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AUTOMATED RIGHTS MANAGEMENT SYSTEMS
AND COPYRIGHT LIMITATIONS AND EXCEPTIONS

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[*] The views and opinions expressed in this Study are the sole responsibility of the author. The Study is not intended to reflect the views of the Member States or the Secretariat of WIPO.

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BACKGROUND INFORMATION BY THE SECRETARIAT

The 1996 WIPO Internet Treaties[1] have rapidly become the international standard for the development of copyright in the digital environment. The Internet Treaties contain the basic rules for technological adjuncts to copyright protection, composed of technological protection measures and rights management information.

The protection of these key elements of a digital rights management (DRM) system appears as crucial for a secure and balanced distribution of content in the electronic environment. Under a variety of forms the general principles that regulate technological measures and rights management information have found wide acceptance in national legislation. On the other hand the Internet Treaties also establish principles for the development of limitations and exceptions in national legislation, laying the ground work for adaptation of limitations and exceptions to the digital environment.

The compatibility between limitations and exceptions, on the one hand, and technological protection measures, on the other, has proven to be one of the more complex areas in the implementation of the Internet Treaties. It is only natural that Member States of WIPO seek greater clarity at the time of implementing new rules in this area, or when trying to improve, by non normative means, the balance inherent in the copyright system.

Technological measures of protection and limitations and exceptions to copyright and related rights in the digital environment have been thoroughly discussed in different WIPO fora, including: the WIPO Workshop on Implementation Issues of the WCT and the WPPT, held in 1999,[2] and the International Conferences on Electronic Commerce, held in 1999 and 2001. In November 2003, WIPO organized an Information Meeting on Digital Content for the Visually Impaired[3]in order to provide an overview of the present situation regarding access to works by visually impaired people. WIPO has also fostered debate on a range of issues related to the interests of certain beneficiaries such as libraries, educational institutions and users in general.[4] Recently, the Member States of WIPO examined the impact of the copyright system on the use of protected works for educational purposes, particularly in developing countries.[5]

With the assistance of its Member States WIPO has already produced conspicuous research in the two areas under scrutiny. In 2003, the Secretariat published a Survey on Implementation Provisions of the WCT and the WPPT[6] and a Study on Limitations and Exceptions of Copyright and Related Rights in the Digital Environment.[7] WIPO also

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1 WIPO Copyright Treaty (WCT) and WIPO Performance and Phonogram Treaty (WPPT)

2 <http://www.wipo.int/meetings/en/details.jsp?meeting_id=3944>

3 <http://www.wipo.int/meetings/en/details.jsp?meeting_id=5035>

4 <http://www.wipo.int/aspac/en/meetings/2003/pdf/wipo_cr_sel_03_inf1.pdf>
<http://www.wipo.int/aspac/en/meetings/2004/pdf/wipo_cr_hkg_04_inf1.pdf>

5 The meeting took place at the Standing Committee on Copyright and Related Rights (SCCR) which took place in Geneva from November 21 to 23, 2005. The program and presentations can be found at: <http://www.wipo.int/meetings/en/details.jsp?meeting_id=9462>

6 <http://www.wipo.int/documents/en/meetings/2003/sccr/pdf/sccr_9_6.pdf>

7 <http://www.wipo.int/documents/en/meetings/2003/sccr/pdf/sccr_9_7.pdf>

commissioned the Study on Current Developments in the Field of Digital Rights Management (DRM),[8] which covers the technologies upon which DRM is based, the legal framework in which it operates and the business processes that are being deployed in different countries.

While this rich background bears witness to the importance that WIPO and its Member States attach to both the issue of limitations and exceptions and that of DRM, it appears increasingly necessary to focus attention on the interplay between them. The present Study represents a specific and pragmatic approach, focusing on certain limitations and specific countries. In fact, two groups of beneficiaries are considered: the subset of the educational community involved in distance learning, on the one hand, and visually impaired persons, on the other. To illustrate the state-of-the-art in the relevant fields, the law and practice in five countries is described, namely, Australia, the Republic of Korea, Spain, the United Kingdom, and the United States of America. These countries were selected based on criteria which included the presence in national legislation of relevant exceptions in the two subject areas; the existence of statutory and/or voluntary licensing practices, including private-sector initiatives, in the two subject areas; and the state of their national technological infrastructure for digital content delivery. In order to promote an informed debate in this respect, the WIPO Secretariat has commissioned the present Study from Mr. Nic Garnett, Principal Consultant, Interight.com. It takes a proactive, yet neutral and descriptive stance, aimed at examining cases in which DRM could serve as an effective means to implement limitations and exceptions in the digital environment. Finally, the Study identifies future avenues of work towards facilitating the coexistence of limitations and technological measures.

[8] <http://www.wipo.int/documents/en/meetings/2003/sccr/pdf/sccr_10_2.pdf>

INTRODUCTION BY THE AUTHOR

There is growing tension in the field of copyright law. The recognition given to the role of technical protection measures by the 1996 WIPO Treaties has given copyright owners new powers to protect and manage the rights in the works they create. These new powers, the copyright owners argue, are essential to their survival and the continuing production of new works. Digital technology and the Internet offer ever more efficient ways to perfectly reproduce and distribute copyright works – without, in many cases, the necessary authorisation-the new powers are a logical and essential response to this reality.

Many users disagree with this proposition. Instead they see the denial of established "free use" privileges in accessing and using copyright works; they stress the unfairness of what they call "digital-lock-up"; they argue that the combination of technical protection measures and unilaterally imposed contractual terms will remove the balance between protection and access that copyright law should always maintain. Some argue that lack of access to existing works will impede the innovation and creativity that drives culture.

At the heart of this debate is a complex issue but one which can be simply stated: how are the consequences of using technical measures for the protection of copyright works to be managed in a manner which is consistent with the established principles and practices of copyright law.

In this study we do not attempt to deal with the issue in a general sense. We focus instead on two particular areas of interest: access to protected works by people with visual and print disabilities, and the use of protected works in virtual learning environments.

These areas of study share at least two general characteristics. Developments in both areas in recent years have made increasing use of advanced technology. Similarly, this harnessing of technology has been premised in part on the idea of inclusion: fully integrating people with disabilities into the work and play of the community; giving access to education to all, regardless of age, means or location. The concept of "Universal Design" and the principle of "Life long learning for all" are key reference points in these areas.

Copyright, especially as reinforced by the application of technical protection measures, is seen by many as exclusionary, denying access unless the price of admission is paid in full. Hemmed in on the one side by the general application of the so-called three-step test and on the other by the process of digital lock-up, exceptions long established in the public interest seem to many to be under increasing threat.

This study attempts to navigate the issues and the positions of the opposing parties in an objective manner. The quest is to identify practical ideas that could help to reconcile the interests of creators and users in the new technological and legal environment.

Two other considerations are worthy of reference at the start of this study.

The first of these is the realization that the use of technology not only in the protection of content, but also in the management of rights, introduces a profound change in the way that copyright works. Traditionally, a considerable use of copyright works has occurred without direct authorisation of the copyright owner or pursuant to a privilege granted by law. This occurs where for example the medium of delivery of a work facilitates a use which is either impliedly licensed or in respect of which the copyright owner is, in practice, unable to exercise a right to control the use. We argue later in this study that to a certain extent this marginal activity is an important part of the traditional copyright balance.

The binary nature of digital technology effectively negates the possibility of such marginal activity. When content is made available exclusively in a technically protected form, it can only be accessed and used where explicit machine-executable instructions are constructed and delivered for that purpose. Take away the traditional marginal use, however, and many users denounce the denial of privileges. Whether or not their claim is justified, a very different order potentially pertains in the technology-regulated world.

Of course, very little if any content is made available at present exclusively in protected digital formats and even when it is, it is always subject to hacking or capture through analogue or unprotected circuits. But although that reality complicates matters still further, it does not alter the paradigm shift which the capability of technical protection measures bring to rights management.

The second consideration is the relationship between technology and the market for copyright works. This has at least two dimensions.

First, the natural fears of copyright owners which lead them to maximise protection of their works in the face of digital technology would seem to be reinforced by the uncertain state of the new markets into which they are required to launch their works. Secondly, as digital formats and systems dramatically reduce both marginal and transaction costs, so renewed attention has to be paid by both copyright owners and regulators as to where potential markets may exist. And that means identifying the normal field of exploitation of a particular work could become a much more complex process with significant potential to impact on the scope, if not the very nature, of particular limitations and exceptions.

The principal exceptions and limitations relevant to this study are those relating to the use of protected works and other subject matter in education, and use by persons with visual and print disabilities. In both these areas, technology is playing an increasing part in the way protected materials are used. Virtual learning environments employ sophisticated combinations of learning tools and content to advance the educational process, increasingly outside the traditional classroom context. Visual and print disabled persons make extensive and increasing use of advanced technologies such as electronic braille, computer screen readers and text-to-speech synthesisers.

Focusing on specific exceptions and limitations in these areas is not sufficient however. Educators and students alike will want to invoke other established exceptions and limitations in order to accomplish their respective assignments: exceptions for the conduct of private research or criticism are obvious cases in point. Likewise, people with visual and print disabilities should have every right and possibility to avail themselves of all the exceptions and limitations which are used by people without such disabilities.

In short, the application of exceptions and limitations is not always a discrete, linear process. It is often multi-dimensional, particularly in the new technological environment, involving a combination of exceptions and cutting across a number of different exclusive rights. The challenge of devising technical protection measures which are able to respond to these requirements is correspondingly heightened.

Technology, of course, adds yet another layer of complexity both in terms of protection measures employed and in the growing body of law regulating the protection of such measures. As we discuss in detail elsewhere in this study, technology without the aid of (artificial) intelligence can only function to implement precise, predetermined rule sets and cannot, *per se*, accommodate *ex post facto* determinations such as the "fair use" mechanism in United States copyright law. A critical safety valve of the traditional copyright system does not work in an environment regulated by automated rights management technologies.

Later in this study we review and in essence adopt the arguments of leading technology experts that no technical protection measure can replicate the richness of the way exceptions and limitations function as a part of traditional copyright law and practice. We have therefore to pose the question: if we have condoned the use of technical protection measures in copyright legislation, do we in effect discard the exceptions and limitations that such measures are unable to implement? Presumably not, but it then becomes necessary to define the terms upon and modality by which a user or use qualifying for an exception may circumvent the technical measure as applied.

To provide a further element of focus for this study we have confined our research into national laws and practices to five territories:

– Australia
– Republic of Korea
– Spain
– United Kingdom
– United States of America

[Study follows]

STUDY

CHAPTER 1

A REVIEW OF RELEVANT INTERNATIONAL LAW

In this section of the study we provide an overview of the relevant provisions of international law which define permissible limitations and exceptions to copyright.

Two major issues have to be addressed as part of this preliminary review of the law. The first of these is the application of the so-called "three-step test" to the areas of study; the second is the relationship between the anti-circumvention measures and the implementation of specific exceptions and limitations.

A. Exceptions and limitations at international level

In examining the international law on exceptions and limitations of copyright, extensive reference is made to the Study prepared by Professor Sam Ricketson for the WIPO Standing Committee on Copyright and Related Rights, meeting in its Ninth Session from June 23 to 27, 2003.[9]

Exceptions and limitations as embodied in international (and in national copyright law) can be broken down into three categories:

- Limitations of copyright which expressly remove particular categories of works or material from the field of protection.

- Exceptions to copyright protection which allow for specific acts to occur in relation to otherwise protected works without the actor incurring any liability for copyright infringement in respect of that act.

- Compulsory licensing mechanisms which guarantee permission to perform an otherwise restricted act in relation to a protected work, provided some form of fee is paid to the right holder in respect of that use.

From hereon in this study for ease of reference we use the term "exception" to cover all three categories on a general basis. Where the context requires specificity, the precise terminology is used.

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[9] Ricketson, Sam: WIPO Study on Limitations and Exceptions of Copyright and Related Rights in the Digital Environment, WIPO Document SCCR/9/7, April 5, 2003.

The international norms in this area can be summarized as follows:

1. *The Berne Convention for the Protection of Literary and Artistic Works (The Berne Convention)*

Permitted limitations are as follows:

- Official texts: Article 2(4)
- News of the day and press information: Article 2(8)
- Political speeches, and speeches delivered in the course of legal proceedings: Article 2*bis*(1)

Permitted exceptions are as follows:

- Lawful rights of quotation: Article 10(1)
- Utilisation for teaching purposes: Article 10(2)
- Exceptions made for the benefit of the press: Article 2(8)
- General exception concerning reproduction rights: Article 9(2)
- Contributions to the making of a cinematographic work: Article 14*bis*(2)(b)

The permissible compulsory licences are as follows:

- Compulsory licenses with respect to the recording of musical works
- Compulsory licenses in respect of the broadcasting of works: Article 11*bis*(2)
- Ephemeral recordings of broadcast works: Article 11*bis*(3)
- Compulsory licenses in relation to developing countries: Appendix to the Paris Act

2. *The International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (The Rome Convention)*

This Convention deals with three kinds of neighboring rights or rights related to copyright: those of performers, phonogram producers and broadcasting organizations. Permissible exceptions are contained in Article 15 and are of two kinds:

Specific Exceptions: Article 15(1)

- Private use Article 15(1)(a)
- Use of short excerpts in connection with the reporting of current events: Article 15(1)(b)
- Ephemeral fixation by a broadcasting organization by means of its own facilities and for its own broadcasts: Article 15(1)(c)
- Use solely for the purposes of teaching or scientific research: Article 15(1)(d)

Limitations contained in domestic laws: Article 15(2)

– These must correspond to the protection of copyright in literary and artistic works.

3. *The Agreement on Trade-Related Aspects of Intellectual Property Rights (the "TRIPS Agreement")*

As a mandatory requirement under Berne

Article 9(1) of TRIPS requires that members will comply with Articles 1-21 of Berne, regardless of whether the country in question is a Berne member. Members must therefore provide for exceptions for quotations under Article 10(1) of Berne. With respect to the others, there is no compulsion for any of these limitations or exceptions to be recognized, but, if they are, then the conditions contained in the relevant Berne Articles will need to be observed.

As a specific TRIPS obligation under Article 13 of TRIPS

Article 13 of TRIPS provides as follows:

"Members shall confine limitations and exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right-holder."

This has to be interpreted as part of the TRIPS Agreement, rather than as part of Berne but as Ricketson states, "the better view must be that Article 13 applies to all the exclusive rights listed in Berne, including that of reproduction, as well as the rental right in TRIPS."[10]

There is no obligation under TRIPS for members to apply the provisions of the Rome Convention to performers, phonogram producers and broadcasting organizations: under Article 3(1) members are required only to apply rights accorded under TRIPS itself. These are contained in Article 14(1)-(5) that parallel, and in some respects go beyond, the requirements under Rome. In relation thereto, members can only provide for limitations and exceptions within the categories listed in Article 15(1) and (2) of the Rome Convention.

4. *The WIPO Copyright Treaty (WCT)*

Exceptions are dealt with in two provisions:

– Article 1(4)

This provision requires Contracting Parties to comply with Articles 1-21 and the Appendix of the Berne Convention. Thus, regardless of whether a Contracting Party is a member of Berne, it must apply the three-step test to the reproduction right as provided in Article 9(2) of Berne.

[10] See Ricketson *supra*, p. 44.

– Article 10

Article 10 provides as follows:

"10(1) Contracting Parties may, in their national legislation, provide for limitations of or exceptions to the rights granted to authors of literary and artistic works under this Treaty in certain special cases that do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the author.

"10(2) Contracting Parties shall, when applying the Berne Convention, confine any limitations of or exceptions to rights provided therein to certain special cases that do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the author."

Article 10(1) applies to the rights provided for in WCT, namely the rights of distribution (Article 6), rental (Article 7) and communication to the public (Article 8).

An Agreed Statement relative to Article 10 that was adopted by the 1996 Diplomatic Conference provides:

"It is understood that the provisions of Article 10 permit Contracting Parties to carry forward and appropriately extend into the digital environment limitations and exceptions in their national laws which have been considered acceptable under the Berne Convention. Similarly, these provisions should be understood to permit Contracting Parties to devise new exceptions and limitations that are appropriate in the digital network environment.

"It is also understood that Article 10(2) neither reduces nor extends the scope of applicability of the limitations and exceptions permitted by the Berne Convention."

5. *The WIPO Performances and Phonograms Treaty (WPPT)*

Article 16 of WPPT provides as follows:

"(1) Contracting Parties may, in their national legislation, provide for the same kinds of limitations or exceptions with regard to the protection of performers and producers of phonograms as they provide for in their national legislation, in connection with the protection of copyright in literary and artistic works.

"(2) Contracting parties shall confine any limitations or exceptions to rights provided for in this treaty to certain special cases which do not conflict with a normal exploitation of the performance or phonogram and do not unreasonably prejudice the legitimate interests of the performer or of the producer of the phonogram."

These provisions also need to be read subject to the following agreed statements that were adopted at the 1996 Conference. The first relates to Articles 7 (right of reproduction for performers) and 11 (right of reproduction for producers of phonograms) as well as Article 16:

"The reproduction right as set out in Articles 7 and 11, and the exceptions permitted thereunder through Article 16, fully apply in the digital environment, in particular to the

use of performances and phonograms in digital form. It is understood that the storage of a protected performance or phonogram in digital form in an electronic medium constitutes a reproduction within the meaning of these Articles."

The second Agreed Statement relates only to Article 16, and provides:

"The agreed statement concerning Article 10 (on Limitations and Exceptions) of the WIPO Copyright Treaty is applicable *mutatis mutandis* also to Article 16 (on Limitations and Exceptions) of the WIPO Performances and Phonograms Treaty."

B. Issues with exceptions

Following this summary of the provisions in the international treaties dealing with exceptions, we proceed to examine two specific areas in more detail:

- Specific exceptions related to the needs of the visually impaired and to the use of copyright works in education
- The impact of Article 9(2) of the Berne Convention: the three-step test

1. *Specific exceptions*

There are no specific provisions in international copyright and neighbouring rights law dealing with the needs of visually impaired people. There are however provisions relating to education.

The relevant provision is Article 10(2) of the Berne Convention, which provides as follows:

"(2) It shall be a matter for legislation in the countries of the Union, and for special agreements existing or to be concluded between them, to permit the utilization, to the extent justified by the purpose, of literary or artistic works by way of illustration in publications, broadcasts or sound or visual recordings for teaching, provided that such utilization is compatible with fair practice."

Ricketson's comments on this provision include the following:

- What is the "utilization [of works] for teaching" is a matter to be determined by national legislation, or by bilateral agreements between Union members.

- No quantitative limitations are contained in Article 10(1), apart from the general qualification that the utilization of works should only be "to the extent justified by the purpose (...) by way of illustration (...) for teaching, provided that such utilization is compatible with fair practice." The words "by way of illustration" impose some limitation, but would not exclude the use of the whole of a work in appropriate circumstances, for example, in the case of an artistic work or short literary work.

- The utilization must be "by way of illustration" for the purpose of "teaching." Reference in the Committee's Report of the Stockholm Conference indicates the scope of the term "teaching":

> "The wish was expressed that it should be made clear in this Report that the word 'teaching' was to include teaching at all levels–in educational institutions and universities, municipal and State schools, and private schools. Education outside these institutions, for instance general teaching available to the general public but not included in the above categories, should be excluded."

– There is no evidence that the term "teaching" is intended to be interpreted so as to exclude virtual learning environments.

– The requirement that the utilization be "compatible with fair practice" involves an objective appreciation of the situation, and the criteria referred to in Article 9(2)[of Berne]would provide a useful guide (see further below).

– Although the range of utilization's permitted by Article 10(2) includes broadcasting it does not include distribution of a work either as part of an original programme or as part of a broadcast over a cable system.

