E-COMMERCE AND INTELLECTUAL PROPERTY:
LOCK-IT UP OR LICENSE?

By

Dr. Daniel Gervais
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1.0 Copyright eCommerce and the World Wide Web

A few years ago, it was trendy to suggest that copyright and the World Wide Web went together like fire and water, and that as a result, copyright would soon be either evaporated or extinguished. In the past 12 months, the increasing bandwidth and user base of the World Wide Web as well as powerful new compression algorithms (music files can be compressed down 1,000 times from 3 megabytes to not much more than 3 kilobytes!) have made it possible to download and use new types of works. PDF published texts, MP3 files and, soon, high-quality commercial video files.

The most talked-about phenomenon was and still is clearly music, notably due to MP3 technology. This expanding power of the Web to deliver content online could have marked the end of copyright as we know it. Paradoxically, the reverse seems to be happening, as noted by The Economist. A number of “secure” initiatives, sometimes referred to as “rights management systems”, have been proposed and several systems are in advanced “beta testing” phase. To name but one example: the Secure Digital Music Initiative, a file format for music downloads that prevents/controls reuse. In the text world, companies such as Reciprocal, Softlock and many others are marketing container-type technology that prevents reuse of online content (except as authorized at the time the content was acquired).

While music is taking center-stage, text publishers were the first in the digital trenches. Their content takes up fewer bytes (even in PDF) and can thus be copied and disseminated easily even with low-speed Internet access such as 28.8 Kbytes modems. Yet, several large publishing houses now offer very high-quality content over the Web. For example, readers of scientific, technical and medical literature can find thousands of high-quality journals offered online (usually in addition to the paper copy). From Academic Press’ IDEAL, to Science Magazine, to Elsevier’s Science Direct and Springer-Verlag’s LINK and dozens of other systems could be mentioned here. Hundreds of magazine and newspaper publishers are following the same path and major newspapers in many countries are available online in full text, often on the same day as the paper publication. In the United States, examples include the New York Times, The Wall Street Journal Interactive Edition, The Washington Post, Newsweek, Business Week and many, many others. One advantage often mentioned by users of the online version is that they can be word-searched, and archives are often searchable as well. If providing online access to content was supposed to toll the knell of copyright as we know it, these “content providers” would all be six foot under by now!

Business models for providing/delivering content online vary greatly. The most common models in the text world—and, increasingly, in the music industry--may be summarized as follows: in some cases, the material is available for free and can be searched and downloaded

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2 - “Digital Rights and Wrongs. Computers were supposed to be threatening copyright. Instead, they may end up making it stronger”. The Economist, 17 July 1999.


without identifying oneself. These models are often advertising-based. Most often, however, material will be offered only after free registration. This process provides content owners and service providers with valuable demographic (market) information and allows them to compile possible e-mail lists for future direct marketing efforts. In other cases, while an abstract or a few seconds of the song is used to illustrate the content (teaser), fees are charged to download the full text or song. Other providers prefer a subscription model which, for the print world, can be a subscription to the electronic version only, or combined with a paper subscription (in some cases, the electronic version is offered as a “bonus” for subscribers to the paper version).

What is common among most content providers, however, is that the material provided online is almost always subject to a “mouse-click contract” and/or terms and conditions limiting what the user can legally do with the material. Such restrictions typically limit use to a single user and allow that user only to read/listen (and possibly print) a single copy. Redistribution or reuse of the material is generally prohibited. While in the world of text publishing (newspapers, journals and magazines) this is (still) by and large done on an honor basis (based on law and contract), other industries seem to prefer technical solutions, such as digital containers and encryption systems, to enforce those terms and conditions.

In this paper, I argue that locking up the content is not necessarily the best option. The question boils down to this: is the provider’s (publisher/producer) mandate to minimize unauthorized uses of the content, or is it rather to maximize authorized uses? I am not arguing for a free-for-all. On the contrary, I believe that a properly organized licensing market, where users can painlessly and quickly obtain the rights to do (within reasonable limits) what they want with the content is by far a better solution than locking everything up, which is too often perceived as an invitation to circumvent.

To be able to license online, quickly and efficiently, an Electronic Rights Management System is indispensable.

2.0 Defining the Concepts

2.1 Defining Rights Management

Before we can understand electronic copyright-management systems, we need to understand the concepts that underlie such systems, starting with “rights management” itself. Copyright-management systems are basically databases that contain information about content (works, discrete manifestations of works and related products) and, in most cases, the author and other current rightsholders. That information is needed to support the process of authorizing the use of those works by others. A copyright-management system thus usually involves two basic modules, one for the identification of content and one for licensing (or, rarely, for other rights transactions, such as a full assignment). In many cases, ancillary modules such as payment or accounts receivable are also considered part of the system, but the core of a copyright-management system is content and rights identification and a licensing tool.

