and cost of traditional arbitral procedures.

99. *On-line dispute-resolution procedures* may serve to enhance access to dispute settlement mechanisms, while increasing the speed and efficiency with which the proceedings are conducted and reducing the corresponding costs. Many parties involved in disputes arising from commerce over the Internet may not have had significant exposure to legal proceedings and the attendant formalities. Enabling them to initiate or to defend a claim by accessing a web site and completing electronic forms guiding them through the various stages of the process is expected to reduce entry barriers to any available procedures. Furthermore, Internet-based document filing systems may allow parties to submit instantaneously a significant number of documents over any distance, at virtually no cost. Submissions can be processed, stored and archived by automated document management systems, and their review from any location will be possible through an Internet-based interface on a 24-hour basis for parties with the required access rights. With the development of appropriate audio and video facilities, parties will also have the possibility of conducting meetings or hearings online, greatly reducing travel expenses and the costs of organizing conference rooms.

100. Next to the establishment of a technical system allowing the proceedings to be conducted online, the required legal framework needs to be established. Existing arbitration rules can provide a foundation for any adaptations to the online environment that may be required. Issues that need to be addressed in particular are rights of access to the documents by the parties, applicable procedures in case of challenges of authenticity, contact details for notification purposes, calculation of time periods (in view of likely time-zone differences between the locations from which the parties are operating), and writing and signing requirements for dispute clauses, party communications and awards. In addition, the time periods for the accomplishment of various steps in the procedure can be shortened to ensure that the proceedings can be conducted swiftly and, consequently, at lower cost.[129]

101. *Direct Enforcement:* Another approach to improving the enforcement situation is the development of legislative frameworks or administrative systems providing for direct enforcement by the entities that provide technical services for accessing the Internet (e.g., online service providers or domain name registration authorities). To date, two such approaches have received widespread attention: the notice and take-down provisions of the United States Digital Millennium Copyright Act of 1998 and the administrative domain name dispute-resolution system recommended in the WIPO Internet Domain Name Process and now implemented by ICANN.

102. The Digital Millennium Copyright Act[130] provides a legislative framework which clarifies the practices of private parties in notifying alleged infringements to online service providers and the circumstances in which service providers may limit their liability by acting upon such notifications to take-down infringing material. It limits service providers from monetary liability for online infringements of copyright that may occur in the transmission, caching or hosting of copyrighted material, provided that a number of conditions enumerated in the Act are met. One of the conditions is that the service provider must not have actual knowledge that the material is infringing, nor be aware of facts or circumstances from which infringing activity is apparent.[131] The Act incorporates a procedure whereby rightowners can formally notify service providers of claimed infringements, whereupon the provider must expeditiously remove or disable access to the material in question in order to benefit from the liability limitation. The notification and take-down procedures thus allow rightowners to enforce their rights on a fast-track basis through the entity that has technical control over the presence of the allegedly infringing material on Internet, without the necessity of resorting to court to obtain injunctive relief. While these codified provisions have the advantage of clarity and efficiency, they are, at least for the time being, reflected in the national legislation of only one country, albeit an important one in the Internet context.[132]

103. In the framework of the Internet Domain Name Process, WIPO, as discussed in Chapter III below, recommended administrative dispute-resolution procedures aimed at the efficient resolution of multi-jurisdictional domain name disputes. A critical feature of this scheme is the direct enforcement by domain name registration authorities of the decisions issued by administrative panels. An additional key characteristic is that, unlike a nationally-based response, the dispute settlement procedures recommended by WIPO apply on an international basis, at least in so far as the Internet generic top-level domains (gTLDs) are concerned. This dispute-resolution system is based on contract and self-regulation and, as such, tests the limits of what can be achieved in the furtherance of enforcement goals in the absence of enabling legislation at the national or international levels.

104. An example of prospective legislation enabling alternative dispute resolution for disputes between service providers and users is found in Article 17 of the European Commission's Proposal for a European Parliament and Council Directive on Certain Legal Aspects of Electronic Commerce in the Internal Market, which provides in relevant part that:

> "Member States shall ensure that, in the event of disagreement between an Information Society service provider and its recipient, their legislation allows the effective use of out-of-court schemes for dispute settlement, including appropriate electronic means."[133]

105. The Commentary to the Proposal states that "[t]his type of mechanism would appear particularly useful for some disputes on the Internet because of their low transactional value and the size of the parties, who might otherwise be deterred from using legal procedures

because of their low cost. The legal framework of these dispute-settlement mechanisms in the Member States should not be such that it limits the use of these mechanisms or makes them unduly complicated. For example, in the case of specific mechanisms for disputes on the Internet, these could take place electronically."[134]

III. THE IMPACT OF ELECTRONIC COMMERCE ON INTELLECTUAL PROPERTY

106. In a fundamental respect, the international character of electronic commerce raises questions for the nature of traditional legal systems in general, and intellectual property law in particular. Both are based on notions of sovereignty and territoriality. The Internet, in contrast, like the movement of weather within the global climate, largely ignores distinctions based on territorial borders. Instead, infrastructure, code and language have thus far had a greater bearing on the reach of its currents.

107. This Chapter turns to address the impact of the digital economy on the intellectual property system, namely, copyright and related rights, patents and trademarks. Each of these intellectual property disciplines is confronted with new issues generated by the emergence of the Internet and electronic commerce. Each of them must successfully resolve these issues in order for electronic commerce to flourish. The Chapter also addresses domain names and their relation to trademarks, reporting on the intensive work that WIPO has begun in this area.

COPYRIGHT AND RELATED RIGHTS

The Protection Of Copyright And Related Rights In The Digital Environment

108. The protection of copyright and related rights covers a wide array of human creativity. Much of the creative content that fuels electronic commerce is subject to such protection. Under the most important international copyright convention, the Berne Convention,[135] copyright protection covers all "literary and artistic works." This term encompasses diverse forms of creativity, such as writings, both fiction and non-fiction, including scientific and technical texts and computer programs; databases that are original due to the selection or arrangement of their contents; musical works; audiovisual works; works of fine art, including drawings and paintings; and photographs. Related rights protect the contributions of others who add value in the presentation of literary and artistic works to the public: performing artists, such as actors, dancers, singers and musicians; the producers of phonograms, including CDs; and broadcasting organizations.

109. Digital technology enables the transmission and use of all of these protected materials in digital form over interactive networks. While the transmission of text, sound, images and computer programs over the Internet is already commonplace, this will soon also be true for transmission of audiovisual works such as feature films, as the technical constraints of narrow bandwidth begin to disappear.[136] Materials protected by copyright and related rights, spanning the range of information and entertainment products, will constitute much of the valuable subject matter of electronic commerce.[137]

110. Given the capabilities and characteristics of digital network technologies, electronic commerce can have a tremendous impact on the system of copyright and related rights, and the scope of copyright and related rights in turn can have an effect on how electronic commerce will evolve. If legal rules are not set and applied appropriately, digital technology has the potential to undermine the basic tenets of copyright and related rights. The Internet has been described as "the world's biggest copy machine."[138] The older technologies of

photocopying and taping allow mechanical copying by individual consumers, but in limited quantities, requiring considerable time, and of a lower quality than the original. Moreover, the copies are physically located in the same place as the person making the copy. On the Internet, in contrast, one can make an unlimited number of copies, virtually instantaneously, without perceptible degradation in quality.[139] And these copies can be transmitted to locations around the world in a matter of minutes. The result could be the disruption of traditional markets for the sale of copies of programs, music, art, books and movies.[140]

111. It is therefore critical to adjust the legal system to respond to the new technological environment in an effective and appropriate way, and to do so quickly, because technologies and markets evolve increasingly rapidly. This will ensure the continued furtherance of the fundamental guiding principles of copyright and related rights, which remain constant whatever may be the technology of the day: giving incentives to creators to produce and disseminate new creative materials; recognizing the importance of their contributions, by giving them reasonable control over the exploitation of those materials and allowing them to profit from them; providing appropriate balance for the public interest, particularly education, research and access to information; and thereby ultimately benefiting society, by promoting the development of culture, science, and the economy.

112. Accordingly, the goal of policy makers has been to achieve an appropriate balance in the law, providing strong and effective rights, but within reasonable limits and with fair exceptions. If this effort is successful, the result should be a positive impact from all perspectives. Trade in copyrighted works, performances and phonograms will become a major element of global electronic commerce, which will grow and thrive along with the value of the material that is traded. If rightsholders are secure in their ability to sell and license their property over the Internet, they will exploit this market fully and make more and more valuable works available through this medium. Appropriate limitations and exceptions will continue to safeguard public interest uses. The result will be a benefit to consumers, a benefit to rightsholders, a benefit to service providers, and a benefit to national economies – a true "win-win" situation.

Overview of the Issues

113. The most fundamental issue raised for the fields of copyright and related rights is the determination of the scope of protection in the digital environment: how rights are defined, and what exceptions and limitations are permitted. Other important issues include how rights are enforced and administered in this environment; who in the chain of dissemination of infringing material can be held legally responsible for the infringement; and questions of jurisdiction and applicable law.

114. The definition of rights is the key issue, as intellectual property is no more or less than the sum of the rights granted by law. Under existing treaties and national legislation, the owners of copyright and related rights are granted a range of different rights to control or be remunerated for various types of uses of their property. For both groups of rightsholders, these rights include rights of reproduction and of certain acts of communication to the public, such as public performance and broadcasting. The development of digital technologies, permitting transmission of works over networks, has raised questions about how these rights apply in the new environment. In particular, when multiple copies are made as works traverse the networks, is the reproduction right implicated by each copy? Is there a communication to the public when a work is not broadcast, but simply made available to individual members of

the public if and when they wish to see or hear it? Does a public performance take place when a work is viewed at different times by different individuals on the monitors of their personal computers or other digital devices?

115. Similar questions are raised about exceptions and limitations to rights. Are existing exceptions and limitations, written in language conceived for other circumstances, too broad or too narrow? Some exceptions, if applied literally in the digital environment, could eliminate large sectors of existing markets. Others may implement valid public policy goals, but be written too restrictively to apply to network transmissions. New circumstances may also call for new exceptions. These questions must be examined in light of the general standard established in treaties for the permissibility of exceptions and limitations to certain rights, known as the "three-step test:" exceptions are permitted "in certain special cases" that "do not conflict with a normal exploitation" of the work and "do not unreasonably prejudice the [owner's] legitimate interests."[141] How does this standard apply in the digital environment?

116. Issues of enforcement and licensing are not new, but take on added dimensions and urgency when works are exploited on digital networks. As noted above, the technologies pose substantial practical challenges. In order for legal protection to remain meaningful, rightsholders must be able to detect and stop the dissemination of unauthorized digital copies, accomplished at levels of speed, accuracy, volume and distance that in the past were unimaginable. And for electronic commerce to develop to its full potential, workable systems of online licensing must evolve, in which consumers can have confidence. The answer to these challenges to a great extent will lie in the technology itself.

117. Another issue is raised by the very nature of digital networks. By definition, when a work is transmitted from one point to another, or made available for the public to access, numerous parties are involved in the transmission. These include entities that provide Internet access or online services. When such service providers participate in transmitting or making available materials provided by another which infringe copyright or related rights, are they liable for the infringement? Such liability could arise in one of two ways: if the service provider itself is found to have engaged in unauthorized acts of reproduction or communication to the public, or if it is held responsible for contributing to or making possible the act of infringement by another.

118. Finally, electronic commerce in the subject matter of copyright and related rights raises important issues of private international law, which are discussed above.

Responses to Date

119. All of these issues have been examined for a number of years through various public and private processes, at WIPO and other international organizations, and at national and regional levels. Significant progress has been made, with international consensus having already emerged on some issues. In 1996, two treaties were concluded at WIPO: the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) (commonly referred to as the "Internet treaties").[142] These treaties, although not yet in force, address the issues of the definition and scope of rights in the digital environment, and some of the challenges of online enforcement and licensing.[143]

Scope of rights

120. Perhaps the most basic right granted under both copyright and related rights is the right of reproduction, which under the Berne Convention covers reproduction "in any manner or form."[144] This right is at the core of electronic commerce, because any transmission of a work or an object of related rights presupposes the uploading of that work or object into the memory of a computer or other digital device. In addition, when the work or object is transmitted over networks, multiple copies are made in the memory of network computers at numerous points. It is therefore necessary to determine how the reproduction right applies to such copies. In 1982, at a meeting of government experts co-organized by WIPO and UNESCO, a broad-based understanding was reached that uploading into memory should be considered as an act of reproduction. This understanding was reconfirmed in 1996 in Agreed Statements to the WCT and WPPT, which state: "The reproduction right…and the exceptions permitted thereunder, fully apply in the digital environment, in particular to the use of works in digital form. It is understood that the storage of a protected work in digital form in an electronic medium constitutes a reproduction within the meaning of the [relevant treaty right.]" The appropriate application of the reproduction right in the case of temporary copies in computer random access memory (RAM) continues to be a subject of debate at the national and international levels. The key question is whether such copies always require the consent of the rightsholder in order to avoid infringement. Carefully tailored exceptions for such copies in certain circumstances have been enacted recently in the United States of America[145] and proposed by the European Commission in a draft Directive.[146]

121. The WCT and the WPPT also clarify the extent of rightholders' control when works, performances and phonograms are made available to the public for downloading or access on the Internet.[147] This type of transmission differs from broadcasting, in that the material is not selected and delivered by an active transmitter like a broadcaster to a group of passive recipients. Rather, it is transmitted interactively, that is, on demand from the individual users, at a time and place of their choosing. The treaties require that an exclusive right be granted to control such acts of "making available", while leaving it to individual countries to decide how to categorize this right under national law.

122. As to the scope of these exclusive rights, the new treaties continue to provide flexibility to individual countries to develop exceptions and limitations that are appropriate to their particular circumstances.[148] The general "three-step" test applied to the reproduction right in the Berne Convention and to all rights in the TRIPS Agreement is extended to apply to all rights in the Berne Convention and in the two treaties. An important Agreed Statement clarifies that this test permits countries to extend existing exceptions and limitations into the digital environment, or to add new ones, as appropriate.[149]

Technological adjuncts to rights

123. The WCT and the WPPT also break new ground in recognizing the emerging role to be played by technological protection measures, and by online management and licensing systems. They require member States to provide two types of technological adjuncts to the protection of copyright and related rights, in order to ensure that the Internet can become a safe place to disseminate and license protected material.

124. The first technological adjunct is generally referred to as an "anti-circumvention" provision.[150] It relates to the need of rightsholders to rely on technological measures to protect their works against infringement on the Internet. No matter how ingenious the technology used to protect works against unauthorized use, equally ingenious ways may be developed to circumvent it. The resulting level of insecurity could prevent rightholders from being willing to disseminate valuable materials on the Internet. Given the inability to achieve total security, a realistic goal is to make the technology sophisticated enough to deter the ordinary consumer from seeking to circumvent, while granting legal redress against those who represent a greater threat – hackers and those engaged in circumvention as a business.[151] Toward this end, the treaties require member States to provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures used by rightsholders to restrict unlawful and unauthorized acts. The treaty language is general enough to allow significant flexibility to national governments in determining the details of appropriate implementation.[152]

125. As a second technological adjunct, the treaties protect "rights management information," providing legal support to network-based rights management systems.[153] Such systems operate based on electronic data attached to the works and objects of related rights.[154] The data may identify the author or performer, the rightsholder, and the work or object itself, and may further describe the terms and conditions for its use. Under the treaties, member States must provide adequate and effective legal remedies against the deliberate removal or alteration of such information, and against the dissemination of works, performances or phonograms from which such information has been removed or altered, where these acts are performed with at least reasonable grounds to know that they will induce, enable, facilitate or conceal infringement. This will enhance the ability of rightsholders to exploit their property on the Internet, and allow consumers to rely on the accuracy of the information they receive so they can feel secure transacting online.

Future Work and Unresolved Issues

Treaty ratification and implementation

126. In view of the important new norms provided by the WCT and the WPPT, it is vital for the development of electronic commerce that these treaties enter into force without delay.[155] For this to happen, 30 countries must become party to each treaty. This number, however, is only the beginning. In order for the treaties to be truly effective in cyberspace, they must become widely adopted in countries around the world. WIPO is therefore devoting substantial resources to promoting the treaties and to offering advice to governments on their implementation and ratification. In the interim, however, it should be noted that the provisions of both treaties were adopted by consensus by more than 100 countries, and thus represent broad international agreement as to the appropriate approach to copyright in the digital environment. They therefore are already useful today as a guide and as a model for national legislation.

127. Although the WCT and the WPPT now provide basic norms clarifying and safeguarding the protection of copyright and related rights in relation to electronic commerce, certain unresolved questions remain at the international level.[156] These include new subject matter and rights, service provider liability, and questions of private international law such as applicable law and jurisdiction.

New subject matter and rights

128. As to new subject matter and rights, there are three areas currently under discussion at WIPO for possible new international instruments: audiovisual performers' rights, broadcasters' rights, and *sui generis*, non-copyright protection for databases. The first two are already protected by multilateral treaties, but call for updating and improvement; the latter would establish a new form of international protection.

129. 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. Such performances are protected, however, by many national laws, and also by the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations. No multilateral treaty, however, covers the rights of performers in authorized audiovisual fixations of their performances. The possible extension of international protection for performers to cover audiovisual performances might be perceived as a general question, not specific to electronic commerce. It is, however, highly relevant because audiovisual performances will be used in an increasing measure on the Internet, as available bandwidth increases. Moreover, digital technologies permit the unauthorized manipulation and distortion of performers' images and voices (e.g., morphing). A satisfactory solution of this issue is therefore an important component of an overall clarification of the rights involved in electronic commerce.

130. The same reasoning applies to the question of the rights of broadcasting organizations. Broadcasting organizations enjoy protection in many countries for their broadcasts under either copyright or related rights, and their rights are protected under both the TRIPS Agreement and the Rome Convention. In this field too, an updating of existing international norms is needed. Existing treaties may not adequately ensure that broadcasters (and providers of valuable programming not covered by copyright and related rights, such as certain sports transmissions) are able to safeguard and exploit their efforts and investments over the Internet. A new treaty could protect against digital piracy and manipulation of broadcast signals, furthering the use of the Internet as a medium for broadcasting activities.

131. There have also been calls for an extension of the scope of existing international protection for databases. Databases that are original by virtue of the selection and arrangement of their contents are already protected under copyright. But copyright does not protect databases that are not original, such as a database that contains the entire universe of relevant facts and is therefore not selective, and is arranged in a non-creative numerical or alphabetical way. In addition, even those databases that do qualify for copyright protection may receive a very narrow scope of protection, allowing competitors to take and market substantial portions of the information they contain. Such databases often represent significant effort and investment for their makers, and these investments are jeopardized by the ease and inexpensiveness of copying them with today's technologies. In response to this problem, the European Community has adopted a directive requiring its Member States to provide a separate *sui generis* form of protection for databases.[157] On the other hand, concerns have been raised that, if not carefully balanced, a new form of protection might result in a monopoly position of information providers or otherwise be detrimental to the scientific, research and education sectors.[158]

Online service provider liability

132. Another important issue is that of the potential liability of online service and access providers for infringements taking place through their services. As noted above, the following questions are raised: Are service providers exercising the exclusive rights of the copyright owners themselves, as they engage in acts that cause the material to be copied and transmitted? Regardless of the answer to this question, can 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? Under the laws of many countries, the answer could be yes, depending on the circumstances.[159]

133. The liability issue has significant international implications. Because the Internet is a borderless medium and its markets are global, it is critical that compatible approaches to this issue be adopted around the world. It is not necessary that the approaches be identical; they may differ depending on the particular circumstances and legal traditions in any given country. But they must be interoperable if global networks and electronic commerce are to develop smoothly.

134. During the Diplomatic Conference on the Internet treaties in 1996, the issue was intensively debated. The ultimate result was that the treaties are 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."[160] The statement clarifies that simply providing the wires used to communicate, for example, does not constitute an act of communication. But the statement is limited in its application: it does not cover a number of activities that service providers may engage in, and it does not deal with concepts of liability for contributing to the infringement of another.

135. 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). There are laws now in force in Germany and Sweden, which approach the issue from a horizontal perspective. The European Commission has proposed a Directive on Electronic Commerce with provisions that would harmonize the treatment of liability among its Member States, again using a horizontal approach.[161] In the United States of America, the Congress has enacted copyright-specific legislation as part of the 1998 Digital Millennium Copyright Act, after legislation in past years establishing different standards in other areas of the law. Singapore too has adopted a copyright-specific law.[162]

WIPO's Response

136. WIPO is actively engaged in examining all of these issues and seeking solutions. The areas of possible treaties involving the extension of new rights and subject matter are on the agenda of the WIPO Standing Committee on Copyright and Related Rights. Work on the subject of audiovisual performers' rights is at an advanced stage, with a Diplomatic Conference scheduled for December 2000. The protection of the rights of broadcasting

organizations and non-copyright protection for databases are being analyzed by the Standing Committee. The former issue has received a generally positive reception by the Committee, with consensus expressed that broadcasters' rights should be updated in an international instrument. The database issue is at a more preliminary stage, with many governments having indicated that further study and analysis are needed.

137. The issue of service provider liability was the subject of a workshop held at WIPO at the end of 1999. The workshop examined existing and proposed national and regional legal frameworks, practical implementation of the issue through notice and takedown systems, and the possibilities for international harmonization.

138. The questions regarding international private law have been on the agenda of three WIPO worldwide symposia in 1994 and 1995. In 1998 they were subject to thorough discussions in the Group of Consultants on the Private International Law Aspects of the Protection of Works and Objects of Related Rights Transmitted through Global Information Networks. In the WIPO Program and Budget for 2000-2001, a worldwide symposium on this issue is foreseen.

PATENTS

139. Inventions are characteristically protected by patents.[163] The patent system provides a framework for innovation and technological development by, on the one hand, granting an exclusive right to the owner of a patent to exploit an invention for a limited period[164] and, on the other hand, balancing this right with a corresponding duty to disclose the information concerning the patented invention to the public. This information, which is classified and stored in the patent documentation, is available to anyone and, increasingly, is accessible through online, Internet-based systems.[165] The mandatory disclosure of the invention thus enriches the available pool of technological knowledge, facilitates technology transfer, and enhances the opportunities for creativity and innovation by others.[166]

140. The patent system has played a vital role in promoting the development of the underlying technical infrastructure for electronic commerce. Electronic commerce relies in a critical way on the various computer and network technologies, both hardware and software. The market exclusivity established through effective patent protection has provided a reward for investment and has justified the expenditures on research and development to achieve further technological progress. However, the new technologies pose challenges to the conventional legal scheme for the patent system. This section addresses several of the new issues associated with digital media and electronic commerce in the context of patent protection.

Patentable Subject Matter

141. In order to be eligible for patent protection, an invention must fall within the scope of patentable subject matter. Article 27.1 of the TRIPS Agreement provides that, subject to certain exceptions or conditions under that Agreement, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are

new, involve an inventive step and are capable of industrial application. While limited exceptions are possible under the TRIPS Agreement – and provided for in some national laws – the general rule is that patent protection for an invention will not be refused simply because of its field of technology.

142. Patents have recently been granted to certain inventions concerning financial services, electronic sales and advertising methods, business methods, including business methods consisting of processes to be performed on the Internet, and telephone exchange and billing methods.[167] It is expected that the number of these eCommerce-type patents may increase significantly, bearing in mind the significant potential of electronic commerce to individuals, companies and national economies, as well as to the global economy. Such patents are viewed as important for creating incentives and spurring investment in new technologies. On the other hand, this trend has been criticized by those who would stress that a number of such patents concerning business practices and methods reflect familiar ways of doing business which are not new or novel: the only aspect that is different is that they occur in cyberspace.[168] In Europe there is a view that the subject matter of a patentable "invention" shall have a "technical character" or involve "technical teaching," i.e., an instruction addressed to a person skilled in the art as to how to solve a particular technical problem using particular technical means.[169]

143. A similar discussion concerning patentable subject matter has occurred in respect of software patents, as the significance of software itself extends well beyond the software industry. The TRIPS Agreement does not allow the exclusion of software in general from patentability.[170] In a recent Communication from the European Commission, it was stated that the law on patentability of computer programs in the United States of America has had a positive impact on the development of the software industry there.[171] In this context, the Commission proposed a draft Directive to harmonize the conditions for the patentability of inventions related to computer programs. Although some patent offices have established examination guidelines for computer related inventions, including software related inventions, very little international harmonization has been achieved in this area.[172]

144. In the field of information technology, the value of intellectual assets often resides in the "content" of the information. In the past, software has often been sold as an integral part of the computer system, while, today, software products are often marketed in the form of computer readable media, for example, diskettes and CD-ROMs or directly over the Internet. Software-related inventions are thus stored in such media, and commercialized separately from the computer hardware. It is necessary, therefore, to claim such software-related inventions as a computer readable medium storing the software that performs the claimed functions. This type of claim is commonly called "Beauregard-type claim."[173] Other types of claims, such as "Lowry-type claim" (a computer readable medium storing a data structure, which data structure is interrelated to the medium structurally and functionally)[174] or a "propagated signal claim" (a claim to a computer data signal that is embodied in a carrier wave)[175] have also been advanced by practitioners. As this topic is relatively new, there is not as yet international harmonization concerning an acceptable claim format with respect to software-related inventions.

Prior Art Effect

145. As noted, patents are granted only to inventions that are novel, involve an inventive step and are useful or industrially applicable. To determine if the requirements of novelty and inventive step are met, the claimed invention is compared with the existing state of the art. The existing state of the art is sometimes referred to as the "prior art." Prior art in electronic form, which exists in cyberspace only ("cyber art"), raises questions as to its availability as "prior art" and, thus, whether it can be applied against an invention for which a patent is sought in determining novelty or inventive step. The questions include whether that kind of information has become "prior art" even if it was disclosed on the Internet for only a limited period. Although similar questions have been addressed with respect to prior art published on paper, publication on the Internet may have different implications. Authenticity, veracity and integrity are the critical issues for prior art in cyberspace, since cyber art is considered to be more vulnerable to alteration and modification. The determination of the timing of the disclosure and the accessibility of the cyber art to the public, given the network's capacity for instantaneous dissemination on the international scale, are other concerns. Furthermore, national laws may extend the concept of the prior art to include prior uses. Under such national laws, the concept of "use" may be revisited in a computer environment. In addition, the above-mentioned questions are applicable in the context of a grace period for public disclosure of an invention before filing a patent application.

146. In order to cope with some of these questions, Japan recently amended its patent law to expressly provide that an invention which was made publicly available online, for example, via the Internet, prior to the filing of an application would constitute a novelty defeating bar. It also confirmed that an invention that was publicly disclosed online would fall within the six-month grace period, providing an exception to novelty-destroying disclosures. These modifications entered into force on January 1, 2000.[176]

Enforcement of Rights

147. As in other fields of intellectual property, jurisdictional questions and enforcement of rights are also relevant to patent protection. The Internet raises complex issues in this regard, as patent protection is provided on a country-by-country basis, and the patent law of each country has application only within its borders, in accordance with the traditional principles of territoriality. For example, where patented software is sold and delivered over the Internet internationally, any infringement action would require a consideration of the jurisdictional and choice of law issues. Moreover, the first practical issue may be that of detection, since the unauthorized importation of such software by means of the Internet, unlike the importation of tangible goods, cannot be detected and stopped by customs authorities.