– No limitation is imposed in respect of the public which is reached by a broadcast intended for teaching purposes. Likewise, there is no limitation on the number of copies that can be made for the same purpose.[11]

2. *General exception concerning reproduction rights - the "three-step test"*

The relevant provision is Article 9(2) of the Berne Convention, which provides as follows:

> "(2) It shall be a matter for legislation in the countries of the Union to permit the reproduction of such works in certain special cases, provided that such reproduction does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author."

Article 9(2) stipulates three distinct conditions that must be complied with before an exception to the reproduction right can be justified under national law:

– Limitation of application to "certain special cases";
– "Does not conflict with the normal exploitation of the work";
– "Does not unreasonably prejudice the legitimate interests of the author".

[11] See Ricketson *supra* at 14-15.

Given the general application of this test in international law and the range of rights which it covers, the construction of the test is of major importance. There is however a paucity of case law on its interpretation; a summary of the leading case follows.

In June 2000 the World Trade Organization (WTO) ruled on a dispute initiated by the European Union on behalf of the Irish performing rights organization. The complaint asserted that the United States of America was in contravention of its obligation under Article 13 of the TRIPS Agreement to "confine limitations or exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right holder." The subject of the complaint was section 110(5) of the United States Fairness in Music Licensing Act of 1998. This provision purported to exclude a broad range of retail and restaurant establishments from the need to obtain authorization for the public performance of musical works on their premises via radio and television transmissions. The European Union asserted that the section 110(5) exemptions violated the United States' TRIPS obligations because they conflicted with Articles 11(1)(ii) and 11*bis* (1)(iii) of the Berne Convention (incorporated through Article 9(1) of TRIPS).

According to the Panel's decision,[12] in order for a member of the WTO to avoid having an exception invalidated under TRIPS Article 13, the member must establish:

(1) That the exception is limited to a narrow and specifically defined class of uses. (However, the member does not need to explain the local policy upon which the exception is based);

(2) That the use conducted pursuant to the exception does not compete with actual or potential economic gain that the right holders would derive from normal exercise of the right in question; and

(3) That the use conducted pursuant to the exception does not unreasonably damage an interest of the right holder, such interest being derived from and compatible with general copyright objectives; the provision by the member of a compulsory license or other compensation mechanism could be instrumental in defeating a finding of unreasonableness.

The WTO dispute resolution panel determined that the United States had, in respect of section 110(5) (B), failed to establish any of the above.

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[12] WTO Panel on United States-Section 110(5) of the US Copyright Act: Report of the Panel, WT/DS/160/R, June 15, 2000.

The case is of importance in the context of this study in relation to at least two questions:

- How are exceptions in national law to be applied to new uses and practices facilitated by technology and which *prima facie* fall within the scope of established exceptions?
- Does the impact of digital reproduction and distribution technology – e.g. low marginal and transaction costs – support a reduction in the scope of exceptions where the uses they cover might conflict with a new potential market opportunity for the rights holder?

The Panel Decision does not provide definitive answers to these questions but does provide some clues as to how they might be resolved. Within the context of the case in issue, the Panel conducted an extensive review of the elements of the three-step test.

It is noted that the three-step test is a hierarchical proposition in that compliance has to be found with each of the elements in order:

- Is there a "special case" exception?

- If so, does the use contemplated by the exception conflict with normal exploitation?

- If not, does the use unreasonably prejudice the legitimate interests of the rights holder?

"Certain special cases"

The Panel held that the scope of the exception must be well-defined ("certain"), and narrowly limited ("special"). The Panel considered whether "special" also involved a requirement that the exception relate to some worthy public purpose, but declined to undertake the evaluation of local public policy that such an interpretation requires. The Panel "rejected interpretative tests based on the subjective aims of the national legislation."

The Panel referenced specific business statistics in determining that the exception in question could not be regarded as "narrow": e.g. in the United States of America, 73 % of all eating establishments, 70% of all drinking establishments, and 45% of all retail establishments, fall below section 110(5)(B)'s size limits, and therefore benefit from the exemption.

The Panel acknowledged the possibility that new technologies could impact determination of what constituted "certain special cases," but restricted its assessment of the exception in theparticular case by reference to the capabilities of current technology.

"Does not conflict with a normal exploitation of the work"

The Panel considered the term "normal" from the perspective of both actual use and potential use.

In respect of the actual use, the Panel rejected the United States' argument that the Panel should have regard to the bundle of rights in the work as a whole, as opposed to individual rights in isolation. The Panel stated that "possible conflict with a normal exploitation of a particular exclusive right cannot be counterbalanced or justified by a mere fact of the absence of conflict with a normal exploitation of another exclusive right, even if the exploitation of the latter right would generate more income."

As to the relationship between potential use and "normal exploitation," the Panel referenced preparatory materials for the 1967 Stockholm Revision Conference which formulated Article 9(2) of the Berne Convention. Here it found support for the proposition that the disputed exception "should not enter into economic competition" with the right holder: according to a report of the Swedish government and BIRPI (Bureau for the Protection of Intellectual Property, the predecessor organization to WIPO), "all forms of exploiting a work, which have, or are likely to acquire, considerable economic or practical importance, must be reserved to the authors." The Panel went further: "Thus it appears that one way of measuring the normative connotation of normal exploitation is to consider, in addition to those forms of exploitation that currently generate significant or tangible revenue, those forms of exploitation which, with a certain degree of likelihood and plausibility, could acquire considerable economic or practical importance."

The Panel then concluded on this point as follows: "We believe that an exception or limitation to an exclusive right in domestic legislation rises to the level of a conflict with a normal exploitation of the work (…) if uses, that in principle are covered by that right but exempted under the exception or limitation, enter into economic competition with the ways that right holders normally extract economic value from that right to the work (…) and thereby deprive them of significant or tangible commercial gains."

Professor Ginsburg[13] comments on this finding as follows:

"The panel indicated that current licensing practices do not necessarily define the normal extraction of economic value. These practices would not afford a "sufficient guideline" if, for example, the law of the country at issue does not confer exclusive rights in a particular use, or where, "due to lack of effective or affordable means of enforcement, right holders do not find it worthwhile or practical to exercise their rights." This caveat suggests that a "normal exploitation" may be an idealized one: if the exploitation falls within the scope of the copyright, and no copyright or related cultural policies undergird the right holder's disability from exercising the right, then the exploitation may, as a normative matter, be "normal."

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13 Ginsburg, Jane C: Toward Supranational Copyright Law? The WTO Panel Decision and the "Three-step Test" for Copyright Exceptions, Revue Internationale du Droit d'Auteur (RIDA), issue 187, January 2001.

"And that do not unreasonably prejudice the legitimate interests of the right holder"

According to the Panel three terms required definition: "interests," "legitimate," and "unreasonable." The Panel determined that "interests" need not be "limited to actual or potential economic advantage or detriment."

As to "legitimate," the Panel adduced both a "legal positivist" perspective (authorized or protected by law), and "a more normative perspective, in the context of calling for the protection of interests that are justifiable in the light of objectives that underlie the protection of exclusive rights."

With regard to tolerable levels of "prejudice," the Panel noted that the text's formulation, "not unreasonably prejudice," "connotes a slightly stricter standard" than "reasonable." While acknowledging that the treaty text permits copyright owners' interests to undergo some prejudice, the Panel determined that the prejudice would reach an "unreasonable" level "if an exception or limitation causes or has the potential to cause an unreasonable loss of income to the copyright owner."

As stated above, the decision of the WTO Panel does not provide a conclusive basis for answering the questions to which the three-step test gives rise in the new electronic environment. Similarly the European Union Copyright Directive of 2001, while underlining the need to construe the test in line with capabilities of the new environment, gives no indication as to how this is to be done. Recital 44 of the preamble provides thus:

> "When applying the exceptions and limitations provided for in this Directive, they should be exercised in accordance with international obligations. Such exceptions and limitations may not be applied in a way which prejudices the legitimate interests of the rightholder or which conflicts with the normal exploitation of his work or other subject-matter. The provision of such exceptions or limitations by Member States should, in particular, duly reflect the increased economic impact that such exceptions or limitations may have in the context of the new electronic environment. Therefore, the scope of certain exceptions or limitations may have to be even more limited when it comes to certain new uses of copyright works and other subject-matter."

A number of member States in implementing the Directive make a specific connection between the exception in question and the three-step test. The United Kingdom takes a different approach, as explained in the consultative document issued in anticipation of implementation:[14]

> "Article 5(5)
>
> This provision confirms that all exceptions are subject to the so-called three-step test found in international treaties (see, for example, Article 13 of the TRIPS Agreement and Article 10 of the WIPO Copyright Treaty). Recital 44 is relevant. It is not proposed to introduce the test as such into the United Kingdom law as a general constraint on exceptions; rather, it is proposed to continue with the existing practice in the Act of

[14] The Copyright Directive (2001/29/EC) - UK Implementation, Consultation Paper of the Patent Office, available at <http://www.patent.gov.uk/about/consultations/eccopyright/impact.htm>.

> using the test as a standard in framing exceptions to rights. It follows that the exceptions amended as proposed, as well as other unamended exceptions to copyright and related rights in the Act, are considered to comply with the three-step test."

While this approach would seem to provide clarity in terms of the current situation, it begs the question as to how changes are to be developed in response to the inevitable inroads that technology will make on the status quo.

3. *Protection of technical measures*

Article 11 of the WCT, entitled "Obligations Concerning Technological Measures," provides:

> "Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by authors in connection with the exercise of their rights under this Treaty or the Berne Convention and that restrict acts, in respect of their works, which are not authorized by the authors concerned or permitted by law."

Article 18 of the WPPT contains a similar provision:

> "Contracting Parties shall provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures that are used by performers or producers of phonograms in connection with the exercise of their rights under this Treaty and that restrict acts, in respect of their performances or phonograms, which are not authorized by the performers or the producers of phonograms concerned or permitted by law."

Contracting Parties will meet their obligations in respect of these provisions where the protection they enact is "adequate" and the legal remedies "effective". Furthermore, Contracting Parties are not prevented from introducing exceptions and limitations to the legal protections and remedies, provided they are consistent with the general protection of "effective technological measures."

The non-specificity of this provision has given rise to considerable debate as to its precise scope. For the purposes of this study however, a number of basic propositions can be assumed.

First, while a number of countries have introduced provisions relating to controlling the act of circumvention itself, others have combined the prohibition to circumvent with prohibition of so-called preparatory acts, such as the trafficking in circumvention devices and services. A third group of countries has simply focused on the prohibition of preparatory acts. From the viewpoint of those that advocate the latter position, prohibiting technologies alone could prove to be an effective way to prevent acts of circumvention.

Second, Article 11 references circumvention of "effective" technological measures. From a technical point of view, the term "effective" seems illogical in this context: a technical protection measure which is compromised by a circumvention device can no longer be considered "effective." (It is worth noting in this connection that while the DVD Video encryption standard – CSS – remains in place, a quick search with Google reveals 11.5 million references to DVD copy systems employing the DCSS hack). "Effective" therefore

has to be understood in this context as a legal construct underpinning a deterrent provision, rather than a reference to real technological capability.

Third, Article 11 references measures used in connection with authors' exercise of their copyright rights under the Berne Convention and the WCT; Article 18 references measures used in connection with the exercise of rights under the WPPT by performers and producers of phonograms. Nothing, however, precludes Contracting Parties from enacting measures going beyond the minimum requirement. However, to the extent that a technological measure is used by an author to control uses of a work which ordinarily fall within an exception to copyright, then arguably Article 11 would not require a Contracting Party to prohibit circumvention in connection with such a use. Neither the WCT nor the WPPT provide any definitive answer on this issue, leaving the difficult task of reconciling the provisions to national law. As we discuss later in the study, even where the attempt is made at reconciliation the implementation of the intended solution becomes a complex proposition both as a matter of law and technology.

The WIPO Treaties also introduce comparable provisions for protection of rights management information. Rights management information is defined as information that identifies the work, the author of or the owner of any rights in the work, or information about the terms and conditions of use of the work, as well as any numbers or codes that represent such information.

CHAPTER 2

DIGITAL RIGHTS MANAGEMENT (DRM)

It is commonplace for studies and reports about DRM to attempt to provide an all-encompassing definition of DRM. That is not necessary here. This section aims to explain the concept of DRM in the context of this study.

As this study is about the relationship between legal and technical mechanisms for the definition and implementation of rights and exceptions thereto, it follows that the reference to DRM in this context is to information technology (IT) tools and systems which function to define and enforce rights. DRM should therefore in this context be understood simply as a generic term for IT tools and systems which perform that function.

Accordingly, DRM should not be thought of – at least in the present context – as a specific item or configuration of technology. Indeed, much of the concern about the impact of the use of DRM could be allayed by adopting a broader and more analytical perspective to the subject matter; that is the intent here.

DRM as an area of technology and approach to rights management in a digital environment is essentially a neutral proposition. It carries no more predisposition to the implementation rights in a particular way than, say, the technology and process of machine-based word-processing does to the content of documents produced thereby.

A. DRM: The concept

1. *The distinction between content management and rights management*

It is suggested that to better understand DRM it is helpful to distinguish between the processes and technologies which are used for managing content in a machine-based environment and the technologies used for managing the rights in that content. The processes may well be closely integrated in both structure and operation, but they can be seen as quite distinct from an analytical perspective. Being able to recognize and apply that distinction is fundamental to the approach of this study.

The expression “content” is one which, although justifiably disliked by many in the creative community, has come to be widely used in discussion and description of media and communications technology. The reference covers many kinds of information, some of which attracts intellectual property protection, some of which is governed by other kinds of legal regulation, and some of which enjoys no legal protection. The expression “content” certainly encompasses the kind of matter traditionally the subject of copyright or neighbouring rights protection and that is how the term is used here. The term “information” is used to reference any kind of data, whether or not it is the subject of copyright protection in the traditional sense.

There is another important clarification which needs to be explained in detail at the outset. In this study there will be frequent reference to "content management" and to "rights management". The two expressions are intended to be understood in the following way:

– "Content management" means all activity conducted in relation to items of content by a device and/or a human actor including creating, manipulating (modifying, adapting), fixing, storing, transferring, performing, rendering (playing, displaying, etc; in a device), and disposing of the content. Content management is used to describe these activities whether or not they occur in a machine-based, digital environment.

– "Rights management" means all activity conducted in relation to the rights governing the content management activity in respect of an item of content. The rights in question are the product of legislation or contract or a combination of the two.

Modern IT has made it possible to generate, store, manipulate, transfer and search for data in ways that have made more information available to a greater number of users than could ever have been imagined a mere generation ago. Digitisation of data, storage capacity, processing power, networks, metadata systems, search technologies, rendering applications: all these are features of relatively basic computing systems which many people now take for granted. Together they have made it possible for people to find and use in a huge variety of ways many diverse forms of content.

For many users of technology, the principal benefit is access to infinite content resources and advanced content management processes. An example from recent times of the rich user experience of content made possible by advanced content management systems is that of Napster. Launched in 1999, this was the first generally available implementation of content (file) sharing technology. It quickly became one of the fastest growing on-line subscription systems ever seen. By the height of Napster's popularity the number of subscribers was reported to be in the region of 60 million, a vast population of users built up in little more than a year. Users were attracted by the novelty of the system, by the excitement of its use but above all by the richness of the content experience the system delivered.

What Napster in its original form lacked, however, was the form of rights management system necessary for the kind of content being made available and the use for which it was being made available. Most of the file sharing which the Napster system facilitated was done without the authorisation of the content providers and was found to constitute an infringement of their copyrights. That fact led ultimately to the demise of Napster in its original form as the owners of the rights in the content available through its system successfully took action through the law to enjoin further operation of the system in the absence of an adequate rights management process.[15]

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[15] It is worth noting that rightsholders have the choice whether or not to engage in rights management; if they elect not to, content management processes such as the blocking of network traffic in content files becomes the sole recourse.

The relationship between content management and rights management processes is a complex one. As will be seen in the sections that follow, the ability to effectively manage that relationship has been seen for some time as a major challenge in developing automated systems with the capability of replicating traditional authorisation processes for the use of content. Traditionally, of course, the rights management system as applied through legal process used in the organization of the rights to property has been able to function largely independently of the content management process. The sale and delivery of a CD or a DVD does not serve to assign the underlying copyright to the purchaser or preclude the subsequent licensing of different elements of that copyright. To give digital content and rights management processes a corresponding functional independence from each other is a highly complex endeavour.

2. *The content management/rights management distinction in practice*

In examining if and how certain generally accepted rules of copyright law might be implemented through automated, machine-based rights management systems, the approach must be, of necessity, as much a practical one as it is theoretical.

Consider first of all how a technologist might view the functioning of copyright law. For the most part copyright law provides general indications – in the form of a specific right or set of rights – as to the scope of rights management available to the rightsholder in relation to a particular unit of content and then leaves it to the rightsholder to define specific usage rules in favour of specific users, usually via contractual mechanisms. In some instances copyright law carves out exceptions and limitations to certain of the rightsholder's normal rights thus inserting a basic statutory or regulatory framework for the rights management process as between the rightsholder and user.

In both cases, but particularly in the latter, what is specified as a matter of law in terms of the rights management process, whether on a statutory or contractual basis, often does not circumscribe the full extent of the content management activity which occurs. An example of this is the case of private copying: in most circumstances, without the authorisation of the rightsholder, private copying of protected works is, under the United Kingdom copyright law, an infringing act. And yet, of course, private copying of protected works is as prevalent in the United Kingdom as it is anywhere else in the world.

In the traditional content and rights management world, accommodations are made where content management activity occurs beyond the reach of the rights management process. In some instances the law responds to this process with *ex post facto* adjudication: the fair use mechanism in the United States copyright law illustrates that approach. These are important response mechanisms which enable the system overall to function.

In the digital environment the situation is entirely different. The content management process and the rights management process, while capable of functioning independently of each other, have to remain synchronized. There can be no significant legitimate content management activity without corresponding rights management activity; the "tolerated" content activities which occur beyond the reach of the rights management process in the traditional world are simply not possible in the digital, machine-based environment.

The balance between the interests of rightsholders and users which every traditional rights management (copyright) system strives for is arguably supported in part by the

marginal content management activity which occurs, for whatever reason – absence of control mechanisms, high transactions costs – beyond the practical reach of the rights management process. The binary nature of the environment in which digital content management processes occur render all unauthorised uses of content intolerable. Accordingly, in that environment the copyright balance must be established exclusively through codified rights management propositions. This in turn requires a closer examination of both the policies and mechanisms establishing that balance. It also explains the divide between proponents of DRM mechanisms and those attacking the so-called "digital lock-up" of content: now that rightsholders are able to reclaim the areas of unauthorised (yet tolerated) content management activity, users protest what they consider to be an expropriation of their rights.

The arguments against digital lock-up are often based on different views of non-specific privileges claimed by users in the area of unauthorised but previously uncontrollable content management activity. The issue is just as critical, however, in areas where the law is specific about the user's privileges. In respect of limitations and exceptions Article 6(4) of the European Union Copyright Directive of 2001 essentially provides that where, in the digital environment, a particular DRM mechanism restricts access to and use of content in a way which is inconsistent with a rights management proposition embodied in the law – i.e. a DRM mechanism denies a user the ability to perform some content management activity guaranteed by an express exception or limitation – then some process has to be found allowing the user to perform the content management activity provided for in the exception or limitation.

One approach, of course, would be simply to force the release of the content in question from the DRM mechanism in question. The "non-digital" rights management process, as ordained by the law could then come into play facilitating a "non-digital" content management activity to occur.