A copyright-management system can be used by individual rightsholders or by third parties who manage rights on behalf of others. A rightsholder might use the system to track a repertory of works, manifestations, or products, or an organization representing a group of rightsholders might use a copyright-management system to track each rightsholder’s rights.
and works. Such an organization might be a literary agent representing a number of writers, or, more commonly, a copyright management organization.

In a collective management organization model, the mandate to authorize third parties may come directly from rightsholders under a voluntary (contract-based) system, or it may follow from government regulations that impose a compulsory or “extended” license or that create a “right to remuneration” that must be managed collectively. With respect to pricing, in some cases, such as Copyright Clearance Center in the United States, rightsholders set the price for each type of use of each piece of content. In the vast majority of cases, however, prices are contained in tariffs applicable to a class of content and/or users. An annual fee, often referred to as a blanket license, is sometimes set by law and covers an entire repertory of works. Repertory licenses are useful in cases where more precise management would be either too costly or simply impossible. A good example might be music performing rights, where a radio station typically purchases an annual blanket license to broadcast music.

Another approach, the transactional fee, gives the user a license to use a specific work or manifestation for a defined purpose. The user typically applies for the license when he/she needs the rights in question. For example, educational institutions in the United States that produce paper and electronic “coursepacks” (collections of material from various sources, usually considered a supplement to textbooks) generally must obtain prior authorization for each piece of content used; the use of music in advertising or, in most cases, to make a commercial recording, also requires a transactional fee that covers only that specific use (although in the United States, mechanical reproduction rights are subject to a compulsory license). In the transactional model, collective management organizations either grant a license based on agreed terms set in advance by the rightsholder, or they act as an intermediary between the rightsholder and the user to establish terms and/or collect payment.

2.2 Defining Electronic Rights Management

Applying the above concepts, we see that rights management functions are made much easier with computers, which can act both as huge rights databases and automated licensing engines. Computerized systems allow rightsholders to automatically grant licenses to users without human intervention, which has the benefit of keeping transaction costs low and making licensing an efficient, Internet-speed process. That is, licenses to use a specific work can be granted automatically to individual users. For example, a corporation or an individual author or user can purchase the right to use an image, video clip, or song to republish it in a magazine article; or a publishing house might purchase the right to reuse previously published material. These systems may also be used to deliver content in cases where the user does not have access to such content in the required format. Or they may be used to create licensing sites (e.g., www.copyright.com) or offer licensing options at the point where the content is made available. Finally, digital technology can also be used to track usage (“metering” and “monitoring”), look for unauthorized uses (programs known as “spiders”)

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3. For a discussion of the various collective management organization models, see Mihály Ficsor. Collective Administration of Copyright and Neighboring Rights. WIPO, 1990.

4. While this type of application is newer, theatrical performance of theater plays has functioned under this model for a very long time, but does not enter the scope of this paper which focuses on diffusion techniques, i.e., on reception of material by users other than by direct personal access (presence at a live concert, etc.).

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scour the Web looking for unauthorized copies of material on Web sites) or to encrypt material in digital containers to limit further uses of the material.

For transactional licenses, an electronic copyright-management system basically acts as a licensing engine. There are various implementations of such systems that range in technical sophistication. In the least sophisticated, a user mails, faxes, or e-mails a license request to a collective management organization that processes it manually and returns an answer to the user. In a slightly more automated environment, the organization uses an electronic works- and-rights database, but still processes the license request manually. Another step up in the ladder of automation is where an internal computer-based licensing system processes the request. With a full electronic copyright-management system, the user searches available content and rights online, submits a license request electronically (usually via the World Wide Web), and receives a response from the electronic copyright-management system without any human intervention. A variation on this theme is where the user first locates the content (using a search engine or portal) and is then offered licensing options at the point of content.

2.3 Positive v. Negative Licensing

As mentioned in the introduction, the basic question boils down to this: is the provider’s (publisher/producer) mandate to minimize unauthorized uses or is it to maximize authorized uses? To limit unauthorized reuse, negative licensing tools are used: encryption, digital containers and other technology solutions that limit the options available to the user not by contract, but by physically preventing uses that the rightsholder wants to prohibit. This usually prompts negative reactions from user communities and is perceived as an invitation to hackers to work around the protection. Laws are not always effective in backing up the use of such technologies and courts (e.g., in the Rio player case) have not supported certain efforts by rightsholders to enforce negative licensing. Positive licensing, on the other hand, assumes that users find what they want and are given an easy option to determine terms of use, both at the time they acquire the content and later on. Very often, especially in a business-to-business environment, users want more rights after having received and reviewed the content. For example, a company may find a newspaper or journal article that they want to e-mail to customers, post to an Intranet or publish in their corporate newsletter. They don’t know this before reading the article (i.e., at the time of acquisition). It makes little sense (in most cases) to ask a user that he/she acquire in advance a right to reuse anything in any form. If available at all, this option would likely be much too expensive. This is where positive licensing comes into play: it allows users to acquire the content on appropriate terms (and at the right price) and then acquire new rights as their needs change and grow.