148. One of the questions particular to patent protection may be the case where a patented product invention consists of elements that are physically located in different territories. Or, for example, in the case of process patents, for a method to process and transfer certain data using computerized networks (for example, the Internet), distinct elements in the claimed process could be performed in different territories. If an alleged infringer operates a system containing all of the claimed elements within the territory in which the invention is protected, there would be a straightforward claim for infringement. However, the questions of infringement and jurisdiction would be more difficult where a patented invention involves activities in several countries by several individuals. In particular, Article 28 of the TRIPS Agreement requires that a patent confer on its owner the right to prevent others from "using"

the patented product or process. What constitutes "using" a patented product or process is increasingly complicated in the case of Internet-related eCommerce patents.[177]

149. Each of the recited "means" in claim 1 of the patent corresponds to a physical structure that could be located at sites remote from the other "means." Indeed, the various "means" could be located in different countries. Given this situation, it may not be clear in which jurisdiction the accused infringer is actually "using" the patented invention. Although such questions remain largely hypothetical for the moment, real cases can be anticipated to follow. Thus, increasing consideration must be given to these questions in future to ensure that rights holders and tribunals are well prepared.

WIPO's Response

150. WIPO is addressing a number of issues in this area. The Standing Committee on the Law of Patents (SCP) is studying the desirability and feasibility of harmonizing rules concerning the patent law implications of disclosure of technical information on the Internet, such as its impact on patentability. The Standing Committee, during the first session held in June 1998, considered this to be an important issue which potentially could involve broader issues in the context of the Internet, and agreed that the International Bureau should collect information from the existing literature on this subject.

151. The draft Patent Law Treaty (PLT) and the accompanying Regulations, which had been intensively discussed at the SCP, contain proposals for harmonization of the formal requirements concerning patent applications and patents which may be applied by the industrial property offices of States and regional industrial property organizations. In relation to new methods for electronic administration, draft Article 8 and draft Rules 8 and 9 of the draft PLT and its Regulations, in particular, provide general rules relating to filing of communications in electronic form or by electronic means using digital signatures, incorporating the requirements with respect to electronic filing under the Patent Cooperation Treaty (PCT). During the meetings of WIPO's Assemblies of the member States held in September 1999, a joint session of the WIPO General Assembly and the Paris Union Assembly noted the completion of the work of the SCP concerning the PLT, and approved the holding of a Diplomatic Conference for the Adoption of the Patent Law Treaty, to be held in Geneva in May 2000.

152. It is also planned that the SCP will study the desirability and feasibility of establishing a central system for WIPO to record changes in patents and patent applications with effect for participating industrial property offices. A Meeting of Consultants on the Central Recording of Changes in the Area of Patents was held in June 1997, and decided that this issue would be revisited in a future meeting of the SCP. WIPO will also study the jurisdictional issues relating to patents, as illustrated by the example discussed above, which are increasingly raised by the global networked environments, under the Advisory Committee on Enforcement of Industrial Property Rights.

TRADEMARKS AND UNFAIR COMPETITION

Trademarks

153. Trademarks are an important tool in commerce. A trademark enables consumers to

identify the source of a product, to link the product with its manufacturer in widely distributed markets. The exclusive right to the use of the mark, which may be of indefinite duration, enables the owner to build goodwill and reputation in the expression of its identity, and to prevent others from misleading consumers into wrongly associating products with an enterprise from which they do not originate.

154. Trademarks are of essential importance in electronic commerce. Indeed, it has become clear that trademarks will assume at least as much significance on the Internet as they carry in the off-line world. Enterprises need to build recognition and goodwill, and inspire confidence in themselves and in their brands. Particularly when operating in virtual markets in which face-to-face interactions are infrequent and there is little or no opportunity to inspect goods or services before purchasing them, consumers are willing to reward trusted sources offering competitive products.[178] In these circumstances, a company's mark or brand becomes a vital means of identifying and distinguishing itself.[179]

155. There is a growing international consensus that trademark protection should extend to the Internet, and that it should be neither less nor more extensive than that which subsists in the physical world.[180] The existing national or regional legal systems should apply, together with the relevant international treaties,[181] but these provisions are of a general nature, applying on a territorial basis, and are not tailored for the borderless world of electronic commerce. They therefore are placed under considerable strain when confronted by the challenges of this new medium of commercial exchange. Moreover, these challenges are not limited to trademarks; they exist with regard to all kinds of distinctive signs used in electronic commerce, including trade names and geographical indications.

Establishment and Maintenance of Trademark Rights

156. As soon as a trademark is used on the Internet, it is immediately visible to a potentially global public and might be considered to have a global effect. This particular feature of the Internet makes it extremely difficult for businesses to foresee in which countries their business activities might become legally relevant. Even within the boundaries of a single legal system, it is often difficult to fit the "use" of a trademark on the Internet into traditional legal concepts. Due to the particularities of Internet technology, such use can take forms that can hardly be assimilated to use of a trademark in the physical world.

157. When trademark protection depends on prior use in a particular country, the question arises whether use on the Internet can satisfy such a use requirement and, if so, what kind of use would qualify as "genuine use." Use is important in order to maintain a trademark registration since, in most countries, a trademark registration is subject to cancellation if the trademark has not been used within a certain period of time.[182] It seems that use of a trademark on the Internet may qualify as "genuine use" for the purposes of use requirements.[183] The trademark owner will have to show that its trademark was actually present in that market, for example by proving actual sales or other commercially motivated relationships with customers in a country.[184] This can be difficult if the trademark owner delivers goods or services exclusively over the Internet, or, in particular, if the goods or services are provided for free as in the case of Internet search engines, which have little or no physical presence outside the Internet.

158. Given the rapid and continuing development of electronic commerce, it is almost impossible to give an exhaustive list of ways in which trademarks can be used on the Internet

and to project what new forms of use might raise questions in the future. For the present, some of these practices, such as "hyperlinking" or "metatagging" are currently indispensable for an efficient use of the World Wide Web. Nevertheless, they pose potential threats to trademark owners since they facilitate the creation of associations, thus increasing the danger of confusion, dilution or other forms of unfair exploitation of trademarks. On the other hand, the growing familiarity of consumers with Internet technology will probably influence the legal assessment of such practices. The general problem with such cases is that each jurisdiction seems to draw the line between acceptable and infringing practices differently.[185] Such differences make it difficult for enterprises to formulate a coherent marketing strategy for their activities in electronic commerce. The following examples illustrate this concern:

(i) Use of Trademarks as Metatags.[186] A metatag is a keyword embedded in a web site's HTML code as a means for Internet search engines to categorize the contents of the web site. Metatags are not visible on the web site itself (although they can be made visible together with the source code of the page); however, a search engine seeking out all web sites containing a particular keyword will find and list that particular site. The more often a keyword appears in the hidden code, the higher a search engine will rank the site in its search results. In various jurisdictions, trademark owners have challenged the unauthorized use of their trademark as a metatag.

159. One problem in such cases is that the trademark is not primarily used to distinguish particular goods or services. It is used in a way that is normally not visible to the human eye, to make a search engine list a particular web site in response to a search. The user has to click on one of the listed search results if he or she wants to view the content of that web site itself. Some courts have nevertheless regarded this as a trademark infringement, stating that such use might suggest sponsorship or authorization by the trademark owner, or using the concept of "initial interest confusion"[187] relying on the fact that consumers looking for the products of the trademark owner might wrongly be directed to the web site of someone else. If this is the web site of a competitor, consumers might simply stop there and use the competing product, even though they are no longer confused when viewing that web site. In other jurisdictions, such use might be regarded as an act of unfair competition.[188]

160. In other contexts, the use of another's trademark as a metatag may be legitimate "fair use," for example, if a retailer uses a trademark as a metatag to indicate to prospective customers that it is offering the trademarked goods.[189]

(ii) "Sale" of Trademarks as Keywords. The web sites of Internet search engines are among the most frequented sites on the Internet. As such, they are particularly attractive to advertisers. Some of these search engines "sell" keywords to advertisers who want to target their products to a particular group of Internet users. This results in the outcome that, whenever the keyword is entered into the search engine, an advertisement appears along with any search results. Retailers, for example, have purchased keywords so that their advertisements are displayed whenever it appears that products bearing a particular trademark are being sought. This has been challenged by trademark owners who are concerned that such advertisements might divert customers from their own web site, or from the web sites of their preferred or authorized web retailers. The legal treatment of such cases is, as yet, unclear.[190]

(iii) Acceptable Unauthorized Use. Legal systems may provide exceptions for the "fair use" of a sign that is protected as a trademark.[191] Such exceptions often apply when a sign is used fairly and in good faith in a purely descriptive or informative manner. It is also often

stipulated that such use should not extend beyond that which is necessary to identify the person, entity or the goods or services, and that nothing is done in connection with the sign which might suggest endorsement or sponsorship by the trademark holder. Such exceptions may be equally applicable when a sign is used on the Internet.[192] Other examples of acceptable unauthorized trademark use include use in a non-commercial context or use that is protected by the right of free speech, such as consumer criticism expressed in relation to a particular trademark.[193]

161. Since approaches differ from country to country, international harmonized criteria could increase predictability in this context, for the benefit of participants in electronic commerce. It would not be realistic, or for that matter desirable, for such a harmonized approach to attempt to regulate every new means of using a distinctive sign on the Internet. In order to be technologically neutral, any attempt might only seek to identify general standards for distinguishing acceptable from unacceptable practices. In this respect, two different approaches might be useful: an attempt could be made to develop criteria concerning unacceptable use, or alternatively, definition could, in a general way, be given to forms of "fair use" that each country would treat as acceptable in its territory.[194]

Infringement of Trademark Rights Through Use of a Sign on the Internet

162. The use of a sign on the Internet can only infringe a trademark if such use can be deemed to have taken place in the country where the trademark enjoys protection. The question arises under what conditions might the appearance of a mark on the Internet constitute *use* in a particular forum and give rise to infringement. The notion of infringement can either be extensive or restrictive. Under an extensive concept of infringement, it would suffice that a sign is visible on a computer screen in the country where a conflicting right exists.[195] The exclusive right in a trademark would then have an almost worldwide effect. It could even be used to block use that was neither aimed at a country, nor had an effect in that country over and above the visibility of the sign on a computer screen. Under this view, use of a sign on the Internet could provoke infringement claims in potentially every country in the world.[196]

163. Under a more restrictive concept, the finding of an infringement would require a "link" between the use of the sign on the Internet and the country in which the trademark enjoys protection. While factors for establishing such a link with a particular country need to be considered, different countries may adopt different standards. If it were possible to agree on a set of criteria at the international level,[197] it would be easier for businesses to foresee in which countries their activities on the Internet might become legally relevant. Under such an approach two further questions might be usefully addressed: First, would the finding of a "link" with particular countries require that the user intended to produce an effect in those countries, or that such an effect was at least foreseeable? Secondly, would it be necessary to distinguish between various degrees of interactivity of the web site on which the sign is used?[198] Moreover, use in the context of advertising might have to be treated differently from use on web sites for the purchase of goods or services.[199]

164. Related to these questions is the question of whether users of a sign on the Internet should be able to avoid a link with a particular country by the placement of a "disclaimer" on their web site.[200] Such statements may provide a flexible tool for enterprises to "territorialise" their use of a sign on the Internet, and to avoid infringement claims in particular territories where conflicting rights might exist. They pose, however, a number of problems: first, the

user of a sign might have to search for conflicting rights all over the world in order to determine whether to disclaim particular countries ("this product is not available in countries X, Y and Z") or other individual right holders ("We have no relationship with A, B, and C"). The practical difficulties of doing so would be increased by the fact that such statements would probably have to appear in the languages used in each of these countries. Second, such statements would always bear a residual risk of confusion. [201]

Global Effect of Injunctions

165. The scope of a trademark right is determined not only by defining when such right is infringed, but also by specifying the remedies available to the rightholder when an infringement has taken place. If a trademark right has been infringed by the use of a sign on the Internet, the question arises whether its owner should be able to demand, with the help of the courts, that the defendant cease every use of the sign throughout the Internet?[202] Such an injunction would have an effect that is as global as the Internet itself. If traditional trademark law is to be translated into cyberspace, a national (and thus territorially limited) trademark right should not give rise to an exclusive right throughout the worldwide expanse of this medium. It would, therefore, be appropriate if available remedies were, as far as possible, limited to the territory for which the owner holds an exclusive right.[203] Courts might have to take a creative approach in framing equitable relief, such as obliging the user of a sign on the Internet to take reasonable measures for avoiding contacts with the territory in which the trademark owner holds an exclusive right. This could be effected, for example, by placing adequate statements on the web site ("disclaimers," as above), by using technical mechanisms to block access by Internet users located in a particular country, or by refusing to deliver goods or services to customers located in a particular territory. Concurrent users could also be encouraged to share a common "gateway page," or to mutually provide links to their respective web sites.[204]

166. Internet-wide injunctions, however, should not be completely excluded as a possible remedy. Especially in cases where the use of a sign on the Internet has intentionally and in bad faith targeted a trademark right,[205] it may be appropriate to prohibit every form of use of the conflicting sign on the Internet in order to remove its effect on the territory (or territories) in which the trademark enjoys protection, and to prevent such use from violating the legitimate interest of the trademark holder.

Enabling Coexistence of Rights on the Internet

167. Because of the territoriality of trademark rights, identical or confusingly similar trademarks can be held in different countries by different owners who are completely unrelated to one another.[206] This coexistence can be more difficult on the Internet where a sign may be visible on computer screens (or other digital devices) across the world. The user of a trademark on the Internet might become involved in a dispute in a foreign jurisdiction, under a law that does not recognize the user's right to the disputed trademark, but which accords rights in it to another person. What had been coexistence of rights outside the Internet turns into "conflict of rights" on the Internet.

168. Such conflicts can lead to a situation where conflicting rightsholders may attempt to block each other from using their sign on the Internet, with the help of their national courts, for example, where one trademark holder has secured an injunction in its jurisdiction against the competing user, who, in turn, has done the same in its jurisdiction. It would seem,

therefore, that this problem has to be addressed at its roots, that is, in trademark law, in order to give legitimate right owners some certainty that they can use their trademarks on the Internet without having to fear claims raised against them by right holders in other jurisdictions.

169. One approach might be the adoption of a general principle according to which every holder of a right in a distinctive sign may use that sign on the Internet concurrently with any other right holder, subject to certain limitations. Such a principle might be regarded as an expression of the independence of national trademark rights provided for by Article 6(3) of the Paris Convention.[207] In court, the fact that the defendant holds an exclusive right in the sign in another country could form a defense or a rebuttable presumption of legitimate use, the factual preconditions for which might have to be proved by the defendant.

170. Such a principle for the coexistence of legitimate rights could have to be limited in two respects in order to safeguard the interests of trademark owners. First, the risk of confusion should be reduced to a minimum. To this effect, it could be required that the user of the sign clearly indicate where the trademark is protected, and that other users of the sign have no relationship with it. The disclaimer statements described above could be used. A risk of confusion, however, could not be avoided completely, since Internet users searching for a particular trademark owner might call up the web site of a concurrent user and only then, after reading a clarifying statement on that web site, realize that they did not find what they were looking for. This residual risk of confusion, however, may be outweighed by the fact that, in cases of conflicts between legitimate (national or regional) rights, the principle enables each rightowner to use its right on the Internet.

171. Second, coexistence would not be appropriate if one of the users had registered or used its trademark in "bad faith." Only "good faith" use should profit from the limitation of infringement claims. In court, "bad faith" could serve as a means to rebut the presumption of legitimate use. The facts constituting "bad faith" registration or use might then need to be proven by the plaintiff. In determining "bad faith," it might be possible to draw on Article 4(5)(c) of the Joint Recommendation Concerning Provisions on the Protection of Well-Known Marks, according to which knowledge or reason to know of the conflicting mark is to be taken into account.[208] "Bad faith" could include situations where one rightholder has acquired or uses a sign with a view to profit from the goodwill associated with the other trademark. Additional criteria would have to be determined in order to render the application of the "bad faith" exception predictable.

172. *WIPO's Initiative*. WIPO has been examining these questions relating to the use of trademarks on the Internet. The Standing Committee on the Law of Trademarks, Industrial Designs and Geographical Indications (SCT) has commenced a study on the desirability and feasibility of harmonizing national rules concerning the circumstances in which use of a trademark on the Internet constitutes use of a trademark or trademark infringement.[209] The SCT met in June 1999 to discuss the results of the study, and to consider whether and to what extent it is desirable to harmonize national or regional laws concerning the use of trademarks and other signs on the Internet.[210] As a result of these discussions, the International Bureau prepared a questionnaire with hypothetical situations concerning legal issues relating to the use of trademarks on the Internet. The questionnaire was to be answered by each delegation on the basis of its national law. The responses received showed a wide divergence of views on issues relating to the use of trademarks on the Internet. Additionally, the International Bureau has prepared an Issues Paper which intends to identify areas where international

cooperation in the framework of WIPO appears to be both necessary and realistically achievable.[211] This paper also contains a set of Possible Principles for Discussion, and will be the subject of discussion in SCT meetings this year 2000.[212]

Well-Known Marks

173. Because of the heightened attention that fame attracts, well-known marks have for a long time been considered to warrant special protection, over and above that accorded to other, ordinary marks under intellectual property law.[213] That special protection is well established in the Paris Convention as well as in other regional or international agreements.[214] While there is an international obligation to accord protection to well-known marks, there exists no established treaty definition of what constitutes such a mark. It is left to the appreciation of the competent authority in the country where protection is asserted.[215]

174. Well-known marks have been the special target of a variety of abusive practices on the Internet. Moreover, the international dimensions of electronic commerce are bringing pressure on the current territorially based protection of well-known marks. WIPO through the SCT has been working to develop provisions on the protection of well-known marks, which were adopted as a Joint Recommendation by the WIPO General Assembly and the Paris Union Assembly in September 1999.[216] The provisions intend to clarify, consolidate and supplement the existing international protection of well-known marks, as established by Article 6*bis* of the Paris Convention and Articles 16.2 and 16.3 of the TRIPS Agreement. In particular, the Joint Recommendations in Article 2 contain a list of factors that may be used by a competent authority to determine whether a mark is well-known in its territory.[217] While the Joint Recommendation does not have the force and effect of a treaty, Member States may consider the use of any of these provisions as guidelines for the protection of well-known marks.

175. Article 6 of the Joint Recommendation expressly addresses conflicts between well-known marks and domain names. According to this provision, a domain name shall be deemed to be in conflict with a well-known mark at least where that domain name, or an essential part thereof, constitutes a reproduction, an imitation, a translation or a transliteration of the well-known mark, and the domain name has been used or registered in "bad faith." It is understood that "bad faith" will include the cases that are currently known as "cybersquatting," that is, the registration of a well-known mark as a domain name, with the intention of selling it to the trademark owner. In this regard, WIPO, in the recommendations in the Report of the WIPO Internet Domain Name Process (discussed below), developed a definition of an abusive, bad faith registration of a domain name.[218]

Unfair Competition

176. Commerce means competition, and where there is competition, acts of unfair competition are liable to occur. Electronic commerce is no exception. This new channel of commerce has, for some time, been regarded as a "wild west", where almost anything can and does happen. Electronic commerce will realize its potential, however, only if some scope of protection and recourse against acts of unfair competition is provided. Protection against unfair competition supplements the protection of intellectual property rights. Without such protection, companies are likely to gauge the risks of damage to their reputations, loss of customers and liability from engaging in electronic commerce, with the threatened consequence that innovation and freedom of competition is stifled.

177. Whereas issues concerning trademarks and the Internet have been at the forefront of discussions, questions relating to acts of unfair competition have attracted much less attention. Protection against unfair competition, however, covers an even broader scope of issues relevant for electronic commerce. It provides a legal framework for all forms of marketing, and it supplements the protection of intellectual property through statutory rights. So far, electronic commerce has not been subject to specific regulations dealing with matters of unfair competition. National or regional laws apply together with international provisions contained in the Paris Convention[219] and the TRIPS Agreement.[220] The application of these rules to electronic commerce, however, poses a number of problems.

178. Because marketing activities on the Internet may be subjected to a variety of often contradicting legal systems, the development of marketing strategies in electronic commerce becomes more difficult. What is allowed in one country may be forbidden or strictly regulated in another. Even though Article 10*bis* of the Paris Convention and Article 39 of the TRIPS Agreement give some guidance as to the internationally applicable rules for the protection against unfair competition, there remain many areas which are regulated differently in various national legal systems. For example, comparative advertising and bonus or discount schemes are forbidden in some countries, generally allowed in others, and more or less strictly regulated in still other countries. Such regulatory differences affect the free circulation of goods or services in electronic commerce.

179. Experience has already shown that enterprises cannot simply continue their habitual marketing efforts in cyberspace. They have to adapt to and use the particular technical features of the Internet, such as its interactivity and support of multimedia applications. As the most flexible part of industrial property law, unfair competition law may offer solutions to of the new problems that have arisen in electronic commerce.[221] Nevertheless, problems may arise with regard to the following issues:

(*i) Interactive marketing practices*. Because electronic commerce relies on interactive contacts with prospective customers, attracting their attention is a core issue. Online marketing often uses strong incentives such as lotteries, free gifts or rebates, and tends towards more aggressive practices, such as comparative advertising or unsolicited e-mails (i.e. often referred to as "spamming"). With the broadband technologies that will become available in the next few years, new forms of "immersive" marketing may also become prevalent.[222] Under a number of legal systems, such inducements may be considered contrary to honest trade practices. Should the standard for establishing unfair practices in electronic commerce take the specific nature of the medium into account? Given the medium's compelling interactivity, should more stringent standards be considered?

(ii) Transparency and privacy concerns. In an interactive medium like the Internet, the safeguarding of transparency and privacy is of particular importance. Unfair competition law may have to include rules requiring a clear distinction between informative text and advertising, and protecting consumers against the unauthorized collection of data for commercial purposes. Another related problem that may have to be addressed, noted above, is the flooding of users with unsolicited advertising ("spamming").

(iii) National versus international standards of "unfair" marketing practices: Whether a particular statement is misleading will usually be determined with regard to the public to which it is addressed. But marketing practices in electronic commerce are often directed at a

public in more than one country. What can be misunderstood in one country might be perfectly clear in another. Should marketing in electronic commerce be required to take into account the level of knowledge or the understanding of the audience in every country where the message can be received, or at least in every country foreseeably affected by it? Or should it be enough for an advertiser to show that a statement was not liable to be misunderstood in a "home country"?

(iv) Trade secrets. The protection of trade secrets is in many countries covered by unfair competition law. The protection of trade secrets in a network environment relies heavily on technological measures for information security, especially because after a trade secret has been stolen and posted on the Internet, courts sometimes experience difficulty finding the "secrecy" element of a trade secret. Secrecy issues are therefore of particular importance in electronic commerce.

180. WIPO's Program and Budget for the 2000-01 biennium proposes that the International Bureau prepare a study on ways to effectively combat acts of unfair competition (with reference to Article 10*bis* of the Paris Convention) on the Internet. If the SCT adopts this proposal, this study will be presented to the SCT for further consideration.

DOMAIN NAMES

Background

181. Domain names are a simple form of Internet address, designed to serve the function of enabling users to locate sites on the Internet in an easy manner.[223] Domain names may be registered in spaces known as "generic top-level domains" (gTLDs), such as .com, .org or .net, or in the "country code top-level domains" (ccTLDs), such as .ch (Switzerland), .fr (France) or .za (South Africa).

182. The use of the domain name system has grown rapidly over the last five years. There are now more than 15.7 million domain names registered worldwide, with over 13.5 million of these names registered in the gTLDs (.com, .net and .org).[224] Some of the countries with the largest number of registrations in the ccTLDs include Germany (1,032,618), the United Kingdom (1,002,788), Argentina (156,647), Australia (125,636) and the Netherlands (121,242). This rapid growth in domain name registrations is expected to continue, particularly in light of the introduction of competition last year among domain name registration authorities (i.e., registrars) for the gTLDs.[225]

183. Precisely because domain names are easy to remember and use, the domain name system (DNS) – the central system for routing traffic on the Internet – has assumed a key role in electronic commerce. On the one hand, it facilitates the ability of consumers to navigate the Internet to find the web sites they are looking for, and, on the other hand, it facilitates businesses' ability to promote an easy-to-remember name or word which may, at the same time, serve to identify and distinguish the business itself (or its goods or services) and to specify its corresponding online, Internet location.

184. As commercial activities on the Internet have increased, domain names have acquired increasing significance as business identifiers and, as such, have come into conflict with the system of business identifiers that existed before the arrival of the Internet and that are

protected by intellectual property rights, namely, trademarks and other rights of business identification, geographical indications and the developing field of personality rights. The tension between domain names and intellectual property rights has led to numerous problems that raise challenging policy questions. One system—the DNS—is largely privately administered and gives rise to registrations that result in a global presence, accessible from anywhere in the world. The other system—the intellectual property rights system—is publicly administered on a territorial basis and gives rise to rights that are exercisable only within the territory concerned.

185. The tension that exists between the two systems has been exacerbated by a number of predatory and parasitical practices that have been adopted by some parties to exploit the lack of connection between the purposes for which the DNS was designed and those for which intellectual protection exists. These practices include the deliberate, bad faith registration as domain names of well-known and other trademarks in the hope of being able to sell the domain names to the owners of those marks, or simply to take unfair advantage of the reputation attached to those marks.

WIPO Internet Domain Name Process

186. WIPO, in July 1998, commenced an extensive international process of consultations – "the WIPO Internet Domain Name Process."[226] The purpose of the WIPO Process was to make recommendations to the corporation established for the technical management of the domain name system, the Internet Corporation for Assigned Names and Numbers (ICANN)[227], on certain questions arising out of the interface between domain names and intellectual property rights. An interim report containing draft recommendations was issued in December 1998 as part of the WIPO Process. After consideration of comments received on the Interim Report during the following months, the final Report was published on April 30, 1999. The final Report has been posted on WIPO's web site and was transmitted in paper form to each of WIPO's member States, as well as to other interested parties and to each non-governmental organization that is accredited as an observer with WIPO. The main recommendations in the final Report are summarized below.[228]

187. *Best Practices for Registration Authorities*. The final Report recommended the adoption of a number of improved, minimum "best practices" for registration authorities ("registrars") registering domain names in the gTLDs, intended to reduce the tension that exists between domain names and intellectual property rights. In particular, a formalized agreement clearly setting forth the rights and obligations of the parties is important. The collection and availability of accurate and reliable contact details of domain name holders is an essential tool for facilitating the protection of intellectual property rights on a borderless and otherwise anonymous medium. Such contact details provide the principal means by which intellectual property owners can go about the process of enforcing their rights.

188. The Report also recommended "take-down" procedures that could be used by registrars, should the contact details for a domain name holder prove to be inaccurate. Where it is shown that contact details are inaccurate and unreliable and that they cannot be used to established contact a domain name holder, a third party should have the right to serve a notification to this effect on the responsible registrar. Upon independent verification of the impossibility of establishing contact, the registrar should be required to cancel the domain name registration.

189. In the WIPO interim report, it was suggested that consideration be given to the introduction of a non-commercial, use-restricted domain, where the contact details of domain name holders would not be publicly available, as a means of allaying the concerns of those who consider that the public availability of contact details may lead to intrusions of privacy. In the final Report, it is concluded that this idea requires further consideration, elaboration and consultation in a separate process before any recommendation can be made on it.