This approach would seem generally unsatisfactory, because the availability of the content in a non-digital format means that the possibility of sustaining a digital rights management process in relation to that content in respect of other uses, not the subject of exceptions or limitations, is greatly reduced if not eliminated. While traditional and machine-based rights content and rights management systems will continue to coexist for many years to come, there will be an increasing reliance on the latter in respect of commercially produced content. Like it or not, technically-protected content will become the norm.

The alternative approach, therefore, is to provide ways in which the law can impose an alternative digital rights management proposition in respect of the content management activity which the exception or limitation is intended to allow.

With this approach, the complexity lies not, of course, in the *definition* of the imposed digital rights management proposition from a legal perspective: it lies almost entirely in the effective *implementation* of the imposed rights management proposition:

– How is the imposed rights management proposition expressed in a way which can be applied in an automated environment?

– How is the content to which it is applied, identified?

– How are the uses to which the content can be put expressed?

– How are the users to whom the benefit of the imposed rights management proposition is applied, identified?

– What are the necessary content management controls?

– What are the mechanisms for ensuring that content is made available by the rightsholder, and is made available in accordance with the imposed rights management position?

– What are the implications in terms of infrastructure and cost in organizing and operating systems which are able to implement the imposed rights management proposition?

– What are the risk management considerations that arise in relation to the implementation of the imposed rights management proposition?

To answer these questions we must first look in more detail at how DRM tools and systems work.

B. How DRM works?

One way of organising rights management in a digital environment is to attach the usage rules permanently to the content, either as part of the metadata defining the content or by incorporating the usage rules in the encrypted package in which the content resides. Locking content to a particular machine to enforce a fixed set of usage rules is another possible implementation of a digital rights management system. This is the approach which has been used to date in many so called “thin client” devices such as mobile telephones.

The rights management system used for DVD Video discs is another example of the basic approach: the usage rules applied to the content of the DVD Video disc are fixed and cannot be varied regardless of the usage context or identity of the user. The undoubted success of the DVD Video format as a vehicle for the delivery of high quality home entertainment (as well as many other possibilities) illustrates clearly that for some content management environments, fixed rights management systems are perfectly adequate.

The challenge to find dynamic rights management systems remains, however, because there is an infinite number of instances where the nature of the content or the usage context demand flexibility.

That flexibility is also essential to developing the kind of rights management system required for the security of more sensitive or valuable forms of content. The encryption system used in the DVD Video disc rights management process has already been compromised and cannot be repaired without reconstituting the entire format – a commercial impossibility – (Compromising the security, however, has had minimal impact on the success of the DVD Video disc as a consumer format).

Furthermore, as will be discussed in more detail shortly, the rich rights management processes which copyright law and practice support also posit that flexibility as a basic requirement of an effective interface between legal and technical regulation of content management.

This challenge to achieve flexibility in automated rights management was first taken up by a number of researchers. The most usually cited in this respect is Mark Stefik who, in his work at the Xerox Palo Alto Research Center, identified the need for a dynamic capability in machine-based rights management processes and advanced a number of ideas as to how this might be achieved.[16] There were others, however, who were engaged in the same search, notable amongst whom was Victor Shear and his team of scientists in what became InterTrust Technologies. Yet other researchers, both in the United States and in Japan, were exploring the possibilities of superdistribution, the process of applying and enforcing usage rules in a distributed content management environment. They saw a need for such systems where users of music content wanted to exchange content between each other.

The key breakthrough in DRM technology came when systems emerged which could deliver rules for the use of content independently of that content. Starting in the early 1990s InterTrust technologies began developing an extensive patent portfolio relating to inventions to that end. Once the capability of delivering rules independently of but associated with particular items of content is established, the range of uses which can be authorised through technology increases dramatically.

In a useful article on the subject of DRM John Erickson, principal scientist in the Digital Media Systems Program at Hewlett-Packard Laboratories, describes the process of enforcing rules in a DRM system as follows:[17]

"The problem of controlling use [of content] can be broken down into four areas:

– Use or action against an information resource by a user or an external system. Typically, uses are defined by an application's functions (such as view, print, and copy) that must be bound to policy-level terms [rules], either directly or through some contextual filter. To control use, functions within an application must be forced to obtain authorization from policy-evaluating system components before proceeding.

– Implementing control. A virtual machine may be a combination of system components that implement the control specified by policies. The virtual machine

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16 Stefik, Mark: Letting Loose the Light: Igniting Commerce in Electronic Publication, 1993, published in Internet Dreams, Stefik/ Cerf, MIT Press, 1997.

17 Erickson, John S.: Fair use, DRM and Trusted Computing, Communications of the ACM, Vol. 46, No. 4, April 2003.

functions as an intermediary among user applications (such as viewers, rendering tools, printer drivers, and Web services) and policy-setting authorities; the virtual machine evaluates all applicable policies and permits or denies use.

– A governing set of policies. For any given action against a resource, there may be a set of applicable policies that determine the conditions under which the requested application is authorized. These policies may take the form of conditions precedent or concurrent obligations; conditions typically include the presence of a particular identifying credential or environmental attribute.

– Fixed or built-in policies. Policies may be fixed or built into the virtual machine; they may also be embedded or otherwise attached to the resource. Each method sets limitations; in the case of fixed policies, the originator cannot change the policies once the interpreter is distributed; in the case of embedded policies, a policy cannot be changed once the resource is deployed. The most flexible architecture calls for the policies to be managed, since such management is external and separated (in time and space) from the virtual machine and deployed content.

DRM systems may implement a combination of embedded and external policy models; for example, when certain default or generic policies are attached to the deployed resource, a recipient may supplement them through a separate transaction. Policies may be written for groups of resources and principals, possibly relating to roles within an institution, and may be issued in advance of use; most are available in the rights expression languages."

Erickson then goes on to describe the process flow by reference to a typical DRM enabled system:

"A generalized DRM system can grant usage rights based on originator-controlled policies. Since this model describes most commercially viable DRM solutions (the DRM reference model), it assumes the availability of standardized or proprietary infrastructure for identification, metadata, authentication, and cryptography. The model's process flow covers nine steps:

– The user obtains a resource via, say, file transfer or streaming. If the resource is requested from a remote service by the user, it may be cryptographically individualized to the user's environment.

– The user attempts some use of the resource; the rendering application determines that the requested action requires authorization.

– If the applicable policies are not found within the user's environment, attributes of the user's request (such as usage context) are packaged in a message and sent to a license server by a DRM client component.

– The license server determines the applicable policies for the resource based on the submitted request attributes.

– A financial transaction may be conducted to satisfy the policies if no satisfactory evidence of such a transaction is on record.

– The license package is assembled, including: a rights specification or set of usage policies; identifiers or attributes; revocation information; and cryptographic keys to the content. They may be specific to the content and context of use.

– The license is securely packaged and transferred to the client.

– The DRM client authenticates the received policies, evaluates applicable policies, decrypts the content, and issues an authorization to the viewing component for the requested action.

– Finally, the content is rendered or otherwise used, as requested."

The DRM model Erickson references in his article is well illustrated by the Windows Rights Manager System which is structured and functions as follows:

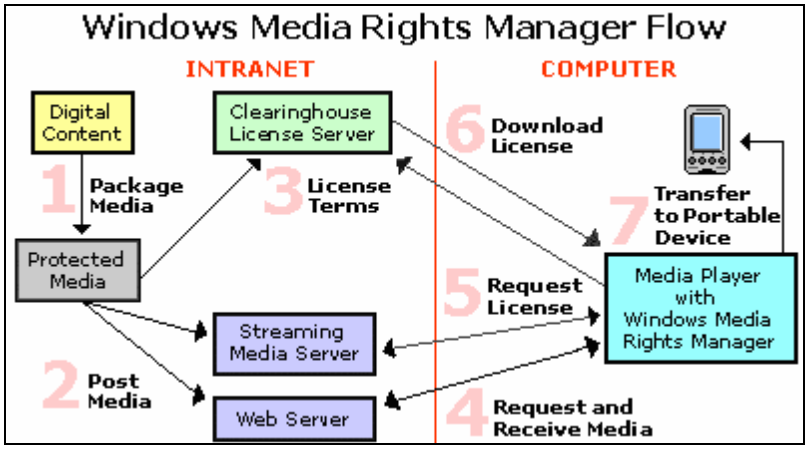

Figure 1

The structure illustrated in Figure 1 supports the following processes:

Step 1: Packaging
The content provider employs the Windows Media Rights Manager to package the content file. The packaged content file is encrypted and locked with a "key." This key is stored in an encrypted license, which is distributed separately. Other information is added to the content file, such as the URL where the license can be acquired.

Step 2: Distribution
The packaged content file can be placed on a Web site for download, placed on a media server for streaming, distributed on a CD, or e-mailed to consumers.

Step 3: Distributing the licence
The content provider chooses a license clearing house to store and subsequently deliver the licence containing the specific rights or rules governing the use of the corresponding content file. Part of the role of the clearing house is to authenticate the consumer's request for a license.

Step 4: Content Acquisition
The consumer will obtain the desired content file by downloading it from a website, having it streamed from a streaming server, perhaps through an FTP transfer or via e-mail from a friend. The content file will be received in an encrypted form.

Steps 5 & 6:
To play an encrypted content file, the consumer must first acquire a license key to unlock the file. The process of acquiring a license begins automatically when the consumer attempts to access the protected content or use the content in the file for the first time. Windows Media Rights Manager either sends the consumer to a registration page where information is requested or payment is required, or "silently" retrieves a license from a clearing house.

Step 7: Using the Content File
To use the content file, the consumer needs a media player that supports Windows Media Rights Manager. The consumer can then play the content file according to the rules that are included in the license. Licenses can also be subject to certain conditions such as start times and dates, duration, and counted operations. For instance, default rules may allow the consumer to play the digital media file on a specific computer and copy the file to a portable device. Licenses, however, are not transferable. If a consumer sends a packaged digital media file to a friend, this friend must acquire his or her own license to play the file. This PC-by-PC licensing scheme ensures that the packaged digital media file can only be played by the computer that has been granted the license key for that file.

C. DRM: Operational considerations

The objective of a dynamic DRM enabled rights management system is to provide the ability to:

- express rules in relation to a content management activity
- enforce the rules
- revoke the rules

Numerous processes and mechanisms are involved in achieving these objectives. These are described in detail in the WIPO Study entitled "Current Developments in the Field of Digital Rights Management.[18] It is not intended to revisit here that exhaustive treatment.

There are, however, a number of factors that need to taken into account in order to get a clearer picture of the development and deployment of DRM enabled rights management systems. These are as follows:

- Trust
- Security
- Usability
- Scalability
- Interoperability

[18] Barlas, Chris Cunard, Jeffrey and Hill, Keith: Current Developments in the Field of Digital Rights Management, WIPO Document SCCR/10/2, August 2003.

1. *Trust*

This is a key concept in DRM and can best be understood as the capacity of a system to deliver a predictable result. A machine or system combining a number of machines is programmed to perform a particular task: the degree to which the operator of the machine is able to rely on the machine delivering the desired result is commensurate with the level of trust within the system.

Many factors can interfere with the predicted result: a mechanical flaw in the operation of the system, a programming flaw, a breach in the security of the system. The more complex the system environment so obviously becomes the process of establishing its trustworthiness. Just as human beings have mechanisms for developing trusted relations amongst themselves, so the components and devices in a complex system environment have to be equipped to establish a trusted relationship with each other and with users connected to and employing the system.

(It is important to note that in this context "user" may mean a human being or another device which interacts with the system).

To understand this concept better, consider the use of automated teller machines (ATM) which are becoming the way many people with bank accounts obtain cash from their account from diverse locations. Cash is dispensed to a user pursuant to a instruction sent by that user – provided the instruction is approved by the bank from which the user wishes to draw the cash. For the instruction to be implemented, numerous trusted relationships have to be called into play. There has to be a trusted relationship between the user and the external interface of the ATM system (achieved using a Personal Identification Number), between the different parts of the networked system that deliver information about the user's instructions to the approving bank, between the bank and the system. Any failure in these relationships – a break in the chain of trust – will result in the denial of the user's – or the bank's – desired or predicted result.

DRM-enabled systems have to work in the same way if they are to be used for managing rights in content of significant value.

2. *Security*

The first reaction of many people to the proposition that rights and content management systems can function securely is that the security will always be compromised. The reality of security systems and technology is much more complex.

Security experts have long known that the security of a particular environment is not an absolute proposition. It has to be established in relation to the foreseeable risk within that environment, and as that is not a static proposition, so must the security solution be capable of revision.

Renewability of the security solution is therefore essential to keeping it effective when attacked, but providing that flexibility brings its own complexities and problems. It may actually serve to heighten the security threat. On the one hand, locking content to a machine

or a piece of plastic only provides security until the encryption systems is cracked.[19] On the other, providing an environment where security is renewable lays the content management process open to other forms of attack. Having those systems function in the distributed, heterogeneous environment of the Internet increases the security challenges still further.

A balance has to be found between the level of security and the usability of the system. Leading security expert Bruce Schneier proposes[20] a five step test for evaluating the security needs in a particular context:

Step 1: What assets are you trying to protect?
Step 2: What are the risks to these assets?
Step 3: How well does the security solution mitigate those risks?
Step 4: What other risks does the security solution cause?
Step 5: What costs and trade-offs does the security solution impose?

The security within a DRM enabled system has to be able to protect not only the content and the rights; it also has to be able to protect the corresponding management processes and the consequences of those processes (e.g. the capture and processing of usage data, the billing and collection of payment for use).

3. *Usability*

Step 5 of the test proposed by Schneier concerns the costs and trade-offs involved in adopting a particular security solution which he describes as follows:

> "Every security has costs and requires trade-offs. Most security costs money, sometimes substantial amounts; but other trade-offs may be more important, ranging from matters of convenience and comfort to issues involving basic freedoms like privacy. Understanding these trade-offs is essential."

The first victim of an overly secure system is the element of usability: the functional complexity makes it very difficult to use the system or perhaps, very expensive. The content and rights are secure but as they cannot be accessed with ease or at low cost they are seldom used.

There are many things that have to be done to make a system operationally secure and, inevitably, some of these things involve the users of the system, whether using the system to make content available or to gain access to and use the content. Content providers need simple processes and interfaces in order to package content efficiently; end users need to be able to input the necessary information to access the content.

Striking the right balance between the security and the usability of the system is therefore a critical element in the design and operation of a DRM-enabled content and rights management system. The aim is to provide, at least for the end-user, an experience in which the rights management processes are virtually invisible.

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[19] Security may not prove to be the overriding concern. As noted, DVD Video has flourished notwithstanding the fact that the format is no longer secure.

[20] Schneier, Bruce: Beyond Fear, Copernicus Books, 2003.

4. Scalability

Another aspect of the security/usability conundrum is the issue of whether the system solution settled upon is capable of being deployed across the necessary range of networks, devices and users. It is clearly one thing to design a system which can function effectively within a relatively confined area – internally, within say a government agency or a school. It is quite a different proposition to deploy a system to users across the globe connected via the Internet.

Early implementations of dynamic DRM enabled systems – the InterTrust Commerce System was a case in point – failed, in part, because of its complexity and the heavy price it extracted in terms of operational management and support. More recent systems aim for the highest degree of automation and a minimal requirement for extraneous support.

5. Interoperability

The final issue that has to be considered at a general level in discussion of DRM enabled systems is the complex issue of interoperability. The area of DRM is one where although some standardisation of some system components is occurring, the leading commercially available systems are for the most part proprietary. By their very design therefore the different systems are rarely able to interoperate with each other because they use different encoding and encryption systems; use different authentication mechanisms; different file formats; different metadata structures; different rights expression languages.

This poses problems for content providers and users alike. To reach a desired consumer base the content provider may have to make content available and develop the corresponding rights and content management systems for a variety of different systems. Conversely, the end-user may have to use a range of different devices to obtain all the content sought.

However, while the problem is obvious, the solution is not. There are complex commercial, legal and technical issues involved in establishing a basis for interoperability between different systems. Open standards in key areas of DRM remain to be developed while open source technologies are as yet not widely available.

CHAPTER 3

THE TARGET FIELDS

A. Visually impaired people

1. *The perspective of visually impaired people*

It is estimated that there are some 180 million blind and partially-sighted people in the world.

The World Blind Union (WBU) has adopted a manifesto[21] regarding access to the resources of the information society by visually impaired people. The governing principle of that manifesto is as follows:

> "The World Blind Union believes that in the information age access to information is a human right that must be enjoyed by all as a precondition for equal participation in society. This means that socially and economically disadvantaged people in general should be included and blind and partially sighted people in particular. The right to access to information is explicitly recognised by the international community in the UN standard rules on the Equalisation of Opportunities for Persons with Disabilities."

The reference to the UN standard rules is to the Standard Rules on the Equalization of Opportunities for Persons with Disabilities adopted by the General assembly in 1993:[22] they are currently being revised. Although not a legally binding instrument, the Standard Rules represent a strong moral and political commitment on the part of Governments to take action to attain equalization of opportunities for persons with disabilities. The rules serve as an instrument for policy-making and as a basis for technical and economic cooperation.

The Standard Rules consists of 22 rules incorporating the human rights perspective which had developed during the decade preceding their adoption. The 22 rules concerning disabled persons consist of four chapters - preconditions for equal participation, target areas for equal participation, implementation measures, and the monitoring mechanism - and cover all aspects of life of disabled persons.

Rule 5 provides in part as follows:

> "Rule 5: Accessibility
>
> States should recognize the overall importance of accessibility in the process of the equalization of opportunities in all spheres of society. For persons with disabilities of any kind, States should (a) introduce programmes of action to make the physical

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21 World Blind Union Manifesto for the World Summit on the Information Society, 2003, available at <http://www.euroblind.org/fichiersGB/news9_soc.htm>.

22 The Standard Rules on the Equalization of Opportunities for Persons with Disabilities, 1993, available at <http://www.un.org/esa/socdev/enable/dissre00.htm>.

environment accessible; and (b) undertake measures to provide access to information and communication."

"Access to information and communication

– "Persons with disabilities and, where appropriate, their families and advocates should have access to full information on diagnosis, rights and available services and programmes, at all stages. Such information should be presented in forms accessible to persons with disabilities.

– "States should develop strategies to make information services and documentation accessible for different groups of persons with disabilities. Braille, tape services, large print and other appropriate technologies should be used to provide access to written information and documentation for persons with visual impairments.

– "States should encourage the media, especially television, radio and newspapers, to make their services accessible. States should ensure that new computerized information and service systems offered to the general public are either made initially accessible or are adapted to be made accessible to persons with disabilities.

– "Organizations of persons with disabilities should be consulted when measures to make information services accessible are being developed."

These rules are underpinned by provisions of the Universal Declaration of Human Rights:

"Article 19

Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

"Article 27

Everyone has the right freely to participate in the cultural life of the community, to enjoy the arts and to share in scientific advancement and its benefits. Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author."

In a presentation given to the Information Meeting which preceded the WIPO Standing Committee on Copyright and Related Rights on 3 November 2003, David Mann of the WBU stated as follows:

> "If we accept that access to information is a right, then it follows that any impediment to access to information is a denial of that right. Barriers can be economic; they can be technological, and they can be legal."[23]

Blind and partially sighted people can only access the written word, whether originally displayed on paper or on computer screen, if the presentation of that material is adapted in some way. Adaptations include enlarging, altering features such as colour or font, transferring into a tactile code or into an audio format. The result may be hard copy Braille, large print, tape or CD, or it may take the form of temporary output from computer peripherals such as synthetic speech or enlarged screen display. Accordingly, providing access to content whether in traditional formats or with advanced access technologies implicates acts controlled by rights of reproduction, adaptation and, perhaps, communication. That of course means that such acts must be authorised by the right holder or fall within the scope of an exception to copyright.