3.0 ECMS Issues and Obstacles

There are several clusters of issues that are hindering the development of ECMS solutions. They are grouped below in three main areas: legal, standards-related, technology and privacy.

3.1 Legal Issues

The principal legal issues that need to be addressed in electronic copyright-management systems are ownership of rights and works, rights to be conveyed, what the conveyance allows, and whose laws apply in case of a conflict involving more than one country.
3.1.1 Rights issues

3.1.1.1 Who owns the rights?

While the author usually owns the rights to a work at the time of creation, legal relationships like employment or work for hire may vest those rights in someone else. The issue is more complicated in the case of a motion picture or play, where other rightsholders (e.g., producers or performers) may be involved. In addition, copyright rights are routinely transferred (e.g., from an author to a publisher, or from one publisher to another), except in countries where this is legally impossible (e.g., Germany). The electronic copyright-management system needs to know who owns the right to authorize the use of a work in whole or part at a particular point in time-- and then possibly also who may be entitled to a share of the royalties.

3.1.1.2 Which rights are involved?

Copyright is not a monolith (except, arguably, in “monistic” countries such as Germany\(^5\)). It comprises a number of different rights, and those rights have a separate existence in different parts of the world. We thus have a three-dimensional matrix, with a multitude of copyright rights that to make matters worse can, in most cases, be separated territorially\(^6\).

An inventory of the components of “copyright rights” is found in the Berne Convention and many national laws. There are two overarching categories: moral rights and economic rights. Within the former are the right of paternity or authorship and the right to oppose mutilation. In the latter category, the most important rights are the reproduction right, the right of communication to the public (which includes, according to Article 8 of the WIPO Copyright Treaty, the right to “make available”), and the right of adaptation. An electronic copyright-management system is concerned mainly with rights that can be licensed or traded on a routine basis, and therefore economic rights are better candidates for electronic rights management than moral rights.

3.1.1.3 What rights are conveyed?

A digital transmission of content implies making a copy, usually both on the server from where the transmission originates and the recipient’s computer. That may not always be the case. A user listening to music in streaming mode may not be making a copy. There may, however, be a number of transient or technical copies, for example on cache or mirror servers. Although some argue that digital transmission involves the right of distribution, a copy is not really distributed in the physical sense. In fact, whenever a protected work is accessed on a server and a user gets a copy, the right of reproduction rather than the right of distribution may be invoked. Certainly that is the position taken in the first of the Agreed Statements accompanying the WIPO Copyright Treaty (WCT):

\(^5\) - Even there the economic “exploitation right” is subdivided into many types of use (reproduction, communication, etc.), which can all be “granted” (licensed) separately.
\(^6\) - The adoption of international exhaustion (a territory of exhaustion might be the European Union) may impact on the application of this principle, but the principle remains nonetheless.
“The reproduction right, as set out in Article 9 of the Berne Convention, 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 Article 9 of the Berne Convention.”

Still, an open question remains about exceptions to this exclusive right of reproduction. As provided for in Article 9 of the Berne Convention, such exceptions, including “fair use” and “fair dealing,” should have a limited scope whenever a commercial activity or any other wide-scale diffusion that interferes with the normal exploitation of the work is involved.

Another important right, namely the right of communication to the public, which certainly applies to broadcasting, also applies to most cases of interactive, on-demand transmissions. Article 8 of the WCT says that the exclusive right of communication to the public includes “the making available to the public of their works in such a way that members of the public may access these works from a place and at a time individually chosen by them.” A number of countries have created specific rights in the face of the WIPO Treaties. To take two examples, Japan added a digital transmission right to its Copyright Act in 1997, and the United States created a right with respect to the digital delivery of “phonorecords”.

The communication/transmission right may be owned by a rightsholder who does not also own the right of reproduction. If a particular use on the Web requires an authorization for both rights, two different clearance transactions may thus be necessary. One would hope that both authorizations would be available at the same place and at the same time. In other words, that independently of the rights that may be involved, only one “internet transmission fee/tariff” would have to be paid by content and/or service providers. This is easier said than done, especially in countries where there are different organizations managing these rights on behalf of rightsholders, as is the case in, e.g., Canada and the United States.

3.1.2 Applicable law issues

3.1.2.1 Which country's laws take precedence?

The traditional theories of emission (the law of the country of origin of the communication applies) and of reception (the law of the country of reception of the communication applies) are both very hard to transpose literally into the digital environment. One of the reasons is the multiplicity of countries that may qualify under either theory. When a user browsing the World Wide Web clicks to obtain remote content, he/she does not know whether that content comes directly from the site -- and the host country -- that the user is browsing. It may come from a mirror site in a third country. In that case, should we apply the fiction that the content came from the “mother site”? In other cases, sites or parts thereof are cached so that the content can be downloaded from a server closer to the user. Do we need a legal fiction to ignore the actual country of origin versus the perceived country of emission? With the country of emission approach, servers could be located in so-called copyright havens.