190. *Uniform Administrative Procedure Concerning Abusive Domain Name Registrations*. The Report recommended that ICANN should adopt a uniform dispute-resolution policy under which an administrative dispute-resolution procedure is made available for domain name disputes in all gTLDs. In the interim report, it was recommended that domain name applicants should be required to submit to the procedure in respect of *any* intellectual property dispute arising out of a domain name registration. The final Report, however, reflecting the consensus view from the many comments received, recommended that the scope of the administrative procedure, at least initially, be limited to cases of bad faith, abusive registration of domain names that violate trademark rights ("cybersquatting" in popular terminology). Domain name holders would thus be required to submit to the administrative procedure only in respect of allegations that they are involved in cybersquatting, which was universally condemned throughout the WIPO Process as an indefensible activity that should be suppressed. For all other disputes, the parties would have to resort to court litigation or other private dispute settlement mechanisms such as arbitration.

191. The administrative procedure should be quick, efficient and cost-effective. Determinations under it would be limited to orders for the cancellation or transfer of domain name registrations. Determinations would be enforced directly, without the need for a court order, by registration authorities under the dispute-resolution policy.

192. *Exclusions for Famous and Well-known Marks.* Famous and well-known marks have been the special target of predatory and parasitical practices on the part of a small, but active, minority of domain name registrants. The final Report recommended that, *prior to the introduction of any new gTLDs*, a procedure should be established whereby the owner of a famous or well-known mark can obtain an exclusion in some or all gTLDs for the name of the mark where the mark is famous or well-known on a widespread geographical basis and across different classes of goods or services. The effect of the exclusion would be to prohibit any person other than the owner of the famous or well-known mark from registering the mark as a domain name.

193. The exclusion mechanism gives expression in cyberspace to the special protection that is established for famous and well-known marks in the Paris Convention and the TRIPS Agreement.

194. Since an exclusion would cover only the exact name of the famous or well-known mark, and since experience shows that cybersquatters typically register many close variations of famous or well-known marks, it was also recommended that an exclusion, once granted, should give rise to an evidentiary presumption in the administrative procedure addressing abusive registrations. The effect of the evidentiary presumption would be to place the burden of proving justification for the use of a domain name on the domain name holder, where the domain name is identical or misleadingly similar to the famous or well-known mark and the domain name is being used in a way that is likely to damage the interests of the owner of the mark.

195. *New gTLDs.* The evidence shows that the experience of the last five years in gTLDs has led to numerous instances of abusive domain name registrations and, consequently, to consumer confusion and an undermining of public trust in the Internet. It has also led to the necessity for intellectual property owners to invest substantial human and financial resources in defending their interests. This arguably wasteful diversion of economic resources can be averted by the adoption of the improved registration practices, administrative dispute-resolution procedure and exclusion mechanism recommended in the Report of the WIPO Process. In view of past experience, intellectual property owners are very apprehensive about the introduction of new gTLDs and the possible repetition in the new gTLDs of that experience.

196. Many issues other than intellectual property protection are involved in the formulation of a policy on the introduction of new gTLDs. In so far as intellectual property is concerned, it is believed that the introduction of new gTLDs may be envisaged on the condition that the recommendations of the Report with respect to improved registration practices, dispute resolution and an exclusion mechanism for famous and well-known marks are adopted, and on the further condition that any new gTLDs are introduced in a slow and controlled manner that allows for experience with the new gTLDs to be monitored and evaluated.

197. *Outstanding Issues.* The recommendations of the Report were directed at the most egregious problems between intellectual property and domain names, and at obtaining effective solutions to these problems. Other issues remain outstanding and require further reflection and consultation. Among these, as signaled above, are the exploration of the feasibility of introducing a non-commercial, use-restricted domain where contact details of domain name holders might not be readily available publicly; the problem of bad faith, abusive domain name registrations that violate intellectual property rights other than trademarks or service marks, for example, geographical indications and personality rights; the problem of bad faith, abusive domain name registrations of the names and acronyms of international intergovernmental organizations that are protected against use and registration as trademarks by the Paris Convention; the problem of bad faith, abusive domain name registrations of International Nonproprietary Names selected by the World Health Organization for the identification of specific pharmaceutical substances under a single, globally available name in order to protect the safety of patients; and the possibility of eventually extending the administrative dispute-resolution beyond cases involving bad faith, to encompass a greater scope of domain name disputes.

198. The Report of the WIPO Internet Domain Name Process was presented for consideration to the Interim Board of ICANN on April 30, 1999. The Report was also presented to WIPO's member States at their General Assemblies in September 1999. With respect to WIPO's member States, they expressed their broad support for the WIPO Internet Domain Name Process and its recommendations, and indicated that WIPO should continue its work in this area.[229]

199. On October 24, 1999, the ICANN Interim Board approved a Uniform Domain Name Dispute Resolution Policy (UDRP), with accompanying procedural Rules, and set an implementation schedule indicating that, as of December 1, 1999, complaints could be submitted to dispute-resolution providers for disputes involving domain names registered by accredited registrars.[230] During ICANN's consideration of the WIPO recommendations, WIPO provided advice and assistance to ICANN staff and counsel, and to the drafting

committee convened by ICANN's President on the preparation of the implementation documents cited in the resolution for the introduction of the uniform dispute-resolution policy. The final documents reflect many, but not all, of the comments and suggestions that WIPO provided.

200. Beginning in December 1999, the WIPO Arbitration and Mediation Center has been providing dispute-resolution services under the UDRP. The Center has issued more than 85 decisions and is currently administering more than 300 pending cases.[231]

201. As an independent initiative, WIPO is also providing advice to registrars of certain country code top-level domains (ccTLDs) in relation to the possible adoption by them of the uniform dispute-resolution policy recommended in the WIPO Report. While the WIPO Report was directed formally only at the gTLDs, WIPO has been providing assistance at the request of several registrars of ccTLDs to adopt the recommendations on a voluntary basis.[232] It is clear that significant developments concerning implementation of the recommendations contained in the WIPO Report are continuing. WIPO will continue to monitor and play an active role in these matters.

IV. DIFFERENTIAL DEVELOPMENT AND ACCESS: ISSUES FOR DEVELOPING COUNTRIES

202. The Internet and digital technology offer enormous potential for international participation in electronic commerce and, as a result, electronic commerce has become a significant component of world trade. The speed with which electronic commerce is changing international commerce, and the growth of such commerce in the developed world (where it has its origins), should not prevent developing countries from participating in its benefits.

203. It is critical to examine the potential impact of electronic commerce on emerging economies, so that the growth of electronic commerce does not widen the gap between developed and developing countries. The international community faces the challenge of ensuring that all countries are equipped to take advantage of the promise held out by electronic commerce, and ensuring that the Internet does not create a 'digital divide' between developed and developing countries.[233] The intellectual property system plays an important role in enabling developing countries to engage in electronic commerce, while protecting and preserving their commercial interests and cultural heritage.

Access and Participation in Electronic Commerce

204. Although the digital age is described as revolutionizing global commerce and communications, currently only 2 per cent of the world's population is online. In fact, 950 million households in the world (65 per cent of the total) do not even have a telephone, currently the principle means for connection to the digital networks.[234] Of 45 million Internet hosts (those service providers that connect users to the digital networks) operating in January 1999, 96 per cent were located in high income countries with only 16 per cent of the global population.[235] This disparity is evident in the fact that currently the United States of America, with less than 5 per cent of the world's population, has more computers than the rest of the world combined and is home to 26 per cent of Internet users, whereas South Asia, with more than 20 per cent of the world's population, has less than 1 per cent of Internet users.[236]

205. This distribution of Internet use is, however, set to change, as the largest growth is anticipated to take place in the currently underdeveloped markets of Asia and Latin America.[237] The yearly growth rate in Internet usage in Thailand, for example, has reached 1000 per cent.[238] China is forecast to become a global Internet leader, as its users are expected to grow 60 per cent annually to reach 33 million by 2003, [239] and by 2005, China is forecast by some to surpass the United States of America to have the most Internet users in the world.[240]

206. Similarly, in the Latin American and Caribbean regions, the recent growth of Internet use and electronic commerce is amongst the most rapid in the world. "In the eleven largest Latin America economies the number of hosts increased at an annual rate of 144 per cent between 1993 and 1997. Latin America at present has about 8 million users and this figure is expected to increase over the next 4 years to somewhere between 20 million and 34 million users".[241] However, the same commentator noted that there was still a tremendous disparity between countries with respect to the state of development of infrastructure and computer

users. For example, the ratio of personal computers in Latin America and the Caribbean was of the order of 5 per 100 inhabitants, as compared to 27 per 100 in Canada, and 36 to 100 in the United States of America.[242]

Opportunities and Challenges

207. Many commentators believe that the Internet offers developing countries particular opportunities for accelerated integration into the global economy.[243] In particular, there are opportunities for accessing new international markets at low cost and with minimal capital investment, for improving competitiveness and customer services, and for reducing transaction cost and overheads.[244] Small and medium sized enterprises (SMEs), in particular, may take advantage of these benefits and improvements in communication systems to access new markets and reduce administration costs, while avoiding the traditional limitations of restricted access to information, high market-entry costs, and isolation from their potential markets.[245]

208. The economic sectors likely to benefit the most from the introduction of electronic commerce are in the services areas (computer hardware and software, tourism services, publishing and information services, finance, Internet services, and other professional services), and this may be of particular relevance to emerging economies which are in the process of shifting their economic development priorities from the agricultural to the service sector.[246]

209. On the other hand, developing countries also face a number of particular challenges in realizing these opportunities.[247] These include the necessity for up-front investment in order to compete globally; a relative lack of participation in policy-making and standard setting for electronic commerce; the competitive disadvantage resulting from a lack of capital convertibility of currency; and the possible impact, or fear of impact, on government revenues. The most significant constraint against the growth of electronic commerce in developing countries, however, may be the absence of a sufficient information infrastructure, consisting of affordable telecommunications, accessible network services, computer hardware and software, and technical know-how and support. In addition, developing countries often lack the electronic payment systems that are necessary to support commercial electronic transactions. Only a small percentage of the populations in developing countries use credit cards and, in a number of countries, prohibitions exist on use of credit cards for transactions involving foreign currency. As a result, many businesses in developing countries currently use the Internet for marketing and communications purposes, rather than for commercial transactions. Finally, as noted above, developing countries have a low density of computer population and a commensurate lack of public awareness of information technology and computer literacy.

210. Certain countries are responding to this challenge by investing in the expansion of telecommunication networks. Others are ending state monopolies in this sector and opening up the telecommunications market to competition. The advent and relatively rapid commercial diffusion of satellite and wireless telecommunications is a development which may ease the access problems in developing countries. Electronic commerce depends upon an awareness in local business communities of the potential benefits to be gained through access to the Internet and electronic commerce, and of the consequent need for investment in training human resources. This, in turn, enables local communities, businesses and

governments to take a lead role in developing policies for electronic commerce which take into account each country's unique cultural and economic character. Programs to increase public access to the Internet have been commenced by governments and the private sector in developing countries, and Internet access is being promoted not only through the use of personal computers but also through community-based centers.[248]

Role of Intellectual Property in Developing Countries and WIPO's Response

211. How can the international community, and international organizations such as WIPO, assist developing countries to meet these challenges, and take advantage of the benefits of electronic commerce? How can intellectual property protection and services, and the assistance of WIPO, play a positive role in facilitating the development of this new form of commerce in developing countries?

212. As a first step, the participation of developing countries in electronic commerce may be enhanced through the provision of development cooperation and assistance to install and update basic telecommunications infrastructure.[249] At the same time, it is important that each country have in place a framework of intellectual property laws and regulations, and a supporting infrastructure of intellectual property services, to reassure intellectual property owners and commercial enterprises that their assets will be protected in an online environment. This legal infrastructure will encourage private sector investment, accelerate economic development and provide a secure foundation on which electronic commerce can build. At the same time, investment is needed in education, information sharing and skills training programs, to encourage engagement in electronic commerce.

213. One of the most significant steps developing countries may take to establish this legal infrastructure is the incorporation of international intellectual property agreements, such as the WIPO Internet treaties, the WCT and WPPT, and the TRIPS Agreement, into national law. These treaties modernize intellectual property laws for the digital age and provide governments with the tools to protect their nationals' intellectual property assets internationally and to ensure that their territories do not become havens for intellectual property piracy and infringement, thereby discouraging international investment and technology transfer.[250]

214. WIPO is endeavoring, through its programs of cooperation for development, to mitigate the disadvantages faced by developing countries and least-developed countries (LDCs), and to ensure that they are able to participate in the rapid development of electronic commerce. The major emphasis in these programs is on education and skills training, with the aim of building awareness of the ways in which electronic commerce is affecting intellectual property and the ways in which intellectual property may facilitate electronic commerce, and of assisting developing countries to formulate responses to these issues. WIPO's programs therefore concentrate on assisting practitioners and policy-makers in developing countries to understand, assess and assimilate the new technologies.

215. The initial discussions on the intellectual property implications of electronic commerce for developing countries took place at the first session of the WIPO Permanent Committee on Cooperation for Development Related to Intellectual Property in June 1999. Subsequently, WIPO organized five regional consultations on the implications of intellectual property and electronic commerce for developing countries. These consultations were conducted between

June and August 1999 in Buenos Aires (Argentina), Kingston (Jamaica), Kuala Lumpur (Malaysia), Mombasa (Kenya), and Rabat (Morocco), and were attended by more than 560 participants from regional governments and the private sector.

216. In addition, WIPO organized nine regional consultations as part of the WIPO Internet Domain Name Process, to inform and gather information and regional views on the process of reform of the Internet domain name system and the management of related intellectual property issues. These consultations were conducted in 1998-1999 in Rio de Janeiro (Brazil), Cairo (Egypt), Budapest (Hungary), Hyderabad (India), Mexico City (Mexico), Ascuncion (Paraguay), Dakar (Senegal), Singapore and Cape Town (South Africa). These consultations were attended by more than 763 participants, and the discussions were taken into account in formulating the recommendations put forward in WIPO's final Report, published in April 1999, entitled "Management of Internet Names and Address: Intellectual Property Issues".[251]

217. The regional consultations highlighted a number of concerns and issues on which developing countries sought to focus WIPO's attention, namely:

- identification of the intellectual property issues raised by electronic commerce, and assistance in the formulation of appropriate policies in response to those issues;

- development of an updated intellectual property regime conducive to electronic commerce, which will protect the rights of indigenous artists, creators and small businesses, while also providing a basis for economic development and investment;

- the provision of technical assistance aimed at enhancing intellectual property protection through, in particular, projects for the automation of national, sub-regional and regional intellectual property offices and related institutions, such as national societies for the collective management of copyright;

- assistance in the development of national and regional intellectual property policy and legislation; and

- the conduct of public awareness campaigns and specialized training activities.

218. In September 1999, the WIPO International Conference on Electronic Commerce and Intellectual Property devoted one of its plenary sessions to issues of particular relevance to developing countries. The WIPO Digital Agenda, issued at the close of the Conference, focuses the first of its ten points on how developing countries may be assisted by WIPO to draw maximum benefit from the use of intellectual property law and services to participate the electronic commerce revolution. Electronic commerce was also on the agenda of the meeting of the WIPO Assemblies in September 1999, and numerous developing country delegations emphasized their primary concern of ensuring equal access to the opportunities offered by electronic commerce. In order to benefit from electronic commerce, it was stated that developing countries need to understand, assess and assimilate the new technologies, and that WIPO has a fundamental role to play in this respect, in cooperation with relevant international organizations, such as the ITU.

219. In response to its member States concerns, WIPO plans to conduct a further series of regional meetings on electronic commerce throughout the year 2000. The meetings will address intellectual property and electronic commerce issues and take place in the African, Asia-Pacific, Caribbean, Eastern European and Latin American regions. These meetings are designed to provide workshops to assist developing countries to gain access to intellectual property information, receive specific guidance through model provisions, participate in global policy formulation and exploit the opportunities offered by electronic commerce.

220. The WIPONET project has particular importance for assisting developing countries to access intellectual property information, and to enhance their opportunities to utilize their intellectual property assets in electronic commerce. The details of this project are described in Chapter V below. It is envisaged that the integration of WIPO's developing country member States into the WIPONET network will significantly broaden their participation in electronic commerce and in developing global policies for its development.

221. A number of developing countries are formulating plans to use the Internet for mass education purposes and for reaching rural and other communities. WIPO, through the WIPO Worldwide Academy, is engaged in the design and implementation of an Internet-based distance learning program on intellectual property for developing countries, conducted in English, French and Spanish, and modules devoted to teaching intellectual property aspects of electronic commerce are currently in development. The program largely relies on academic inputs by developing country universities and other teaching and research institutions worldwide.

222. Electronic commerce has clear implications for developing countries' traditional means for protecting intellectual property rights, and for the protection and dissemination of indigenous intellectual property in the newly accessible global markets. In this context, WIPO is developing projects that may assist in the digital exploitation of countries' cultural and artistic heritage in an online environment. The WIPO museums project, which is discussed in Chapter V, is an example of this work. At the same time, some developing countries may be reluctant to fully embrace electronic commerce through fear that their indigenous intellectual property may be put at greater risk of infringement by exposure in the global digital environment. The development of a strong intellectual property framework, as noted above, and facilitated discussion of issues such as security, encryption technologies, privacy, consumer protection and dispute settlement, for example, address these fears and encourage developing countries to exploit the opportunities offered by electronic commerce.[252]

V. DIGITAL DELIVERY OF INTELLECTUAL PROPERTY SERVICES

223. The digital technologies and global networks that we have discussed thus far have enabled businesses to establish new methods for the conduct of their operations, thereby achieving efficiency gains and cost savings while offering better services. The intellectual property community, which increasingly is concerned with the protection of creations and content that may never be manifest in any form other than as digital bits, can use these technological advances in the administration of intellectual property rights. The development of such systems will not only serve to rationalize the procedures through which such rights are acquired and maintained, but will also facilitate the dissemination of intellectual property information in a new, direct and powerful manner. The tools of electronic commerce, as explained in this Chapter, may be used by the intellectual property community to transform the rendering of intellectual property services.

224. This move toward using digital systems and the Internet to manage work flow, deliver services and provide enhanced access and interconnection to intellectual property information has been embraced by an increasing number of national intellectual property offices.[253] In common among these initiatives are the issues of integrating new staff with relevant technological expertise, while restructuring existing staff resources; planning for the integration of the new information technology systems; implementing hardware and software platforms, many of which can be costly; addressing security concerns with respect to access, control and exchange of information that become manifest in the digital environment; and reviewing whether the existing policies, procedures, rules and standards must be revised and updated in light of the new electronic methods used.[254]

225. This Chapter provides information about the new electronic systems that WIPO is implementing to improve its services. The development of these new systems, as the Director General noted in a message to WIPO's Standing Committee on Information Technologies, "implies a fundamental change in the time-honored way of doing things."[255] First, the WIPONET is featured, an online global information network providing connectivity and secure communication channels for the digital delivery of services and information in relation to several initiatives that WIPO has already commenced. Secondly, the Chapter reviews progress toward the use of electronic means for the delivery of services under the Patent Cooperation Treaty (PCT), the Madrid Agreement and its Protocol, and the Hague Agreement. These systems have already proven their success at facilitating intellectual property owners' ability to obtain and, as far as the Madrid and Hague systems are concerned, maintain protection in a large number of countries through a centralized procedure. With the new technologies available, they can now be re-engineered or further developed to profit from the efficiency gains offered by information technology and digital networks. The Chapter also provides a description of three initiatives in early development at WIPO, which are specifically motivated by changes brought on by the digital economy: the development of a role in relation to electronic copyright management systems (ECMS), the development of a system for the protection of digital images of cultural works in museums, and the development of an online system for the resolution of disputes arising from electronic commercial activities.

226. Last, in order to provide understanding of a technology that will play a critical role in support of a number of the systems and services described in this Chapter, Annex II provides

an introductory note on digital systems for security and authentication, particularly in respect of what has become known as "public key infrastructure" (PKI).

WIPONET

227. With the far-reaching potential of digital technology and global networks in mind, WIPO's member States, in March 1998, approved the establishment of a program to implement a global information network for intellectual property offices. This network, known as WIPONET, is planned to start deployment in mid-2000.[256] WIPONET is intended to link intellectual property offices and the International Bureau together through a network that will permit the secure exchange of sensitive intellectual property data. WIPONET will also provide standard Internet connectivity to intellectual property offices, along with a suite of basic Internet tools and services.

228. WIPONET implementation is planned to proceed in several phases, with the first phase dedicated to providing basic, secure Internet connectivity and services to the intellectual property offices in WIPO's member States. Later phases will extend and enhance this connectivity, while providing additional support for electronic administration activities, such as Public Key Infrastructure services, online intellectual property information services, and improved tools for supporting intellectual property office activities.

229. WIPONET will provide a suite of commonly used Internet tools and services for intellectual property offices, including:

- *Secure communications over the public Internet*.
- *Electronic mail, file transfer facilities, and other inter-office collaborative tools*: Despite the growth of presentation-oriented Internet information systems such as the World Wide Web, simple office applications such as electronic mail are very effective on-line collaborative tools. WIPONET basic services will include managed support for these tools.
- *Web hosting and support services*: WIPONET will provide centralized World Wide Web "virtual" hosting facilities for certain intellectual property offices. This means that offices without certain technical capabilities at the local level will be able to locate their systems on the computer servers of the WIPONET. These web services can then be migrated to local office servers as the offices become familiar with the services and develop their own capabilities.
- *Help Desk services*: WIPONET will provide telephone and e-mail based support and help desk services to intellectual property offices.

230. WIPONET will initially support activities that are undertaken *between* intellectual property offices, rather than between an office and its clients (such as applicants for patents submitted to the offices). However, with the further evolution of technology systems, business models, and related intellectual property information standards, WIPONET will also serve other purposes, such as:

- The electronic filing of applications for the registration of patents, trademarks and industrial designs;

- The electronic exchange of administrative information under the global protection systems administered by WIPO, namely, the Patent Cooperation Treaty, the Madrid Agreement and its Protocol, and the Hague Agreement;

- The on-line dissemination of intellectual property information culminating in the development of a worldwide digital library of such information, known as the WIPO Intellectual Property Digital Library (IPDL) system; and

- Distance learning systems by the WIPO Worldwide Academy in order to promote a better understanding of the intellectual property system and to assist and expedite human resource development in WIPO member States.

231. By permitting various parties in the intellectual property community, wherever they may be located throughout the world, to communicate in a more efficient manner (even in real-time irrespective of the time of day in their respective jurisdictions), WIPONET will contribute significantly to the sharing of intellectual property information and the increasing international scope of the intellectual property system. This, in turn, will raise a number of issues that will need to be addressed by WIPO in the coming years. The following are among the most important:

Harmonization of National Intellectual Property Systems and Policies

232. The existence of international protection systems – such as the PCT, Madrid Agreement and its Protocol, and the Hague Agreement – and the desire of their users to modernize and rationalize their administration through the implementation of network-based management systems such as WIPONET, is but a reflection that intellectual property issues, as discussed above, are becoming increasingly international in dimension. Almost inexorably, pressures for optimization of the intellectual property system will lead to additional pressures for harmonization of intellectual property policies and legislation in the countries that are active participants in the intellectual property community. Indeed, in the long term, it would be anomalous to strive for highly integrated systems for the administration of rights, without any corresponding effort to bring the substance of those rights into harmony as well.

Effect on WIPO's Global Protection Systems

233. WIPONET is intended to facilitate the acquisition and maintenance of rights that can be applied for through the global protection systems administered by WIPO, including the PCT, Madrid and Hague Systems (discussed below). Questions have arisen, and will continue to arise, as to how the changes in form and procedure that will result from the use of online systems for the management and the administration of the rights concerned can be reconciled with the rules currently established in these systems. Particular issues in this context are whether there is any need for the revision of the relevant instruments, and, if so, what the scope of these revisions should be and how they should be adopted.

234. International standards for the worldwide use of the applications and services of the WIPONET are required in order for the network to be exploited to its fullest potential. In particular, standards for the secure exchange of data play a critical role in the development of

networked systems for the administration of patents, as it is vital that applicants can file their applications confidentially, and that intellectual property offices can share the relevant information in a secure manner. WIPO traditionally has played an important role in the development of international standards on the exchange of intellectual property information. WIPO must now begin to cooperate more closely with industrial standards groups to ensure the broadest possible interoperability of electronic applications in the intellectual property arena (for details on security technologies that may be relevant, see Annex II).

Developmental Aspects

235. A related question is how to deal with the striking disparities between countries (or areas within certain countries), in relation to infrastructure development and access to the Internet, with the consequence that some countries will be able to use the on-line systems immediately, whereas others might not, at least not in the short to mid-term.

236. For the intellectual property community to profit to the greatest extent from the advantages of networked environments, it is important to ensure that developing countries also have an adequate opportunity to implement network-based systems for the management and administration of intellectual property rights. The development of the required infrastructure in these countries will be critical in avoiding a widening of the gap between developing and developed countries. As an example, patent information is a valuable technical information resource and is particularly useful for transfer of technology and knowledge creation in developing countries. With a growing number of intellectual property offices preparing to shift in the near future from CD-ROM publication to Web publication of patent information, limited access to such information caused by an inadequate infrastructure could widen the information gap between countries.

237. WIPONET provides a unique opportunity for developing countries, in particular, by allowing them to bypass some of the required investment in hardware intensive, high-cost automation systems and to have immediate access to well-maintained, quality data collections through a secure network. For example, a problem in the international provision of intellectual property registration services is the lack of uniform examiner access to the full spectrum of intellectual property data. With the improved coordination of data collections having similar search functionalities, examiners in different countries could review prior art in other countries, knowing that the data is current, properly maintained, and accurately searched for the query given. To benefit currently from collections of intellectual property data, most offices must rely upon CD-ROM or DVD-ROM technologies. To facilitate a practical approach to distribution of these materials, offices wait a fixed period of time to collect a reasonable amount of data from their registration process, and issue regular CD-ROMs and index updates. Ignoring issues such as timeliness, this results in collections of CD-ROMs that require individual attention and control for searching, or expensive, duplicated, localized CD-ROM "jukeboxes" in each office. With the worldwide quantum of intellectual property data increasing rapidly, this presents a very expensive, duplicative method of providing data and search services. The combination of WIPONET with WIPO's planned intellectual property information services provides a solution to this problem, and removes an enormous potential expense for participating offices. This leap forward is expected to greatly facilitate the modernization of their intellectual property offices and services.

238. Skilled information technology experts, in short supply in many countries, are important to the successful undertaking and sustainable use of WIPONET applications. At the same

time, WIPONET centralized services may assist in countries where local information technology specialists are relatively few. WIPO must work with the local offices to devise methods and training to ensure that skilled human resources are available in countries to support the network. Other organizations within the United Nations system are developing Internet connectivity, typically into a capital city, and the above-mentioned problems for human resources development are common. In this regard, inter-agencies coordination and joint efforts can play an important role.