The WBU accepts that copyright is in itself a legitimate form of moral and economic protection for creators of content and for those who add value to creative work**.** WBU asserts however that the ability to restrict acts in respect of works and other subject matter protected by copyright law should be balanced against the right of blind and partially sighted people to read the same material as their fellow citizens, at the same time and at no additional cost to the individual.

2. The issues for publishers

Publishers are the principal group of rightsholders and content providers concerned with the question of access. They are for the most part commercial entities and their first responsibility necessarily lies to their authors and other creative contributors, to their customers and to their shareholders. Their enterprise and investment is defined by the scope of the rights they enjoy under copyright law. And while they recognize the needs of users with certain disabilities, they have an overriding and justifiable concern regarding the impact of information society technology.

Digital publishing is in its infancy and to date the various electronic book formats have failed to make the inroads on the market that the MP3 format has made in the audio content sector. That situation will undoubtedly change, and already pirated versions of popular works – often created with advanced Optical Character Recognition[24] (OCR) technology – are finding their way onto the Internet.

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[23] Mann, David: Presentation by the World Blind Union (WBU), Information Meeting on Digital Content for the Visually Impaired, WIPO, November 3, 2003, available at <http://www.wipo.int/documents/en/meetings/2003/digvi_im/pdf/digvi_im_03_mann.pdf>.

[24] OCR involves computer software designed to translate images of typewritten text, (usually captured by a scanner) into machine-editable text, or to translate pictures of characters into a standard encoding scheme representing them. Information available at <http://en.wikipedia.org/wiki/Optical_character_recognition>.

As technology opens up new channels of exploitation for authors and their publishers, so the situation with rights becomes more complex. It is already common practice in the publishing industry for different deals to be struck, sometimes with different publishers, in respect of alternative publishing methods: print, audio, electronic.

Although, as noted, electronic formats are not yet the predominant format for the printed word, the publishing industry was one of the first to embrace DRM as a way of securing content and managing rights. Various systems are used ranging from simple, protected access mechanisms to full blown DRM systems of the kind described above.

Publishers on the whole are sympathetic to the special needs which exist within communities, be they in respect of access for the disabled or in respect of educational needs. They cannot however ignore the imperatives of the market economy. In the case of educational use of content, for example, many publishers derive the majority if not all of their revenue from the sector and thus seek to limit the scope of exceptions to copyright.

Providing access to content has numerous risks and costs attached to it, notwithstanding the extensive work that has been put into developing a standardised format for accessible texts – the DAISYformat.[25] Formatting of texts for ease of access – adding tags for navigation, providing alternative text for graphics – is time consuming and expensive. Developing security and rights management mechanisms for accessible versions of documents requires significant investment. Publishers argue that if the investment cost falls on their shoulders they are only able to bear it if it carries the promise of a worthwhile return on that investment.

This concern can be expressed through two propositions:

First, the ease of reproduction and distribution made possible by technology is as much a threat in the publishing sector as it is in other, more publicised areas. On-line piracy afflicts publishers in much the same way as it afflicts music and film companies; OCR technology coupled with the ready availability of efficient scanning devices means that many top selling literary works are made available illegally via the Internet.

Second, once a literary text is made available in digital form, strict control must be maintained over it so that it does not become the source of illegally produced and distributed copies. And that consideration applies whatever the justification for original access to the digital file.

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[25] DAISY: Digital Accessible Information System. The DAISY standard is based on several recommendations of the World Wide Web Consortium (W3C). Currently, these include the Extensible Markup Language (XML) and the Synchronized Multimedia Integration Language (SMIL). Both of these are internationally recognized standards accepted in the technology industry. The versions in use may vary, depending upon available technology and other factors. Hardware and software in use today implement the DAISY 2.02 standard; however, over the next year or two, product and service providers will be transitioning in order to comply with specifications as outlined in DAISY 3, adopted as the ANSI/NISO Z39.86 2002 Digital Talking Book standard.

3. *The contribution of technology*

For their part, technology companies are anxious to be part of the process of enabling users with visual and print disabilities to access information on the same basis as those without such disabilities. Two companies in particular are often cited in this connection.

Adobe, the creator of the Portable Document Format or PDF[26] format has applied considerable effort to ensuring that its ebook reader are compatible with access technologies. A partial list of accessibility features would include:

Read Out Loud Feature

Read Out Loud makes PDF files more accessible to people who are unable to access a PDF with their regular screen reader. It may also be useful for individuals who do not use a screen reader, but who still would benefit from having a PDF file read out loud. For example, a person with certain cognitive disabilities might benefit from both reading and hearing information. It may also give developers an idea for how a PDF file would be read by a full-featured screen reader.

Accessibility Quick Check

The Accessibility Quick Check cannot always correctly identify whether a PDF file is accessible or not, but it can alert the user whether the PDF is tagged or not or if there are glaring accessibility errors, and this may be helpful to know.

Quick check can, however, only detect the presence of tags, not their quality. It is therefore possible for an inaccessible PDF to pass this check. If there are no tags present, the message reads “This document is not structured so the reading order may not be correct. Try different reading orders using the Reading Preferences panel.” There are other messages, like an alert if there is missing text, but these are the two messages that usually appear.

[26] Portable Document Format (PDF) is a file format developed by Adobe Systems for representing documents in a manner that is independent of the original application software, hardware, and operating system used to create those documents. A PDF file can describe documents containing any combination of text, graphics, and images in a device independent and resolution independent format. These documents can be one page or thousands of pages, very simple or extremely complex with a rich use of fonts, graphics, color, and images. PDF is an open standard, and anyone may write applications that can read or write PDFs royalty-free.

Reflow

There are two main advantages to reflowing a document:

– It eliminates the need for horizontal scrolling.

– It changes the reading order to reflect either the order of the PDF tags or, if the document is untagged, Adobe Reader tries to infer the correct reading order. Although this is usually an advantage, the reading order in Reflow view can sometimes be more confusing, especially if it has multiple columns or complex tables.

Reflow can be a very helpful feature, especially for people who need to enlarge the text, either within Acrobat Reader or using an external screen magnifier.

Save as (accessible) text

A PDF file can be saved as plain text which can then be printed as braille. As with other accessibility features, this only works if the reading order is clear and if there are no complex tables.

Reading order

Normally, Acrobat Reader tries to guess the best reading order for a document, but there are times when the default reading order is incorrect. Where this occurs, it is possible to change the reading order of a document by selecting Edit > Preferences > Reading, or by using the Accessibility Setup Assistant. There are two main changes that can be made to the reading order of a document:

Reading Order. There are three options.

– Infer reading order from document. Leaving this as the default setting usually produces the best reading order.

– Left-to-right, top-to-bottom reading order. Every word will be read in this order, even if it is divided into columns, or there is a sidebar. Selecting this option seldom helps because reading order problems usually occur when the PDF is already being read left to right instead of some other way.

– Use reading order in raw print stream. This reflects the order that the original document was converted into the PDF.

Override the reading order in tagged documents

If a document is incorrectly tagged, the reading order might be incorrect. Selecting this option will disable the tagged reading order and Adobe Reader will try to infer a better reading order.

For more information on the accessibility features of the Adobe Acrobat Reader, refer to an article by Jon Whiting published on the WebAIM website in February 2005.[27]

Microsoft places high importance on the improvement of access to information resources through the use of technology. At its headquarters in Redmond, Washington in November 2004, the Microsoft Accessible Technology Group (ATG) hosted a three-day international forum called, "Libraries for the Blind and Print Disabled: Moving Toward a Digital Future," which attracted library representatives from around the world and featured a keynote address by Bill Gates, Microsoft chairman and chief software architect.

Gates talked about the advantages of digital technology over traditional analog formats, such as audio tapes, explaining how digital technology can lower the costs of converting and distributing content, enable libraries to share information more easily, and make more information available to more people. Gates also pointed out that digital formats often provide a better user experience for people who are blind or have print disabilities, allowing many different people to access the same information online simultaneously and making it easy for individual users to locate specific information within texts.

Many other technology companies are of course engaged in exploring and developing different kinds of access technologies.[28] The World Wide Web Consortium (W3C), for example lists upwards of 30 different companies offering technologies facilitating access to resources via the World Wide Web: <http://www.w3.org/WAI/References/Browsing>. The list is divided into five sections as follows:

– browsers which have been specially developed for people with disabilities.

– screen-readers, which allow visually impaired people to navigate with standard applications, and are therefore most often used in conjunction with mainstream browsers such as Netscape Navigator, Microsoft Internet Explorer, Opera, etc.

– browsers not specifically designed for disabled people but which have features that have allowed them to be used in combination with adaptive systems.

– voice browsers which give spoken Web access, e.g. by telephone using voice input or dialed commands and speech output.

– a "catch-all" section intended to cover any access methods not covered by the previous categories.

4. *DRM and accessibility*

Problems however remain, particularly where DRM mechanisms are employed by content providers. In a leading article on the subject, George Kerscher and Jim Fruchterman

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27 Accessibility Features in Acrobat Reader 7, available at <http://www.webaim.org/techniques/acrobat/reader.php>.

28 The World Wide Web Consortium (W3C) develops interoperable technologies (specifications, guidelines, software, and tools) to lead the Web to its full potential. W3C is a forum for information, commerce, communication, and collective understanding.

describe the problems that occur at the intersection of access technologies and technical protection measures:

> "The personal computer is the information access tool of choice for many persons who are blind. The computer is made accessible through a screen reader program. Screen readers use a text-to-speech synthesizer (TTS) to speak aloud the information that a sighted person would visually read on the computer screen. These screen readers intercept the text being written to the display and keep track of it, so that it can be vocalized in response to the user's control. For example, pressing certain keys will cause the screen reader to read the current word, line or paragraph. Screen readers also permit the use of dynamic braille displays instead of, or in addition to, the TTS.
>
> The screen readers are external applications to the PC-based eBook reading software. The DRM wrappers are designed to work with reading applications that present the text visually without allowing the text to be copied, to prevent the illegal distribution of the book. Unfortunately, these anti-copying provisions also prevent the screen reader from providing access with TTS or braille. The secure reading application views these external applications as security threats and blocks their access. As a result, persons who try to use their screen reader with eBook reading systems find that their screen reader is not allowed to do its job and leaves the person who is blind with no access to the ePublication, unless the reading application builds access directly into the user interface."[29]

As Kerscher and Fruchterman acknowledge, the problem lies not so much in the configuration of the technology; it lies more in the way that the technology is employed by the rightsholders:

> "Microsoft and Adobe, which have implemented the use of TTS in their eBook reading systems, have heard from publishers that the audio rights to their eBooks may have been sold. Therefore a feature has been added that allows the use of TTS to be turned off. This means that at the time of creation, a decision can be made by the publisher to disable the use of TTS for this particular eBook."[30]

While the standoff between certain rightsholders and visually impaired users is clear, neither side can be faulted for the position they maintain. As the representatives of visually impaired users have often made perfectly clear, their objective is simply to secure the same access to information and entertainment resources as those without such disabilities, within the same time frame and at similar price levels. They affirm the importance of copyright and emphasise that market-based solutions are appropriate.

Only a very small percentage of commercially published books and periodicals are made available by publishers in formats accessible by visually impaired readers. There is in some countries a commercial market for a limited range of "accessible" material, but large print books and unabridged audio books almost always cost more than the "standard" version. Most accessible material is today still created by specialist agencies operating on charitable

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[29] Kerscher, George and Fruchterman, Jim: The Soundproof Book: Exploration of Rights Conflict and Access to Commercial eBooks for People with Disabilities, available at <http://www.benetech.org/resources/talks/soundproof.shtml>.

[30] *Ibid.*

funds or social subventions. This means in practice that only a small proportion of the material published currently becomes available in accessible formats. In the United Kingdom, for example, it is estimated that only around 5% of published titles ever become available in accessible formats, and it is rare indeed for the accessible version to come out until months or years after the original.

Commercial publishers whether of best sellers or text books have a responsibility to maximize the return from the market. They have to maintain rigorous control over their assets and carefully analyse which sectors of the market are capable of delivering an adequate return on their investment in product development, marketing and distribution.

They have a duty to their creative partners and shareholders to ensure that works are not made available in a way which increases the risk of unauthorised reproduction and distribution, a risk which is of course much greater in the digital domain. Accordingly, the uncontrolled availability of works in digital formats which are open to reproduction and format conversion (adaptation) to meet the needs of visually impaired readers carries with it, in the perception of many rightsholders, the risk of unauthorised reproduction and distribution.

In short, at present, neither the market nor technology appears to be supporting a basis for facilitating the access to information by visually impaired people in a way that is consistent with the general standards for the full social and economic integration of people with disabilities.

5. *Legal solutions*

While they recognise the role of copyright law, visually impaired people have very specific needs in terms of access to information. Advanced technology goes further than ever before in meeting those needs. Yet many of the needs remain unmet.

For their part, publishers are required by the economics of their business and the markets within which they operate to carefully weigh risks and economic opportunities.

An important question is therefore whether current law provides a means for reconciling these different positions or, at least, bringing them into better alignment. The obvious conclusion – given that there are no specific provisions in international law dealing with the needs of visually impaired people – is that it does not.

The WBU argues for the standardisation of exceptions and limitations to meet the needs of visually impaired people as follows:

“We believe [the] exceptions should have the following features:

(a) They should achieve general acceptance and recognition of the principle that creation of alternative format versions from lawfully acquired originals on a non-profit basis with controlled distribution does not constitute an infringement of copyright and therefore requires no permission.

(b) They should enshrine rights rather than merely improving procedures for permission.

(c) They should avoid restriction to particular formats or technologies."[31]

It is debatable whether this approach would actually lead to an increase in the amount of accessible content available unless some third party with sufficient resources was prepared to take on the task of format conversion. In any event, attempts to change existing law in this way would more than likely be forcefully opposed by many content owners.

So what would the appropriate legal framework contain in this respect? Hopefully, answers to the following:

– What kind of exceptions or compulsory licence mechanisms can be devised in relation to the rights of rightsholders that on the one hand facilitate access to information by the visually impaired and on the other hand enable rightsholders to exploit fully the markets for their works?

– What rights are implicated by the processes – technological or otherwise – used in facilitating access?

– Technological protection measures are now protected by both international and national laws against circumvention. What are the most efficient requirements, including derogations to that protection that can be applied to supporting both the access needs of the visually impaired and the market needs of the rightsholders?

– What are the best ways of administering the solutions provided within the law?

B. Distance education

1. *The concept of open and distance learning*

The needs of visually impaired people have been succinctly encompassed within the objective expressed by the WBU: the right to the same material, at the same time and on the same terms as those enjoyed by people without such impairment. Equally the concept of access through technology is relatively easy to grasp.

Not so with the idea of distance learning. While generally understood to be a relatively new concept, the term is applied to a range of educational and learning processes that is extremely diffuse. The term distance learning and a number of variants thereof are applicable to very different education structures. A full analysis of the field far exceeds the scope of this study. What will be attempted here is an introduction to some of the terminology and features of education as facilitated by technology to illustrate some of the changes from the traditional publicly funded classroom environment.

The term "open and distance learning" and its definition are relatively new in the field of education, having gained prominence only in the past 15 to 20 years. The language and terms used to describe distance learning activities can still be confusing, and geographical differences in usage — for example, between North America and Europe — can add to the

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[31] See Mann *supra*.

confusion. The following are examples of learning structures that are commonly referred to under the general heading of distance learning:

"Correspondence education," "home study" and "independent study" are terms and distance learning methods that are well over a century old, based on stand-alone, often print-based self-study materials. Learners do not have to leave their homes to study. They can use a variety of means for tutor–learner contact, including the postal system, telephone, video and audio cassettes, electronic mail and television and radio broadcasts.

Many university programmes in North America have, in the last 15 years, renamed their correspondence programmes to more current titles such as "open and distance learning" or "independent study."

The term "external studies" applies to instruction that takes place somewhere other than on a central campus, such as a classroom remote from campus and includes a variety of delivery options like audio, video or computer conferences or home study.

The term "continuing education" usually applies to non-credit education, and refers to courses that can be delivered on campus or at a distance and has varied meanings.

The term "self-instruction" refers to a process in which materials take learners step-by-step through an instructional process. Self-assessment exercises are a central feature; instruction can be paper-based or computer-based. As an example of this, many language schools offer self-instructional packages that consist of print materials and audio cassettes.

The term "adult education" emphasises the principles of adult learning, often known as "andragogy," as compared to "pedagogy," or child-centred learning.

The term "technology-based education" refers to systems of teaching and learning in which a technology other than print has a major role and takes two major forms: stand-alone (for example, computer-assisted learning and computer-managed learning) and conferenced (for example, audio, video or computer).

In "learner-centred education," integrity and freedom of the individual is primary. Therefore, the teaching and learning process provides:

– flexible sequences of study;
– negotiated objectives and content;
– negotiated learning methods;
– negotiated methods of assessment; and
– a choice of support mechanisms.

The educational philosophy of open learning emphasises giving learners choices about:

– medium or media, whether print, on-line, television or video;
– place of study, whether at home, in the workplace or on campus;
– pace of study, whether closely paced or unstructured;
– support mechanisms, whether tutors on demand, audio conferences or computer-assisted learning;
– entry and exit points.

The term “flexible learning” emphasises the creation of environments for learning that have the following characteristics:

- convergence of open and distance learning methods, media and classroom strategies;
- learner-centred philosophy; recognition of diversity in learning styles and learners’ needs;
- recognition of the importance of equity in curriculum and pedagogy;
- use of a variety of learning resources and media;
- fostering of lifelong learning habits and skills in learners and staff

The term “distributed learning” emphasises the learning itself rather than the type of technology used or the separation between teacher and learner. It makes learning possible beyond classrooms and when combined with classroom modes, becomes “flexible learning.”

As can be seen from the above, there is no one definition of “open and distance learning.” Rather, there are many approaches to education which can be referenced under the single term. Most of these approaches, however, have certain common characteristics including:

- separation of teacher and learner in time or place, or in both time and place;

- institutional accreditation, that is, learning is accredited or certified by some institution or agency. This type of learning is distinct from learning through one’s own effort without the official recognition of a learning institution;

- use of mixed-media courseware, including print, radio and television broadcasts, video and audio cassettes, computer-based learning and telecommunications. Courseware tends to be pre-tested and validated before use;

- two-way communication allows learners and tutors to interact as distinguished from the passive receipt of broadcast signals. Communication can be synchronous or asynchronous;

- possibility of face-to-face meetings for tutorials, learner–learner interaction, library study and laboratory or practice sessions;

- use of industrialised processes; that is, in large-scale open and distance learning operations, labour is divided and tasks are assigned to various staff who work together in course development teams.

Time and place continuum

Open and distance learning programmes fall somewhere along two continua: the continuum of time and the continuum of place. The place continuum has at one end all learners and their tutor or instructors gathered at the same place, and at the other end all learners and their tutor or instructor in different places. The time continuum has at one end all learners and their tutor or instructor interacting in ‘real time’, that is, at the same time, and at the other end all learners and their tutor or instructor interacting at different times.

2. *The advantages of open and distance learning*

Distance learning offers a number of advantages to both learners and to providers of opportunities for learning. The advantages include the following:

– Overcoming physical distance

– Solving time or scheduling problems

– Making best use of the limited number of teachers available

– Dealing with cultural, religious and political considerations

We can see from this brief outline of various modes of distance learning and their common features that the basis for establishing specific copyright regimes for educational purposes is becoming extremely complex. Any distinction drawn between the publicly - funded physical classroom environment and everything else would seem somewhat outdated. As noted above, Ricketson has observed that there appears to be nothing in Article 10(2) of Berne which precludes its application to virtual learning environments. He also points out however that it was noted in the Committee Report of the Stockholm Conference:

> "The wish was expressed that it should be made clear in this Report that the word 'teaching' was to include teaching at all levels–in educational institutions and universities, municipal and State schools, and private schools. Education outside these institutions, for instance general teaching available to the general public but not included in the above categories, should be excluded."