The reception theory seems simpler, and to a certain extent it is. The laws that take precedence are those of the country where the user is located. But that location is not always evident. As a resident of country A, I can use telephone lines to connect to the Internet in
country B. To the system, I am located in country B. That problem may be evidentiary, but it matters nonetheless.

After a close reading of the Berne Convention, Professor André Lucas of Nantes University recently proposed an amended version of the reception theory, which applies the law of the country where protection is required -- the country for which protection is claimed (lex loci delicti). In most cases that would be the law of the country in which protection is claimed (lex loci), but not necessarily. Courts in a third country might be given jurisdiction by a contract between the litigants.

In the music field, the collecting societies representing authors and publishers disagree among themselves. US societies want to license in the country where the server is located, while their European counterparts prefer to license the content provider, which may or may not be in the same country as the server. In Canada, the Copyright Board issued a decision (now being appealed before the Federal Court of Canada) in which it concluded that the communication to the public right had to be cleared in the country where the server is located.

3.1.2.2 Who gets to choose the applicable law?

So, who gets to choose the applicable law? If the rightsholder or service provider chooses the copyright-management system's environment, he/she is likely to prefer the laws of the country of emission, i.e., generally speaking, the law where the server is located. If the access provider makes the choice, it could be the country of emission, the country of reception, or a third country, depending on where that provider is located. If rights were managed at the user level (using a set-top box, for instance), the country of reception (or even the country in which the boxes are sold) could provide the legal environment. In practice it seems much simpler to license the business of internet transmissions from the country of origin of the transmission, independently of whether the end-user makes a copy that needs to be licensed or not. The fee formula may of course reflect the number of times a work is downloaded/listened to.

That said, from a practical standpoint while electronic copyright-management system modules may eventually be produced for a world market, rights more or less will become independent of any national law's idiosyncrasies. The WIPO Copyright Treaty and other efforts by WIPO itself have greatly increased harmony of national laws, and the gaps between national laws are closing, making that last scenario less fantastic. Yet, those gaps are not closing fast enough, and ambiguities remain. For instance, the Berne Convention, the Trade-Related Intellectual Property Rights Agreement (TRIPS), the WIPO Copyright Treaty, and the WIPO Performances and Phonograms Treaty impose limits on exceptions to common rules, but they do allow exceptions, and those exceptions vary considerably from one country to another. Depending on which law applies, an act may or may not require an authorization or may or may not be covered by a compulsory license or equitable remuneration scheme. It is still not clear what would happen if a French user were to download material from a U.S.

8 - “Statement of royalties to be collected by SOCAN for the performance or communication by telecommunication, in Canada, of musical or dramatic-musical works; Tariff 22” [Phase I: Legal Issues]. October 27, 1999. Available at http://www.cb-cda.gc.ca/decisions/tocmusic-e.html.
site for educational uses in France: Would the **U.S. Fair Use Guidelines** apply? Probably not: the law of the country of reception almost certainly applies to **reuse** of the downloaded material, but the download itself should be cleared once, preferably in the country of origin of the transmission.

In fact, copyright is still negotiated and traded country-by-country and right-by-right. If I, as an author, have transferred the right to digitize and disseminate my work electronically to a publisher in, say, Hungary, what happens if a corporation in France downloads and copies my work from a site authorized by the publisher? Does that publisher have the right to authorize use in France? How does the Hungarian publisher even know that the user corporation is in France? An electronic copyright-management system thus might include a function (e.g., a digital certificate or signature) that would check whether the user is located in a valid country, and that function could even include a digital-signature-based registration module that would confirm the mailing address of any user.

The recent iCraveTV example illustrates the problems that can arise when users in foreign countries gain access to material posted (presumably legally) on a server in another country, by virtue of a compulsory license, extended license or any such arrangement. In those cases, a rightsholder in country A sees its right taken away by a foreign government’s regulations in country B. A user in country B takes advantage of the compulsory/extended license to put the material on a Web server in his/her country. Seems OK, if use is considered to happen in country B. But another user living in country A accesses the material from the server located in country B. The problem, the rightsholder in country A has an exclusive right and prohibits Web postings of its material. Unfortunately for us, the iCraveTV lawsuit seems to have been settled. But there will be many more examples of similar situations in months and years to come.

### 3.1.3 Moral rights

The question also arises to know how will the so-called moral right apply? While the business of electronic copyright clearly involves economic rights, it is impossible to ignore moral rights. These are rights of the author to oppose mutilation of a work and to claim its authorship even after a full assignment of all economic rights. They vary from country to country. Good electronic copyright-management systems should be able to handle ambiguity; they should not be limited to saying Yes and No. Already, sophisticated electronic copyright-management systems are in use that can help protect moral rights two ways. First, since the system allows a contract to be agreed upon between rightsholder and user (with or without an intermediary), the parties may stipulate that alteration of the work is not allowed and/or that authorship must be recognized in a certain way. Second, rightsholders can impose special conditions. For instance, with an electronic copyright-management system a photographer could insert language to restrict the use of her work to companies that she considers appropriate, specifically excluding tobacco, firearm or alcohol-producing companies.