Re-Defined Role Of Intermediaries

239. The nature of the communication systems developed for electronic commerce can improve access to the information and administrative services produced by intellectual property offices on their Internet sites. As an example, in 1998 WIPO launched a new program to establish the Intellectual Property Digital Library (IPDL) system, WIPO's first attempt at on-line, integrated intellectual property information services. Several intellectual property offices have also provided access to their intellectual property information systems through their public web sites. They allow the public to access, search and retrieve various patent and trademark information at no charge.[257] This new model of direct information dissemination has resulted in a partially diminishing role for certain business intermediaries, for example, companies that provide patent information in return for a fee for their re-distribution services of information from industrial property offices, and other commercial data vendors reselling intellectual property information without adding value.[258] The question arises how should those firms redefine their role, and whether and to what extent should intellectual property offices support their re-positioning in a new electronic environment?

Private Sector Involvement In WIPONET

240. Clearly, the private sector has interests related to WIPONET. While many of these issues relate to information access and exchange, rather than the network itself, it is clear that companies may find a business advantage in being connected to WIPONET. An important question is whether WIPO, as an international organization, should make use of revenue-generating practices such as sale of particular types of information to the public, advertising, linking agreements, etc? A related question is whether and how should WIPO take advantage of the interests of the private sector to ensure the sustainable and further development of WIPONET and its new applications? WIPO already sells certain of its publications through the WIPO Electronic Bookshop.[259] WIPO will continue to discuss this issue with its member States at the WIPO Standing Committee on Information Technologies (SCIT).

INTRODUCING ELECTRONIC SYSTEMS FOR EXISTING INTELLECTUAL PROPERTY SERVICES

241. As a general rule, as discussed throughout this Primer, the protection of patents, trademarks and industrial designs is limited to the territory of the country where protection is sought and granted. If protection is desired in several countries, separate national registrations or deposits must be made, and different procedures must be compiled with in each country.

242. WIPO administers three multilateral treaties, the Patent Cooperation Treaty, the Madrid Agreement and its Protocol, and the Hague Agreement, which simplify these tasks

enormously. These "global protection systems" make it possible to obtain protection for the desired intellectual property titles through a single, cost-effective international procedure. Within the context of a world economy that is becoming more international with each passing day, they reflect the need for international solutions for the protection of intellectual property.

243. This section of Chapter V reviews the new electronic measures that are being developed by WIPO for each of these systems to improve the efficiency and accessibility of their services.

The PCT Electronic Filing and Automation Projects

The PCT Procedure

244. The Patent Cooperation Treaty (PCT), a treaty that is widely used and serves to simplify procedures for patent applicants, serves as a stepping stone for global protection, and as a means of facilitating technology transfer through the dissemination of technological information worldwide.[260] The PCT implements the concept of a single "international" filing procedure: patent protection for an invention can be sought in each of up to 108 member States simultaneously by the filing of this single international patent application. To take advantage of the procedure, an applicant simply has to indicate those member States in which the international application is intended to have effect (designated States). An international application will be the subject of an international search report (a listing of published documents that might affect the patentability of the invention claimed in the international application) and, in most cases, an international preliminary examination report (applying the results of the international search to internationally accepted criteria for patentability). Both reports will be sent to the applicant and to the (national or regional) patent offices of the designated States, and the search report will be published by WIPO. After receiving the international search and preliminary examination reports, the applicant has time to decide in which of the designated States it wishes to enter the "national phase," to continue with the application, thereby streamlining procedures and reducing costs.

Electronic Filing and Processing of PCT Applications

245. In order to provide PCT applicants with the advantages of technology and networked access, and in order to assist PCT offices and authorities in the efficient processing of PCT applications, WIPO is in the process of adapting the PCT system to provide for the filing, processing, storage and dissemination of international applications, related documents and the data they contain in *electronic form*. In so doing, electronic filing standards (with both technical and legal dimensions) will be established which will provide options for use by applicants and contain recommendations on best practices.

246. The needs of the PCT are not the same in all respects as those that would be used by businesses as they engage in electronic commerce. The electronic filing system that is developed for the PCT must take into account the specific needs of the patent community, while making maximum use of the electronic systems that are in more general use. The various requirements of small to large PCT users (including applicants, offices and authorities) should be identified and addressed. The PCT provides a set of valuable services, and the users of those services are well-placed to balance the potential cost savings and

reduction in administrative overhead associated with procedural requirements against the need to ensure that patent rights can be adequately protected.

247. The comprehensive goals of an electronic filing and processing system for the PCT include:

Practicability

- Establish flexibility via a range of capabilities which will give applicants choices and enable conformance with national laws;
- Minimize formalities;
- Integrate PCT automation within the broader context of WIPO automation;
- Establish a receiving office system which may also be implemented in national offices, and possibly the introduction of the concept of "virtual receiving offices" whereby WIPO maintains the database on behalf of national offices and WIPONET is used to gain access; and
- Provide for the customization of security requirements for the filing, transmission and storage of electronic documents.

Legal issues and standards

- Create uniformity of application and availability for all offices and all situations;
- Establish rules and standards regarding the authentication and integrity of electronic records; and
- Use standards consistent with those that are generally accepted in electronic commerce and agreed by member States.

Technology

- Provide faster, reliable and more efficient means of communication between the applicant community, national offices, the public and WIPO;
- Minimize the risk of forged electronic records, intentional and unintentional alteration of records and fraud; and
- Promote public confidence in the integrity and reliability of electronic records kept under the system.

Costs

- Promote solutions that are cost- and complexity-conscious, keeping in mind the wide range of applicants who use the system.

248. In establishing a suitable legal framework for an electronic system, guidance is being taken from several sources, including the UNCITRAL Model Law on Electronic Commerce and its Draft Uniform Rules on Electronic Signatures,[261] legislation concerning electronic commerce in different countries, and other sources in the field, with an eye upon industry and commercial solutions, and emphasizing emerging *de facto* standards. The legal framework will need to deal with such information security issues as authentication and source identification, assured receipt, data integrity during storage and transmission, confidentiality during storage and transmission, and public key infrastructure (see Annex II for further discussion of these issues).

249. Applicants should not be *required* to use encryption, electronic signatures, or digital certificates when filing PCT applications in electronic form, but they should be *entitled* to use techniques that are generally accepted in making electronic transactions in other spheres of activity. The PCT standard should contain recommendations in relation to the use of such techniques, depending upon the type of document being filed, having regard to requirements of security, legibility, and ability to process the text of the international application. Applicants should be able to rely on a common standard in their transactions with any PCT office or authority.

250. Many technical issues are intertwined with legal ones, for example, in relation to the level of security recommended for the filing of international applications and the level of security required during their subsequent processing. It is a considerable challenge to develop standards for the electronic filing, processing, storage and interoffice communication of all patent applications, which would meet the needs of the PCT, given that they must be acceptable to all PCT member States and be capable of extension worldwide. The development of technical aspects of the PCT standard, which will need to be integrated with the legal framework, is being carried out in consultation with a Task Force of the SCIT.[262]

The PCT-EASY Software

251. As a practical first step toward electronic filing, the PCT-EASY (Electronic Application SYstem) software has been developed by WIPO jointly with certain national and regional patent offices. This software, which was publicly released in January 1999, is designed to facilitate the preparation and filing of PCT applications, which it currently does in relation to applications in paper form but ultimately will do for applications in electronic form. Use of the software enables applicants to avoid common errors in preparing applications and gives the benefit of a reduction in PCT filing fees. Data entered by the applicants can be automatically loaded into WIPO's computer system. The PCT-EASY software is built on a core platform, the look and interface of which are compatible with certain other EASY systems being developed by national and regional patent offices.[263]

PCT Automation Project

252. *Information Management for the Patent Cooperation Treaty* (IMPACT): The PCT has begun a process that will culminate in the automation of all processing and storage of international applications, and provide for electronic communications to applicants and offices. The IMPACT project has three main goals:

- Cope efficiently with the processing of increasing numbers of international patent applications (over 20 percent growth for the past several years) by using information technology;

- Continue to deliver high quality services at the best possible cost for the applicants; and

- Comply with growing requirements from external partners for the electronic filing and exchange of both structured data and complex documents in electronic format, as well as for electronic publishing.

The Madrid Agreement and Electronic Systems

The Madrid Procedure

253. The Madrid System, with an approach similar to the PCT system, makes it possible to seek protection for a mark simultaneously in a large number of countries by the filing of a single international application.[264] The system enables the "international registration" of a mark by persons or businesses established in a Contracting Party of the Madrid Agreement or its Protocol, once the mark has first been registered (or in the case of the Protocol, if it has been applied for) in the trademark office of that Contracting Party (the "office of origin"). An application for international registration must designate those Contracting Parties in which the mark is to be protected, and others may be designated subsequently.

254. An application for an international registration is forwarded to WIPO's International Bureau through the office of origin. When an application complies with applicable requirements, the mark is recorded in WIPO's International Register and published in the WIPO Gazette of International Marks. WIPO also notifies each of the Contracting Parties in which protection has been requested, and they have the right to refuse protection within the time limits specified in the Agreement (12 months) or Protocol (12 or 18 months). Unless a refusal is notified to WIPO within these times, the protection of the mark in each designated Contracting Party is the same as if it had been registered by the office there. An international registration is subject to renewal every 10 years on payment of the prescribed fees.

The Madrid System's Paperless Office

255. The Regulations under the Madrid Agreement and its Protocol allow the electronic processing of data.[265] WIPO has developed information technology systems—a combination of software tools and electronic databases—to enable staff of the International Bureau and the users of the Madrid System to benefit from new efficiencies. WIPO now processes all Madrid applications and requests for subsequent changes in a "paperless" environment. The paper documents containing international applications and requests for the recording of changes are scanned and indexed immediately upon receipt by WIPO. The subsequent processing of the documents is based on their facsimile images which are routed from workstation to workstation, under the control of an electronic process management system until processing is complete. At this point, the facsimile image of the document is permanently archived to an optical storage device.

Electronic Communications

256. The rules of the Madrid System also allow for electronic communications between WIPO's International Bureau and Madrid System members.[266] The International Bureau has established, in cooperation with various interested members, a standard for electronic communication based on SGML (Standard Generalized Markup Language) techniques. The resulting electronic communication standard is known as the MECA (Madrid Electronic CommunicAtion) system. In March 1999, seven members received official notifications in electronic form, while one of them, Switzerland, had also begun to transmit international applications and all other requests for recording in the International Register by electronic means. The challenge for WIPO is to establish electronic communication with as many

Madrid System members as possible, with the ultimate aim of offering Madrid System users service that is speedier and still more cost-effective.

Electronic Publication

257. For the benefit of the users of the Madrid System, the International Bureau also uses various electronic systems to publish and disseminate information relating to the international registration of marks. One such product is ROMARIN, a four-weekly CD-ROM publication that contains data relating to all international registrations in force. The ROMARIN product includes a search engine enabling sophisticated searching of both bibliographic and image data. Subscribers to the ROMARIN may also download from the Internet daily updates of record changes made in the International Register, thus ensuring that they have access to the most up-to-date information.

258. The WIPO Gazette of International Marks, which is published every two weeks in paper form, is also published on CD-ROM on a four-weekly basis, thus enabling the searching of the Gazette by electronic means. The CD-ROM publication is cumulative over a calendar year, with the last CD-ROM published for a given year providing an annual index relating to the Gazette.

259. International registrations and subsequent designations that are recorded in the International Register, but are not yet published, as well as international applications and subsequent designations received but not yet recorded, are also made available for searching in electronic form for the benefit of Madrid System users and third parties. The data are provided on the Internet through the 'Madrid Express' IPDL (Industrial Property Digital Library).

260. In July 1998, the International Bureau launched an Internet-based data dissemination service, where all 'raw' data extracted from the International Register of marks for routine purposes such as publication and notification, are made available for downloading free of charge to anyone who wishes to do so. The data disseminated includes both bibliographic and image data (figurative elements of marks).

The Hague Agreement and Electronic Systems

The Hague Procedure

261. As for trademarks, industrial design protection is normally limited to the territory of the country where protection is sought and granted. The Hague Agreement[267] allows persons or companies in a State party to the Agreement to obtain industrial design protection in a number of countries through a simple and inexpensive procedure: a single "international" deposit, in one language, upon payment of a single set of fees. Unlike the Madrid System, an international deposit may be filed directly by the applicant with WIPO, and the international deposit does not require a previous national registration or filing.

262. Once an industrial design is the subject of an international deposit, it enjoys, in each State concerned, the same protection as is generally conferred on industrial designs by the law of that State, unless protection is expressly refused by a national office.[268] The international deposit is thus equivalent to a national right in terms of its scope of protection and

enforcement. At the same time, the international deposit facilitates the maintenance of protection: there is a single deposit to renew and one simple procedure for recording any changes (e.g., in ownership or address).[269]

263. Where an international deposit is received and complies with applicable requirements, the deposit is recorded in the International Register and published in the International Designs Bulletin, which serves the dual purpose of informing third parties as well as constituting the official notification to member countries of the Hague Union. An international deposit under the 1934 Act enjoys protection for an initial period of five years followed by a second period of ten years, resulting in a maximum period of protection of fifteen years. International deposits under the 1960 Act enjoy an initial period of protection of five years followed by supplementary periods of five years, resulting in a minimum period of protection of ten years and a maximum period equal to that afforded national deposits under the law of the Contracting Party concerned.

Electronic Processing of Hague Deposits and Changes to the International Register

264. WIPO uses computer technologies to process international deposits under the Hague System, as well as requests for subsequent changes in the International Register of Industrial Designs. In fact, the same computer platform that is used to process requests for recordal under the Madrid System is also used for the Hague System, with the exception that internal processing under the Hague System continues to be paper-based. Nevertheless, the processing of international deposits is undertaken in an efficient computerized environment to the benefit of Hague System users.

Electronic Publication

265. In March 1999, the International Bureau started publishing its International Designs Bulletin in electronic form on CD-ROM. The CD-ROM is a monthly cumulative publication and contains bibliographic and image data relating to international deposits under the 1960 Act.

NEW INITIATIVES IN THE DIGITAL ENVIRONMENT

266. Times change, and new modalities are developed and embraced for displaying the artistic and cultural works of civilized achievement. Today, these developments can take place very rapidly. The institutional framework for facilitating the exploitation of intellectual property must also adapt to these changes, which are enabling the distribution of creative content through a digital medium into a global economy.

267. This section discusses several new initiatives through which WIPO is exploring the implementation of practical systems to promote the necessary adjustments. Electronic rights management, online licensing systems for museums to protect the digital expression of their cultural heritage collections, and online administration of disputes involving intellectual property, which arise with increasing frequency in electronic commerce, are initiatives which, when developed in collaboration with users, can serve the public interest as well as private

needs in the new digital economy.

Electronic Copyright Management Systems (ECMS)

268. Works protected by copyright (and objects of related rights) may ordinarily only be used with the permission of the rightholder and the payment of any required fee. The process of identifying works, determining which rights are associated with them, obtaining the necessary clearances from the corresponding rightsholders and monitoring the use that is made of such works to determine the royalties due (and eventually collect and distribute such royalties), is a complex, resource-intensive and costly affair, particularly in an international context and particularly when the work is intended for use on the Internet.

269. Four basic methods make up the process of rights management: (1) a method for accessing information concerning works, the rights associated with them and the corresponding rightholders (or agents acting on their behalf); (2) a method for securing permissions from these rightholders for the use of their works; (3) a method for tracking the use made of these works so as to measure the royalties due; and (4) a method for collecting such royalties and ensuring that they are ultimately received by the rightholders.

270. Any process for global rights management is complicated by a number of factors:[270]

(a) Copyright and related rightholders do not own a single unitary right, but a bundle of different rights (such as the rights of reproduction, distribution, public performance, broadcasting and other communications to the public), which may exist independently from each other and which must all be taken into account.

(b) The creator of a work and the person who owns the rights in it are not necessarily the same person, as rights may be transferred either by statute or by contract, and it then becomes necessary to trace the chain of copyright transfers in order to deal with the currentrightsholder.

(c) Copyright and related rights are territorial systems, and therefore the question of rights ownership must be considered for each country in which use of the work is intended.

271. The two WIPO Internet treaties, the WCT and WPPT, introduce obligations with respect to the integrity of rights management information systems, without specifying how these systems should be developed and operated. In this respect, information technology systems, which enable network-based rights management, hold great promise for addressing the complexities noted above, and for improving the efficiency of rights management in a global environment such as the Internet.[271] With this in mind, a wide range of entities, including commercial technology enterprises, collecting societies and governments, are currently undertaking projects aimed at developing electronic copyright management systems (ECMS).[272] Although the copyright community has not yet developed a universal set of standards for ECMS, significant progress has been made towards this goal.

272. An ECMS should consist of a database containing digital copyright works that will be accessible through the Internet. In its simplest form, such a database provides only information about the identity of rightsholders (or their agents), so that any interested person can more easily establish contact with the relevant parties in order to obtain the necessary authorizations. This information is provided by linking each digital work to a unique

identifier, such as a number or code.[273] More sophisticated systems can permit the rights in question to be cleared online and, depending on the type of objects in question, allow them to be delivered through the Internet. These more sophisticated systems can incorporate elaborate computerized accounting modules that track and manage the financial aspects of the transactions in an automated manner. Attempts are also being made to formalize most stages of copyright transactions, in order to maximize automated processing.

273. On a national basis, for example, the Japan Copyright Office is developing the Japan Copyright Information Service (J-CIS), which is a comprehensive database system of copyright management information to cover almost all categories of works, performances and phonograms, in cooperation with relevant associations and organizations. Other governments are also considering the establishment of similar national systems.[274] In the private sector, there are several examples of joint national or regional organizations or projects which manage, or intend to manage, rights or rights information for a large range of different works and objects of related rights.[275]

274. While current developments in the area of ECMS offer exciting prospects for the future management and administration of rights in the course of electronic commerce, a number of fundamental issues will first need to be resolved. The most important of these issues are:

(a) *Interoperability*. The ECMS currently in development through various private and public sector initiatives are not centrally coordinated. As a result, the systems themselves are neither consistent nor interconnected, and therefore pose problems for interoperability. Interoperability would offer the significant benefit that users could simultaneously perform search and retrieval operations over multiple databases, instead of having to query each one separately to achieve the same result. Interconnectivity would also permit the systems to communicate and exchange information automatically, thus offering important efficiency gains. In order to attain this goal, the ECMS need to be developed on the basis of open "metadata" standards (which enable the network-based handling of different data attached to different categories of works and objects) that are themselves derived from generic models that enable the ECMS to communicate accurately and reliably. One of the leading projects in this connection is INDECS (Interoperability of Data in E-Commerce Systems), which is aimed at obtaining interoperability between different rights management systems in the intellectual property arena.[276]

(b) *Jurisdiction and applicable law*. Network-based rights management highlights the jurisdictional issue, described in Chapter II, of the tension between, on the one hand, global trade in intellectual property over the Internet and, on the other hand, the need to manage these transactions through a territorially-based legal system. In the course of international rights management, multiple questions arise: Which law applies, for example, to determine the owner of copyright in a particular work, the scope of the rights and the validity of any contractual transfer of rights? The answers to such questions vary from country to country, although a single rights transaction may have legal effect in multiple jurisdictions. This tension focuses attention on the need for harmonization of substantive legal norms, or the development of private international law rules that may adequately take into account intellectual property issues.

(c) *Privacy concerns*. Another issue, also discussed in Chapter II, is the extent to which the tracking and control features that may be incorporated in ECMS can be made compatible with users' privacy concerns. Users may or may not tolerate information

concerning their use being communicated to the relevant entities managing copyrights (for example, to ensure that payment based on actual use is received and distributed to the correct owners), and may oppose the same information being made available to others, including the right owners themselves.[277] Certain technologies now offer information that is pertinent for rights management without disclosing the indentity of the user.

275. *WIPO's Initiative:* In 1994, WIPO initiated discussions regarding the establishment of systems capable of enabling network-based rights management. Currently, the relevant questions are being examined by the Advisory Committee on Management of Copyright and Related Rights in Global Information Networks, which had its first two session in Geneva in 1998 and second session in 1999. At these meetings, representatives from organizations of rightowners and users, in the presence of a number of government representatives, discussed a number of issues including the extent to which different groups of right owners could cooperate (for example, in establishing joint databases and joint rights management systems); whether licensing and fees should apply on a global or a territorial level; how interoperability between the different rights management systems can be achieved; and how to coordinate the necessary development of metadata systems.

276. Those discussions also addressed the roles that WIPO might appropriately play in this area. WIPO continues to assess whether it may provide administrative coordination, a forum to discuss standards for interoperability, and, where desired by users, practical systems for the interoperability and interconnection of ECMS and the metadata of such systems.

Museums And Images Of Cultural Works

277. Museums play an important role in collecting, conserving, exhibiting and disseminating the cultural and artistic heritage of the world. They preserve cultural integrity and diversity, and fulfil their mission of exhibiting their collections to an audience that may be both national and international.

278. Until now, museums have managed the physical objects in their collections and pursued traditional means to fulfil their mandate. With the development of digital technology, the cultural heritage contained in museum collections – which may consist of manuscripts, photographs, paintings, sculpture and cultural artifacts – may now be digitized and disseminated in digital form using new media and networked channels. Digitization may involve the creation of digital images reproduced from the museums' collections. Once any work has been captured digitally it may be transmitted freely, or under license and protected by technical means, over networks such as the Internet. Technological means currently exist, principally watermarking and encryption, to allow museums to protect, monitor and manage access to and use of their images in the digital environment.

279. The digitization of museum images offers great promise, particularly in developing countries, for promoting economic development, and academic and scientific research and education. It may allow museums to manage and exploit their collections of cultural and artistic heritage, while encouraging the sharing and increase of knowledge of the world's culture. The creation of a digital archive may assist in preserving national cultural heritage and, by giving artists access to their cultural patrimony, provide an incentive for further creativity. The Internet offers museums – including small, regional and specialist museums and galleries – an unique opportunity, largely unexplored to date, to make their cultural riches available to any person in the general community with access to a computer network.

280. At the same time, however, the process of making digitized museum images available online may involve significant investment and pose some risks to museums as custodians of cultural heritage. Museums wishing to place their collections online must first process the electronic images of their works. Digitization can be an expensive and technically complex process, and there are attendant costs associated with establishing and maintaining an online presence to enable such images to be publicly accessed. Once in digital form, concerns about protection of intellectual property rights have come to the fore. These concerns have sometimes paralyzed those who would otherwise enthusiastically embrace the new technologies. Without any security system, the image of a museum artifact, for example, can be copied, altered and disseminated without authorization on a world-wide basis quickly, cheaply and without detection. Although some of the material in museum collections is in the public domain, many such works may be protected by copyright and related intellectual property laws. For example, museums often hold the copyright to older works of art; however, the works of art created by living artists can be subject to the artist's moral rights. A living artist has several decisions to make before deciding whether to permit images of their works to be available in digital form.[278] This situation is complicated by the fact that, within many museums, rights administration procedures are currently based on a physical, print model of publication and distribution, and do not envisage the possibility of digital images of the works. Thus, in order to digitize works, museums would face the issue of whether the rights they currently hold would entitled them to make digital reproductions, which in turn may entail interpreting the scope of any agreements between the museums and artists. It is therefore important that museums are able to come to an understanding of these issues and to exercise control over the availability and use of their digital collections, so as to minimize the risks involved.

281. Development of digital museum projects is thus constrained by the lack of experience, international accepted norms and standards in this area. There are, in addition, no widely accepted contractual licensing arrangements for making cultural material available online, and the enforceability of online contracts is still a subject of discussion at the international level. Museum digitization projects raise policy, technical and financial issues which need to be addressed before museum images are made available in the digital environment.[279]

282. In the face of these uncertainties, a number of cultural heritage institutions are developing new projects for online licensing of their collections, led by a number of museum consortia.[280] These entities have focused on making images available, free-of-charge, for educational purposes. The Getty Information Institute's 'Museum Educational Site Licensing Project' is a prototype, which makes available, for educational purposes, the digitized images from six major museums in the United States of America to the art-history and art-education programs of a number of universities in the country.[281] Another model of digital exploitation may be found in the online collection of the Hermitage Museum of St. Petersburg.[282] The Hermitage Museum has made its digital collection available free-of-charge for personal use only, and has incorporated a system of invisible watermarks to ensure that the digital use of the images can be monitored.

283. *WIPO's Initiative.* WIPO is exploring the potential of a museums project to assist museums in developing countries in particular, to make images from their collections of cultural heritage and related information available online for commercial, educational and social purposes. The project would explore the intellectual property, legal and administrative issues that define a system for providing cultural heritage images over digital networks. The

project would also explore and develop appropriate technologies to provide and regulate access to the collections, including technological protection measures to protect the images against unlawful copying and manipulation, which can be built into a comprehensive web-based electronic image management system. Such new systems would need to be carefully integrated with museums' existing collection management systems. Potential user groups, with appropriate terms and conditions for each, would also need to be defined, including universities and the academic and research communities, primary schools, periodicals, individual users and commercial interests. WIPO would then provide ongoing expert technical and legal assistance to museums to establish and maintain networked access to their digitized collections.

284. The project is intended to be integrated with WIPONET, the global intellectual property information network discussed above. The WIPONET will allow museums participating in the project to be interconnected into a single pool of cultural heritage resources, able to be searched and utilized by persons from around the world because of its accessibility, interoperability and maintenance of common standards. In this way, WIPO may be in a unique position to provide expert assistance to such museums to enhance networked access to their collections, and enable developing countries to protect and manage their cultural and artistic heritage by employing the intellectual property system in an electronic environment.

Online Dispute Resolution

285. Electronic commerce challenges the conventional framework for dispute resolution. With the growth of Internet transactions comes an increase in the number of disputes resulting from such commerce. Like such commerce, those disputes will often involve parties from different jurisdictions. Factors contributing to this development include the expansion from business-to-business use of the Internet to involve consumer transactions; the relative increase in participation in the Internet by actors outside the United States of America; the significant increase in the international registration of domain names in the generic top-level domains compared and the country-code domains; and the conflict between the traditionally national scope of granting and protecting intellectual property rights vis-à-vis the increasingly international character of exploiting those rights. Compounding the challenge is the reluctance of subjecting Internet traffic to regulatory frameworks.

286. The potential increase in international disputes puts a premium on investing in methods that aim to avoid the litigious formalization of those disputes. Customer programs that are part of the service offered by online retailers and other providers, or such methods as mediation, can be extremely useful mechanisms in this regard. Electronic commerce disputes that cannot be informally resolved call for dispute resolution methods that are capable of cost-effectively handling significant caseloads and delivering decisions that are enforceable internationally. As an established method of private dispute resolution, arbitration and comparable administrative procedures are well placed to meet these goals. WIPO believes that their efficiency may be improved using the same technology that is driving the electronic commerce underlying the disputes.[283] The European Parliament has also indicated that online alternative dispute resolution should be a priority, to be linked with any progress to be made on the Proposal for a Council Regulation (EC) on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters.[284]

287. *WIPO's Initiative.* WIPO has developed an online system for administering commercial disputes involving intellectual property. To be administered by the WIPO Arbitration and Mediation Center, the WIPO system will be used for disputes involving

Internet domain names, where certain assumptions can be made about the technical sophistication of the parties, but also for other types of electronic commerce disputes, such as those arising out of the online conclusion of licensing agreements.[285] WIPO plans to work with content and service providers in order to tailor the system to their specific customer needs. In increasing procedural efficiency, the system will also lend itself to facilitate the resolution of conventional commercial disputes.[286]

288. While tracking the conventional dispute-resolution model, the WIPO system is Internet-based, meaning that users may conduct the procedures through a Web site, such as the site of the WIPO Center or that of a service or content provider. Digital communication tools allow the parties to file requests by completing electronic forms and to exchange information online through secure channels. The parties and neutrals thus are able to communicate electronically, and also, once these will have been integrated, through audio and video facilities. The system includes such functions as automatic notifications, online payment of fees, and databases to support the logging and archiving of submissions. In parallel with this online system, procedural rules have been devised that will allow the parties to take advantage of the system, thereby providing an efficient alternative to litigation in national courts.