This construction of the term "teaching" provides little help for understanding the scope of educational copyright exceptions in the modern world. Nor, it should be said, does it provide any obvious support for using the distinction between the commercial and non-commercial nature of an educational institution or process as a basis for demarcating the field of application for exceptions.

What is apparent from even the most cursory examination of modern education systems is that the increasing use of technology and digital resources creates a complex matrix of rights issues which the formulation of copyright policy and law has to take into account.

These issues include the following:

– the creation of resources
– the digitisation of resources
– the storage of digital resources
– the adaptation of digital resources
– the communication of digital resources
– the sharing of resources (between institutions, users)
– the re-use of resources

3. *Economics*

These developments are occurring in a sector which is of enormous economic significance in terms of both public and commercial investment. Annual spending on education of all forms worldwide is over $2 trillion; in the United States of America alone spending amounts to $750 billion.

Globally, 84 million students of higher education attend 20,000 colleges and universities. 66 million adults and more than 50% of all employed persons participate in some form of continuing education.

The Republic of Korea spends more on education than any other member of the Organization for Economic Cooperation and Development (OECD). In 2003 expenditures on public education amounted to 7.1 percent of its gross domestic product (GDP). This figure includes spending on hardware infrastructure such as school buildings and computers, as well as spending on teachers' salaries and facilities management. During the same year, spending on private education totaled 9.4 trillion won (US$8.11 billion).

In each of the territories covered in this study, commercial publishing of educational materials is a major business. The United States textbook market is a large, growing, and fragmented business. Textbooks are written and marketed primarily for use in formal educational settings. Much of the demand for graduate level textbooks depends on growth in the population attending institutions of graduate study. The United States textbook market overall has an annual volume of approximately USD 5.3 billion, and forecasters predict that around 40-50% of all textbooks will be available electronically in five years' time.

The Australian market for books of all kinds was worth USD 1.5 billion in 2003. The Professional/Education/Academic book sector remained the largest sector in 2003 with USD 356 million, a slight fall of 0.1% from 2002, accounting for 21% of the market. The size of South Korean book market was worth USD$1.875 million in 2003, having decreased by 16.9% over 2002. The United Kingdom market for books reached a value of over $5.6 billion in 2003. Professional and Scholarly books commanded the largest market share in 2003, accounting for 18.3% or of the total market, a 7.9% increase from 1999.

4. *Heterogeneity*

Coupled with the enormous economic dimensions of the education sector and its accelerating migration to technology-based systems is its diversity. The "lifetime learning for all" is in many countries a very real proposition whether on a voluntary basis or as part of employment related training programs.

The different features and varieties of distance learning systems described above are being adopted for any number of different educational and training programmes and environments. Many of these are state-funded programmes and strictly non-profit; many others are entirely profit-based whether in the educational process itself or via the enterprise to which it is directed.

There are growing examples where the line between commercial and non-commercial educational programmes is becoming much harder to discern. Worldwide, particularly in the

higher education sector, institutions have very active programmes recruiting overseas students on an essentially commercial basis.

Likewise the resources being developed in the sector are becoming difficult to classify in categories which fall neatly into established demarcations between the commercial and non-commercial. The enormous impact of university education and research on the technology revolution is an obvious case in point.

CHAPTER 4

NATIONAL LAW & PRACTICE

We now turn to examine the state of laws in each of the target territories in two specific areas:

– Provisions of copyright law relating to the needs of visually impaired people

– Provisions of the copyright law relating to the use of copyright materials in education

Our enquiry is not concerned with the policy responsible for each provision as they relate to the particular purpose for which they were formulated. Rather we are interested to explore how far each provision embodying an exception to copyright is susceptible to effective implementation, and whether the use and protection of technical protection measures interferes with that implementation.

Our enquiry therefore breaks down into various channels:

– What is the scope of each exception?

– How is the exception implemented?

To assist in this review a detailed analysis of each national law was made, the results of which are contained in Annex A hereof.

A. Provisions relating to visually impaired users

1. *Australia*

The first statutory scheme to assist people with disabilities was inserted into the Copyright Act by the Copyright Amendment Act 1980. The statutory licence permitted multiple copying by institutions assisting persons referred to as “print handicapped.” It followed recommendations by the Copyright law Review Committee (CLRC) on Reprographic Reproduction to facilitate equitable access to information. Both the Government and the CLRC received representations regarding the difficulties experienced by certain institutions seeking to obtain permission of copyright owners to reproduce published works in Braille and the extent to which this affected the ability of print disabled students to complete study requirements.

The resulting statutory scheme was accompanied by provisions allowing for the payment of equitable remuneration to copyright owners. The word “equitable” was intended to mean fair, just and reasonable. The provisions enabled parties to negotiate the level of remuneration and required records to be kept as the basis of the copyright owner’s claim to payment.

The Copyright Amendment Act 1986 established a statutory licence scheme for "radio for the print handicapped." Again the scheme was established because of the difficulties and delays experienced by radio licensees seeking permission to read published texts on air. The scheme contained similar provisions relating to equitable remuneration and record keeping.

The Copyright Amendment Act 1989 widened the subject matter of the statutory licence schemes and streamlined the systems used to collect equitable remuneration for copyright owners. The old scheme for institutions assisting the print handicapped in Part III Division 5B was repealed and a number of new provisions inserted into the Copyright Act including:

– A new Part VA providing a statutory licence scheme for institutions assisting intellectually handicapped persons to copy broadcasts;

– A new Part VB implementing a revised scheme for copying by institutions assisting handicapped readers and intellectually handicapped persons; and

– A new Section 200AA providing that copyright was not infringed by the making of a copy of a sound broadcast if the copy was made for the purpose of assisting persons with an intellectual handicap.

The streamlined administration provisions established a mechanism for the collection and payment by a single collecting society of remuneration for the copyright owner, calculated on the basis of either full record keeping and payment per copy or sampling and payment of annual amount per student at the relevant institution relying on the statutory licence.

The introduction of the sampling system was an important innovation operating as an alternative to full record keeping. Under this system, remuneration is assessed on a per student per annum basis, rather than an amount per copy (as under the records system). The system was considered to have many benefits. The Explanatory Memorandum to the 1989 Act stated that it was "far more flexible, less costly to operate and less administratively burdensome on all parties (…) than the records system." Despite these benefits, the single collecting society and sampling system provisions were not extended to apply to broadcasts by radio for the print disabled.

Additional amendments to the statutory licence provisions were later made:

– Simplifying the administration of the schemes and replacing the word "handicapped" with "disabled"; and

– The Copyright Amendment (Digital Agenda) Act 2000 extended the statutory licences under Parts VA and VB to include the "communication" of works and subject matter in addition to the pre-existing licence to copy. This covered the making available on-line and electronic transmission of works and subject matter.

Under the current provisions, certain organizations are allowed to copy and communicate material protected by copyright to help people with a print disability or with an intellectual disability.

An organization may reproduce and communicate material for people with a print disability if it is:

(a) an educational institution, as defined by the Copyright Act, (for example, a school, Institution of Technical and Further Education (TAFE) or university); or
(b) any other institution that wants to provide written material such as books or articles to people with a print disability as one of its principal functions, and which has been declared by the Commonwealth Attorney-General to be an institution assisting people with a print disability for the purposes of the Act.

Before an organization can use copyright material, it must give the copyright collecting society. Copyright Agency Limited (CAL) a written undertaking to pay for the copies or communications made.[32]

A person with a print disability is:

(a) a person without sight;
(b) a person whose sight is severely impaired;
(c) a person unable to hold or manipulate books or to focus or move his or her eyes; or
(d) a person with a perceptual disability.

The definition does not include slow learners or people learning English – for example, as a second language. However, the definition does seem to apply to people with dyslexia.

One or more copies of a literary or dramatic work may be made by recording the work onto "a disc, tape, paper or other device in which sounds are embodied."

Additionally, one or more Braille, large-print or photographic versions of a published literary or dramatic work may be made. A "photographic version" is a copy of a work produced as a film strip, or series of separate transparencies designed to meet the needs of disabled readers. The copy can only be made however if it is not possible to buy a suitable copy in the relevant format. Equally, it is only permissible to make and communicate an electronic version of the work if it is not possible to purchase that work in electronic form.

Sound recordings of works and communications of copyright material must be accompanied by notice alerting users to the fact that the works have been reproduced or communicated under particular provisions of the Copyright Act. In addition, it may be necessary to mark copies and some organizations may need to keep records of copies made.

It is also permissible to make a copy of a published literary or dramatic work solely for the purpose of enabling the creation of the version of the work to be made available or communicated to a person with a print disability. Notice must be given to CAL within three months of the making of the copy. The notice must specify the name of the institution, the work reproduced and the date the copy was made.

The print disability radio licence

A radio station which holds a print disability radio licence may broadcast published literary or dramatic works (for example, newspaper articles, or readings from plays). A print

[32] It should be noted that CAL operates a zero rate tariff for these uses.

disability radio licence is a licence which is granted under the Broadcasting Services Act 1992 or the Radiocommunications Act 1992:

> "For the purpose of authorising the making of sound broadcasts to persons who by reason of old age, disability or literary problems are unable to handle books or newspapers or to read or comprehend written material."

The current legislation governing broadcasting does not grant licences on any basis as specific as this. It is therefore difficult to know which (if any) stations may rely upon the section. It is also not known whether any such amendments will allow community stations generally to rely upon the exception, or whether only specific stations will be entitled to rely upon it.

The station must keep a record of certain information for four years from the date of the broadcast, including:

- the time and date of the broadcast; and
- the numbers of the pages which are broadcast (or a description allowing the pages to be identified if the pages are not numbered).

2. *The Republic of Korea*

The Copyright Law of 1989 as amended provides exceptions in respect of format conversion for the benefit of blind people. Article 30 of the Law provides as follows:

> "Article 30
>
> (1) It shall be permissible to reproduce in Braille for the blind a work already made public.
>
> (2) It shall be permissible to make sound recordings of a work already made public, exclusively for the purpose of providing such recordings for the use of the blind at the facilities established for the promotion of the Welfare of the blind as prescribed by the Presidential Decree."

Case study: the Republic of Korea

As part of the research for this study a fact finding mission was conducted in the Republic of Korea. Meetings were held with a number of Government agencies including the Copyright Division of the Ministry of Culture and Tourism and the Copyright Deliberation and Transmission Rights Committee; with a number of technology companies developing DRM solutions; with organizations representing visually impaired people.

As is well known, the Republic of Korea has one of the most advanced technology infrastructures in the world with very high levels of high speed broadband penetration.

The Republic of Korea is also a leader in the development of advanced wireless technology.

While the rapid deployment of these technologies has brought obvious benefits to the country, it has also involved the inevitable disruption to established media practice including, of course, enforcement of the copyright law. The Government recognises this situation and is actively studying ways to maintain the necessary protections for the rights of creators in a way which is consistent with the overall industrial and technological objectives of the country.

One of the purposes of researching the situation in the Republic of Korea was to see how far its rapid advances in technology have improved the access to services and materials for the Republic of Korea's population of visually impaired people. With one exception, the conclusion at present appears to be that benefits for visually impaired derived from the new technology are, at best, limited.

The Republic of Korea has a highly educated and literate population and a correspondingly active publishing industry. Although still relatively small (turnover in 2004 was USD20 million), according to the Korean Electronic Publishing Association, the electronic book industry is growing rapidly.

Meetings were held with three organizations representing the interests of visually impaired people.

The Korean Welfare Foundation for the Visually Handicapped was founded in 1973 and is funded entirely by the Government. Its main services include the provision of materials in braille and talking books. It runs a basic rehabilitation and computer training centre for the visually impaired. It also publishes a bi-weekly braille magazine.

The material made available is of all kinds of literary works other than newspapers. The conversion into braille and talking books is done under the provisions of Article 30 of the Copyright Law and does not require the permission of the copyright owner.

Inevitably, some problems are encountered in converting digital formats to which technical protection measures have been applied.

The Korean Blind Union is another leading organization for the visually impaired. It brings together a number of different organizations including specialised schools and rehabilitation centres. There are some 45 of these organizations in total. The Korean Blind

Union has 16 branch offices throughout the country and numbers another 140 associate offices. Again, the organization is funded by the Government.

The main tasks of the Korean Blind Union include promoting the interests of visually impaired people generally (including lobbying for necessary legislation); maintaining rehabilitation and training centres (including training in information technology); providing social welfare and support for residential users of accessible materials – this includes promotion and support for the use of access technologies such as screen readers and text to speech synthesisers.

Like other organizations in the field it encounters numerous difficulties in an area where digital technology should greatly facilitate its work. The availability of source text in digital formats should greatly expedite the process of conversion into accessible formats. Too often however the use of technical protection measures such as encryption impede the process. Even where the source text is not encrypted the original digital formatting and structuring of the text may not be conducive to efficient format conversion.

As an organization, the Korean Blind Union is constantly exploring relevant assistive technologies. It also places great importance on copyright law and lobbies extensively to promote provisions in the law to support the interests of its members.

The Korean Braille Library was established by a private individual in 1969; it receives some financial support from Government. Traditionally, its function has been to make literary works available in braille for print disabled readers in the Republic of Korea: approximately 10% of the population.

The use of braille for the Korean language is a complex process and many visually impaired people do not like to use it. The Korean Braille Library is therefore at the forefront of efforts to adopt alternative technologies. It is the leading promoter of the DAISY format in the Republic of Korea. It is seeking to employ technologies for converting traditional formats into the DAISY format which supports effective navigation of documents as well as compatibility with access technologies such as screen readers and text to speech synthesis tools.

The Korean Braille Library is concerned that current provisions of the copyright law do not support these advanced uses of conversion technology; it is lobbying to introduce appropriate amendments.

The one exception to the general non-application of advanced technology in the interests of visually impaired people is the development of access technology. One example is the Voiceye Technology developed by the ADTrust Company. The technology works by converting digital files of text or, for example, music scores, into graphic representations with similar characteristics to bar codes. These graphic representations can then be scanned and stored in dedicated playback devices which can then deliver audible output of the text. Further information about this technology is available at <http://www.adinc.co.kr/eng - products/main.asp>.

3. *Spain*

The current Spanish Copyright Law, approved by Royal Legislative Decree 1/1996 of April 12 1996, provides in Article 31(3) as follows:

> "Published works may be reproduced without the author's authorisation in the following cases:
>
> 3. for the private use of visually impaired people provided that the reproduction makes use of the Braille system or another specific process and that the copies are not used for profit generating purposes."

The European Union Copyright Directive of 2001 permits Member States to provide an exception to the reproduction right, to the communication right and the distribution right in the case of uses for the benefit of people with a disability, which are directly related to the disability and of a non-commercial nature, to the extent required by the specific disability.[33]

Draft legislation amending the Copyright Law in order to implement the Copyright Directive is currently being debated in the Parliament.

A proposed new version of Article 31 provides in part as follows:

> "Article 31*bis(*2). Communication to the public, reproduction and distribution are not subject to authorization when these acts are undertaken for the benefit of people with a disability and are directly related to the disability and of a non-commercial nature, to the extent required by the specific disability."

ONCE (National Organization of Spanish Blind Persons)[34] is the only agency that produces materials for blind and visually impaired persons in Spain. Its service is centralised and co-ordinated by two production centres, one in Madrid, and another one in Barcelona.

ONCE is a non-governmental organization, self-funded by the selling of an exclusive lottery. None of the ONCE services (like book production) are funded in any form by the government.

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[33] Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society available at <http://europa.eu.int/information_society/eeurope/2005/all_about/digital_rights_man/doc/directive_copyright_en.pdf>.

[34] Information available at <http://www.once.es/vocacion/webenglish/default.htm>.

4. *United Kingdom*

The Copyright (Visually Impaired Persons) Act 2002, which came into force on 31 October, 2003, amends the Copyright Designs and Patents Act 1988. Its purpose was to remove the key difficulty experienced by those seeking to make information accessible whilst preserving the legitimate rights of authors and others. The Act introduces an exception to copyright law which, in general terms, removes the need for anyone to obtain permission from the rights holder to produce an "accessible copy."

The new law contains a functional definition of visual impairment.

"A visually impaired person" is defined broadly, as a person

(a) who is blind;

(b) who has an impairment of visual function which cannot be improved, by the use of corrective lenses, to a level that would normally be acceptable for reading without a special level or kind of light;

(c) who is unable, through physical disability, to hold or manipulate a book; or

(d) who is unable, through physical disability, to focus or move his eyes to the extent that would normally be acceptable for reading."

The Act focuses on accessibility rather than specific formats. "An accessible copy" is defined as "a version which provides for a visually impaired person improved access to the work." Furthermore, "an accessible copy may include facilities for navigating around the version of the copyright work." It therefore covers hard and soft copies – i.e., Braille, audio, e-text, large print, etc.

The works covered include any literary, dramatic, artistic or musical work not accessible to a visually impaired person in its original form. "Musical work" refers to sheet music, not to performed or recorded music. Databases are expressly excluded.

There are three core provisions to the exception:

– A provision enabling a visually impaired person to make an accessible copy of a work;

– A provision enabling certain approved bodies to make multiple accessible copies of a work for visually impaired persons;

– A provision enabling such approved bodies to hold intermediate copies of works, being copies necessarily created during the making of accessible copies.

"A complicated and poorly drafted regime"[35] governs the creation and use of accessible versions by individuals. A visually impaired person can make, or ask anyone to make for her,

[35] Garnett, Kevin; James, Jonathan and Davies, Gillian: Copinger and Skone James on Copyright, 15th Edition, Sweet & Maxwell, 2005, pp. 508.

a single accessible copy of any work in her "lawful possession" for "lawful use." This can cover any work purchased, given or lent, or that is held in a library that the visually impaired person is eligible to use. It covers material published commercially but also other material made public, such as dissertations lodged in a library.

An accessible copy can be passed to others who qualify as "visually impaired", to the same extent as with a print copy, as long as the printed copy is passed with it. Equally, the original and accessible versions can be passed back to a librarian or teacher, who could later issue them to another eligible person.

The governing principle is that the original print copy remains with any accessible versions, so that only one person can "read" the work at any one time, as with the print version. The problem with this approach is that accessible versions may pass in and out of infringing copy status depending on the whether the version is held in association with the "master copy."

The exception does not apply if an equivalent accessible copy is already available commercially. The accessible copy must carry "sufficient acknowledgement" of its source, such as title, author, and edition. It must carry wording to indicate that it has been created under the terms of Section 31A of the Copyright, Designs and Patents Act 1988 as amended by the Copyright (Visually Impaired Persons) Act 2002.

Multiple (two or more) accessible copies can be made by any not-for-profit body and any educational establishment. The Act refers to these as "approved bodies," but no approval process is specified. Generally, files for producing accessible copies, known as intermediate copies, can be transferred between one approved body and another. However, an educational establishment has, under the Act, to ensure that copies will only be used for its own educational purposes.

The exception covers any "commercially published" item of which the approved body has "lawful possession." Thus they may have bought or borrowed the original. (Note that under this multiple copy exception, the original has to be published commercially, whereas for the personal use exception, the original has only to be "a work" or "published").

As with personal copies, the exception does not apply if an equivalent accessible copy is already available commercially; and the accessible copy must carry "sufficient acknowledgement" of its source, such as title, author, and edition.

It must carry wording to indicate that it has been created under the terms of Section 31B of the Copyright, Designs and Patents Act, 1988, as amended by the Copyright (Visually Impaired Persons) Act 2002. The rights holder must still be notified retrospectively that the accessible copies have been produced and distributed.