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11 - See for example the on-line contract for Mira uses, Article 3, [http://www.mira.com/Services/MoreTermsConditions.htm](http://www.mira.com/Services/MoreTermsConditions.htm).
3.2 Standards Issues: Identification and Metadata

3.2.1 Identification of protected material

Identifying what travels on digital networks is another essential part of a real-time electronic copyright-management system. The system must be able to precisely identify works, manifestations, and rightsholders in order to secure authorizations from the right person, assign permissions, and then send payments to the rightsholder. There are several competing standards under consideration or in use today, many of them recognized by the International Organization for Standardization (ISO).

3.2.1.1 International Standard Work Code (ISWC)

This system, from the International Confederation of Societies of Authors and Composers (CISAC), an umbrella organization representing a number of collective management organizations mainly in the music field, is being used for musical works and developed for literary works. The codes are “dumb” (or mute) numbers, in the sense that they do not in themselves contain any information. Unique for each object, the identification number is a key to a database where relevant information is contained. The version of this draft code used for music (ISWC-T) consists of the letter T followed by a sequentially allocated ten-digit numeric code, the last digit of which is a check digit that allows the computer to validate the other nine digits. Numbers for the literary system (ISWC-L) will be similar.\(^\text{12}\)

3.2.1.2 International Standard Recording Code (ISRC)

According to the International Federation of the Phonographic Industry (IFPI), the material traveling on electronic networks does not consist of “works” in a pure copyright sense, but rather of “manifestations” of works (also referred to as “digital objects”). Such manifestations might include a recording of a specific performance of a musical work (which, in the United States, may become a new work), or an HTML or PDF version of a scientific article published on the Web, including graphs and illustrations from various sources. Current IFPI identifiers for manifestations include the ISO-recognized International Standard Recording Code that identifies a musical recording (e.g., a track on a CD). Although it was adopted by ISO more than 10 years ago, less than 50% of recordings on the market have an embedded code. It is likely that efforts concerning encryption and protection of music files over the Web will affect the standardization process.

3.2.1.3 International Standard Music Number (ISMN)

Another identifier in the music field is the ISO-recognized International Standard Music Number, which is used for sheet music.

3.2.1.4 International Standard Book and Serial Numbers (ISBN/ISSN)

Books may be considered manifestations, although they are also finished commercial products. For over thirty years they have been identified using the International Standard Book Number (ISBN). The ISBN is composed of a one-digit region code, a publisher prefix,

and then sequentially attributed numbers, followed by a check digit. Periodical publications are similarly identified at the title level by the International Standard Serial Number (ISSN), but that number applies to a periodical publication, not to the articles, graphs, charts, and images that it contains.

In the book trade, probably due to the absence of a specific publisher identifier, some people identify publishing houses by their ISBN prefix.

3.2.1.5 Publisher Item Identifier (PII)

Used in the publishing industry, the Publisher Item Identifier was developed in 1995 by an informal group of scientific and technical publishers: American Chemical Society, American Institute of Physics, American Physical Society, Elsevier Science and the Institute of Electrical and Electronics Engineers (IEEE). The Publisher Item Identifier is composed of seventeen alphanumeric characters that indicate publication type (whether it is a book or a journal), and other information depending on the type -- such as the year of a serial publication. It contains no other intelligence, however, and is not linked to a central database.\(^\text{13}\)

3.2.1.6 Serial and Book Item and Contribution Identifiers (SICI)

The Serial Item and Contribution Identifier (SICI)\(^\text{14}\) is a recognized standard used by serial publishers, subscription agents, and libraries, but no one has found a way to use it in the digital environment because it does not identify individual articles. An expanded SICI and a new Book Item and Component Identifier (BICI) are now under development. They will be able to identify any part of a book or serial such as a chapter, an article, a foreword, an illustration, or a table.

The BICI is a flexible identification system with a fairly loose set of rules. The absence of firm rules here and in identifiers like the Digital Object Identifier (see 3.2.1.8) reflect the amorphous and changing nature of the data to be identified, and the way in which it is stored, made available, and used or reused.

3.2.1.7 Compositeur, Auteur, Editeur Code (CAE/IPI)

The CAE code is used by collective management organizations in the music field to identify those who create music and -- more recently -- other forms of information. Created in 1992 by the International Confederation of Societies of Authors and Composers, the code has been superseded by the IP number to identify “Interested Parties” to a work -- a full range of rightsholders. The format of the number itself did not change, and previously allocated CAE codes were converted into IP numbers. As with some other identifiers, the numbers convey no meaning. At present, use of and access to the IP database is restricted to confederation members. If it is made available, it could lead to a standard identifier for people by all copyright industries.