289. These new means of resolving disputes might eventually set the standard for dispute settlement between participants in electronic commerce. They overcome a number of the practical problems that are necessarily involved in traditional litigation, by providing a single forum with a clear and simple set of procedural rules. With a contractual agreement stating that disputes should be resolved through the WIPO Center's online dispute resolution system, the parties themselves can exercise control, not only over the procedural rules and law applicable to the dispute, but also over the costs of such procedures, the language to be used and the choice of counsel to represent them throughout the dispute.

VI. THE WIPO DIGITAL AGENDA

290. WIPO is, through its member States, the organization responsible for the formulation of a policy framework at the international level to encourage creation and the protection of intellectual property – and to create an environment in which intellectual property is respected throughout the world. In this era of rapid technological advancement, the mission of the Organization remains the same.

291. When WIPO Director General Dr. Kamil Idris accepted his appointment in September 1997, he emphasized that, because of the central importance of intellectual property to public policy, the demands made on the Organization are becoming greater and greater and, because of the speed of technological change, the time frames to meet those demands are becoming shorter and shorter. He also highlighted the Organization's increasing focus on the developments in information technology and the protection of intellectual property on the Internet.

292. Two years later, in September 1999, at WIPO's International Conference on Electronic Commerce and Intellectual Property, Dr. Idris reinforced his initial emphasis with the announcement of the WIPO Digital Agenda. The Agenda's ten points are set forth below:

1. Broaden the participation of developing countries through the use of WIPONET and other means for

- access to IP information
- participation in global policy formulation
- opportunities to use their IP assets in eCommerce.

2. Entry into force of the WCT and the WPPT before December 2001.

3. Promote adjustment of the international legislative framework to facilitate ecommerce through

- the extension of the principles of the WCT and WPPT to audiovisual works
- the adaptation of broadcasters' rights to the digital era
- progress towards a possible international instrument on the protection of databases.

4. Implement the recommendations of the Report of the WIPO Internet Domain Name Process and pursue the achievement of compatibility between identifiers in the real and virtual worlds through the establishment of rules for mutual respect and the elimination of contradictions between the domain name system and intellectual property rights.

5. Develop appropriate principles with the aim of establishing, at the appropriate time at the international level, rules for determining the circumstances of intellectual property liability of Online Service Providers (OSPs) which are compatible and workable within a framework of general liability rules for OSPs.

6. Promote adjustment of the institutional framework for facilitating the exploitation of intellectual property in the public interest in a global economy and on a global medium through administrative coordination and, where desired by users, the implementation of practical systems in respect of

- the interoperability and interconnection of electronic copyright management systems and the metadata of such systems
- the online licensing of the digital expression of cultural heritage
- the online administration of IP disputes.

7. Introduce online procedures for the filing and administration of international applications for the PCT, the Madrid System and the Hague System at the earliest possible date.

8. Study and, where appropriate, respond in a timely and effective manner to the need for practical measures designed to improve the management of cultural and other digital assets at the international level by, for example, investigating the desirability and efficacy of

- model procedures and forms for global licensing of digital assets
- the notarization of electronic documents
- the introduction of a procedure for the certification of websites for compliance with appropriate intellectual property standards and procedures.

9. Study any other emerging intellectual property issues related to electronic commerce and, where appropriate, develop norms in relation to such issues.

10. Coordinate with other international organizations in the formulation of appropriate international positions on horizontal issues affecting IP, in particular

- the validity of electronic contracts
- jurisdiction.

293.

294. The WIPO Digital Agenda is formulated to update and apply WIPO's mandate to the changes that have resulted from the digital environment, and to facilitate the conduct of electronic commerce. WIPO will work with its member States during the coming biennium and beyond to meet the mandate of this Agenda. One consequence of the Internet's global character is that it has potentially manifold effects in every country in the world, regardless of whether that country is now an active participant in the digital economy. Given this international character of electronic commerce and of the response to it, WIPO places a high priority on involving all countries, and developing countries in particular, in the process of defining and addressing the issues arising out of the impact of electronic commerce, to ensure

that all countries and all stakeholders may equally engage in its benefits. The opportunities in this area, as in cyberspace itself, are infinite, provided we continue to meet the challenges head-on.

Intellectual Property and Electronic Commerce
A Survey of Issues

ANNEX I

Definitions and Descriptions of "Electronic Commerce"

The listing below provides illustrative definitions and descriptions of "electronic commerce," gathered from sources that have been involved in monitoring its development. While this listing is not intended to be exhaustive, it gives an overview for understanding the possible scope of meaning to be attributed to the term, even as that understanding continues to evolve. Entries are presented in reverse chronological order.

1999

"While the burgeoning use of electronic devices in our economy is widely acknowledged and discussed, it remains largely undefined and unrecognized in official economic statics. The terms Internet, electronic commerce, electronic business, and cybertrade are used often. However, they are used interchangeably and with no common understanding of their scope or relationships. Establishing terms that clearly and consistently describe our growing and dynamic networked economy is a critical first step toward developing useful statistics about it. . . .
E-business infrastructure is the share of total economic infrastructure used to support electronic business processes and conduct electronic commerce transactions. . . .
Electronic business (e-business) is any process that a business organization conducts over a computer mediated network. . . . Electronic commerce (e-commerce) is any transaction completed over a computer-mediated network that involves the transfer of ownership or rights to use goods or services. . . . Computer-mediated networks are electronically linked devices that communicate interactively over network channels." *See "Measuring Electronic Business Definitions, Underlying Concepts, and Measurements Plans,"* Government of the United States of America (October 13, 1999) at *http://www.ecommerce.gov/ecomnews/e-def.html.*

"Electronic commerce is an innovative approach to ensuring future sustainable economic growth. Throughout the world, the profound impact of electronic commerce on the economies and societies of the globe will undoubtedly improve economic efficiency, competitiveness and profitability and the development of the information society . . . . Electronic commerce facilitates established business-to-business commercial relations, sales by companies to consumers, and exchanges between consumers. It affects the business environment at national, regional and global levels, and generates major opportunities, and new challenges, for market growth and development of jobs, industries and services . . . . Measuring electronic commerce as accurately as conventional commerce is not easy given the difficulty of defining it and adequately capturing the value associated with it." *A Global Action Plan for Electronic Commerce,* Alliance for Global Business (2d ed. 1999), at *http://www.giic.org/focus/ecommerce/agbecplan.html.*
"In order to explore and estimate the socio-economic impacts of electronic commerce, it is essential to define electronic commerce. As with many new services, this is not a simple matter, as definitions given by various sources differ significantly. Some

include all financial and commercial transactions that take place electronically, including electronic data interchange (EDI), electronic funds transfers (EFT), and all credit/debit card activity. Others limit electronic commerce to retail sales to consumers for which the transaction and payment take place on open networks like the Internet. The first type refers to forms of electronic commerce that have existed for decades and result in trillions of dollars worth of activity every day. The second type has existed for about three years and is barely measurable . . . . This study takes a view somewhere between these two extremes. It is concerned specifically with *business occurring over networks which use non-proprietary protocols that are established through an open standard setting process such as the Internet.* As used here, the term `business' broadly means all activity that generates value both within a firm (internally) and with suppliers and customers (externally). In this sense it would include internal networks (e.g. intranets) as well as networks that extend to a limited number of participants (e.g. extranets). Some of this activity may result in a monetary transaction and some will not. To assess the economic impact of e-commerce more fully, that portion of the infrastructure which is primarily dedicated to such activity is also included . . . . The focus on networks that use non-proprietary protocols, which are a relatively new phenomenon, is central." *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda*, Organization for Economic Co-operation and Development (1999), at *http://www.oecd.org/subject/e_commerce/summary.htm*.

"The concept of electronic commerce is not new . . . . E-commerce can be defined in several ways. Generally, it involves the production, advertising, sale and distribution of products via electronic means based upon the processing and transmission of digitized data . . . . [T]he discussion is focused on commercial activity taking place over the Internet, involving both businesses and individual consumers." *Challenges to the Network: Internet for Development*, International Telecommunication Union (1999) *http://www.itu.int*.

"Electronic commerce. Defined simply as commerce conducted via an electronic communication mechanism, is a powerful driver to create new markets, applications, businesses, and jobs. Small- and medium sized businesses can operate globally without the expense of creating a global distribution chain, overseas representation, or foreign travel. Political authorities can modernize their services and offer more efficient support to their citizens. Businesses can relate directly with their customers, empowering them with previously unavailable impact and commercial choice." *Joint Statement on Electronic Commerce*," Committees of U.S.-Japan Business Council, Inc. and Japan-U.S. Business Council (July 1999), at *http://www.giic.org/focus/ecommerce/usjECstatement99.pdf*.

"E-commerce can happen because of the linking of often complex and dynamic chains of identifiers which connect people with goods and services: *stuff*. . . . As e-commerce grows, reliance on these metadata chains grows with it. . . . *Commerce* is used here in its broadest sense, not necessarily having financial gain as its object. The model applies equally to *cultural* transactions in which people make deals that enable others to have free access to stuff for various purposes. . . . "*Metadata is the lifeblood of e-commerce.*" Electronic trading depends to a far greater extent than traditional commerce on the way in which things are identified (whether they are people, stuff or deals) and the terms in which they are described (that is, metadata or *data about data*). *Introduction to INDECS Metadata Schema* (July 1999), at *http://www.indecs.org/pdf/sch_intro2.pdf*.

1998

"Electronic commerce is the conduct of business activities – buying, selling and transactions of all kinds – by means of communications and computer technologies. It includes transactions that take place by telephone, fax, ABM, credit card, debit card, EDI and Internet." Government of Canada, Electronic Commerce in Canada: Priorities for Action (1998).

"Le commerce électronique correspond à l'ensemble des échanges électroniques liés aux activités commerciales: flux d'informations et transactions concernant des produits ou des services. Ainsi défini, il s'étend aux relations entre entreprises, entre entreprises et administrations, entre entreprises et particuliers et utiliser divers formes de transmission numérisées, téléphone, télévision, réseaux informatiques, Minitel, Internet." *Commerce électronique: Une nouvelle donne pour les consommateurs, les entreprises, les citoyens et les pouvoirs publics*, Rapport Du Groupe De Travail Présidé Par M. Francis Lorentz, Ministère de l'Économie, des Finances et de l'Industrie (1998), at *http://www.finances.gouv.fr/commerce_electronique/lorentz/*.

"Electronic Commerce may be simply defined as the production, advertising, sale and distribution of products via telecommunication networks. Most of the discussion is limited to the Internet – the medium with which electronic commerce is primarily associated . . . . Six main instruments of electronic commerce can be distinguished: the telephone, the fax, television, electronic payment and money transfer systems, Electronic Data Interchanges and the Internet. This is a broad definition of the term "electronic commerce"; in many discussions, electronic commerce only refers to the Internet and other network-based commerce." *Electronic Commerce and the Role of the WTO*, WTO Special Studies, ISBN 92-870-1198-2 (WTO 1998) *http://www.wto.org*.

> "Electronic commerce, defined simply as commerce conducted via an electronic communication mechanism, is a powerful driver to create new markets, applications, business, and jobs. Small and medium-sized businesses can operate globally without the expense of creating a global distribution chain, overseas representation, or foreign travel. Political authorities can modernize their services and offer more efficient support to their citizens. Businesses and commerce can relate directly with their customers, empowering them with previously unavailable impact and commercial choice." *Electronic Commerce Issue Paper & Recommendations*, Transatlantic Business Dialogue (1998), at *http://www.tabd.org/recom/tabdannex.html*.

1997

"As a result of the rapid development of information technology in recent years, it is becoming possible to introduce electronic commerce, which converts all types of economic activity, ranging from development and manufacture, to management and administration, into digital information, and efforts are being made to achieve this both in Japan and throughout the world." *Towards the Age of the Digital Economy – For Rapid Progress in the Japanese Economy and World Economic Growth in the 21st Century*, Ministry of International Trade and Industry, Government of Japan (1997), at *http://www.miti.go.jp/intro-e/a228100e.html.*

"Electronic commerce is the doing of business electronically. It is based on the electronic processing and transmission of data, including text, sound, and video. It encompasses many diverse activities, including electronic trading of goods and services, online delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, commercial auctions, collaborative design and engineering, online sourcing, public procurement, direct consumer marketing, and after-sales service. It involves both products (consumer goods, specialized medical equipment) and services (information services); traditional activities (healthcare, education) and new activities (virtual malls)." *A European Initiative in electronic Commerce*," Communication to the European Parliament, the Council, the Economic and Social Committee and the Committee of Regions, COM (97) 157 (1997), at *http://www.cordis.lu/esprit/src/ecomcom.htm*.

> "Electronic commerce refers generally to all forms of transactions relating to commercial activities, including both organizations and individuals, that are based upon the processing and transmission of digitized data, including text, sound, and visual images and that are carried out over open networks (like the Internet) or closed networks (like AOL or Minitel) that have a gateway to an open network." *OECD Policy Brief No. 1-1997 on Electronic Commerce,* Organization for Economic Co-operation and Development (1997), at *http://www.oecd.org/publications/Pol_brief/9701_pol.htm*.

"Electronic commerce means many things to many people. But at its core, electronic commerce--or the digital economy, electronic marketplace, or Internet commerce--refers to an economic. system where firms and consumers are aided by computers and networking technologies that enable an entirely new market." Soon-Yong Choi, Dale O. Stahl and Andrew B. Whinston, *The Economics of Electronic Commerce*, Macmillan Technical Publishing (1997).

[Annex II follows]

ANNEX II

TECHNOLOGY OF DIGITAL SYSTEMS FOR SECURITY AND AUTHENTICATION

of Intellectual Property Office Services

7. The exchange of intellectual property data over digital networks, either as a function of registration activities or publication of information, is heavily dependent upon the technology of secure systems. For example, given that original, unpublished patent data is both extremely valuable and confidential, this linkage to secure systems for intellectual property office operations is clear. There is also a linkage when published, non-confidential, data is made publicly available. Users must be able to trust the authenticity of a data source, and the accuracy of its delivered content, even if the data is presented simply as a public service. There is always a potential for data damage or malicious vandalism, even when the data has no significant monetary value. The technologies of digital authentication and encryption can be used both to validate a data source and to demonstrate the integrity of a retrieved data object.

Secure Transactions Involving Intellectual Property Offices

8. Virtually any transaction involving intellectual property data exchange must be either secure, authenticated, not able to be repudiated by the parties concerned, or all of these aspects together.

9. Transactions involving public access to published information should enable *authentication* of the data source and ensure the integrity of the delivered data product. The public should be able to verify that the information is indeed from a known and presumably trusted site, and has not been subject to inadvertent damage or malicious tampering en route.

10. *Non-repudiation* prevents the false denial of the sending, receipt, or content of a message. Normally, strong non-repudiation of the content and origin of a communication can be provided through verification of the senders "digital signature" (see below). Non-repudiation as to the time of sending or receipt of a communication can be provided through trusted third-party digital timestamping services. These services generate a signed timestamp, which is included in the data package signed by the sender.

11. *Encryption* refers to the technology of cryptography, which is used to encode information so that it may not be accessed and read by parties other than the person holding the key to the code. This technology is of importance for intellectual property data, such as unpublished patent data, that must remain confidential.

12. As a means of illustrating the relevance of these measures, it is useful to indicate which intellectual property related data exchange activities fall into which of the above categories, and what security parameters (e.g., strength of encryption, non-repudiation, message digest collisions for digital signatures, size of community over which technology must be deployed) appear necessary for each. The table below gives a representative sample of some of these activities.

Illustration of Services for Secure, Intellectual Property-Related Transactions

Activity	Services Required	Comments
On-line patent application filing	Encryption, authentication, non-repudiation, digital time stamping	Extremely sensitive data, authentication of both client and server, non-repudiation of delivery and acceptance. Receipts for submission must be both signed and time stamped, and must contain an application digital signature[1].
Document delivery from public or private data sources	Digitally signed electronic documents to verify authenticity and data integrity	Users should be able to ensure that they are using an authoritative source and that the document delivered is both official and free of tampering or damage.
Confidential public searching	Confidential delivery of queries to a collection of public data.	While the data searched is not confidential, the association of a particular query with a given business may be of value to a commercial competitor.
Applicant/examiner electronic correspondence	Applicants need to confidentially correspond with IP office personnel, in particular, examiners.	This may be in the form of secure electronic mail, if a suitable standard is adopted by the intellectual property community.

Public Key Systems and Digital Certificates

13. The technology and our understanding of the mathematics of "public-key" systems would indicate that these systems are extremely suitable for service in the areas described above, if proper policy decisions are made and implemented concerning the relationship between a key pair (the public and private keys) and an entity. It is a simple exercise to publish a public key and associate that key with a name, but how can this be done such that the relationship is proven? Current practice calls for the public key of an individual to be inserted into a "digital certificate," along with information concerning the key (such as expiration date) and the owner of the key (name, etc). This certificate is then "signed" by a trusted third-party, signifying that third-party's endorsement of the identity claim contained in the certificate.

[1] A more detailed commentary on issues related to electronic patent application filing may be found in Arthur Purcell, J. Fullton, and R. Fisher, *"Electronic Patent Application Filing System (EPAFS): A Demonstration Project of the U.S. Patent & Trademark Office,"* 38 Jurimetrics J. 407-426 (1998).

This trusted third-party, known as a "Certification Authority," makes its standards for verification of identity known to the public. By checking this signature, one may determine if the information within the certificate has been tampered with (e.g., a false name associated with the key). By checking the certification policy of the Certification Authority, a level of trust in the identity of the sender may be attained.

Trustworthiness of a Certification Authority

14. Some key issues, of course, pertain to the level of trust intellectual property organizations should place in unknown Certification Authorities. Generally, a user will know nothing in advance about the practices used by a Certification Authority to ensure the identity of an individual certified by that authority. Certification Authorities normally publish their identity verification practices in a "Certification Practice Statement," and include information in each certificate concerning which particular practice they used for a given entity.[2] When published by a trusted Certification Authority, this provides all the information that is needed by an individual to decide whether to trust the relationship between an entity and a key pair.

15. Unfortunately, this still leaves open the question of the general professionalism and trustworthiness of the Certification Authority. A lax Certification Authority could publish a Certification Practice Statement with a detailed procedure for certifying identity, but fail to follow it in every case. This would violate the chain of trust between the Certification Authority and the public. Given that most existing Certification Authorities are organizations not subject to oversight by the intellectual property community, some commentators consider it reasonable to have a trusted international third-party serve as a top-level Certification Authority, or *bridge-Certification Authority*, for intellectual property related transactions.

Public Key Infrastructure (PKI)

16. Management issues involving the use of public and private keys are handled through the development of a "public key infrastructure" (PKI) to support cooperating participants. To properly address these issues, a trusted party must maintain the infrastructure to provide these services and others. Given the value and sensitivity of intellectual property information, the question arises whether this responsibility should in all cases be entrusted to a commercial concern? Other options might be to have an international organization, such as WIPO, serve as a Certification Authority itself, or as a bridge-Certification Authority, which does not issue certificates itself (except perhaps for limited internal use), but bridges the trust paths that are necessary between various Certification Authorities on an international basis. The bridge-Certification Authority would use well-defined and public means to validate privately issued certificates for use in intellectual property transactions. The list below discusses a number of "key-management" issues for Certification Authorities.

17. *Key Revocation*: Lost or otherwise compromised keys present a management problem. If the private key of an individual has been compromised, there is no obvious way for a user to

[2] A Certification Authority may apply different procedures for identity verification practices, depending on the level of verification security that is desired. For example, a more stringent set of verification practices may be applied if the certification is to be used for high-value transactions.

know not to use the associated public key to secure a confidential message destined to that user. Furthermore, there is there no way for the individual to suspect problems with a message authenticated with that key, as a valid certificate may still be available.

18. The solution to this problem requires an easily accessible "Certificate Revocation List," containing all certificates which have been revoked for one reason or another. This list should be checked each time a public key from any user is used. While users cannot be forced to use the Certificate Revocation List, its existence can allow policies to be set by organizations concerning when the list is accessed. Certificate Revocation Lists should be maintained by each Certification Authority deemed suitable for use by the intellectual property community.

19. *Storage of Keys*: Key storage presents a subtle but important issue. All private keys must be carefully protected and kept secure to ensure the integrity of the public key system environment. Application-generated private keys (for example, those created by web browsers) are typically stored on the user's local machine. This tends to restrict the use of a key to a particular machine. Placing the key on a portable medium such as a floppy disk, may serve convenience, but raises the risk of security breach, as the disk can be easily and unobtrusively copied.

20. One relatively secure and convenient method of improving key storage integrity is the use of so-called "smart cards." A smart card is a small, personal electronic device containing the private key in question. A smart card can be inserted into a smart card reader, and the user is prompted to enter a short personal identifier to protect against compromise of the key through theft of the card. If the identifier (such as a short number) is correct, the private key is read and used by the target system. While this is an effective technology, it is only as secure as the identifier chosen by the user, and there are issues surrounding which smart card and card reader technologies should be used (and shared).

21. *Key Recovery*: Very securely encrypted data raises the specter of disaster through human error – namely, the loss or damage of a private key and the consequent loss of the data that was encoded. Should a private key be lost or damaged, there is no way to recover such encrypted data except through cryptographic attack. Key recovery techniques allow authorized users to recover a copy of a private or secret key when the original is damaged or otherwise unavailable. In one model, a session key, such as the DES or RC4 secret key in a digital envelope, is carried twice in the envelope. The first copy is encrypted with the public key of the recipient, and the second copy is encrypted with the (very strong) public key of the key recovery authority. Thus, if the private key needed to recover the first copy is unavailable, the second key may be decrypted with the cooperation of the key recovery authority. Clearly, key recovery systems can be perceived as a degradation of security, however, many business practices require management-level access to data which may be otherwise unrecoverable due to accident or malice (for example, actions by disgruntled employees). Key recovery is an option that should be explored when the inevitable loss of data due to human failings cannot be tolerated.

Issues to be Addressed by the Intellectual Property Community for a Secure Data Exchange Environment

22. The preceding discussion focusses on the levels of security required for the exchange of digital intellectual property information, and a description of some of the technologies

available to the intellectual property community as it moves to adopt secure digital data-exchange. Certain additional specific issues must be addressed to establish the foundation of a secure data-exchange environment.

23. First, the adoption of security standards and policies suitable for all participants is necessary. The intellectual property community must make an effort to develop a uniform public key infrastructure (PKI) that harmoniously integrates programs currently underway at various offices. From a technology perspective, the products are widely available on the commercial market. However, these products and services are of little use if the policy infrastructure is not properly developed, in place, and agreed upon by all relevant parties.

24. A fully satisfactory PKI can be developed, even in the face of national laws establishing restrictions on encryption and the deployment of encryption software. The primary issue is implementing a system and policies that allow individual office and human compliance within the participating national environments.

25. Next, intellectual property system users must be educated to understand both the strengths and weaknesses of an intellectual property-oriented PKI environment for security, and the strengths and weaknesses of the current security models used within the intellectual property community. A persistent issue among users is a perceived lack of security surrounding network-based systems. Security issues surrounding the use of the Internet (and other networks) for secure electronic filing and data exchange certainly exist. These issues are similar to, yet perhaps more tractable than the security risks routinely taken and accepted by the intellectual property community with paper filing.

26. While some intellectual property office initiatives surrounding PKI are in place, they are few and poorly coordinated. WIPO can assist in the coordination of policy development and the establishment of a global PKI environment through its Standing Committee on Information Technology (SCIT), and possibly through service as a bridge-Certification Authority. The provision of an international forum for exchanging ideas and requirements concerning policy, and by providing a coordination point for difficult trust issues for networks will facilitate the development and deployment of local office systems. This, in turn, will improve acceptance of these mechanisms by local offices and local intellectual property system users.

27. In addition, resource issues can play a significant role in this matter. Commercially available, secure, trusted systems for implementing a comprehensive PKI environment are available, but very expensive. While an important aspect of a working PKI is the integration of local systems through bridging authorities, many smaller offices may not wish to make the necessary capital investment and would prefer the role of certification to be carried out by a neutral third party. Again, WIPO could play an important role here, to serve either as that third party in addition to playing a neutral bridge-Certification Authority role, or could provide coordination services and financial support.

28. Finally, in many cases, a careful review of the legal issues surrounding the use of security and authentication systems in the area of electronic filing must be undertaken. Changes in the rules surrounding, for example, PCT application filing to support electronic mechanisms could prejudice the filing of an application during the national phase of the PCT process, if agreement and rules harmonization has not been reached by national and international offices.

29. Policy-makers in the intellectual property field thus face a number of issues concerning security and authentication. These issues may be summarized to include:

- *Basic understanding of PKI issues*: policy-makers need to be aware of issues facing the public key community, and must have a basic understanding of the technology and systems.

- *Validation of Certification Authorities*: The intellectual property community needs a series of policies concerning the establishment and use of Certification Authorities at various levels. For example, under what conditions would WIPO (or a member State office) accept a certificate representing a user? Should WIPO serve as a Certification Authority for its own operations, or should WIPO serve as a bridge between other Certification Authorities?

- *Security standards*: The intellectual property community must evaluate and adopt a set of standards related to security and authentication that provide adequate levels of protection while ensuring compatibility with other domains, such as the private sector.

- *Security levels*: The intellectual property community must understand and adopt policies related to the strength of encryption and authentication practices and processes. The acceptability of such standards will be strongly influenced by national law in the various participating countries.

- *Key recovery*: Key recovery systems have been proposed as one means of ensuring against a data encryption disaster. Some countries require the use of key recovery systems in exported products. Should the intellectual property community support key recovery systems within its environment? If so, which model should be supported: key encapsulation or key escrow?

[Annex III follows]

Intellectual Property and Electronic Commerce
A Survey of Issues

ANNEX III

Electronic Commerce Related Links

The following listing of web sites provides information that may be useful to those who wish to monitor developments in the digital economy. Their inclusion, however, does not signal WIPO's validation of the information they provide.