Records must be kept of titles and formats produced, and of the approved body's customers. These records must be available for inspection by the copyright owner on request.

Licensing schemes

The Act allows for licensing schemes, drawn up by rights holder groups. Such schemes may enhance the Act's provisions in respect of the production of multiple copies, but cannot detract from the basic rights conferred in the Act.

If a licensing scheme exists covering the type of material or the formats involved, a licence must be taken out and its terms must be complied with.

When the Act came into force, two licensing schemes had been notified, one under the auspices of the Copyright Licensing Agency (CLA) and one under those of the Music Publishers Association (MPA).

Generally speaking, these schemes extend or simplify the exceptions conferred by the Act. For example, instead of notifying each individual rights holder, there is only a requirement to notify REVEAL[36] in the case of the CLA licence or MPA in the case of theirs.

Organizations such as schools, colleges and libraries who already hold CLA licenses and who only distribute copies to their own students will be able to have an extension to their existing license.

Schemes, once notified to the Secretary of State, are in force until or unless deemed in the courts to be "unreasonable."

5. *United States of America*

The free national library program of reading materials for visually handicapped adults administered by the National Library Service for the Blind and Physically Handicapped (NLS), Library of Congress, was established by an act of Congress in 1931. The program was expanded in 1952 to include blind children, in 1962 to include music materials, and in 1966 to include individuals with physical impairments that prevent the reading of standard print.

From the beginning, this program was dependent upon the cooperation of authors and publishers, who granted NLS permission to select and reproduce in special formats copyrighted works without royalty. Although many factors influence the length of time it takes to make a print book accessible in a specialized format, the period required to obtain permission from the copyright holder has sometimes been significant.

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[36] Revealweb <http://www.revealweb.org.uk> is a web based catalogue bringing together information about available titles produced in accessible formats from a wide range of organisations. Revealweb is intended for use by visually impaired people and their intermediaries. Revealweb will :

- Find books available in Braille, moon, audio books and digital talking books, tactile diagrams and large print ;
- Find titles currently in production in an accessible format to avoid duplication;
- Find who produces, loans or sells accessible material; and
- Act as the copyright notification register.

Public Law 104-197

On July 29, 1996, Congress approved H.R. 3754, introduced by Senator John H. Chafee (R-R.I.), that provides for an exemption affecting the NLS program. On September 16, 1996, the bill was signed into law by President Clinton.

The Chafee Amendment adds section 121 to the U.S. Copyright Law, establishing a limitation on the exclusive rights in copyrighted works. The amendment allows authorized entities to reproduce or distribute copies or phonorecords of previously published non-dramatic literary works in specialized formats exclusively for use by blind or other persons with disabilities.

The exemption covers all nondramatic literary works protected by copyright regardless of when they were first published, but reproduction and distribution under the exemption must take place on or after September 16, 1996, the effective date of the amendment.

The new exemption covers "nondramatic literary works"; section 101 includes "periodicals" within the definition of "literary works."

The exemption defines "specialized format" as "braille, audio, or digital text which is exclusively for use by blind or other persons with disabilities." Works reproduced in large print are, therefore, not included under the exemption.

The amendment defines and limits "authorized entity" to "a nonprofit organization or a governmental agency that has a primary mission to provide specialized services relating to training, education, or adaptive reading or information access needs of blind or other persons with disabilities." A "nonprofit organization" is understood to mean an organization that has been granted nonprofit tax exemption under section 501(c)(3) of the Internal Revenue Code.

To the extent that authorized agencies and organizations use or delegate authority to volunteers, special education teachers, and commercial producers under government contract to produce and distribute works under the exemption, those activities appear to be fully covered by the exemption. Such individuals can be said to be agents of authorised entities and are, therefore, acting under implied authority.

Section 121 has two notice requirements; it provides that the copies or phonorecords produced under the exemption shall (1) "bear a notice that any further reproduction or distribution in a format other than a specialized format is an infringement," and (2) "include a copyright notice identifying the copyright owner and date of the original publication."

Case study: Bookshare.org

In the United States both the National Library Service for the Blind and Physically Handicapped of the Library of Congress (NLS), and Recording for the Blind and Dyslexic (RFB&D), offer high quality digital book services. Contract narrators at NLS and volunteers at RFB&D record the audio books. The cost per book is quite high because of quality control requirements and this limits production. NLS has a server providing roughly 4700 books in the Braille BRF format via the Internet. RFB&D launched their digital program by making 6000 DAISY formatted audio books available on CR-ROMs in September 2002.

Bookshare.org, an organization based in Palo Alto, California, aims to provide a vast library of low cost scanned books instead of a small library of high quality digital books. It is an online community that allows users with print disabilities to legally share books.

Bookshare.org and its operations are specifically facilitated by section 121 of the United States copyright law:

> "It is not an infringement of copyright for an authorized entity to reproduce or to distribute copies of a previously published, nondramatic literary work if such copies are reproduced or distributed in specialized formats exclusively for use by blind or other persons with disabilities."

In practice this involves the following requirements which are at the heart of the Bookshare.org modus operandi:

- Copies of works may not be reproduced or distributed in a format other than a specialised format exclusively for use by blind or other persons with disabilities.
- The copies must bear a notice that any further reproduction or distribution in a format other than a specialised format is an infringement.
- The copies must include a copyright notice identifying the copyright owner and the date of the original publication.
- "Specialized formats" means Braille, audio, or digital text which is exclusively intended for use by blind or other persons with disabilities.

As a project of the Benetech nonprofit organization, Bookshare.org meets the definition of an "authorized entity" under section 121.

The Bookshare.org offerings are based on electronic Braille and digital talking book standards, and copyright law recognizes these digital formats as specialized formats for the disabled. Braille books and four-track audio cassettes are the most commonly recognized specialised formats in use over the past thirty years.

In addition, some publishers and authors have provided permission for books and other publications they provide in digital form to be made available in accessible digital formats to individuals with qualifying disabilities, either within the United States or worldwide.

Although the requirements of the copyright law exception are quite clear, Bookshare.org has gone beyond these requirements to ensure broad support for the project. It works with the Association of American Publishers, the main industry group, to address publishers' concerns in the design of the service. Bookshare.org also works with the

leading disability organizations, including the Library of Congress and Recording for the Blind & Dyslexic. With extensive input from consumers, publishers and leading organizations, a plan for Bookshare.org has been established that can be supported by a broad array of interests.

Bookshare.org works extensively to ensure that its collection and its users abide by the law in order to maximise the benefits for the disability community and minimise the risk of abuse. Bookshare.org controls the format of the materials that it provides and ensures the appropriate copyright notices are in its digital publications. Access is restricted to disabled individuals and other authorized entities. Digital rights management helps to ensure that access remains limited to those covered by the copyright law exemption.

The security strategy includes seven elements:

Qualified Users

Only blind or other persons with disabilities that affect their ability to access print are permitted to download copyrighted books. Bookshare.org follows the procedures and standards for access to books that is now in use by Recording for the Blind and Dyslexic (RFB&D). A Bookshare.org user must register and supply a signed certification completed by an appropriate professional in the field of disability services education, medicine, psychology or a related area. The certifier must be a recognized expert who can attest to the physical basis that limits the applicant's use of standard print. Appropriate certifying experts may differ from disability to disability. For example, in the case of blindness and visual impairments, an appropriate certifier may be a physician, ophthalmologist, or optometrist.

In the case of a perceptual disability, a neurologist, learning disability specialist, or a psychologist with a background in learning disabilities may be the most qualified certifying professional.In addition, since any United States resident who has previously submitted their proof of disability to NLS (National Library Service for the Blind and Physically Handicapped of the Library of Congress) would qualify under the law, Bookshare.org has a cooperative agreement where NLS will certify that they have such proof already.

Contractual Agreement

All Bookshare.org users have to agree to terms of use that forbid violation of the copyright law restrictions on redistribution and use of copyrighted material. Users who violate these terms lose their access to Bookshare.org and may suffer other legal consequences as a result of their actions.

Copyright Notice

In order to comply with the copyright law regulating the provision of accessible books to people with disabilities (section 121), Bookshare.org ensures that all copyrighted materials bear a notice that any further reproduction or distribution in a format other than a specialised format is an infringement. Such content includes a copyright notice identifying the copyright owner and the date of the original publication.

In addition, there is other language reminding users of their obligations to use this material only as permitted by their agreements with Bookshare.org and the law. It also informs people who are not Bookshare.org users that their possession of a Bookshare.org digital book is a violation of the copyright law and that they should erase such a book without using or copying it.

Encryption

Bookshare.org encrypts a requested book for a given user. A custom decryption program is provided to each Bookshare.org customer. This program decrypts content delivered for that user only and saves the decrypted content to the specified DAISY or BRF (Braille) file.

Fingerprint

All copyrighted material downloaded is fingerprinted as part of the encryption process so that the identity of the authorized user is contained within the decrypted material in a difficult to find fashion. This way, if a user illegally redistributes material downloaded from Bookshare.org, it is possible to confirm both that the materials came from Bookshare.org and which user was responsible.

Security Database

All transaction, encryption codes and fingerprints are stored in a database enabling Bookshare.org to track any abuse to the source. Users are informed of the existence of this database as part of Bookshare.org's privacy program.

Security Watch Program

A security program monitors all transactions and will suspend any user whose account exhibits any excessive downloading of content or other unusual activity. This program will build usage profiles and over time will be strengthened through experience to flag potential abuse.

Individual subscriptions to Bookshare.org enable "all-you-can-read" access to books in easy-to-use digital formats for a full year. Subscriptions cost 50 dollars plus a 25 dollar sign-up fee the first year.

Books and periodicals from Bookshare.org contain the full text of the publication (not pre-recorded audio) that can be read with the adaptive technology of the reader's choice. A talking software application is included with membership, providing members with one option for reading the books. The publications are also available in digital Braille.

Access to the full collection of copyrighted books and periodicals is only available to current Bookshare.org subscribers. By subscribing, users are able to read books, newspapers, and magazines that are not available from other accessible material providers.

As part of the subscription, every member can download talking software that will read material in the DAISY digital talking book format. The Victor Reader Soft DAISY player is a software program for PCs that enables users to navigate easily by paragraph and pages through the digital books and bookmark locations to return to at a later time. It has built in text-to-speech that can read the text aloud. The Victor Reader Soft, Bookshare.org Edition, will only read DAISY material downloaded from Bookshare.org.

Bookshare.org also serves organizations such as the state, local and federal educational system, the rehabilitation system, specialised nonprofit agencies and various governmental units that provide accessible materials to people with disabilities. Schools or groups can sponsor independent access through subscriptions. Alternatively, groups accounts can be set up to enable institutional access, whereby the school downloads the book and delivers it directly to the qualified student signed up under the account.

Bookshare.org is a web-based system supplying accessible books in digital formats.

These digital formats are the NISO/DAISY XML-based format for the next generation of talking books, and the BRF format for Braille devices and printers.

The Bookshare.org collection is built and shaped largely by its community of members and supporters. By scanning a book to submit to the collection, a Bookshare.org volunteer or member can provide access to that book to other members.

Benetech, a new kind of nonprofit enterprise, is sponsoring the Bookshare.org initiative. Benetech aims to combine social activism with the powerful methods and tools of the technology community. Benetech does not give technology away, but instead develops socially beneficial and affordable products and services that are not financially attractive to for-profit companies. Benetech's origins derive from the Arkenstone project. In 1989, a group of Silicon Valley engineers and executives asked themselves a question: "Why couldn't the far-reaching power of the PC with voice synthesis be combined with scanning technology to create a usable, affordable reading machine for the blind?" The market was small and for-profit companies were not interested. Benetech was formed as a nonprofit enterprise to bridge the gap between "the possible and profitable."

During Arkenstone's 11 years, Benetech sold literacy products under the Arkenstone brand in more than a dozen languages to over 35,000 individuals in 60 countries. The goal from the beginning was to empower people with vision and learning disabilities to use state of the art technology to achieve independence and high performance in the workplace. During this time, 99 percent of the nonprofit's budget came from product sales.

Today, Benetech has become one of the nation's most successful examples of high technology social enterprise, using an innovative business model to achieve major social objectives in education, employment and independence. The Arkenstone product line was so successful that it was purchased by a for-profit company and was thereby assured expansion capital and sustainability. The income received from the sale of Arkenstone provided the core capital for Benetech and seed investment for Bookshare.org.

B. Provisions relating to distance education

1. *Australia*

The provisions that allow educational institutions to use copyright material for educational purposes without needing permission from the copyright owner, including both limitations and compulsory licence mechanisms, are contained in Parts VA and VB of the Copyright Act of Australia. Payment is made under the compulsory license provisions to Copyright Agency Limited (CAL) (for reproducing literary, dramatic, artistic and musical material), and to Screenrights (for copying from radio and TV).

The following is a brief overview of the most important provisions in the Act:

Reproducing and communicating literary, dramatic, artistic and musical works.

There are two schemes in the Act which deal with the reproduction of literary, dramatic, artistic and musical works by or on behalf of an educational institution for its educational purposes.

The first scheme (the "Hardcopy scheme") applies when reproductions are being made from print resources such as books, newspapers, journals and so on. This scheme covers, for example, photocopying and scanning print resources. The second scheme (referred to as the "Electronic Reproduction and Communication scheme") applies when reproductions are being made from electronic versions of literary, dramatic, artistic and musical works. This scheme covers, for example, copying a digital file, or printing from an electronic version. This scheme also allows literary, dramatic, artistic and musical works to be communicated by or on behalf of an educational institution for its educational purposes (for example, by emailing a file to students, or by making material available to staff and students on a secure intranet site).

Both of these schemes are administered by CAL, and there are strict limits as to the amount of material that may be reproduced or communicated if commercial copies of the work are available. There are also a number of administrative requirements which apply, particularly in relation to the "electronic use scheme".

The Hardcopy licence now includes reproductions from paper to paper and from paper to digital. It is clear that, within the copying limits, the following reproductions are within this licence scheme:

- Scanning from paper; and
- Re-keying paper copies and storing them in a digital medium.

The important element is that the original must be paper-based, therefore this licence does not permit reproductions from digital to digital – for this the new Electronic Reproduction and Communication licence is required.

The Electronic Reproduction and Communication licence for educational institutions deals with an original electronic work and allows educational institutions to reproduce and communicate it to their staff and students. The work must already be in an electronic form.

The electronic use system varies in the different educational sectors and has been operating in Universities and Technical And Further Education[37] (TAFE) institutions since 2002. Negotiations are currently underway to determine the form of the system to be used in Schools after 2005.

In summary, the electronic educational licence:

– Provides for the electronic reproduction of an electronic form of a work within the copying limits of the licence;

– Provides for the communication of a work in an electronic form;

– Provides for the educational institution and CAL to agree on matters and processes constituting an electronic use system, such as payment and the system of records to be kept for recording usage;

– Includes literary, dramatic, artistic and musical works;

– Must be used for the educational purposes of the institution.

Pursuant to the terms of the licence electronic copies and electronic communications must contain the requisite copyright notice. In addition, the institution must take all reasonable steps to ensure that each communication can only be received or accessed by persons entitled to receive or access it.

The scope of the licence in terms of the extent of copying is as follows:

For literary and dramatic works:

– 10% of number of words
– All of the work, if not separately available for purchase
– All of the work, if not available within a reasonable period of time

For periodical publications:

– One article or more if of the same subject matter

For musical works:

– 10%
– All of the work, if not available for purchase
– All of the work, if not available within a reasonable period of time

[37] TAFEs are technical and vocational training institutions.

For artistic works:

– All of an artistic work

Copying and communicating material from TV and radio

A scheme in the Act, administered by Screenrights, allows educational institutions to copy material from radio and TV for their educational purposes. There are a number of administrative requirements which apply. For example, particular information needs to be marked onto hardcopy or analogue copies of material copied under the scheme, or onto the containers in which these copies are kept.

These provisions do not, however, allow educational institutions to copy commercially produced copies of films (for example, to convert VHS to DVD).

Additional licences for music in schools

In addition to relying on the provisions in the Copyright Act, most primary and secondary schools have an agreement with the Australasian Mechanical Copyright Owners Society (AMCOS) allowing limited photocopying of print music within the AMCOS repertoire where a copy of the music is owned by the school or a member of staff. Most primary and secondary schools also have a separate joint licence agreement with AMCOS and (ARIA) the Australian Record Industry Association , that allows them to make certain video and audio recordings of music, including recorded music. Most schools (and many other educational institutions) are also covered by a licence from the Australasian Performing Right Association (APRA) for the performance of live and recorded music.

Case study: CAL, Australia – The digital course material scheme

Copyright Agency Limited (CAL) is an Australian rights management company whose role is to provide a bridge between creators and users of copyright material. CAL is the principal representative of authors, journalists, visual artists, photographers and publishers as a nonexclusive licensing agent for the copying of their works by the general public.

CAL provides a legal and practical method for the public, business and government to copy published works. As a single entity, CAL provides copyright clearances for hundreds of thousands of books, articles, essays and artwork. It administers the copying of print material by educational institutions, government agencies, corporations, associations, places of worship and other organizations.

CAL is the designated licensing agency in respect of both the statutory licensing schemes for the use of copyright works in education.

Under the statutory licence, course material must contain no more than 10 per cent or one chapter of any publication. To comply with this restriction, teachers often have to juggle content from various sources to stay within the limits, and may sometimes omit material they would prefer to include. They may also undertake extensive and time-consuming editing of material in order to comply with the copying limits.

Materials copied under the statutory licence may not be sold at a profit. This provides no incentive for educational institutions or printers to add value to the book of readings, for instance by adding their own supplementary material or by including the same material on a CD-ROM to be bundled with the book of readings.

The management of CAL realised the limitations of the situation and the fact that it does not always allow educational institutions to provide the most appropriate and best quality materials to their students. As a result, CAL has developed and is actively promoting a voluntary licensing scheme. Its aim is to act as a broker between publishers and educational institutions to facilitate a more flexible and mutually beneficial system of licensing publishers' content for distribution to students. To do this, CAL offers a range of voluntary licensing schemes that are not subject to the same restrictions as the statutory licence.

One such scheme is the Digital Course Material (DCM) scheme, which facilitates the digital distribution of content for educational use and allows the streamlining of production and rights management under the voluntary licence. The DCM scheme and voluntary licence complement the existing statutory licence to extend the range of possibilities for educational institutions when they compile course materials.

DCM uses Digital Object Identifier[38] technology to automate the process of managing copyright under the voluntary licence.

The DCM process works as follows:

CAL maintains a database of content information – including book chapters, journal articles and newspaper clippings – that is available through the DCM scheme. The database includes metadata about each article, similar to a library catalogue, and the DOI is used as the unique identifier, similar to ISBNs for print publications.

Publishers wishing to make content available using the voluntary licence scheme host it on their own systems, giving them full control over security. Once this content is available, publishers submit information about each unit of content to CAL's database.

Teachers then use CAL's search interface to discover, preview and access digital material. They compile the course materials and register the compilation using CAL's database. CAL negotiates with publishers to make a wide variety of content available, but the compilations are by no means restricted to articles currently provided by publishers. Educational institutions can generate and host their own content and register it with CAL's database in the same way a publisher would. Where publishers' content is not available, CAL can act as a broker to negotiate rights to that material.

The digital content – usually in Adobe Portable Document Format (PDF) – can be downloaded from the publishers' servers into the educational institution's document repository. The printer can print the compiled book of readings by adding printing instructions such as paper stock, binding and number of copies.

Once in the document repository, the same content can also be made available to

[38] Information available at <http://www.doi.org>.

students online, provided they are authenticated users. If the document repository is integrated with the institution's enterprise reporting systems, copyright payments for materials printed or accessed online can be generated automatically.