14 - ANSI/NISO standard Z39.56.
3.2.1.8 Digital Object Identifier (DOI)

The Digital Object Identifier (DOI)\textsuperscript{15} is not an identifier \textit{per se}, but it offers both a structure for an identifier and a persistent routing system to a database containing relevant information.

Launched by the Association of American Publishers in conjunction with the Corporation for National Research Initiatives at the 1997 Frankfurt Book Fair, the DOI was designed to “provide persistent and reliable identification of digital objects via a proven technology -- the CNRI Handle System\textsuperscript{®} -- and an efficient administration system to link customers with publishers, facilitate electronic commerce, and enable automated copyright management systems.” The CNRI Handle System is a distributed computer system that stores names of digital items and can quickly find the information necessary to locate and access the items. The DOI is thus mainly two things: an identification system, potentially applicable to any and all categories of works and manifestations (even though at present its beta users are mostly book and journal publishers), and a central directory or database which, when queried using a DOI number, will route the user to the appropriate source of information. Dr. Norman Paskin, Director of the DOI Foundation, will be presenting the DOI in a separate paper at this Conference.

3.2.1.9 International Standard Audiovisual Number (ISAN)

The International Standard Audiovisual Number (ISAN) is a joint development of the International Confederation of Societies of Authors and Composers, the International Federation of Film Producers Associations, and the Association de Gestion Internationale Collective des Oeuvres Audiovisuelles. The audiovisual number has reached the level of “Committee Draft” within the International Standards Organization, and has been submitted to national ISO committees\textsuperscript{16}. The proposed identifier is a sixteen-digit dumb number that may be used to identify audiovisual works of all kinds\textsuperscript{17}. It is an identification number without any legal implication or meaning and has no \textit{prima facie} evidence value as regards the copyright status or ownership of the work. It does not identify rights owners, even though it will be a tool used by people concerned with rights management as well as by many people interested in precise identification of audiovisual works. In other words, the number is a mere pointer to a database where information necessary for the identification of content is maintained. The proposal is to affix the number onto the work -- on masters and copies, whether in analog or digital format, on packaging, contracts, etc. The system is administered by an ad-hoc, non-profit-making, international agency. The system and the information in the identification database will be open to any interested user. A fee will be charged to access the database. Many collective management organizations active in the audiovisual field plan to use the number as a key feature of the International Database on Audiovisual Works, a database of rights ownership in audiovisual works to be used for collective rights-management purposes.

\textsuperscript{17} - “3.1 audiovisual work: Work consisting of a series of related images, with or without accompanying sound, which is intended to be made visible and/or audible through the use of devices, regardless of the medium of initial or subsequent fixation.”
3.2.1.10 Persistent Uniform Resource Identifiers (URN/PURLs)

There are various proposals to upgrade the standard Internet Uniform Resource Locators (URLs). The problem is that when a digital resource moves from one page or file on a server to another, or from one server to another, the URL also changes. A user who enters the original URL in the browser gets the infamous “Error 404” message, meaning that the resource is no longer available at that address. PURLs are URLs that point to a server that can be updated (a system not unlike the DOI directory). “Instead of pointing directly to the location of an Internet resource, a PURL points to an intermediate resolution service. The PURL resolution service associates the PURL with the actual URL and returns that URL to the client. The client can then complete the URL transaction in the normal fashion. In Web parlance, this is a standard HTTP ‘redirect’.”

3.2.2 Metadata issues

Until and unless a single global identification system can be agreed upon, electronic copyright-management systems must be able to function in a multi-code environment. And that means that information about the information -- metadata -- must be made available in a usable format.

While there are existing standards for bibliographic metadata that go back many decades, the situation is less clear in other sectors. In the audiovisual sector, there are databases that contain information like film credits, but currently there are no worldwide standards. Following are some of the efforts to develop metadata standards.

3.2.2.1 The Dublin Core

The Dublin Core is an attempt to identify the core elements of metadata that are needed to satisfy the needs of all those involved in the exchange of or commerce in electronic-information resources. It was developed over a three-year period at workshops in which “experts from the library world, the networking and digital library research communities, and a variety of content specialties” participated. This “core” was named after the city in Ohio in which the first meeting was held.

Originally, the Dublin Core contained fifteen core elements: Title, Subject, Description, Creator (or primary contributor), Contributor, Publisher, Date, Type, Format, Identifier, Source (previous resource), Language, Relation (to another resource), Coverage (geographical or temporal) and Rights. In further meetings, other elements were added including the concept of a sub-element, which is used to qualify an element (for example, ‘date’ can refer to a date of publication, or of a revision); a scheme, a label used to identify the method followed to identify the data (e.g., Dewey or MARC); and the language in which the metadata is entered, as opposed to the language of the resource itself.

A number of other groups are working on standards that could have a direct impact on the future of the Dublin Core. While those standards are not for metadata per se, they affect the

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19 - Participants came from the following countries: Australia, Canada, Denmark, Finland, France, Germany, Japan, Norway, Sweden, Thailand, United Kingdom and the United States.
way metadata is coded, transmitted, used, retrieved, and accessed. For example, the World Wide Web Consortium is developing new markup languages and a new language for representing metadata in XML, the markup language designed to replace HTML.