United Nations and Related Agencies

- United Nations (*http://www.un.org*)
- International Telecommunications Union (ITU) (*http://www.itu.int*)
- Official Web Site Locator for the United Nations System of Organizations (*http://ecommerce.wipo.int/links/p://www.unsystem.org*)
- United Nations Commission on International Trade Law (UNCITRAL) (*http://www.uncitral.org/en-index.htm*)
- United Nations Conference on Trade and Development (UNCTAD) (*http://www.unctad.org*)
- United Nations Institute for Training and Research (UNITAR) (*http://www.unitar.org*)
- World Bank (*http://www.worldbank.org*)
- World Trade Organization (WTO) (*http://www.wto.org/wto/ecom/ecom.htm*)

Intergovernmental Organizations and Associations

- Asia Pacific Economic Cooperation (APEC) (*http://www.apecseg.org.sg/*)
- European Commission
  - Bangemann Charter: The Need for Strengthened International Co-ordination (*http://158.169.51.200/eif/policy/com9850en.html*)
  - Bangemann Report: Europe and the Global Information Society (*http://158.169.51.200/infosoc/backg/bangeman.html*)
  - Bonn Ministerial Declaration, July 8, 1997 (*http://www2.echo.lu/bonn/final.html*)
  - DG XV (Internal Market and Financial Services) (*http://europa.eu.int/comm/dg15/en/index.htm*)
- Free Trade Area of the Americas (FTAA) (*http://www.ecommerce.gov/minister.htm*)
- International Organization for Standardization (ISO) (*http://www.iso.ch*)
- Organisation for Economic Co-operation and Development (*http://ecommerce.wipo.int/links/www.oecd.org/subject/e_commerce/*)
  - OECD Policy Brief on Electronic Commerce (*http://ecommerce.wipo.int/links/www.oecd.org/publications/Pol_brief/9701_Pol.htm*)

National Governments and National Resources

- Australia
  - Department of Foreign Affairs and Trade (*http://www.dfat.gov.au/nsr/*)
  - IP Australia, Department of Industry, Science and Resources (*http://www.ipaustralia.gov.au*)

- ♦ National Office for the Information Economy (*http://www.noie.gov.au/*)
- Canada
  - ♦ Electronic Commerce Canada (*http://www.ecc.ca*)
  - ♦ Task Force on Electronic Commerce, Industry Canada (*http://e-com.ic.gc.ca*)
- Egypt
  - ♦ Egyptian Cabinet: Information Development & Decision Support Center: Technology Development Program (*http://163.121.10.41/tdp/*)
- Finland
  - ♦ Electronic Commerce Finland (*http://www.ecf.fi/brief_in_english.html*)
- France
  - ♦ Draft Framework: Electronic Commerce - A New Factor for Consumers, Companies, Citizens and Government - English Version (*http://www.telecom.gouv.fr/english.htm*)
  - ♦ Ministry of Economy, Finance and Industry - Information Technologies in France (*http://ecommerce.wipo.int/links/www.telecom.gouv.fr*)
- Germany
  - ♦ Federal Ministry of Economics and Technology (*http://www.bmwi.de/*)
- India
  - ♦ Ministry of Commerce: Electronic Commerce Act (*http://commin.nic.in/doc/ecact.html*)
- Israel
  - ♦ Ministry of Finance: Information Technology Web Site - Legal Issues (*http://http://www.itpolicy.gov.il/english/legal.htm*)
- Japan
  - ♦ Ministry of International Trade and Industry (MITI) (*http://www.miti.go.jp/index-e.html*)
  - ♦ Ministry of Posts and Telecommunications (*http://www.mpt.go.jp/policyreports/index-e.html*)
- Malaysia
  - ♦ Multimedia Supercorridor (*http://www.mdc.com.my/*)
- New Zealand
  - ♦ Ministry of Commerce: Electronic Commerce (*http://www.moc.govt.nz/consumer/el_com.html*)
- Norway
  - ♦ Ministry of Trade and Industry (NHD) (*http://odin.dep.no/html/nofovalt/depter/nhd/ataler/index.html*)
- Republic of Korea
  - ♦ Korea Institute for Electronic Commerce (*http://www.kiec.or.kr/eng/index.html*)
- Singapore
  - ♦ Electronic Commerce Singapore (*http://www.ec.gov.sg*)
- South Africa
  - ♦ Department of Communications: Discussion Paper on Electronic Commerce Policy (*http://www.polity.org.za/govdocs/discuss/ecomm.html*)
- The Netherlands
  - ♦ Ministry of Economic Affairs: E-Commerce Site (*http://info.minez.nl/kennisent/ecom/fs_ecom.htm*)

- United Kingdom
  - Department of Trade and Industry: Communications and Information Industries (*http://www.dti.gov.uk/comms.htm*)
- United States of America
  - United States Government: Electronic Commerce Policy (*http://www.ecommerce.gov/*)
  - National Telecommunications and Information Administration (NTIA), U.S. Department of Commerce (*http://www.ntia.doc.gov/*)

Other Useful Links

- Alliance for Global Business (*http://www.giic.org/agb/index.htm*)
- Global Business Dialogue for Electronic Commerce (GBDe) (*http://www.gbd.org/*)
- Global Information Infrastructure (GIIC) (*http://www.giic.org*)
- Global Internet Project (GIP) (*http://www.gip.org*)
- International Chamber of Commerce (ICC) (*http://www.iccwbo.org*)
- Internet Corporation for Assigned Names and Numbers (ICANN) (*http://www.icann.org/*)
- Internet Law and Policy Forum (*http://www.ilpf.org*)
- Internet Society (ISOC) (*http://www.isoc.org*)
- Transatlantic Business Dialogue (TBD) (*http://www.tabd.com*)
- Information Technology Association of America (ITAA) (*http://www.itaa.org*)
- Software and Information Industry Association (SIIA) - Electronic Commerce Web Resource (*http://www.siia.net*)
- World Wide Web Consortium (W3C) (*http://www.w3.org*)

[End of Annex]

[1] See *infra* n.30 and accompanying text for discussion of this point.

[2] WIPO convened the first International Conference on Electronic Commerce and Intellectual Property in September 1999. The Conference was attended in Geneva by over 700 participants from government and the private sectors, and an equal number via live broadcast over the Internet. Further information about the Conference, including the program, speakers and papers, is available at *http://ecommerce.wipo.int/meetings/1999/index.html*. WIPO plans to hold its second international conference, the WIPO Expo on Electronic Commerce and Intellectual Property, in September 2001.

[3] As language usage evolves, the phrase "electronic commerce" has been supplemented by synonyms such as "ecommerce," "e-commerce," "e-business" or even "m-business" (for wireless devices such as mobile phones).

[4] In addition to computers, we also recognize that other portable, wireless and network-accessible devices are beginning to play a significant role in facilitating electronic commerce.

[5] See Annex I for a listing of a number of illustrative definitions and descriptions of "electronic commerce," which have been gathered from sources monitoring its development.

[6] The OECD, for example, has indicated the difficulties in measuring electronic commerce in so far as it relates to activity over open networks, and has called for the development of a core definition and methodology to provide consistency for purposes of data collection. "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda", Organization for Economic Co-operation and Development, at pp. 1-3, 16 (1999), at *http://www.oecd.org/subject/e_commerce/summary.htm.* The United States Government's Bureau of the Census recently issued a paper that attempts to introduce a measure of precision into the definition. See "Measures Electronic Business Definitions, Underlying Concepts, and Measurement Plans," Bureau of the Census, Government of the United States of America (October 13, 1999), at *http://www.ecommerce.gov/ecomnewle-def.html*.

[7] See, e.g., "Business-to-Consumer Electronic Commerce Survey of Status and Issues," Organization for Economic Co-operation and Development, OCDE/GD (97) 219 (1997), and David N. Townsend, "Regulatory Issues for Electronic Commerce: Briefing Report," Report to the International Telecommunication Union, 8th Regulatory Colloquium (1998). Both reports provide background on the development of proprietary networks, such as those used for bank-to-bank transfers (e.g., Electronic Funds Transfer (EFT)), as well as those established for certain business transactions such as electronic data interchange (EDI).

[8] The term "open network" means a network, such as the Internet, using non-proprietary protocols that have been established through an open standard-setting process. The Internet is founded on an open, non-proprietary protocol known as Transport Control Protocol/Internet Protocol (TCP/IP), and uses a standard coding system, hypertext markup language (HTML), for representing data in graphical form on the World Wide Web. See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," Organization for Economic Co-operation and Development, at ch.2., p.1 (1999), at *http://www.oecd.org subject/e_commerce/summary.htm.* The World Wide Web "technically refers to the hypertext servers (HTTP servers) which are servers that allow text, graphics, and sound files to be mixed together." See "Challenges to the Network: Internet for Development," International Telecommunication Union (ITU), Glossary (1999).

[9] The Internet started strictly as a non-commercial medium. For references to several papers explaining the early history of the Internet, see "History of the Internet," Internet Society web site at *http://www.isoc.org internet-history/*. See also Townsend, *supra* n.7, at 7, explaining that the Internet was launched in the 1960's as a research project known as ARPANET, by the Department of Defense of the Government of the United States of America. Beginning in 1990, the World Wide Web was developed by scientists at the European Particle Physics Laboratory in Geneva (CERN). In late 1993, the U.S. National Center for Supercomputing Applications (NCSA) released the first integrated Internet browser, Mosaic, whose graphical user interface simplified Internet navigation. However, it was not until 1994 that Netscape Communications Corporation, founded by Dr. James

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Clark and Marc Andreessen, released and popularized the first widely-used commercial Internet browser. See Netscape web site at *http://home.netscape.com/company/about/backgrounder.html#market*.

[10] A recent study divides the development of the Internet into *three* phases relating to the evolving technological innovations in the network. See "Defending the Internet Revolution in the Broadband Era: When Doing Nothing is Doing Harm," six co-authors, E-conomy Working Paper 12 (August 1999), at *http://e-conomy.berkeley.edu:80/pubs/wp/ewp12.html*. In the first phase, from the late 1960's until the early 1990's, the Internet was used primarily as an engineering and network prototype of interest to the military and research sectors, in which monochrome, text-only displays on a computer screen were the norm. The central applications of this first phase were e-mail and file transfers. The second phase, from the early 1990's until today, has been characterized by the mass adoption and commercialization of the Internet. Benefiting from the coverage and access to key elements of the global telephone network, the Internet is able to provide "narrowband" access to users, largely through dial-up modems which provide intermittent, low-bandwidth connections. The explosion of the World Wide Web may be viewed as the main event of phase two. According to the authors, we are now entering phase three, in which there will be a mass diffusion and adoption of broadband technologies. A user's access to the network will be through a high-speed "always-on" connection, and the range of services and applications offered will expand beyond those which we are aware of today.

[11] See Amazon.com, at *http://www.amazon.com*, which has expanded the variety of its web site offerings to rival large, general purpose department stores by including books, toys and games, computers and electronics, sporting goods, music and videos, women's apparel, and many other items.

[12] See e.g., "Quiet, Please, Test in Progress," International Herald Tribune (October 25, 1999). The article provides background on a test-trial jointly conducted by International Business Machines (IBM) and several major record labels to sell music directly over the Internet (via high-speed cable modems) to about 1000 households in the metropolitan area of San Diego, California.

[13] See n.28 and accompanying text.

[14] For a general discussion of the market changes that are occurring as a result of electronic commerce, see "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," Organization for Economic Co-operation and Development, at ch.5 (1999), at *http://www.oecd.org/subject/e_commerce/summary.htm.*

[15] See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," Organization for Economic Co-operation and Development, at ch.3, p.8 (1999), at *http://www.oecd.org/subject/e_commerce/summary.htm.* The OECD has identified five categories encompassing the range of intangible products in the business-to-consumer segment: entertainment, travel, newspapers and periodicals, financial service, and e-mail.

[16] At WIPO's International Conference on Electronic Commerce and Intellectual Property, William Daley, the Secretary of Commerce for the United States of America, emphasized that "the only products that can be delivered on the Net are intellectual goods," and that the Internet will reach its potential only if we strengthen its intellectual property protections. Keynote Address of The Honorable W. M. Daley, WIPO Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/conferences/papers/daley.html*.

[17] The Internet application that has grown most significantly is the World Wide Web. This growth is expected to continue in the short-term, while in the long term, video and audio intensive applications will increase considerably. See "The Future of the Internet," Datamonitor (March 1999), at *http://www.datamonitor.com/dmhtml/dm/dmwtsnew.htm.*

[18] *See "Challenges to the Network: Internet for Development,"* ITU, *supra* n.8, Executive Summary, at p.2 (1999) (citing ITU World Telecommunication Indicators Database, Network Wizards, Compaq and RIPE). See also "The Emerging Digital Economy II," Department of Commerce, United States of America, Executive Summary and Introduction (June 1999) (the Department of Commerce publishes this report on an annual basis);

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"Legal and Policy Framework for E-commerce in India," Nishith Desai Associates (1999), White Paper prepared for International Conference: Enabling E-Commerce in India, jointly organized by Global Information Infrastructure Commission (GIIC), Infrastructure Leasing and Financial Services, The Confederation of Indian Industry, and supported by the infoDev Fund at the World Bank, at *http://www.giic.org/pubs/indiawhitepaper.pdf*; and M. Kenney and J. Curry, "E-Commerce: Implications for Firm Strategy and Industry Configuration," E-conomy Paper 2, at p.2 of 27 (July 1999), at *http://e-conomy.berkeley.edu:80/pubs/wp/ewp2.html* (observing that the Internet has had one of the fastest adoption rates ever experienced by any technology).

[19] From 1990 to 1997, the estimated number of Internet users grew from one million to approximately 70 million. As of June 1999, the number of users stood between 130 and 171 million. See "eGlobal Report," at *http://www.emarketer.com* (reporting there were 130.6 million active users as of 1999); and Nua Internet Surveys (*http://www.nua.ie*) (171 million as of May 1999). The corresponding approximate number of Internet hosts, as of January 1999, was 45 million. See "Challenges to the Network: Internet for Development," ITU, *supra* n.8, at p.2.

Sources: In addition to certain governments and international organizations, such as the ITU and OECD, there are a growing number of private firms tracking the Internet and electronic commerce. Estimates from private sources are included in this Paper to illustrate the trends, but their inclusion is not intended to validate the specific figures or the methodologies that were used to produce them. A non-exhaustive list of private research firms includes Forrester Research, Inc. (*http://www.forrester.com*); The Gartner Group (*www.gartnergroup.com*); Datamonitor plc. (*http://www.datamonitor.com*); International Data Corporation (*http://www.idc.com*); Jupiter Communications Inc. (*http://www.jup.com*); Nua Internet Surveys (*http://www.nua.ie*); eMarketer (*http://www.emarketer.com);* the Yankee Group (*www.yankeegroup.com*); and NPO Business Strategic Research, Inc. (*http://www.nopresearch.com*).

[20] "The Emerging Digital Economy II," United States Department of Commerce, at p.2 (June 1999), at *http://www.ecommerce.gov* (citing "My How We've Grown," The Industry Standard (April 26, 1999), at *http://www.thestandard.com*).

[21] See "The Future of the Internet," Datamonitor (March 1999), at *http://www.datamonitor.com/dmhtml/dm/dmwtsnew.htm.* Two more recent estimates suggest that there will be 500 million people online by the year 2003. See "U.S. Internet Users Surpass 100 Million Mark," New York Times (November 10, 1999) (citing The Strategis Group), at *http://www.nytimes.com/library/tech/99/11/biztech/articles/10net.html*; International Data Corporation (October 5, 1999), at *http://www.idc.com.*

[22] See "U.S. Internet Users Surpass 100 Million Mark," New York Times (November 10, 1999), at *http://www.nytimes.com/library/tech/99/11/biztech/articles/10net.html*; Datamonitor, "The Future of the Internet" (March 1999), at *http://www.datamonitor.com/dmhtml/dm/dmwtsnew.htm.*

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[23] See "The Internet in China," BDA China Online and Strategis Group (June 1999), at *http://www.bdaco.com.*

[24] See "Challenges to the Network: Internet for Development," ITU, *supra* n.8, at p.18; the same figure is provided by Uunet Technologies, an Internet backbone provider. See M. Kenney and J. Curry, "E-Commerce: Implications for Firm Strategy and Industry Configuration," E-conomy Paper 2, at p.2 (July 1999).

[25] See the domain name statistics maintained by Netnames.com at *http://www.netnames.com.*

[26] Moore's Law for semiconductors postulates that the performance (of a chip) can be doubled, for half the price, every two years. If this trend were to continue for another twenty years, there would effectively be zero-cost computing and zero-cost telecommunications. The world will thus evolve into an "infosphere" bathed in information. See R. Bishop, "The Technology: Where It Is Taking us," speech at WIPO's International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int*.

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[27] The estimates were taken from OECD (1995, 1997, 2001-2), ITU (1998) and Forrester Research, Inc. (2003-5). See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," OECD, ch.3 at p.1-3 (1998); "Challenges to the Network: Internet for Development," ITU, *supra* n.8, at p.2; Forrester Research Inc. at *http://www.forrester.com*; see also "The Emerging Digital Economy II," United States Department of Commerce, *supra* n.29, at p.5 (June 1999), at *http://www.ecommerce.gov*.

[28] The OECD indicates that the business-to-business segment currently accounts for more than 80 per cent of all electronic commerce activity. See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," Organization for Economic Co-operation and Development, Introduction at p.3 (1999), at *http://www.oecd.org/subject/e_commerce/summary.htm*. The adoption of open Internet protocols and Internet use are transforming the model for those businesses that have been involved in electronic commerce for some time, from a system based on dedicated leased lines between large firms with established relationships, to a more flexible system that draws on a much wider ranges of firms, many of which do not know each other. *Id*., ch.3 at p.1-3 (1998).

[29] Concerns about privacy, and the lack of standards and technologies to address these concerns, have hindered consumers' trust of electronic commerce. See e.g., "All study, No Action on Privacy," Wired News (November 8, 1999) at *http://www.wired.com/news/politics/0,1283,21732,00.html*; see also "Web Privacy Standard Clears Legal Obstacle," CNET News.com (October 28, 1999), at *http://news.cnet.comnews/0-1005-200-1424553.html?tag=st.ne.1005.thed.1005-2*.

[30] See "Challenges to the Network: Internet for Development," ITU, *supra* n.8, at p.2. While the United States of America still accounts for the large majority of Internet users, the rest of the world can hardly be described as disinterested. See World Information Technology and Services Alliance (WITSA), *Digital Planet—The Global Information Economy* (October, 1998), at 21, which reports that the United States of America accounted for 61.9 per cent of Worldwide Internet Hosts. Between 1993 and 1996, the number of Internet hosts in Europe increased by about 600 per cent. See Townsend, *supra* n.7, at p.8; Global Internet Project, *Internet Foundations: Breaking Technology Bottlenecks*, at *http://www.gip.org*, at p.1. Over the same period, the growth in Internet hosts in Africa and Asia amounted to about 840 per cent for each region. *Id.* The ITU Report indicates that the price of Internet access, shortages in infrastructure, education and the lack of content in the appropriate language are among the constraints on the diffusion of the Internet around the world.

[31] See e.g., the Government of the United States position paper, "A Framework for Global Electronic Commerce," The White House (July 1, 1997), at *http://www.ecommerce.gov/framework.htm*. It recommends that, "[p]articipants in the marketplace should define and articulate most of the rules that will govern electronic commerce," and "governments should establish a predictable and simple legal environment based on a decentralized, contractual model of law rather than one based on top-down regulation."

[32] See "Intellectual Property Reading Material," WIPO No. 476(E), at pp.165-171 (2d ed. 1998); see also J.J. Fawcett and P. Torremans, "Intellectual Property and Private International Law," at p.74 (1998).

[33] "Model Law on Electronic Commerce with Guide to Enactment," UNCITRAL (1996), with Additional Article 5*bis* as adopted in 1998, at *http://www.uncitral.org/english/texts/electcom/ml-ec.htm*.

[34] The UNCITRAL Model Law refers to electronic data interchange (EDI), which in the not-too-distant past was considered among the most common form of online contract. EDI agreements often were used in ongoing contractual relationships that linked retailers or manufacturers with their regular suppliers, in an effort to monitor and control inventory. The terms and conditions of these agreements would usually have been negotiated by the parties to establish detailed rights and obligations with respect to their continuing performance. See M. Chissick and A. Kelman, "Electronic Commerce: Law and Practice," at p.53 (Sweet & Maxwell 1999).

[35] "Model Law on Electronic Commerce with Guide to Enactment, *supra* n.33, at Recitals.

[36] *Id*., at Guide to Enactment, para.3.

[37] *Id*., at para.6.

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[38] *Id*., at para.76.

[39] The "Amended proposal for a European Parliament and Council Directive on certain legal aspects of electronic commerce in the Internal Market," similarly provides in Article 9 (Treatment of Electronic Contracts) that:

> "Member States shall ensure that their legislation allows contracts to be concluded electronically. Member States shall in particular ensure that the legal requirements applicable to the contractual process neither prevent the effective use of electronic contracts nor result in such contracts being deprived of legal effect and validity on account of their being made electronically."

See Document 599PC0427, at *http://europa.eu.int/eur-lex/en/com/dat/1999/en_599PC0427.html*.

[40] For example, a contract can be formed through an exchange of electronic mail, but these communications may raise questions of authenticity of the parties. A contract can also be formed using the mechanism of a web site. Here, the acceptance may be indicated by clicking on a particular button, e.g., a dialogue box which forces the customer to review the terms and conditions before reaching the bottom and clicking "I accept."

[41] Similar to certain off-line agreements, in which there may be little or no negotiation of the terms and conditions between parties, online contracts often carry standard terms and conditions. In the consumer context, when these terms and conditions appear in a standard form contract prepared by the business and impose restrictive terms on the consumer, the agreement might be viewed as a contract of adhesion which could raise enforceability issues. A number of the international instruments that are being developed to address legal issues such as jurisdiction provide special provisions intended to protect consumers. See discussion below.

[42] "Model Law on Electronic Commerce with Guide to Enactment," UNCITRAL, *supra* n.33, at Article 6.

[43] *Id*., at Article 8.

[44] *Id*., at Article 7.

[45] For example, it has been explained that "Internet addresses have no fixed location. They are purely conceptual. The routers which direct packets to the packet address at rates between 100,000 and 500,000 a second can know only the next logical point in a routing table and which outbound circuit is available to carry the packet. Packets are free to traverse the globe on countless circuits to geographically indeterminate end points. The technology provides assurance that the packets are reassembled in the right order and are very likely not corrupted by data errors." J.R. Mathiason and C.C. Kuhlman, "International Public Regulation of the Internet: Who Will Give You Your Domain Name?" at *http:www.intlmgt.com/domain.html* (March 1998).

[46] New legislation in the United States of America introduced a provision by which, in certain circumstances, jurisdiction may be founded of the location of the *res* (e.g., *in rem* jurisdiction at the place where a domain name is registered). See the Anticybersquatting Consumer Protection Act, S. 1948, Title III, sections 3000-3010 (November 1999).

[47] The online service provider (OSP), which is the entity providing services that enable a presence on the Internet through web site hosting, domain name registrations or other services, has often been included as a target in lawsuits, in addition to the party that has allegedly committed the infringement. See further discussion of issues involving online service provider liability in Chapter III (Copyright and Related Rights).

[48] See the Brussels Convention on Jurisdiction and the Enforcement of Judgements in Civil and Commercial Matters (1968), O.J. (C27) (January 26, 1998), and the Lugano Convention On Jurisdiction and the Enforcement of Judgments in Civil and Commercial Matters (1988), O.J. (L319) (November 25, 1988). See also the "Hague Convention on the Recognition and Enforcement of Foreign Judgments in Civil and Commercial Matters," concluded February 1, 1971, at *http://www.hcch.net/e/conventions/text16e.html*. In the absence of these treaties,

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principles of international "comity" may be applied to questions of jurisdiction and enforcement of judgements. See e.g., *Hilton v. Guyot*, 154 U.S. 113 (1895).

[49] Other than work that is currently underway in several international forums (see *infra*, discussed in the text), the challenge to the international community posed by the jurisdictional issues of electronic commerce is currently being dealt with at the national level, through case-by-case determinations of the courts. The courts, however, face myriad, difficult factual circumstances, and must determine whether the exercise of jurisdiction is proper in situations where the relevant "contacts" with the forum have been through the network while the defending party is located in another state or country.

[50] The Hague Conference on Private International Law was established in 1893 as an intergovernmental organization whose purpose is to work for the progressive unification of the rules of private international law by drafting and negotiating multilateral treaties ("Hague Conventions").

[51] The draft Convention has been preliminarily named "Convention on Jurisdiction and Foreign Judgments in Civil and Commercial Matters." The text of the preliminary draft is available at *http://www.hcch.net/e/conventions/draft36e.html* (October 30, 1999).

[52] A footnote to the draft Convention states that the

> "Special Commission has considered whether the provisions of the preliminary draft Convention meet the needs of e-commerce. This matter will be further examined by a group of specialists in this field who will meet early in the year 2000."

[53] See "Proposal for a Council Regulation on jurisdiction and enforcement of judgements in civil and commercial matters," COM (1999) 348 final, 99/0154 (CNS) (July 14, 1999).

[54] See *id*., at p.6.

[55] See Articles 3-13 of the draft Convention. These grounds would also be available to parties from Contracting States other than the one in which the lawsuit is initiated. For further discussion, see *id*., "Information on the Preliminary draft Convention on Jurisdiction and the Effects of Judgements in Civil and Commercial Matters," WIPO SCT.

[56] See draft Convention, Article 18.

[57] See draft Convention, Article 17 and 24.

[58] Cf., draft Convention, Article 3.

[59] This approach is grounded on the United States Constitution's due process clause (see the Fifth and Fourteenth Amendments), which requires that there be a nexus between a defendant and the relevant forum sufficient to justify a state's exercise of jurisdiction over an out-of-state defendant. *International Shoe Co. v. Washington*, 326 U.S. 310 (1945).

[60] See proposed Regulation, Section 1, Article 2.

[61] See proposed Regulation, Sections 2 to 7.

[62] The seat, central administration or principal place of business of a company (or other legal person or association) is treated as its domicile, see Article 53 Brussels Convention and Article 53 Lugano Convention. The proposed Regulation makes no change to this term.

[63] See draft Convention, Article 10. See also "Information on the Preliminary Draft Convention on Jurisdiction and the Effects of Judgment in Civil and Commercial Matter," *supra* n.58.

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[64] See proposed Regulation, Article 5(3).

[65] See Prof. J. C. Ginsburg, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," Study for the Group of Consultants on the Private International Law Aspects of the Protection of Works and Objects of Related Rights Transmitted Through Digital Networks,WIPO GCPIC/2, at pp.10-11 (November 30, 1998); see also Prof. A. Lucas, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," Study for the Group of Consultants on the Private International Law Aspects of the Protection of Works and Objects of Related Rights Transmitted Through Digital Networks, WIPO GCPIC/1, at pp.10-11 (November 25, 1998).

[66] A sliding scale test, formulated in a leading case, emphasizes that jurisdiction should be "directly proportionate to the nature and quality of commercial activity that an entity conducts over the Internet." *Zippo Cybersell, Inc. v. Cybersell, Inc.*, 952 F. Supp. 295 (S.D.N.Y. 1996), aff'd 126 F.3d 25 (2d Cir. 1997). Another court has rephrased this inquiry as the "level of interactivity and commercial nature of the exchange of information" to determine whether there is a proper basis for jurisdiction. *Hornell Brewing v. Rosebud Sioux Tribal Court*, Civ. No. 97-1244 (8th Cir. 1998). For analysis of case law from India relating to trademarks on the Internet, see presentation of P. Anand, Partner, Anand & Anand, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.* For analysis of Japanese law relating to trademarks on the Internet, see presentation of H. Aizawa, Institute of Asia-Pacific Studies, Waseda University, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

[67] Article 2(1) of the Paris Convention provides that national treatment with regard to the protection of industrial property is only required if "the conditions and formalities imposed upon nationals are complied with." Another consequence of the territoriality of trademark rights is the independence of trademarks according to Article 6(3) of the Paris Convention: "A mark duly registered in a country of the Union shall be regarded as independent of marks registered in the other countries of the Union, including the country of origin." It should be noted that both provisions are incorporated in the TRIPS Agreement. The protection of well-known marks is also subject to the principle of territoriality, as Article 6*bis* of the Paris Convention (and Article 16.2 and 16.3 of the TRIPS Agreement) mandates protection for well-known marks only if they fulfil certain requirements in a particular country, namely if they are well-known in that country.