A commercial trial at the Queensland Government-owned Open Learning Institute of TAFE (OLI) was one of a number CAL has undertaken to gain a better understanding of the issues involved in producing course materials using the DCM scheme under a voluntary licence. The trial at OLI was conducted between March and September 2004. The main achievements of the project were:

- The creation of a selection of original, copyright-cleared OLI learning materials registered with DOI numbers;
- Registration of these materials as learning objects capable of being distributed in a variety of formats;
- Registration at an appropriate level of granularity of selected material licensed from a third-party publisher through the CAL DCM scheme;
- Registration of aggregated course packs that include the learning materials and other objects;
- Developing the capability to use DOI-registered portions of commercial publications in combination with digitised internal material to create course packs which can be printed on demand;
- Developing a better understanding of the underlying issues such as metadata handling and course pack building;
- Documenting procedures and standards for implementing the DCM scheme;
- An evaluation of the benefits to OLI of using the DCM scheme.

The availability of content from publishers is a major factor in the viability and availability of this method for publishing course materials. CAL negotiated the grant of rights and release of the required files from John Wiley & Sons. The conditions of release were embedded in a contract between CAL and the OLI. These conditions included the right for OLI to print a copy and communicate a digital file to the student. Under the terms and conditions of the contract, OLI students are also permitted to print a copy of the digital file.

As the designated collecting society in Australia, CAL has close relationships with several hundred domestic and international publishers. It is also proactively obtaining content for several initiatives that will take advantage of the DCM scheme. This content includes granular, rights-cleared material such as book chapters and journal articles.

CAL is thus expanding the base of content available under the DCM scheme with both domestic and international material. It is also seeking to obtain print and digital mandates for additional content. This trend will allow a wide range of publisher content to be delivered to consumers in a variety of print or digital formats.

CAL worked extensively with OLI staff to determine the information and financial flows involved in payment to CAL for content consumed. CAL determined that the point at which content is considered "consumed" is when students enroll in the course. The model therefore allowed OLI to design and produce content without incurring consumption costs up front.

CAL provided OLI with a metadata schema, which had been developed in CAL's previous Coursepack projects. OLI registered the aggregated book of readings using this schema. CAL issued OLI with a registered DOI prefix enabling OLI to register items using identifiers generated by its internal systems. This in turn allows OLI to generate DOIs that can be processed by its financial systems and automatically account for licence costs during the production process.

When the compilation is registered in CAL's DCM database, the process also automatically registers a DOI for the compilation and captures the appropriate metadata for each individual work included in the book of readings. This procedure is a key component of the rights management reporting process.

In response to publishers' concerns, OLI contracted independent experts to review OLI's printing processes and other file security issues. The report concluded that printing-related security at TAFE OLI was sufficient to meet the security concerns of publishers in the short-to-medium term. In the long term, printers and educational institutions will need to ensure publishers are satisfied with the security of their procedures and systems for handling copyright material.

When the licensed material is published electronically, OLI's web infrastructure and document management system provides a security model that means that only authenticated student users are able to access the controlled material.

2. *The Republic of Korea*

The Copyright Law of 1989 as amended provides for certain exceptions in relation to education. Article 23 of the law provides as follows:

"Article 23

(1) A work already being made public may be reproduced in textbooks to the extent deemed necessary for the purpose of education at high schools, their equivalents or lower level schools.

(2) Educational institutions established by special Acts, or the Education Act, or operated by the state or local government may broadcast or reproduce a work already being made public to the extent deemed necessary for the purpose of education.

(3) A person who intends to exploit a work under Paragraphs (1) and (2) shall pay compensation to the owner of authors' economic rights as determined and announced officially by the Minister of Culture and Tourism according to the criteria for compensation prescribed under subparagraph 1 of Article 82, or shall deposit the same as prescribed by the Presidential Decree. Broadcasting or reproduction of a work done

at high schools, their equivalents or lower level schools as prescribed under Paragraph (2) is not obliged to pay a compensation."

Case study: the Republic of Korea

There are a number of companies in the Republic of Korea which specialise in the development of DRM technologies. Two of the leading companies are Fasoo and Digicaps.

Fasoo.com, founded in 2000, set landmarks in DRM technology including the launch of the first commercial DRM services in 2000, enterprise DRM solutions in 2001, and personal DRM services in 2002.

Fasoo's particular focus is on security in the work place where DRM becomes essential to prevent abuse of digital content, smuggling of corporate documents, and uncontrolled exposure of private information.

Fasoo's enterprise DRM solutions are now being used in more than 100 companies and the total number of users exceeds 250,000. Fasoo also provides personal DRM services for individuals and DRM services for content commerce.

Fasoo has developed a number of DRM solutions principally, as noted above, for application in the business environment. It has also partnered with the Credu company which is the leading provider of commercial distance education services in the Republic of Korea, principally for the professional market. Credu provides over 700 different learning packages on-line to some 300,000 students.

Credu produces some of its own learning materials but also buys or licences in a large amount of material from third party suppliers: individual authors or other commercial entities. Managing the rights in the material in compliance with copyright law is therefore a major part of its operations. To this end it has adopted DRM technology developed by Fasoo to automate certain elements of the rights management process. The DRM technology is able to provide the necessary rights management functionality whether in respect of downloading or streaming learning materials to students. It is also able to capture information about student interaction with the system, an important aid in evaluating course participation.

Credu runs its own secure authentication system, relying on credentials issued by the local entity of which the student is a member: her company or educational institution.

Digicaps, another leading developer of DRM technology offers a range of DRM technologies including mobile solutions, eBook solutions and general media soluttions. More information can be found at <http://www.digicaps.com/eng/Company/Ceo.asp>.

3. *Spain*

The existing law provides in Article 32 that for the purposes of teaching or research it is lawful to include extracts of the works of others whether the works are written, sound or audio-visual. The exception relates only to published third party works and provided they are only used for the purpose of analysis, comment or critical assessment. The source and name of the author have to be stated.

Recital 14 of the European Union Copyright Directive provides as follows:

> "This Directive should seek to promote learning and culture by protecting works and other subject-matter while permitting exceptions or limitations in the public interest for the purpose of education and teaching."

The draft legislation to implement the European Union Copyright Directive, currently before the Spanish Parliament, provides as follows:

> "Article 32(1) first paragraph. Quotations and illustration for teaching.
>
> "it shall be lawful to include in one's own work fragments of the works of others, whether of written, sound or audiovisual character, and also to include isolated works of visual arts and figurative photography, provided that the works concerned have already been disclosed and that they are included by way of quotation or for analysis, comment or critical assessment. Such use may only be made for teaching or research purposes and to the extent justified by the purpose of the inclusion, and the source and the name of the author of the work shall be stated.
>
> "Article 32(2)
>
> Communication to the public, reproduction and distribution are not subject to authorisation when undertaken by teachers in "regular education" regarding small fragments of works or isolated works of visual arts and figurative photography, excluding text books and University manuals, provided that such acts take place only for educational activities in the classroom, to the extent justified by the non commercial purpose, that the works concerned have already been disclosed and that, unless proven impossible, the source and the name of the author of the work is mentioned. However this limitation does not cover compilations or collections of fragments of works or isolated works in visual arts and figurative photography."

No changes have been proposed regarding the "Free Reproduction and Lending in Specific Establishments" in Article 37, which provides as follows:

> "Article 37
>
> (1) The owners of copyright may not object to reproductions of works where they are made without gainful intent by museums, libraries, record libraries, film libraries, newspaper libraries or archives which are in public ownership or form part of institutions of cultural or scientific character, and where the reproduction is effected solely for research purposes.
>
> (2) Museums, archives, libraries, newspaper libraries, record libraries or film libraries in public ownership or belonging to institutions of general cultural, scientific or educational interest without gainful intent, or to teaching institutions integrated in the Spanish educational system, shall not require the authorization of the owners of copyright or pay remuneration to them for the loans that they make."

However a new paragraph 3 introduces, almost literally, the limitation found in the Article 5(3)(n) of the Copyright Directive. Accordingly, no authorization is required regarding communication for the purpose of research to individual members of the public by

dedicated terminals on the premises of establishments referred to in the previous paragraph of works and other subject-matter not subject to purchase or licensing terms which are contained in their collections.

4. *United Kingdom*

As noted above, Recital 14 of the European Union Copyright Directive expressly recognises the need for certain exceptions in the public interest for the purposes of education and teaching.

Articles 5(2)(c) and (4) permit Member States to introduce exceptions to the reproduction and distribution rights in respect of specific acts of reproduction made by educational establishments which are not for direct or indirect economic or commercial advantage.

Articles 5(3)(a) and (4) also permit an exception to be made to the reproduction right, to the communication to the public right, and the distribution, for the sole purpose, amongst other things, of illustration for teaching, as long as the source, including the author's name, is indicated, unless this turns out to be impossible, to the extent justified by the non-commercial purpose to be achieved.

Recital 42 of the Directive provides as follows:

> "When applying the exception or limitation for noncommercial educational and scientific research purposes, including distance learning, the non-commercial nature of the activity in question should be determined by that activity as such. The organizational structure and the means of funding of the establishment concerned are not the decisive factors in this respect."

The United Kingdom amended its copyright law in October 2003 in accordance with the Directive. The amendments to the exceptions for educational purposes are contained in sections 32 to 36 of the Copyright, Designs and Patents Act 1988 (CDPA).

Section 32 deals with instruction and examination processes in a broad sense and is not restricted – unlike the provisions of the remaining sections – to acts conducted within an educational establishment. Section 32 provides that copyright in a literary, dramatic, musical or artistic work is not infringed by its being copied in the course of instruction or of preparation for instruction, provided the copying:

– is done by a person giving or receiving instruction

– is not done by means of a reprographic process

– is accompanied by a sufficient acknowledgement and the instruction is for a non-commercial purpose.

In the case of literary, dramatic, musical or artistic works which have been made available to the public the restriction of the circumstances to non-commercial instruction does not apply providing the copying constitutes fair dealing in the work in question. Unlike the position in the United States law, there are no statutory criteria for the concept of fair dealing;

the relevant considerations to be taken into account in assessing the fairness or otherwise of acts have been identified in case law. They include:

– The degree to which the alleged infringing act competes with exploitation of the work by the copyright owner;

– Whether the work has been published or not;

– The extent of the use and the importance of what has been taken.

Other exceptions related to educational use of copyright works are contained in Section 33 (making of anthologies for educational use); in Section 34 (performing, playing or showing work in the course of the activities of an educational establishment); and Section 35 (recording of broadcasts by educational establishments).

Reprographic copying can be done by or on behalf of an educational establishment for the purposes of non-commercial instruction without infringing the copyright in the work or the typographic arrangement thereof provided sufficient acknowledgment is given. Furthermore, no more than 1% of the work may be copied per quarter (i.e. between 1st January and 31st March and so on).

Case study: The United Kingdom Open University

The Open University (OU) is the United Kingdom's only university dedicated to distance learning. It was the world's first successful distance teaching university. Established in the 1960s, the "White Heat of Technology" era, the Open University was founded on the belief that communications technology could bring high quality degree-level learning to people who had not had the opportunity to attend campus universities.

OU now has around 150,000 undergraduate and more than 30,000 postgraduate students. 10,000 of its students have disabilities. Nearly all students are studying part-time. About 70 per cent of undergraduate students are in full-time employment. More than 50,000 students are sponsored by their employers for their studies. 11,000 people are currently studying for OU Higher Degrees.

Most OU courses are available throughout Europe. Some of them are available in many other parts of the world. More than 25,000 OU students live outside the United Kingdom.

OU's style of teaching is called supported open learning. Over three decades it has adopted various new media for teaching and learning. Audiocassettes and later videocassettes gave students more autonomy. In the 1980s, personal computers opened up exciting new possibilities for many courses. By the mid-nineties OU began the massive exploitation of the Internet that has made the OU one of the world's leading e-universities. Today more than 180,000 students interact with the OU online from home:

– Each week, 25,000 students are able to view their academic records online;
When exam results are made available, 85,000 students view them online;
The student guidance website receives 70,000 page hits per week;

- The Open Library receives more than 2.5 million page views each year; 110,000 students use the conferencing system; and

- There are 16,000 conferences, of which 2,000 are organised and moderated by students themselves.

This intensity of usage allows OU faculty and administrative staff to do pioneering research on the most effective approaches to online teaching and learning that aims to give the OU world leadership in its field.

OU also produces peak-time television programmes such as Rough Science, Renaissance Secrets, and Someone to Watch Over Me have been seen by millions of viewers and have won new critical acclaim for the University.

Given the innovative education processes involved in the OU's activities, the rights issues are complex. OU relies heavily on third party, commercial copyright materials but is also a significant generator and seller of materials in its own right.

Compliance with copyright law is central to OU operations. In view of the distributed nature of the OU's student population a particular provision of the European Union Copyright Directive is of relevance:

Article 5

Exceptions and limitations

3. Member States may provide for exceptions or limitations to the rights provided for in Articles 2 and 3 in the following cases:

(n) use by communication or making available, for the purpose of research or private study, to individual members of the public by dedicated terminals on the premises of establishments referred to in paragraph 2(c) of works and other subject-matter not subject to purchase or licensing terms which are contained in their collections

The OU has a dedicated department with cross university responsibility for rights management issues both in relation to its own materials and those licensed in from third parties. The strategy followed in relation to rights clearance includes:

- A global approach to rights management;
- Direct clearance of rights with commercial publishers;
- Partnering with third party content providers; and
- Identification and application of appropriate copyright exceptions and alternative rights management.

A Global Approach

Given the international reach of the OU its rights management processes are required to encompass the international exploitation of both its own and third party content. An important part of the international dimension of the rights management process is ensuring that the OU obtains the necessary translation rights.

Direct Clearance of Rights

Much of the rights management process involves direct negotiations with commercial publishers for the use of their materials in the OU curricula. Increasingly, OU is seeking to standardise the terms and automate the processes through which third party rights are cleared. It also establishes framework agreements with major content providers so that only specific issues in relation to particular items of content have to be dealt with on an ad hoc basis.

Rights clearance has to allow for the provision of both hard and electronic copies as well as meeting the demands of the global process as described above.

OU claims a 95% success in relation to its rights clearance operations.

Partnership with Content Providers

A further dimension of the OU's relationship with major third party content providers is its effort to establish marketing and exploitation operations for course materials. Given the market access the OU offers, opportunities for commercial publishers in partnering with the OU are significant. The OU also has a number of co-production agreements in place including with the BBC.

Use of Exceptions and Alternative Rights Management

The OU aims to exploit the exceptions provided for various purposes to the full extent permissible under relevant law. Thus it does not consider itself constrained to work exclusively within the scope of exceptions provided for educational purposes. Exceptions for criticism, private research, and news reporting, for example, may be invoked where appropriate. This approach requires the OU to adopt specific risk management policies in the event that acts it performs are found to fall outside the scope of an exception invoked.

5. *United States of America*

Prior to 2001 and the enactment of the Technology, Education, and Copyright Harmonization Act (TEACH Act), exceptions to copyright under the United States Copyright Law in respect of educational uses were those derived from the "fair use" provision in Section 107, and those introduced into the Law by the 1976 Instructional Broadcast Copyright Act Exemption.

The 1976 Instructional Broadcast Copyright Act Exemption provided as follows:

Section 110(2) permitted "performance or display" of a "non-dramatic literary or musical work or "display" of "any work", "by or in the course of a transmission" if:

– the performance or display was a "regular part" of the "systematic instructional activities" of a governmental body or nonprofit educational institution;

– the performance or display was "directly related and of material assistance to the teaching content" of the transmission; and

– the transmission was "made primarily for":

(1) reception in classrooms or similar places normally devoted to instruction, or

(2) reception by persons to whom the transmission was directed because their disabilities or other special circumstances prevented their attendance in classrooms or similar places normally devoted to instruction, or

(3) reception by officers or employees of governmental bodies as part of their official duties or employment.

Time and technology rendered these provisions increasingly obsolete. Limitations became apparent and uncertainties arose as to the application of the provisions in relation to emerging distance education systems and formats. These limitations and uncertainties included:

– Whether the provisions applied to digital transmissions;

– Whether the provisions addressed reproduction of works (as well as display and performance), an essential part of the digital transmission process;

– Whether the performance exemption was limited to certain types of works: it did not cover performance of "dramatic literary or musical works" or "audio-visual" works; and

– Whether the transmission was permitted only to a specific and limited location or audience.

The need for change was taken up in the 1998 Digital Millennium Copyright Act (DMCA), which provided in Section 403(a):

> "Not later than 6 months after the date of enactment of this Act, the Register of Copyrights… shall submit to the Congress recommendations on how to promote distance education through digital technologies, including interactive digital networks, while maintaining an appropriate balance between the rights of copyright owners and the needs of users of copyrighted works. Such recommendations shall include any legislation the Register of Copyrights considers appropriate to achieve the objective described in the preceding sentence."

The Register's Report on Copyright and Digital Distance Education[39] was published in May 1999, and contained the following key conclusions:

– By enacting Section 110 in 1976, Congress had already determined that "performances or displays of copyrighted works in the course of systematic instruction should be permitted without the need to obtain a license or rely on fair use."

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39 Information available at < http://www.copyright.gov/reports/de_rprt.pdf>.

– The "technological characteristics" of digital transmissions had rendered the "distance education" provisions of Section 110(2) "inapplicable to the most advanced delivery method for systematic instruction."

– "Without an amendment to accommodate these new technologies, the policy behind the law will be increasingly diminished."

– In amending Section 110(2), "a comparable balance" of interests between copyright owners and users of works "should be maintained."

The report also contained the following recommendations as to how the law should be updated. It should:

– Clarify that "transmission" includes transmission by digital means;

– Extend the exception to reproduction and distribution rights, but only as technologically required to digitally transmit the exempted performance or display of works;

– Ensure the exempt performance or display is analogous to what occurs in a live classroom setting with mediated instruction by requiring that it be made by or at the direction of an instructor;

– Replace the classroom limitations with a requirement that transmissions are exempt only if made to students enrolled in the course (regardless of their location);

– Require additional technological and other safeguards against uncontrolled copying and distribution as conditions on applying the exemption to digital transmissions;

– Retain the limitation of scope to nonprofit educational institutions;

– Extend the scope of the exception to include audiovisual works, sound recordings and dramatic literary and musical works, but only for portions of such works, only when they are the subject of study in the course and were not produced primarily for instructional use, and only when made from a lawful copy; and

– Exempt ephemeral recordings as necessary to permit asynchronous transmission to enrolled students.

Following these recommendations the TEACH Act was enacted by Congress and signed into law by President Bush in November 2002 as part of the 21st Century Department of Justice Appropriations Authorization Act, P.L.107-273 (Title III, Subtitle C, Section 13301 – Educational Use Copyright Exemption).

The key elements of the TEACH Act in terms of the scope and implementation the exceptions are as follows:

Works Subject to Exemption

– Performance of all kinds of works is permitted, but only reasonable and limited portions of works other than non-dramatic literary or musical works can be performed;

– Display of all kinds of works is permitted, but only of an amount [of the work] comparable to that which is typically displayed in the course of a live classroom setting.

Eligible Transmitting Entities

The application of the exception is limited to governmental bodies and nonprofit educational institutions which must be accredited. Accreditation is statutorily-defined in terms of the qualification of the institution, not in terms of the particular course or programs offered.

Necessary Use Criteria

The exempted transmission must be made by, at the direction of, or under the actual supervision of an instructor as an integral part of a class session offered as a regular part of systematic mediated instructional activity. Actual supervision does not require constant, real-time supervision or pre-approval; it covers asynchronous use by students where a "class session" is a period in which the student is logged onto the server and may thus vary according to student need or nature of the course. The content of the transmission must be directly related and of material assistance to the teaching content of the transmission.