3.2.2.2 MARC

A well-known public repository of metadata in the United States is the machine-readable cataloging-records database (known as MARC or US MARC). The MARC formats are standards for the representation and communication of bibliographic and related information in machine-readable form. The MARC was developed by the Library of Congress, the Canadian National Library, and the American Library Association along with the Australian National Library, the Online Computer Library Center, the Music Library Association, and the Special Libraries Association. The US MARC database contains approximately seven million records of publisher titles. It can be searched online. A MARC record contains three elements: the record structure, the content designation, and the data content of the record. The MARC benefits from the fact that it already applies to a vast number of titles. The question is whether (and how) it could be extended to apply to other types of content.

3.2.2.3 The INDECS Project

A very promising project, known as Interoperability of Data in E-Commerce Systems, or INDECS, was launched in November 1998, funded by the European Commission. It is worth mentioning here because it seems to have the support of many international representative organizations. In addition, the project partners have significant experience working with identification and metadata issues in a copyright environment, and understand the difficulties encountered by the various ongoing standardization efforts. INDECS posits the existence of several identification schemes and, rather than try to achieve worldwide harmonization, is aiming for interoperability. At the heart of the project will be an effort to achieve agreement on a proposed standard for descriptive and rights metadata. Such a standard would provide a means of integrating data from the different rights-based sectors. To produce those deliverables, INDECS will also need to achieve agreement on a data dictionary to address the numerous vocabulary problems that stem from the participation of people and companies with widely different backgrounds and practices.

3.2.2.5 Other metadata concerns

While the music and audiovisual fields have taken some steps to standardize metadata, there is no standard for data concerning rights ownership, licensing and trading. Thus, while the metadata may be used to identify a particular piece of content, it may not be sufficient or even useful for electronic-commerce transactions. If, for example, the rightsholder is not the “original” rightsholder indicated in the bibliographic metadata, the data could do more harm than good.

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20 - HTML or Hypertext Markup Language is a form of SGML, the Standard Generalized Markup Language, which is ISO standard 8879. SGML could be viewed as a system that allows one to define and use documents, in particular, on the World Wide Web. XML is the Extensible Markup Language. XML is a more transaction-friendly SGML-based system. It is thus probably better suited to enable e-commerce. For a history, see “The Road to XML”, http://www.xml.com/xml/pub/w3j/s1_discussion.html.
3.3 Technology and Privacy Issues

Protection of rights management information requires a synergy between law and technology, and there are several projects that are looking at that interface. Some important issues include:

3.3.1 The Protection of Electronic Copyright-Management Systems

Electronic copyright-management systems themselves need protection. They need standard identification and delivery formats and tools to work automatically. With the growing use of digital networks to access protected content, it is highly likely that rightsholders will invest heavily in identifying and permanently marking digital works. Worldwide implementation of the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty should ensure that rights management data are not deliberately altered.

3.3.2 Privacy and confidentiality issues

Two of the questions most often asked by users are:

1. As a private individual, can I browse/read/watch/listen without giving my identity (and then receiving mail and telephone solicitations, etc.)?

2. As a corporate user (say a pharmaceutical corporation), can I download this scientific article without the whole world knowing that I need this for my R&D efforts?

There may be legal grounds on which to base a claim for privacy or confidentiality in accessing protected content. In fact, academic authors in the United States have argued that the Constitution protects a right to read anonymously. In many European countries, private data are protected and may be used only within strict guidelines.

An electronic copyright-management system does not in and by itself protect privacy, but it is one of the best tools to do so. If the rules under which the electronic copyright-management system operates are correctly designed, the system returns to rightsholders aggregated information on use of his/her works. For example, the system could say that clearance was granted to use Scientific Article X to 11 pharmaceutical companies in the last month, or that 2,345 teenage users in a part of Chicago downloaded a given musical work. The rightsholder thus gets market data without violating anyone's confidentiality or privacy.

A related issue is how to identify individual digital copies (which presumably have been sold to a specific user), without creating a risk to privacy or confidentiality. If, indeed, individual copies are identified, using a watermark containing a transaction code for instance, a viable solution could be to number individual copies, without including data identifying the user who ordered the copy in question. Copy numbers could be linked, in a secure database, to the individual users. Should there be a good reason to make the link between the copy number...

21 - For the purposes of this paper, “privacy” relates to protection of consumer data, while “confidentiality” applies in a corporate environment.

and the user -- for instance, under court order -- that link could be made. The role of trusted third parties acting as aggregators of usage data might be especially important to users. An aggregator or collective management organization using an electronic copyright-management system could thus maintain the confidentiality of the link (if any) between a given copy delivered on-line and a specific user. The content owner would receive with the payment for use of his works a report on the number of uses, possibly with an indication of the type of users concerned, but no information about individual users. Without this type of confidentiality guarantee, it may be very difficult for electronic copyright commerce to prosper. In other words, properly tuned electronic copyright-management systems that aggregate data so as to protect privacy and confidentiality are probably essential ingredients of the success of electronic copyright commerce.