[68] See draft Convention, Article 3.

[69] Article 10.4 provides that: "If an action is brought in the courts of a State only on the basis that the injury arose or may occur there, those courts shall have jurisdiction only in respect of the injury that occurred or may occur in that State, *unless the injured person has his or her habitual residence in that State*" (emphasis added).

[70] See J. C. Ginsburg, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.3.

[71] See draft Convention, Article 6.

[72] See proposed Regulation, Article 5.

[73] The Geneva Roundtable on Questions of Private International Law Raised by Electronic and the Internet discussed similar issues. The group recommended that parties to an online transaction should be requested to disclose their habitual residence or place of business, as this may provide a useful means for determining an appropriate forum for a contractual dispute. See "Draft Recommendations: Geneva Roundtable on the Questions of Private International Law Raised by Electronic and the Internet," University of Geneva and the Hague Conference on Private International Law (September 1999).

[74] Party autonomy is a basic principle that can be relevant for many commercial agreements, including licenses of intellectual property.

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[75] See draft Hague Convention, Article 4; proposed Regulation, Article 23. In the United States of America, the Uniform Computer Information Transactions Act (UCITA), adopted by the National Conference of Commissioners on Uniform State Laws (NCCUSL) in July 1999, contains a provision on forum selection providing that: "[t]he parties in their agreement may choose an exclusive judicial forum unless the choice is unreasonable and unjust." See Uniform Computer Information Transactions Act, NCCUSL section 110(a) (July 1999), at *http://www.law.upenn.edu/bll/ulc/ucita/cita10st.htm.* These approaches are consistent with the recommendations of a significant international business alliance, the Global Business Dialogue on Electronic Commerce (GBDe), that governments and international organizations generally respect the freedom of contract. See "The Paris Recommendations: Conference Communiqué," GBDe (September 13, 1999).

[76] See the draft Hague Convention: in writing or "by any other means of communication which renders information accessible so as to be usable for subsequent reference" (Article 4.2(b); and proposed Regulation: "Any communication by electronic means which can provide a durable record of the agreement shall be deemed to be in writing" (Article 23). These formulations are consistent with the UNCITRAL Model Law on Electronic Commerce with Guide to Enactment of 1996, as amended by an additional Article in 1998. See *http://www.uncitral.org/en-index.htm.*

[77] See draft Convention, Article 7.

[78] This would include the locations where it has its statutory seat, is incorporated, has its central administration, has its principal place of business, or has branches (provided the dispute relates directly to the activity of that branch). See draft Convention, Articles 3.2 and 9.

[79] See *id.,* Article 7.

[80] See proposed Regulation, Article 16.

[81] See draft Convention, Article 7.3(a); proposed Regulation, Article 17.

[82] Cf., draft Convention, Article 7.1(b).

[83] See proposed Regulation, "Explanatory Memorandum," at p.16.

[84] See proposed Regulation, Article 15(3).

[85] *Id.,* Explanatory Memorandum, at p.17. The Geneva Roundtable on Questions of Private International Law Raised by Electronic and the Internet also raised concerns regarding the impact on small businesses engaging in electronic commerce, suggesting that they may deserve similar protection, at least when the small business in an individual. See "Draft Recommendations: Geneva Roundtable on the Questions of Private International Law Raised by Electronic and the Internet," *supra* n.73.

[86] See draft Convention, Article 12.3 and 4; proposed Regulation, Article 22(3) and (4). The draft Hague Convention provides an additional set of relevant bracketed paragraphs, setting forth that:

> "[In relation to proceedings which have as their object the infringement of patents, the preceding…does not exclude the jurisdiction of any other court under the Convention or under the national law of a Contracting State.]" (Article 12.5).
>
> "[The previous paragraphs shall not apply when the matters referred to therein arise as incidental questions.]" (Article 12.6).

[87] See draft Convention, Work Doc. No.262.

[88] See "Information On The Preliminary Draft Convention On Jurisdiction And The Effects Of Judgments In Civil And Commercial Matters," WIPO SCT, Document SCT/3/3, at p.9 (September 28, 1999).

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[89] See J. J. Fawcett and P. Torremans, "Intellectual Property and Private International Law," p.591 (1998).

[90] Even in this situation, the parties need to be aware of certain mandatory law provisions that may apply in the jurisdiction where protection is claimed. For example, in Germany it is generally held that a contract cannot override certain provisions of the 1965 Copyright Act, such as the rule by which the scope of a license is restricted to the types of uses implied by the nature and purpose of the transaction (i.e., *Zweckübertraggungstheorie*). See Prof. A. Lucas, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.10-11. Thus, a contract for hire in the United States of America purporting to grant the full copyright to the employer would, in Germany, be limited: "the author's moral right and the rights relating to types of uses which were still unknown at the time of conclusion of the contract remain the property of the author." See Prof. J. C. Ginsburg, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.26 (quoting E. Ulmer, "Intellectual Property and Conflict of Laws,"(1978)).

[91] See Rome Convention on the Law Applicable to Contractual Obligations, OJ L266/1, Article 3 (1980). Article 16 of the Rome Convention provides generally that the parties' designation of law may be excluded only where its application "is manifestly incompatible with the public policy of the forum." However, similar to the limitations in the provisions of the European Commission's proposed Regulation concerning jurisdictional forum, the freedom of contract is restricted, in particular, in contracts involving consumers. Article 5 provides in relevant part that, notwithstanding Article 3, "a choice of law made by the parties shall not have the result of depriving the consumer of the protection afforded to him by the mandatory rules of the law in the country in which he has his habitual residence."

[92] See "Framework for Global Electronic Commerce" (italics added), United States Department of Commerce web site at *http://www.ecommerce.gov/framewrk.htm.*

[93] In the United States of America, contract law is generally a matter of state law.

[94] See Uniform Computer Information Transactions Act, *supra* n.75, section 109(a),.

[95] See Rome Convention, Article 4.1.

[96] *Id*., Article 4.2.

[97] "In the context of copyright transfers, it is not always apparent who owes the 'characteristic performance,' particularly where a contract for Internet dissemination is concerned." See J. C. Ginsburg, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.29; see also Prof. A. Lucas, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.8.

[98] See Uniform Computer Information Transactions Act, *supra* n.75, Official Comment Section 109, para. 3.

[99] See generally J. J. Fawcett and P. Torremans, "Intellectual Property and Private International Law," at pp.596-647.

[100] See "Study Concerning The Use Of Trademarks On The Internet," WIPO Standing Committee on the Law of Trademarks, Industrial Design and Geographical Indications, document SCT/2/9 Prov., paras.49 to 51 (April 8, 1999).

[101] See J. J. Fawcett and P. Torremans, "Intellectual Property and Private International Law," pp.459-486 (1998). For example, "the Berne Convention sets forth neither substantive nor choice of law rules to determine copyright ownership." See J. C. Ginsburg, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.20.

[102] See Berne Convention for the Protection of Literary and Artistic Works, Paris Act of July 24, 1971, as amended on September 28, 1979 ("Berne Convention"), Article 5.2, at *ww.wipo.int/eng/iplex/wo_ber0_.htm*.

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[103] See J. C. Ginsburg, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.33.

[104] *Id*., at p.34.

[105] *Id.* (citing A. Lucas & H.J. Lucas, "Traite de la Propriété Litteraire et Artistique" (1994); H. Desbois, et al., "Les Conventions Internationales du Droit D'Auteur et du Droit Voisin"(1976); and S. Bariatti, "Internet e il diritto internazionale privato: aspetti relativi all a dsiciplina del diritt d'autore" (1996)).

[106] *Id*.

[107] *Id.* Professor Ginsburg suggests that under the traditional view of copyright law – i.e., that there is no international copyright law as such, but only a collection of territorially-bound national laws – it would be necessary to apply the law of each country.

[108] *Id*., at p.35; see also Prof. A. Lucas, "Private international law aspects of the protection of works and objects of related rights transmitted through digital networks," *supra* n.65, at p.6.

[109] *Id*. (citing Council Directive 93/83 on the coordination of certain rules concerning copyright and rights related to copyright applicable to satellite broadcasting and cable retransmissions, OJ (L248) 15, Article 2(b) (September 27, 1993)).

[110] See International Chamber of Commerce Counterfeiting Intelligence Bureau, "Countering Counterfeiting, A Guide to Protecting and Enforcing Intellectual Property Rights," at p.13 (1997). The International Federation of Phonographic Industries estimates that 80,000 web sites are broadcasting music without a copyright license.

[111] See "Digital Rights and Wrongs," Economist, at p.95 (July 17, 1999).

[112] See e.g., Net Searchers International, Ltd. at *http://www.netsearchers.co.uk*, and Cyveillance, Inc. at *http://www.cyveillance.com*, and Interdeposit *at http://www.iddn.org.*

[113] See, e.g., the European Union's Directive on the Protection of Individuals with regard to the Processing of Personal Data and on the Free Movement of Such Data, 94/46/EC (October 1995).

[114] See "New Draft Safe Harbor documents available for public comment," (November 17, 1999), United States Department of Commerce web site, at *http://www.ecommerce.gov*.

[115] See *id*. (includes "Draft International Safe Harbor Privacy Principles Issued by the U.S. Department of Commerce" (November 15, 1999)).

[116] See "Europe and U.S. Reach Data Privacy Pact," New York Times Technology Section (March 15, 2000).

[117] For example, in the United States, the Digital Millennium Copyright Act establishes a procedure by which a copyright owner can obtain a sub poena ordering a service provider to disclose the identity of the person or entity responsible for allegedly infringing activities. See See U.S. Digital Millennium Copyright Act of 1998 (DMCA) Title II, section 512(h); U.S. Copyright Office Summary at http://lcweb.loc.gov/copyright/legislation/dmca/pdf.

[118] For further discussion on the potential ramifications of the territoriality principle on the intellectual property system, see W.R. Cornish, "Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights," at pp.22-23 (3rd ed. 1996).

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[119] For instance, Section 2 of Part III of the TRIPS Agreement, consisting of 10 articles, deals exclusively with special requirements related to border measures. See also the articles of the Paris and Berne Conventions on the seizure of infringing goods upon their importation.

[120] The Paris Convention imposes upon the countries of the Union the obligation to seize, upon importation, goods unlawfully bearing a trademark, trade name (Article 9), or indication of origin (Article 10), and to assure effective protection against unfair competition (Article 10*bis*). Furthermore, Article 10ter of the Convention obliges "[t]he countries of the Union [to] undertake to assure to nationals of the other countries of the Union appropriate legal remedies effectively to repress [these] acts."

[121] Articles 13(3) and Article 16 of the Berne Convention deal with the question of seizure of infringing works, and Article 15 refers to the basic principles of protection and the institution of infringement proceedings.

[122] The TRIPS Agreement enforcement scheme consists essentially of the provisions contained in Part III of the Agreement (concerning civil and administrative procedures and remedies, provisional measures, border measures, and criminal procedures). The national implementation of these provisions is subject to the WTO dispute settlement mechanism (Part V).

[123] This point is underscored by the fact that the recording industry has placed Leonardo Chiariglione, a technology expert who helped create the MP3 standard, in charge of the Secure Digital Music Initiative (SDMI). "MP3" is a technology that allows music to be easily compressed in digital form so that it can be readily uploaded onto a computer or a network, but it is not a "secure" technology, i.e., whatever is copied in this format can be easily re-copied and distributed. The goal of the SDMI project is to create a technical format for the secure sale and delivery of copyrighted music over the Internet. For more information on MP3 and the problems it has created for the music industry, as well as the SDMI, see the web site of the Recording Industry Association of America at *http://www.riaa.com*.

[124] For an overview of the technology, see Peter Wayner, "Digital Copyright Protection" (1997).

[125] For discussion of cryptography technologies, see Annex II (Technology of Digital Systems for Security and Authentication of Intellectual Property Services); see also presentation of S. Baker, Partner, Steptoe & Johnson, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

[126] ECMS are technological systems permitting the online management, exploitation and enforcement of copyright. They are discussed below in Chapter V.

[127] ECMS, and the digital technologies on which they are based, enable the collection of very large records of "who reads what, who listens to what or who watches which movie.… The full effects of such a widespread system for monitoring artistic consumption are not known…." Peter Wayner, "Digital Copyright Protection," at p.7 (1997). For a comprehensive study on the privacy implications of ECMS, see "Privacy, Data Protection and Copyright: Their Interaction in the Context of Electronic Copyright Management Systems," Institute for Information Law, Faculty of Law, University of Amsterdam (1998).

[128] See New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1959), at *http://www.uncitral.org/en-index.htm*.

[129] WIPO has developed an online system for administering disputes in electronic commerce involving intellectual property. For further discussion, see Chapter V.

[130] See Digital Millennium Copyright Act (DMCA), *supra* n.117.

[131] *Id*., Title II, section 512.

[132] Note that the European Commission's Proposal for a European Parliament and Council Directive on Certain Legal Aspects of Electronic Commerce in the Internal Market also provides for a liability limitation for

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Internet service providers (Ch.2, Sec. 4). See "Proposal for a European Parliament and Council Directive on Certain Legal Aspects of Electronic Commerce in the Internal Market," COM (1998) 586 final, 98/0325 (COD) (November 18, 1998). Although the Proposal does not explicitly refer to a notice and take-down procedure, it does state in Article 14 that "Member States shall provide in their legislation that the provider shall not be liable…for the information stored at the request of a recipient of the service, on condition that…the provider, upon obtaining such knowledge or awareness, acts expeditiously to remove or disable access to the information." The accompanying Commentary explains that "[t]his principle…provides a basis on which different interested parties may lay down procedures for notifying the service provider about information that is the subject of illegal activity and for obtaining the removal or disablement of such information (sometimes referred to as 'notice and take down procedures')."

[133] See *id*., Article 17.1.

[134] See *id.,* Explanatory Memorandum, at p.30.

[135] The Berne Convention for the Protection of Literary and Artistic Works (1886), and the Paris Act of the Berne Convention (1971), at *http://www.wipo.int/eng/general/copyrght/bern.htm.*

[136] For a discussion of digital distribution of films online, see presentation of G. Whitson, Senior VP, Business and Legal Affairs, Warner Bros. Online, and presentation by L. Safir, Chairman, AFMA Europe, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

[137] For a discussion of online publishing of literary works, see presentation of H. Spruijt, Executive Director, Reed Elsevier, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.* For a discussion of the current state of online delivery of music, see presentation by H. B. Rosen, President and CEO, RIAA; presentation of W. Booth, VP Europe, Sony/ATV Music Publishing, and presentation of M. Karnstedt, President Europe, Peer Music, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

[138] See "It's the World's Biggest Copy Machine," PC Week (January 27, 1997), at *uysing://160/http://www.zdnet.com/pcweek/business/0127/27copy.html*.

[139] Indeed, in the earliest discussions concerning the Internet and its implications for copyright, some commentators argued that content subject to such rights could not be controlled on the Internet, and authors would have to find new ways to make money in cyberspace. See L. Lessig, "The Law of the Horse: What Cyberlaw Might Teach," Harv. L. Rev. (1999); C. Mann, "Who Will Own Your Next Good Idea,", The Atlantic Monthly (September 1998); see also "Digital Rights and Wrongs," Economist, at p.95 (July 17, 1999). As the WIPO Internet Treaties of 1996 demonstrate, however, copyright continues to play an essential role in this new environment.

[140] Even without the effects that can result from copyright infringement, these markets will face considerable pressures generated by new business models and disintermediation in the networked environment. See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," OECD, at ch.4 (1999) (URL) (in particular, the OECD highlights the effects of disintermediation).

[141] Berne Conventions, art. 9(2); TRIPS Agreement, art.13.

[142] The WIPO Copyright Treaty (WCT) (1996), at *http://www.wipo.int/eng/general/copyrght/wct.htm*, and the WIPO Performances and Phonograms Treaty (WPPT) (1996) at *http://www.wipo.int/eng/general/copyrght/wppt.htm.*

[143] See generally M. Ficsor, "Copyright for the Digital Era: The WIPO 'Internet' Treaties," 21, Nos. 3-4 Columbia. J. L. & Arts 197 (1997).

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144 Berne Convention art. 9(1). See also Rome Convention Art. 10 and TRIPS Agreement, Art. 14 (providing to phonogram producers the right to authorize or prohibit the "direct or indirect" reproduction of their phonograms). The WPPT also provides to both phonogram performers and producers a broad right of reproduction, whether "direct or indirect," and "in any manner or form." WPPT Articles. 7 and 11. For a detailed discussion of the reproduction, communication and distribution rights, see presentation of C. Clark, General Counsel, International Publishers Copyright Council, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

145 See Digital Millennium Copyright Act, Title II, *supra* n.117.

146 See Art. 5(1) of Proposal for a European Parliament and Council Directive on the Harmonization of Certain Aspects of Copyright and Related Rights in the Information Society, 97/0359 (COD) (1997).

147 See WCT, Article 8; WPPT, Article 14.

148 See WCT, Article 10; WPPT, Article 16.

149 See text in paragraph 115; see also WCT, Agreed Statement Concerning Article 10; WPPT, Agreed Statement Concerning Article 16.

150 See WCT, Article 11; WPPT, Article 18.

151 There has been some debate about whether the widespread deployment of these "trusted systems" (consisting of software and hardware to manage digital rights) may upset the traditional balance in copyright, expressed through the relevant limitations and exceptions. See "Digital Rights and Wrongs," Economist, at p.95 (July 17, 1999). "Trusted systems," a term first used by Mark Stefik, principal scientist of Xerox's Palo Alto Research Faculty, refers to software and hardware that can be programmed to provide digital rights management (control access to and copying of material). M. Stefik, "Trusted Systems," Scientific American 78 (March 1997).

152 Certain commentators have raised questions of whether certain legislation concerning technological measures of protection may have a counter-productive impact on encryption and security research. The United States Digital Millennium Copyright Act, contains exceptions for encryption research and security testing that are intended to address this concern. See S. A. Baker, "Cryptography and Electronic Rights Management: Technology & Policy," presentation at WIPO's International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

153 See WCT, Article 12; WPPT, Article 19.

154 See discussion of Electronic Rights Management in Chapter V.

155 For discussion of the importance of implementation of WCT and WPPT for protection of intellectual property works online, see presentation of T. Cohen, formerly VP and Counsel, New Technology, Motion Picture Association of America, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

156 For a discussion of the importance of the WPPT and the need for other protection for the recording industry interests, see presentation of H. Rosen, President and CEO, Recording Industry Association of America, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

157 For a discussion of the EU Database Directive, see presentation of C. Clark, General Counsel, International Publishers Copyright Council, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

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158 For a detailed discussion of databases, as well as various means for their protection, see presentation of M. Glazier, Chief Counsel, Subcommittee on Courts and Intellectual Property Committee on Judiciary, U.S. House of Representatives; presentation of J. Reinbothe, DGXV, European Commission; and presentation of A. Millé, Partner, Estudio Millé, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

159 Various countries' copyright laws contain concepts of liability for contributing to the infringing activities of another. Generally, the determination of liability will turn on the degree of participation and knowledge of the party that is contributing to the infringement. For discussion of various approaches to this issue, including the United States Digital Millennium Copyright Act and European Union Ecommerce Directive, see presentations of T. Casey, Senior VP Technology Law Group, MCI Worldcom, M. Fröhlinger, Head of Unit, Media, Commercial Communications and Unfair Competition, DG XV, European Commission and S. Perlmutter, Consultant, WIPO, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

160 See Agreed Statement Concerning Article 8, WCT.

161 See discussion on issues of liability in cyberspace and the European Union Draft Directive on Electronic Commerce in the presentations of C. Clark, General Counsel, International Publishers Copyright Council and M. Fröhlinger, Head of Unit, Media, Commercial Communications and Unfair Competition, DG XV, European Commission, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

162 The Global Business Dialogue on Electronic Commerce recently issued a position paper on the issue, in which it recognized both the DMCA and the current draft of the European Directive as appropriate models for internationally compatible approaches. See "Liability," Issue Group Policy Paper: Final Draft, GBDe (August 3, 1999).

163 Virtually every country that accords legal protection to inventions – and there are more than 155 such countries – gives such protection through the patent system. In addition, inventions may also be protected by other types of rights, such as utility models or trade secrets. The international protection conferred by a patent is recognized in two multilateral treaties: the Paris Convention for the Protection of Industrial Property (the Paris Convention), to which 156 States are party, and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), by which 135 States are bound.

164 The exclusive right to exploit an invention is generally granted for a period of 15 to 20 years from the date of filing a patent application. See Article 33 of the TRIPS Agreement.

165 A number of offices provide patent information on Internet: for example, the United States Patents and Trademarks Office (*http://www.uspto.gov*), Japanese Patent Office (*http://www.jpo-miti.go.jp*), European Patent Office (*http://www.european-patent-office.org*), Canadian Intellectual Property Office (*http://cipo.gc.ca*) and Industrial Property Information Center in Thailand (*http://www.ipic.moc.go.th*). For a discussion of WIPO's plans to make public international patent data available online, see Chapter V (WIPONET). See also the list of national intellectual property offices (with corresponding Internet addresses) in Annex III.

166 The patent system thus encourages the dissemination and transfer of technological knowledge by granting a fixed-term, market exclusivity to an inventor in return for the clear and complete disclosure of the invention. See TRIPS Agreement, Article 29.

167 A recent decision in the United States, for example, found a business method to be patentable subject matter. *State Street Bank & Trust v. Signature Financial Group*, 47 USPQ 2d 1596 (CAFC 1998) (the decision upheld a patent for a particular business model for managing an investment portfolio). See also *AT&T Corp. v. Excel Communications, Inc*., No. 98-1338, 1999, WL 216234, __ F.3d __ (Fed. Cir. Apr. 14, 1999) ("[the focus in determining whether an invention containing a computer algorithm recites patentable subject matter is] not on whether there is a mathematical algorithm at work, but on whether the algorithm-containing invention, as a whole, produces a tangible, useful, result").

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[168] See, e.g., "Are Patents Good or Bad for Business On-Line," The New York Times, Technology Law Journal (August 28, 1998). Because the phenomena of cyberspace and electronic commerce are so new and still emerging, it is argued that gauging the novelty of a business model in this area and whether it meets the requirements of patentability is not easy. It is also contended that competition may be harmed in the digital market place if companies are able to obtain patents for basic business methods that already exist in non-cyberspace. On the other hand, others indicate that patent protection is merited given the technological innovation reflected in such new business models and that this protection is needed in order to provide incentive for further investment in new on-line businesses. A lawsuit filed in October 1999, in which Amazon.com, the Internet book seller, has sued its rival, Barnesandnoble.com, illustrates the stakes involved. Amazon.com, in September 1997, started using a "one-click" technology to enable its online customers to make repeated purchases from its web site without having to repeatedly fill out credit card and billing address information. It received a patent for its one-click technology in September 1999 (United States Patent no. 5,960,411), and alleged that Barnesandnoble.com's one-click checkout system, known as "Express Lane," infringes its patent. See "Barnesandnoble.com faces suit by Amazon Over Patent," New York Times: Technology (October 23, 1999), at *http://www.nytimes.com/library/tech99/10/biztecharticles/23amazon.html*. Recently, in what some have considered to be a public relations move, Jeff Bezos, the Chairman of Amazon, has urged reform in the patent system to reduce the term of patent protection. "Chairman of Amazon Urges Reduction of Patent Terms," New York Times Technology section (March 11, 2000). The United States Patent and Trademark Office has developed an action plan to respond to the new issues concern business method patents. See *http://www.uspto.gov/web/offices/com/sol/actionplan.html*.

[169] See, e.g., Guidelines for Examination in the European Patent Office, Part C, Chapter IV, 1. General.

[170] Article 27(1) of the TRIPS Agreement requires that patents be available "in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application." This broad requirement of patentability has prompted a discussion on the subject of where to draw the line between copyright and patent law protection for computer programs. See e.g., "The Relative Roles of Patent and Copyright in the Protection of Computer Programs," 17 J. Marshall J. Computer & Info. L. 41 (Fall 1998).

[171] Communication of the European Commission to the European Council, the European Parliament and the Economic and Social Committee, February 5, 1999 COM(1999) 42.

[172] In 1996, the United States Patent and Trademark Office issued its Examination Guidelines for Computer-Related Inventions, 61 Fed. Reg. 7478 (1996), which indicate that if the practical use of an abstract idea is patentable, subject to the denial of protection for scientific principle, then its disembodied instruction (expressed on a tangible media) is patentable, because patents provide control over the making of an invention and functionally descriptive computer instruction serves that purpose. The Japanese Patent Office published, in 1997, the Implementing Guidelines for Inventions in Specific Fields, Chapter 1 of which contains examination guidelines for computer software related inventions.

[173] *In re Beauregard*, 53 F.3d 1583, 35 U.S.P.Q.2d 1383 (Fed. Cir. 1995). The Implementing Guidelines for Inventions in Specific Fields issued by the Japanese Patent Office allow Beauregard-type claims. In Europe, the Board of Appeal of the European Patent Office noted that, in Decision T1173/97, "the Board is of the opinion that with regard to the exclusions under Article 52(2) and (3) EPC, it does not make any difference whether a computer program is claimed by itself or as a record on a carrier."

[174] *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure that increases computer efficiency held statutory).

[175] See, e.g., Training Materials for the Examination Guidelines for Computer-Related Inventions, Claim 13, issued by the United States Patents and Trademarks Office (April 12, 1996).

[176] See The Japanese Patent Law, as amended by Law No. 41 (May 1999).

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177 For example, this question can be examined in the context of a recent decision in the United States of America. There, the Court of Appeals for the Federal Circuit, in *State Street Bank & Trust v. Signature Financial Group*, held that the patent involved recited patentable subject matter, Claim 1 of which reads as follows:

> A data processing system for managing a financial services configuration of a portfolio established as a partnership, each partner being one of a plurality of funds, comprising:
>
> computer processor means for processing data;
>
> storage means for storing data on a storage medium;
>
> first means for initializing the storage medium;
>
> second means for processing data regarding assets in the portfolio and each of the funds from a previous day and data regarding increases or decreases in each of the funds, assets and for allocating the percentage share that each fund holds in the portfolio;
>
> third means for processing data regarding daily incremental income, expenses, and net realized gain or loss for the portfolio and for allocating such data among each fund;
>
> fourth means for processing data regarding daily net unrealized gain or loss for the portfolio and for allocating such data among each fund; and
>
> fifth means for processing data regarding aggregate year-end income, expenses, and capital gain or loss for the portfolio and each of the funds.

See 47 USPQ 2d 1596 (CAFC 1998) (concerning U.S. Patent No. 5,193,056 (the "'056 patent")).

178 It may be noted that certain informational goods, such as software and data, are almost inherently non-transparent, meaning the consumer cannot detect the quality of the goods up-front. Consumers will be relying in large part on the reputation of the seller, and place value in the relationship with that company and its ability to provide service (including future product upgrades). See comments of Prof. B. De Long, Dept. of Economics, University of California at Berkeley, "Analytical Summary and Report," The Digital Economy in International Perspective: Common Construction on Regional Rivalry, Conference of the University of California E-conomy Project (May 1999), at *http://e-conomy.berkeley.edu*.