4.0 Inventory of Existing Systems

There are a number of working electronic copyright-management systems in operation today, even though the field is still fairly new -- so new that a 1996 report concluded that the systems were still nascent, but today there are real products. The examples below include only systems that bring together the works of several rightsholders, not those run by and for a single rightsholder. The list is not exhaustive, and its purpose is only to illustrate that the concepts discussed above can work in practice, even though much remains to be done to find workable global solutions. The emphasis here is on systems that can authorize users to actually use content that may or may not already have in their possession (in the required format). In the introduction, examples of technologies used to control reuse were given.

4.1 Copyright Clearance Center (CCC)/IFRRO

US-based Copyright Clearance Center, Inc. (CCC) offers an electronic copyright-management system available on the World Wide Web that allows rightsholders to set their prices, establish acceptable uses, and view their accounts directly. The service is offered for universities interested in clearing photocopied coursepacks and electronic course content, and for general photocopying permissions. CCC also offers on-line licensing of specific titles for reuse and republication of text and non-text portions of printed works, whether on paper or electronically.

As a member of the International Federation of Reproduction Rights Organisations, the CCC has an interface to the copyright-management systems (some of them off line) of IFRRO members such as the UK Copyright Licensing Agency's Rapid Clearance Service (CLARCS) and the Australian Copyright Agency Limited's Copyright Xpress.

4.2 Media Image Resource Alliance (Mira)

The Media Image Resource Alliance (MIRA) is an online digital-stock agency. Users can browse, download, and clear rights to use professional-quality images. The entire licensing function and access to content is done automatically online via an electronic copyright-management system. Photographers and other rightsholders provide images directly to Mira, and set prices and conditions for use.
4.3 Japan Copyright Information Service (J-CIS)

The Japanese government helped launch a very interesting project called J-CIS (Japan Copyright Information Service). This service would provide information on copyrighted material of all types and allow users to contact the current rightsholder easily to obtain necessary permissions. Certain conditions of use may also be predetermined by the rightsholder\(^\text{23}\).

4.4 Very Extensive Rights Data Information (VERDI)

The INFO2000 European VERDI project is precisely designed to build an infrastructure to license use of multimedia content for European users and rightsholders. VERDI partners include a number of key European copyright management organizations. The purpose of the consortium is to pool (in a distributed fashion) existing rights & works databases, link them to an online licensing engine, while maintaining each partner’s role in acquiring rights from local rightsholders and distributing collected royalties and fees to those rightsholders. Content delivery will be added at a later date\(^\text{24}\).

5.0 Conclusion: The Way Forward

It is not realistic to see the world as a series of separate, parallel, watertight delivery systems. Interoperability is Ariadne’s thread in the labyrinth of electronic copyright commerce. Several large entertainment, publishing and other conglomerates have developed, or are currently developing, solutions for identification, rights management, and digital delivery of copyrighted content. While that may meet their immediate needs, it may not meet the needs of users. The reason why the Web is so successful is that portals and search engines allow access to almost all the content that is available. Specialized portals, vertical “communities” and other forms of content access are gaining ground. The point is simple: users are more likely to use/buy content if they find it easily, and they will be happier as users if they can decide what they want to do with the content (within reasonable limits) and pay accordingly. This is particularly true in a business-to-business environment.

Waiting for a worldwide standard to emerge from several competing proprietary systems may be risky. Solutions that strive towards interoperability and a certain degree of harmony should be offered by key players who seek out, analyze, and, where appropriate, help to develop those solutions.

Quality content is there. In almost all cases, it is in digital form or can be digitized. Networks with sufficient bandwidth are being built, and many business users and individual consumers are already connected. They are hungry for content. Fortunately, many copyright industries, not just certain specialized text publishers who have been doing it for many months now, are coming to the view that global networks represent a great business opportunity. The digital world, though it may be different, is interesting commercially. In fact, it may be the only

\(^{23}\) See the paper presented by Ms. Mikiko Sawanishi at the First session of the WIPO Advisory Committee on Management of Copyright and Related Rights in Global Information Networks. WIPO document ACMC/1/2. Available at [www.wipo.int](http://www.wipo.int).

\(^{24}\) - See [www.verdi-project.com](http://www.verdi-project.com).
future growth area\textsuperscript{25}. To put it simply, digital is inevitable. Most of the ingredients for successful electronic copyright commerce are already assembled. Rights management solutions must be found. Viable electronic copyright-management systems must provide both blanket and transactional solutions. Interoperability is vital. Answers have been proposed; now we need to implement them.

\textsuperscript{25} - It must be said that some "newer" rightsholders who started to play that role due to the possibilities of digital technology have (impatiently) held that view since the very beginning.