179 Trademarks, and branding in general, have become extremely important in electronic commerce to build consumer familiarity and trust. This is particularly the case in light of the huge number of new web site offerings, and their potential to overwhelm consumers. The costs of establishing and defending a brand through advertising and other marketing activities represents a very significant expense and "is the *main* reason why many business-to-consumer e-commerce merchants have yet to report a profit." See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda, at Ch.4, p.12, OECD (1999) (emphasis added).

180 See WIPO document "Use of Trademarks on the Internet: Issues Paper" (SCT/3/4), para.6; see also, Report of WIPO Internet Domain Name Process, at para.34, (WIPO 1999), at *http://ecommerce.wipo.int*.

181 See Paris Convention for the Protection of Industrial Property (the Paris Convention), to which 155 States are party: in particular, Articles 4, 5C and D, 6-7*bis*, 9-11; and the TRIPS Agreement, by which 135 States are bound: articles 15-21 (for trade- and service marks), Articles 22-24 (for geographical indications). Article 15.1 of the TRIPS Agreement for the first time provides a definition of a trademark (see above). Article 16 of the TRIPS Agreement specifies the rights conferred on the trademark owner.

182 Under Article 19 of the TRIPS Agreement, the trademark owner has to be given at least three years before its registration will be cancelled.

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183 See WIPO document SCT/2/9, paras.60-61.

184 This view is supported by the responses to the WIPO Questionnaire "Hypothetical Cases Concerning the Use of Trademarks on the Internet" to which 36 States replied. The responses are summarized in "Use of Trademarks on the Internet. Summary of Responses to Questionnaire," WIPO document SCT/3/2 (1999). See, in particular, paras.14-15 with regard to maintenance of rights. See further the factors for establishing a relationship with a particular country listed in WIPO document SCT/2/9, paras.31-34.

185 This is evidenced by the replies to the WIPO Questionnaire "Hypothetical Cases Concerning the Use of Trademarks on the Internet", summarized in WIPO document SCT/3/2, paras.16-21.

186 See WIPO document SCT/2/9, paras.79-104. See also D. M. Cendali, C. E. Forssander & R. J. Turiello Jr., "An Overview of Intellectual Property Issues Relating to the Internet," 89 Trademark Reporter at pp.529-532 (1999); S. Chong, "Internet Meta-tags and Trade Mark Issues," E.I.P.R., at pp.275-277 (1998); N. S. Greenfield & L. Cristal, "The Challenge to Trademark Rights by Web Technologies: Linking Framing, Metatagging and Cyberstuffing," Trademark Law and the Internet, at pp.207-216 (1999); T. F. Presson & J. R. Barney, "Trademarks as Metatags: Infringement or Fair Use?," AIPLA Quarterly Journal, at pp.147-178 (1998).

187 See *Brookfield Communications Inc. v. West Coast Entertainment Corp*, 50 U.S.P.Q. 2d 1545 (9th Cir. 1999). A similar approach is taken in the recent decision by the Tribunal de grande instance de Paris (March 24, 1999), *Société Kaysersberg Packaging v. Société Kargil*, and in the judgment of the Landgericht Mannheim, 7 O 291/97 (August 1, 1997), involving the trademark "ARWIS."

188 See the replies to the WIPO Questionnaire "Hypothetical Cases Concerning the Use of Trademarks on the Internet", summarized in WIPO document SCT/3/2, para.17.

189 For "fair use" of a trademark as a metatag see e.g., Playboy v. Enterprises Inc. v. Welles, 7 F. Supp.2d 1098, 47 U.S.P.Q.2d 1186.

190 See Playboy Enterprises Inc. v. Netscape Communications Corp., C.D. Calif., No. SA CV 99-320 AHS (Eex) (June 24, 1999), where the court denied preliminary injunctive relief stating that the Defendant's sale of "Playboy" and "Playmate" as search terms only involved common words, not the marks. See also the replies to the WIPO Questionnaire "Hypothetical Cases concerning the Use of Trademarks on the Internet", summarized in WIPO document SCT/3/2, para.18, showing a wide divergence of views.

191 This is explicitly recognized by Article 17 of the TRIPS Agreement.

192 See WIPO document SCT/2/9, paras.98 to 101; see also D. M. Kelly & J. M. Gelchinsky, "Trademarks on the Internet: How Does Fair Use Fare?," 114 Trademark World, at pp.19-22 (1999).

193 See e.g., Bally Total Fitness Holding Corp. v. Faber, C.D. Cal., No. CV 98-1278 DDP (MANx), (December 21, 1998); see also D. M. Cendali, C. E. Forssander & R. J. Turiello Jr., "An Overview of Intellectual Property Issues Relating to the Internet," 89 Trademark Reporter, at pp.543-557 (on issues of free speech, privacy, and defamation) (1999).

194 See "Use of Trademarks on the Internet: Issues Paper," WIPO document SCT/3/4, paras.27-31 (1999).

195 See for example the decisions of the Tribunal de Grande Instance de Nanterre, Ordonnance de référé (October 13, 1996); SG2 v. Brokat Informationssysteme GmbH ("payline") and of the Kammergericht Berlin, 5 U 659/97 (March 25, 1997) ("Concert-Concept"). A majority of replies to the WIPO Questionnaire indicated that the use of a trademark on a "passive" web site (i.e., a web site that is devoted to advertising) would be regarded as a trademark infringement, see WIPO document SCT/3/2, para.10.

196 See WIPO document SCT/2/9, para.62.

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197 See the proposal for a (non-exhaustive) list in WIPO document SCT 2/9, paras.28-34 & 62-66.

198 See WIPO document SCT/2/9, paras.19-22.

199 See the replies to the WIPO Questionnaire "Hypothetical Cases concerning the Use of Trademarks on the Internet", summarized in WIPO document SCT/3/2, para.10.

200 See WIPO document SCT/2/9, paras.37 and 66.

201 It is possible that many of these problems could be solved by an adequate formulation of the disclaimer statement. Instead of negatively excluding relationships with particular countries or individual rightholders, the user could positively explain that the sign it is using has been registered in a particular territory, that other users of the sign have no relationship with it, and that the goods or services which are marketed under the sign are only available in particular countries ("this product is only available in countries X, Y and Z"). On an international level, however, the attitude with regard to such statements seems to differ widely. This is evidenced by the responses to the WIPO Questionnaire "Hypothetical Cases Concerning the Use of Trademarks on the Internet", summarized in WIPO document SCT/3/2, para.12.

202 See e.g., the decisions of the Tribunal de Grande Instance de Nanterre, Ordonnance de référé (October 13, 1996) *SG2 v. Brokat Informationssysteme GmbH* ("payline") and of the *Kammergericht Berlin*, 5 U 659/97 (March 25, 1997) ("Concert-Concept"), and the more restrictive approach applied in *Playboy Enterprises Inc. v. Chuckleberry Publishing, Inc.*, 939 F. Supp.1032, 1039-40 (S.D.N.Y. 1996).

203 A majority of the States that replied to the WIPO Questionnaire indicated that, in infringement cases, courts would have to limit the effect of their decisions to the territory where the infringed trademark enjoys protection, see WIPO document SCT/3/2, para.11.

204 See WIPO document SCT/2/9, paras.67 to 69.

205 An example of this abusive practice might be cases of conflicts between well-known marks and domain names, as envisaged under Article 6 of the Joint Recommendation Concerning Provisions on the Protection of Well-Known Marks. See *infra* para. 175.

206 See WIPO document SCT/2/9, paras.59, 127, 145 to 148.

207 See *supra* n.67.

208 "In determining bad faith for the purposes of this paragraph, the competent authority shall take into consideration whether the person who obtained the registration of or used the mark which is in conflict with a well-known mark had, at the time when the mark was used or registered, or the application for its registration was filed, knowledge of or reason to know of, the well-known mark."

209 See WIPO documents SCT/2/9 and SCT/2/10.

210 See Report in WIPO document SCT/2/12.

211 WIPO document SCT/3/4.

212 A previous set of principles is contained in section III of WIPO document SCT/2/10.

213 See Report of the WIPO Internet Domain Name Process, at para.247 at *http://ecommmerce.wipo.int*.

214 The protection of well-known marks in the Paris Convention is provided for in Article 6*bis*, section (1) of which provides as follows:

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> "The countries of the Union undertake, ex officio if their legislation so permits, or at the request of an interested party, to refuse or to cancel the registration, and to prohibit the use, of a trademark which constitutes a reproduction, an imitation, or a translation, liable to create confusion, of a mark considered by the competent authority of the country of registration or use to be well known in that country as being already the mark of a person entitled to the benefits of this Convention and used for identical or similar goods. These provisions shall also apply when the essential part of the mark constitutes a reproduction of any such well-known mark or an imitation liable to create confusion therewith."

[215] While Article 6*bis* of the Paris Convention is silent on what constitutes a well-known mark, Article 16.2 of the TRIPS Agreement provides some guidance as to the criteria that such a competent authority must take into account in forming its assessment:

> "Article 6*bis* of the Paris Convention (1967) shall apply, mutatis mutandis, to services. In determining whether a trademark is well-known, Members shall take account of the knowledge of the trademark in the relevant sector of the public, including knowledge in the Member concerned which has been obtained as a result of the promotion of the trademark."

For discussion of international and national protection of well-known marks, see F. W. Mostert, "Famous and Well-Known Marks," (1997).

[216] See "Joint Recommendation Concerning Provisions on the Protection of Well-Known Marks," Standing Committee on the Law of Trademarks, Industrial Designs and Geographical Indications, WIPO document SCT/3/8 (October 1999).

[217] See *id*., Article 2. (Determination of Whether a Mark is a Well-Known Mark in a Member State).

[218] The Report of the WIPO Internet Domain Name Process provides that registration of a domain name shall be considered to be abusive when all of the following conditions are met:

> (i) the domain name is identical or misleadingly similar to a trade or service mark in which the complainant has rights; and
> (ii) the holder of the domain name has no rights or legitimate interests in respect of the domain name; and
> (iii) the domain name has been registered and is used in bad faith.
>
> For the purposes of paragraph (iii), the following, in particular, may be evidence of the registration and use of a domain name in bad faith:
>
> (a) an offer to sell, rent or otherwise transfer the domain name to the owner of the trade or service mark, or to a competitor of the owner of the trade or service mark, for valuable consideration; or
> (b) an attempt to attract, for financial gain, Internet users to the domain name holder's web site or other on-line location, by creating confusion with the trade or service mark of the complainant; or
> (c) the registration of the domain name in order to prevent the owner of the trade or service mark from reflecting the mark in a corresponding domain name, provided that a pattern of such conduct has been established on the part of the domain name holder; or
> (d) the registration and use of the domain name in order to disrupt the business of a competitor.

Report of WIPO Internet Domain Name Process, at para.171 (1999), at *http://ecommerce.wipo.int*.

[219] In particular, Article 10*bis* of the Paris Convention provides that States party to the Treaty must provide effective protection against unfair competition. Any act of competition contrary to honest practices in industrial or commercial matters constitutes an act of unfair competition, and in particular "all acts of such a nature as to create confusion by any means whatever with the establishment, the goods, or the industrial or commercial activities, of a competitor."

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220 Article 39 of the TRIPS Agreement relies on the obligation to provide protection against unfair competition in Article 10*bis* of the Paris Convention as a basis for extending protection to "undisclosed information," also known under various national laws as trade secrets.

221 See the responses to the WIPO Questionnaire "Hypothetical Cases Concerning the Use of Trademarks on the Internet", summarized in WIPO document SCT/3/2, paras.16-21; a majority of responses considered Internet-specific forms of trademark use, such as metatagging, sale of keywords, as acts of unfair competition.

222 See M. Hardie, "Hooked on Broadband," The Forrester Report (July 1999), at *http://www.forrester.com.*

223 A domain name is the alphanumeric address of a computer, such as www.wipo.int. A domain name allows a user to locate a computer site on the Internet without the need to resort to the unique underlying numeric address, known as the Internet Protocol (IP) address (e.g., 192.91.247.53). Distributed databases on the Internet contain the lists of domain names and their corresponding IP addresses and perform the function of mapping the domain names to their IP addresses for the purpose of directing requests to connect computers on the Internet. The DNS is structured in a hierarchical manner that allows for the decentralized administration of this name-to-address mapping.

224 These figures are taken from the web site of Netnames.com, which maintains statistics for domain name registrations at *http://www.netnames.com/NNStat.htm.* The figures are current as of March 20, 1999.

225 Through the process established by the Internet Corporation for Assigned Names and Numbers (ICANN), described below, more than 90 companies have been accredited to act as registrars for domain name registrations in the gTLDs. See ICANN's web site at *http://www.icann.org/registrarsaccredit-list.html*.

226 In April 1999, WIPO published an extensive Report of the WIPO Internet Domain Name Process, which examines many aspects of the issues that have arising as a consequence of the tension between the domain name system (DNS) and the system for the registration and protection of trademarks. The WIPO Report is available at *http://ecommerce.wipo.int.*

227 Background on the Internet Corporation for Assigned Names and Numbers (ICANN), including the Bylaws and resolutions of the Interim Board, can be found at ICANN's web site at *http://www.icann.org*.

228 For further background on the WIPO Internet Domain Name Process, see presentation of F. Gurry, Assistant Director General, WIPO, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

229 See "Report of WIPO General Assembly," Twenty-Fourth Session, WO/GA/24/12 Prov. (September 1999).

230 As of January 3, 2000, complaints may be submitted for disputes involving domain names registered by Network Solutions. See ICANN's web site at *http://www.icann.org/undrp/undrp-schedule.htm.* Network Solutions, Inc. is the company that, until this year, had exclusive rights to accept registrations in the .com, .net and .org domains.

231 See the web site of the WIPO Arbitration and Mediation Center, at *http://arbiter.wipo.int*.

232 See Annex VIII of the Report of the WIPO Internet Domain Name Process, *at http://ecommerce.wipo.int.*

233 Research demonstrates that 55 countries in the world account for more than 99 per cent of all spending on information technology. See 1999 IDC/World Times Information Society Index, at *http://www.idcresearch.com.* Moreover, more than two-thirds of the online users are located in the United States and Europe. See Datamonitor, "The Future of the Internet" at *http://www.datamonitor.com.*

234 See "Challenges to the Network: Internet for Development," ITU, *supra* n.8.

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235 Of total Internet hosts, 64.1 per cent were located in the United States of America/Canada, 2.3 per cent in Europe, 2.9 per cent in Asia Pacific, 1.2 per cent in the Latin American countries and only 0.5 per cent in Africa See "Challenges to the Network: Internet for Development," ITU, *supra* n.8.

236 See United Nations Human Development Report (1999).

237 See Datamonitor Report "The Future of the Internet (March 1999), at *http://www.datamonitor.com.*

238 See "Wired World Leaves Millions Out of the Loop: The Technological Gap 'Is Getting Larger'", by B. Knowlton, International Herald Tribune (October 8, 1999). A 1999 Philips Group survey also reports that Internet users in Asia will increase by 422 per cent, to 228 million by 2005.

239 See BDA China and Strategis Group Report, at *http://www.bdaco.com/features/index.htm#netreport)*.

240 See Yankee Group's Asia-Pacific Communications Planning Service Report "Asia Coming Online: Asia-Pacific Internet Subscriber and User Forecast, 1998-2005."

241 See presentation of Senator Dale D. Marshall, Chairman of the Joint Public-Private Sector Committee of Experts on Electronic Commerce of the Free Trade Area of the Americas (FTAA), WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

242 Other indicators quoted are the number of Internet service providers, which range from 3 in Costa Rica, to 29 in Chile, and 380 in Mexico. By comparison, in Canada and the United States of America, over one and a half million hosts were registered as of January 1999. The largest number of hosts in Latin America and the Caribbean are located in Brazil, with a quarter million.

243 See presentation of A. Soota, Chairman and Managing Director, MindTree Consulting, on Developing Countries and Electronic Commerce, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

244 See, for example, presentation of the Honorable R. Farley, MP, Minister of Industry and International Business, Ministry of Industry, Commerce and Business Development, Barbados, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

245 As a result of these particular advantages of electronic commerce for SMEs in emerging economies, it is expected that much of the growth in electronic commerce in the emerging economies such as Latin American and Caribbean region, will be driven by the entry of SMEs into these and other markets. See presentation of Senator Dale D. Marshall, Chairman of the Joint Public-Private Sector Committee of Experts on Electronic Commerce of the Free Trade Area of the Americas (FTAA), WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

246 Senator Dale D. Marshall commented with regard to the Caribbean, that "[s]everal of the small economies in the region have therefore set their sights on such areas as International Financial Services as the engines which will drive their economies in the new millennium. This kind of service industry does not require much in the way of capital investment, other than in a skilled labor force. In fact, in the Caribbean, the small island states of Barbados, St. Lucia, Dominica and Antigua have already seen the promise which electronic commerce offers in this vital sector in their economies. And then there are those areas where we are yet to exploit the potential of electronic commerce, such as travel. Nearly 25 per cent of employment in the Caribbean is related to travel and tourism. Datamonitor has predicted that travel will be the largest online data product by year 2002. Online travel transactions should increase to about 35 per cent of the total online sales by then." See presentation of Senator Dale D. Marshall, Chairman of the Joint Public-Private Sector Committee of Experts on Electronic Commerce of the Free Trade Area of the Americas (FTAA), WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int /meetings/index.html*.

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247 See presentation of Mr. A. Soota, Chairman and Managing Director, MindTree Consulting, on Developing Countries and Electronic Commerce, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

248 See e.g., the Electronic Commerce for Developing Countries (EC-DC) project, a special development initiative of the ITU, which in certain instances makes use of community-based centers, at *http://www.itu.int/ECDC/english-home.htm.*

249 One example of such a program is the WIPONET project. There is also scope for joint projects of cooperation for development, such as the ITU project "Electronic Commerce for Developing Countries" (EC-DC), which focuses on web-based marketing and consumer sales by small and medium enterprises. See ITU web site at *http://www.itu.int/ECDC/english-home.htm.*

250 See presentation of the Honorable W. M. Daley, Secretary of Commerce, Department of Commerce, United States of America, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*; see also presentation of Senator D. Marshall, Chairman, Chairman of the Joint Public-Private Sector Committee of Experts on Electronic Commerce of the Free Trade Area of the Americas (FTAA), WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

251 The Report is available at *http://ecommerce.wipo.int*.

252 See presentation of the Honorable R. Farley, MP, Minister of Industry and International Business, Ministry of Industry, Commerce and Business Development, Barbados, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html*.

253 See Annex III which provides a listing (with Internet addresses) of a number of the governments and other organizations that are providing online resources.

254 See e.g., the treatment of various strategic, management and technical considerations discussed in WIPO's "Information Technology Strategic Implementation Plan," WIPO Standing Committee on Information Technologies, Document SCIT/4/2 (Sept. 24, 1999) at *http://www.wipo.int/eng/general/scit/meeting/4/4.pdf.*

255 See "Information Technology Strategic Implementation Plan," Message from the Director General, Standing Committee on Information Technologies, Document SCIT/4/2 (September 24, 1999) at *http://www.wipo.int/eng/general/scit/meeting/4/4.pdf.*

256 See presentations of C. Buffam (WIPO) and L. Goelzer (Consultant, WIPO) for a technical description of the WIPONET system. WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

257 See e.g., the web sites for a number of the national intellectual property offices listed in Annex III.

258 This shift is a reflection in the intellectual property context of a large set of changes resulting from the growth of electronic commerce, knows as "disintermediation." See "The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda," at ch.4, p.8, OECD (1999), at *http://www.oecd.org/subject/e_commerce/summary.htm.*

259 See the WIPO Electronic Bookshop at *http://www.wipo.int/ebookshop.*

260 The Patent Cooperation Treaty came into force in 1970. The Office of the PCT of WIPO has been in existence since 1978. As of March 2000, there were 108 PCT member States. The number of international applications has grown from 2,625 in 1979 to 74,023 in 1999 with a total of more than 450,000 applications

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received, processed and published since 1978. Because each application extends to more than one country, those 74,023 applications in 1999 represent the equivalent of nearly 5.8 million national applications for inventions.

[261] See UNCITRAL Model Law on Electronic Commerce with Guide to Enactment (1996), with additional article 5*bis* as adopted in 1998, at *http://www.uncitral.org/english/texts/electcom/ml-ec.htm.*

[262] See Report of International Patent Cooperation Union, PCT/A/28/5, March 17, 2000.

[263] See presentation of J. Hawkins (WIPO), WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

[264] The Madrid System for the international registration of marks is governed by two treaties: The Madrid Agreement Concerning the International Registration of Marks, which dates from 1891, and the Protocol Relating to the Madrid Agreement, which came into operation on April 1, 1996. As of March 2000, there were 64 Contracting Parties to the Agreement, or the Protocol or both.

[265] Rule 33 of the Common Regulations under the Madrid Agreement and the Protocol makes provision for data which are recorded in the International Register to be entered into an electronic database.

[266] Rule 2 of the Common Regulations provides for electronic communication between Offices of Contracting Parties and the International Bureau, as well as communications by facsimile.

[267] The Hague Agreement Concerning the International Deposit of Industrial Designs was signed in 1925 and entered into force in 1928, and was subsequently revised several times, in particular, in 1934 and 1960. An international deposit filed under the Hague Agreement today may, depending on the particular case, be governed by the 1934 or the 1960 Act. There are currently 29 member States party to one or both Acts. A new Act of the Hague Agreement was adopted on July 2, 1999 at a diplomatic conference held in Geneva. The Geneva Act of the Agreement is not yet in force; it is intended to streamline certain procedures under the Hague System, while incorporating certain provisions to accommodate the needs of examining offices.

[268] Under the 1960 Act, each designated State has six months to notify a refusal of protection. Where no refusal is notified by a designated State within that time limit, the international deposit enjoys protection in that designated State.

[269] Given the advantages of the Hague System, it is not surprising that international deposits have been increasing progressively to about 4,000 deposits a year. Nevertheless, the system is still underutilized, considering the large number of industrial designs being created and used around the world. Hence the conclusion of the Geneva Act mentioned above should serve to facilitate use of the system.

[270] See presentation of D. Gervais, Vice President, International, Copyright Clearance Center, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/index.html* (for detailed discussion of the legal, standards-based and technological issues involved in electronic rights management systems).

[271] Professor Kitagawa (University of Kyoto), early on, described the extent to which computerized systems may affect the administration of copyright. His "Copymart" concept, developed in 1989, was designed to "create a new market for handling collective management of copyright, enabling us to access copyright information filed in that market and to obtain copies of intended works of various kinds from it. The proposed market ... is a database." See Prof. Z. Kitagawa, "Copymart: A New Concept – An Application of Digital Technology to the Collective Management of Copyright," at p.140, WIPO Worldwide Symposium on the Impact of Digital Technology on Copyright on Copyright and Neighboring Rights (1993).

[272] See presentation of L. Chiariglione, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html* (providing background on Secure Digital Music Initiative and technology measures and issues for "e-content"); see also

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"Digital Rights and Wrongs," Economist, at p.95 (July 17, 1999) (reviewing a number of the new "digital-rights-management systems" that are being developed through the private sector).

273 Such numbers or codes may be "intelligent," containing useful information about nationality, category of work or object, licensing conditions, etc., or they may be "dumb" or "mute," merely referring to a database from which the relevant information may be extracted. Projects are underway to develop network-based identification systems that build upon existing numbering systems, such as, for example, the International Standard Book Number (ISBN), the Publisher Item Identifier (PII), the International Standard Music Number (ISMN) and the *"Compositeur, Auteur, Editeur"* (CAE) code. One such project is the Digital Object Identifier (DOI) format, which is discussed in the presentation of Dr. N. Paskin, Director, International DOI Foundation, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

274 For example, the Malaysian Multimedia Supercorridor, established by the Malaysian Government in 1994, will require a system of multimedia rights clearance.

275 For example, the Media Image Resource Alliance (MIRA), the US-based Copyright Clearance Center (CCC), the UK Copyright Licensing Agency's Rapid Clearance Service (CLARCS), the Australian Copyright Agency Ltd.'s Copyright Xpress and the UK-based Authors' Licensing and Collecting Society's By-Line, discussed in the presentation of Dr. D. Gervais, Copyright Clearance Center, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.* See also presentation of T. Koskinen-Olsson, Chair, International Federation of Reproduction Rights Organizations (IFFRO), WIPO International Conference on Electronic Commerce and Intellectual Property (Septemb er 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html* (for discussion of the Very Extensive Rights Data Information (VERDI) project of INFO2000).

276 See INDECS Metadata Schema at *http:/:www.indecs.org*. Another project for development of a metadata system for use mainly with texts is the "Dublin Core" initiative, involving participants from Australia, Canada, Denmark, Finland, France, Germany, Japan, Norway, Sweden, Thailand, United Kingdom and the United States of America. See presentation of D. Gervais, Copyright Clearance Center, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

277 See "Digital Rights and Wrongs," Economist at p.96 (July 17, 1999) (privacy concerns can arise from the use of digital-rights-management systems, which are capable of tracking usage data such as, the time when a user plays an interactive game or invokes a specific module in the game). See also presentation of D. Gervais, Copyright Clearance Center, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/eng/meetings/index.html* (addressing the most frequently raised privacy and confidentiality is sues for users of ECMS).

278 See "Museums Join Forces to Protect Cyber Rights to Art," The San Diego Union Tribune (January 31, 1999), at *.http:/www.uniontrib.com/news/utavchiv…on-Tribune+Library+Library++%28museums.*

279 For detailed discussion of these is sues, see presentation of M. Shapiro, General Counsel, International Intellectual Property Institute, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html.*

280 Art Web, a consortium of the Bridgeman Art Library, La Réunion des Musées Nationaux, and Bildarchiv Preussicher Kulturbesitz, offers a consolidated point of access for these three European image archives. Two similar consortia are the Art Museum Image Consortium (AMICO) (at *http://www.amico.net*) and the Museum Digital Library Collection (MDLC) (at *http://museumlicensing.org*). The Corbis Corporation, a subsidiary of Microsoft, has entered nonexclusive licensing arrangements with the Philadelphia Museum of Art, the Royal Ontario Museum in Canada, the National Gallery in London and the Hermitage museum in Russia.

281 See "Delivering Digital Images: Cultural Heritage Resources for Education," The Museum Educational Site Licensing Project (MESL), the Getty Information Institute (1998).

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[282] The web site of the Hermitage Museum digital collection, created jointly with IBM, may be found at *http://www.hermitagemuseum.org*. See presentation of M. Borisovitch Piotrovski, Director, State Hermitage Museum, WIPO Intemational Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

[283] For a discussion of several commercial online dispute resolution systems, including CyberTribunal, Online Ombuds, Cybersettle.com, Inc. and Clickonsettle, see presentation of S. Donahey, Attorney, Tomlinson, Yisko, Morosoli & Moser LLP, WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

[284] See *supra* text in paras. 101-102.

[285] See WIPO Arbitration and Mediation Center web site, at *http://arbiter.wipo.int;* see also presentation of E. Wilbers (WIPO), WIPO International Conference on Electronic Commerce and Intellectual Property (September 1999), at *http://ecommerce.wipo.int/meetings/1999/index.html*.

[286] For further discussion see F. Gurry, "Dispute Resolution on the Internet," paper presented at the 5th Biennial International Dispute Resolution Conference, International Federation of Commercial Arbitration Institutions (IFCAI), New York (May 1999).