Limits to the scope

The exception excludes works produced or marketed primarily for performance or display as part of mediated instructional activities transmitted via digital networks. It also excludes performances/displays given by means of a copy that is not lawfully made and acquired under the Copyright Act.

The transmission must be made solely for and, to the extent technologically feasible, reception must be limited to students officially enrolled in the course or governmental employees as part of their official duties or employment. This is intended to require identification of authorized recipients and limitation of reception to them through authentication processes.

Additional Safeguards to Counteract New Risks

The transmitting entity must institute policies regarding copyright including provision of notice to recipients that materials may be copyrighted; provision of information to faculty, students and relevant staff that accurately describes and promotes compliance with copyright law. The transmitting entity must use technological measures to prevent (i) retention of a work in accessible form by recipients for longer than class session, and (ii) unauthorized further distribution by recipients in accessible form. Furthermore, the transmitting entity must not engage in conduct that could reasonably be expected to interfere with technological measures used by copyright owners to prevent such retention or further distribution.

The Act does not authorize the conversion of works from print (analog) to digital formats, except where (1) no digital version is available to the transmitting entity, or (2) the available digital version is protected by technological measures that prevent its use for a performance or display authorized by the Act.

Transient and Temporary Copies

Transmitting entities generally are not liable for infringement by reason of transient or temporary storage of material carried out through the automatic technical process of transmission, provided that such transient or temporary copies stored on the system or network controlled or operated by the transmitting body are not maintained on the system or network in a manner ordinarily accessible to anyone other than anticipated recipients or in a manner ordinarily accessible to such anticipated recipients for a longer period than is reasonably necessary to facilitate the transmissions for which they were made.

Ephemeral Recordings

To facilitate asynchronous educational use, transmitting entities may load one or more copies of the authorized performance/display on their servers, provided that such copies are retained and used solely by the transmitting entity that made them, no further copies are made from them (except as authorized per the exemption), and they are used solely for transmissions authorized per the exemption.

The Act also required the production of a report by the USPTO (United States Patent and Trademark Office) on available technological protection systems.

CHAPTER 5

THE INTERFACE OF LAW AND TECHNOLOGY

A. Digital lock up

Digital lock-up is an expression which has come to be used to refer to the use of DRM technologies in a way which makes content unavailable other than on the terms imposed by the content provider. Concerns with digital lock up focus on the unilateral imposition of terms for the use of content; the denial of the use of content in ways sanctioned by the law; and the control of content in which the underlying rights have expired or, perhaps, never existed.

The responses from those concerned with the process of "digital lock-up" range from calls to dismiss the idea of DRM in its entirety, to ideas for alternative copyright licensing models, to proposals for workable ways to bring technology and copyright law into better alignment. Each of these approaches have found clear expression in the work of a number of organizations and individuals. There follows a description of relevant examples of illustrating each of these approaches.

1. *Electronic Frontier Foundation*

In a submission to the International Telecommunications Union, ITU-R Working Party 6M Report on Content Protection Technologies the Electronic Frontier Foundation (EFF)[40] along with ten other international organizations (including the World Blind Union) offered a simple proposition: "Digital Rights Management: A failure in the developed world, a danger to the developing world."

The paper sets out the case against DRM in very stark terms:

> "This paper discusses the failure of DRM in the developed world, where it has been in wide deployment for a decade with no benefit to artists and with substantial cost to the public and to due process, free speech and other civil society fundamentals.
>
> This paper also discusses the special risks to the developing world posed by DRM through restrictions on liberty, distance education, development efforts, criticism, and the creation and dissemination of culture.
>
> DRM delivers no public value but exacts a punishing public cost. It is so harmful to the interests of developed countries that there are widespread revolts against DRM underway in the United States of America and Canada, in Europe and in Asia."[41]

The paper in fact makes no attempt to describe the DRM technology it references. Nor, it must be said does it make any attempt to reconcile its two principal propositions: that DRM

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[40] Electronic Frontier Foundation (EFF) aims at protecting civil liberties in the networked world. Information available at <http://www.eff.org>.

[41] Information available at < http://www.copyright.gov/reports/de_rprt.pdf>.

does not work and that it will wreak havoc on the economies and cultures of the developing world. One is left wondering how the latter is sustainable in the light of the former.

2. *Creative Commons*

Creative Commons[37] does not set out to dismiss the concept of DRM. Its approach is to reduce the risks of widespread digital lock up by providing innovative and readily accessible models for the licensing and exploitation of content. The licensing models in question are conceptually linked to the kind of licensing structures used in open source software development.

The Creative Commons mechanism enables copyright holders to grant some of their rights to the public while retaining others, through a variety of licensing and contract schemes, which may include dedication to the public domain or open content licensing terms. The intention is to avoid the problems which current copyright laws and their implementation, at least in part, through technology, are perceived to create for the sharing of information.

Creative Commons provides several free licenses that copyright holders can use when they release their works on the web. It provides RDF/XML metadata that describes the license and the work to make it easier to automatically process and locate licensed works. It also provides a "Founder's Copyright" contract, intended, so it claims, to re-create the effects of the original United States copyright created by the drafters of the United States Constitution.

Creative Commons was officially launched in 2001. Lawrence Lessig, the founder and chairman of Creative Commons, started the organization as an additional method of achieving the goals of the case *Eldred v. Ashcroft*,[38] which was adjudicated by the United States of America Supreme Court. The initial set of Creative Commons licences was published on December 16, 2002.

The main Creative Commons licenses are written with the United States legal model in mind. Using the United States model without regard to local law could render licenses unenforceable, so the *iCommons* (International Commons) project has been established to fine-tune the Creative Commons legal wording to the specifics of individual countries.

The Creative Commons mechanisms involve a certain amount of automated formulation and graphic indications of the scope of licences. These processes should not however be confused with any of the rights expression processes employed in DRM technology. It is not clear either whether Creative Commons has the necessary infrastructure and standards in place to prevent abuse of its system.

Creative Commons provides a simple and standardised way for rightsholders to license their works. The conceptual link with open source software licensing is, however, questionable: the process of developing software – in many instances a collaborative and unremunerated process – is very different from the development of individual expression represented by other forms of copyright works.

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42 Information available at <http://www.creativecommons.org>.

43 Eldred v. Ashcroft, 123 United States Supreme Court 769, 793 (2003). See Decision available at <http://www.supremecourtus.gov/opinions/02pdf/01-618.pdf>.

While the Creative Commons approach has been adopted by a significant body of users – the BBC has announced it will use the approach for making its extensive archives available to the public – it is unlikely to find favour with major commercial copyright interests.

3. *Fair use by design*

Another approach to the problem has been to examine whether DRM technologies can be designed to apply rules of fair use: a number of important papers have been written by academic researchers in the United States examining the proposition. Given the way the fair use doctrine is applied under United States copyright law, the ability to accommodate the mechanism within a DRM based rights management system is often seen as the ultimate test of the compatibility of DRM with established copyright practice.

Perhaps the most innovative and useful of these paper is one written in 2001 by Professors Julie E. Cohen and Dan Burk entitled "Fair use infrastructure for copyright management systems."[39]

They state their central proposition as follows:

> "The most direct method of accommodating fair use would be to mandate or prompt the development of rights management systems that directly allow purchasers of a work to make fair use of the content. Optimally, the "breathing space" required for fair uses would be programmed directly into the technical rule set that controls access to the work. The systems might, for example, include provisions allowing users to extract a certain number of bits, or display the work for certain periods of time, or partially perform the work a certain number of times. Depending on the characteristics of the desired use, users would be able to take these actions without having to seek additional permission or pay additional fees.
>
> In reality, however, an algorithm-based approach to fair use is unlikely to accommodate even the shadow of fair use as formulated in current copyright law. We are not optimistic that system designers will be able to anticipate the range of access privileges that may be appropriate in order for fair uses to be made of a particular work. Neither are we optimistic that system designers will be able to anticipate the types of uses that would be considered fair by a court. Fair use is irreducibly a situation-specific determination. In some instances, a user may fairly take a work in its entirety – say, for example, where the work is entitled to only thin protection, the use is for a protected use such as scholarship or criticism, and/or the use is expected to have no appreciable impact on the market for the work. In other situations, where three or four of the factors weigh heavily against a particular use, taking much less might exceed fair use. Building the range of possible outcomes into computer code would require both a bewildering degree of complexity and an impossible level of prescience. There is currently no good algorithm that is capable of producing such an analysis, meaning that (at least for now) there is no feasible way to build rights management code that approximates the results of judicial determinations."

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[39] Cohen, Julie E. and Burk, Dan L: Fair Use Infrastructure for Copyright Management Systems Harvard Journal of Law & Technology, Volume 15, Number 1 Fall 2001, available at <http://jolt.law.harvard.edu/articles/pdf/15HarvJLTech041.pdf>.

As do most of those who have written in this area, Burk and Cohen dismiss the possibility of voluntary incorporation of fair use rules by copyright owners in a DRM based system. And while they note the precedent of the Audio Home Recording Act which provides for both mandatory technical protection and a degree of permitted copying, they do not see a corresponding solution in the DRM area.

They then go on to examine another alternative. This involves reference to a trusted third party holding keys to encrypted content in escrow so that fair users of content can access content in a manner compatible with law. The copyright owner would be required to deposit keys to content as the quid pro quo for having the anti-circumvention provisions of the DMCA apply to the content in question.

Burk and Cohen recognise issues with this approach as well, in particular the challenge of maintaining fair user anonymity and keeping transaction costs at an acceptable level. They consider at length what kind of entity should qualify as the trusted third party, concluding that this would likely be a publicly funded institution such as the Library of Congress.

They see the ultimate solution in a combination of the two approaches:

"Each of the two possible mechanisms for preserving fair use in a digital rights management environment has advantages and drawbacks. Automatic fair use functionality does not require human intervention, but is unlikely to afford the full spectrum of fair uses allowed by law. The use of a trusted third party intermediary to mediate access, in contrast, potentially allows the full spectrum of uses but is less responsive to anonymity and spontaneity concerns. The optimal result, we suggest, is an infrastructure that combines the two.

The first layer of our proposed fair use infrastructure would involve the design of rights management technologies that incorporate automatic fair use defaults based on customary norms of personal noncommercial use. The legal rule for facilitating this part of the proposal would operate in a fashion similar to current provisions of the Copyright Act designed to encourage copyright registration and deposit, by conditioning copyright enforcement on implementation of the automatic fair use defaults. To guard against a "race to the bottom" in fair use law, the law would clearly state that the level of copying permitted by the automatic defaults does not define the full extent of permitted fair use.

Those who desire greater fair use access, meanwhile, would turn to a trusted third party intermediary. Under the system, deposit of access keys into key escrow would be facilitated by conditioning anti-circumvention protection on such deposit. Users who failed to obtain access via the escrow agent would be subject to suit for circumventing technical measures; those users, however, still might escape liability by successful invocation of a constitutional defense to circumvention liability. Rights holders that opt not to deposit keys with the escrow agent would be unable to invoke legal protection against circumvention; for such unescrowed works, a "right to hack" would effectively substitute for access via the escrowed keys. As noted [above], the DMCA's ban on the manufacture and distribution of circumvention technologies also would need to be modified or amended to make this defense a realistic possibility. Finally, to preserve the relative anonymity of the key escrow system, the records of applicants and keys

issued would need to be guarded by stringent legal protections along the lines described above."

This paper is quoted at length because of the importance of the ideas it advances. The idea of developing DRM systems that can accommodate specific exceptions to copyright is logical. In this connection it is important to remember that United States law, both in the TEACH Act and the Chafee Amendment, provides specificity to areas falling within the scope of the fair use provisions, specificity which, in theory, could facilitate the design of DRM-enabled systems for properly implementing the provisions of the particular exceptions.

The idea of making content available for use consistent with fair use principles through trusted third parties is equally compelling. Indeed this is an idea which is adopted and examined in more detail in Chapter 6 of this study.

The Cohen-Burk paper stops short however of considering how such systems would function in practice.

First of all there is the question of cost. In terms of developing DRM technologies to accommodate specific exceptions to copyright, the options are either that of incentivising commercial developers to make the necessary investment or mandating such development by law. Mandating specific technical solutions is a complex and high-risk process in the best of circumstances. In the area of DRM where there are a number of different DRM technologies and as yet little interoperability between them, mandating a common mechanism for implementing exceptions would probably prove impossible.

Cost is also a major consideration in the idea of using trusted third parties. The administrative infrastructure required to support a generalised third party mechanism as proposed by Burk and Cohen would be substantial. As will be seen in the remainder of this chapter, DRM systems require considerable management in themselves to function efficiently with any kind of dynamic capability.

A second key question is how the technical implementation of the exception would actually function and in this connection it is important to remember how DRM systems work. Content is encrypted and remains encrypted throughout its lifecycle, even when it resides on the device of a user. It is never made available to the user in unencrypted form other than during the process of secure rendering. This state of affairs, which is central to the idea of advanced DRM, is sometimes referred to as "persistent governance".

It follows logically from this that simply releasing content from the control of a DRM technology in order to make content available and usable pursuant to some copyright exception would effectively negate the purpose of using DRM technology to protect the content in the first place. While in theory it would be possible to rely on the good faith of the user to prevent unencrypted content becoming widely available, the reality is that the risk of such an occurrence would be unacceptable to any prudent content provider.[40]

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[40] It is of course possible to build into content a forensic trace mechanism so that content made available to privileged users can be traced back to that user if the content is given a wider and unauthorized distribution. Bookshare.org uses this mechanism as part of its wider security strategy.

The answer to this conundrum therefore must lie in ensuring that even when content is made available pursuant to a copyright exception, it remains in encrypted form and under governance of a DRM system. This could well be a different DRM system to the one through which the content is first and generally made available, but it would need to have many of the same features and deliver corresponding levels of security.

Clearly, the ideas advanced by Burk and Cohen require deeper examination against the background of the technical and operational realities of implementation. The overriding question is therefore what kind of DRM system is required to implement exceptions to copyright, a question which can be broken down into two separate lines of enquiry:

– Does a DRM system used for implementing exceptions require particular components or configurations?

– What is involved administering such a system?

B. Rights expression languages[41]

Essentially the DRM system for implementing rules sets based on an exception to copyright would have the same features as a system used for implementing rule sets defined and controlled by the content provider. There is one area however where specific tools might be employed. That area is the use of rights expression languages.

As we saw in Chapter 2, DRM functions by enabling certain acts to occur on a device in accordance with rules and policies governing the functioning of the device. The rules and policies may be stored locally on the device, delivered with the protected content or from a remote site or find their way to the device through of a combination of these methods. Whatever the modality of their delivery, these rules and policies have to be expressed in a language which can be made understandable to the device in question.

To express rules in machine readable form requires the development of a computer language system comprising both a vocabulary (semantics) and structure (syntax). In the field of DRM these languages are called Rights Expression Languages (RELs).

There are a number of different languages[42] which have been developed for the purpose but they share a common concept and basic structure. The term “Rights Expression Language” is a confusing term which requires some explanation.

C. The “rights”

The first issue that has to be discussed is the terminology. The “rights” referred to in the term Rights Expression Language are not the rights conferred on owners of content by

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41 See generally: Coyle, Karen: Rights Expression Languages – A Report for the Library of Congress; February 2004, available at <http://www.loc.gov/standards/Coylereport_final1single.pdf>.

42 XrML, ODRL, among others.

copyright law. Indeed, they are not rights in the legal sense at all. The "rights" are described thus in one explanation[43] of Rights Expression Languages:

> "A right is a "verb" that a "principal" (i.e. a user) can be granted to exercise against some "resource" (i.e. a piece of content) under some "condition." Typically, a right specifies an action (or activity) or class of actions that a principal may perform on or using the associated resource."

Copyright law grants the rights holder the right to authorize or prohibit certain acts. An affirmative exercise of such a right results in the entitlement of a party other than the rights holder, normally under contractually imposed conditions, to perform the otherwise restricted act. Clearly, simply expressing the permitted act and facilitating its occurrence through an REL expression does not constitute the creation of a right in a legal sense.

A standards forum known as MPEG 21 has been working to create a standardised REL structure and vocabulary. In the MPEG 21 scheme of things, the "right" (or rule) is coupled with a "condition," which sets the boundaries for the execution of the act embodied in the right. For example, an end user may transact with a content provider so that his/her device can play (the right) a particular song 10 times beginning on December 1, 2005 (the condition).

Various other terms have been suggested – and are sometimes used – for the elements of the REL (e.g., "rules" or "permissions" for rights, "policies" for conditions). However, whatever terminology is used, the basic proposition remains that the REL is a component of the technical system used for implementing the consequences of a (legal) rights exploitation process – it should not be seen as providing a substitute for that process.

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[43] The MPEG-21 Rights Expression Language, a White Paper, Rightscom, London, 2003, available at <http://www.rightscom.com/Portals/0/whitepaper_MPEG21-RELCB.pdf>.

D. Contextual conditioning

Advanced DRM technologies are designed to automate as much of the permission granting and implementation process as possible, because in theory this means the rights management process is more efficient in terms of cost, transparency and security. The objective is to provide (i) the mechanism by which remote parties are able to transact efficiently and securely for the supply and use of content, and (ii) the level of trust – the predictability in the operation of a value chain – that remote parties require.

A major problem with automation is that it can lead towards simplification and homogenization. Conversely, the exploitation of content in accordance with copyright law is a multi-faceted process depending on territorially-defined statutory rights and contractual rights and obligations. The context of use as well as the medium for storing and delivering content, may also imply certain licences or conditions. Context is also critical both in terms of providing clues as to how the exploitation of a right is to be managed and also in terms of related areas of law that may be in play. The music on a CD is first and foremost protected, commercially, by laws (both civil and criminal) relating to ownership of the plastic on which the music resides.

Efforts are being made to try to accommodate this complexity into automated systems. Some aspects of the problem are being addressed by developing “contextual” coding as part of RELs. It is however an extremely difficult process and one which may never be fully realised.

E. Globalisation

Globalisation is fundamental to online content delivery. Technology prefers homogeneity and thus a world that from a copyright perspective can be broken down into, at most, six regions – comparable to the six regional coding specifications adopted for DVD Video discs. The legal reality is entirely different.

One approach which has been considered is to establish a mechanism where relevant contextual information can be centrally stored and processed to provide the correct solution where a particular use of content occurs. This approach would enable an end user to download a piece of music to a mobile phone in Australia: a central server would process the relevant information relating to the music, the platform and the location, and automatically supply the relevant terms for an automated transaction with that particular end user.

The problem with these kinds of approaches is the complexity, and thus the cost, of attempting to provide for the richness that traditional models of rights exploitation involve. As noted earlier, with automated and programmed uses, there is no recourse to interpretation or after the fact adjudication; computer coding is up front and unequivocal.

F. RELs in operation

RELs are obviously key to the functioning of DRM systems but they raise a number of important issues at the point where legal and technical regulation of the use of content intersect. Consider the following.

Many people are familiar with using a remote control device to control the function of a piece of equipment: an air conditioner, a CD player, a television set. It is a convenientway of directing the machine from a distance to perform certain functions: cool, fan, play, stop, change channel.

In the case of a CD player or a TV set, the basic instructions given to the machine via the remote control (on/ off, volume, channel) have nothing whatsoever to do with the copyright issues governing the access to or use of the content the machine is playing or displaying. Nothing in the content copyright nor in the chain of contracts between the original copyright owner in the content and the user has any bearing on the delivery of functional instructions to the machine.

In recent years however the rights in the content have been given recognition in the functionality of the machine, and thus in the interpretation of instructions sent to the machine. In the summer of 1990, the recording industry and the consumer electronics industry agreed on a technical system to limit serial digital copying of content from digital audio sources. A consumer trying to create a second generation digital copy found that the copy function of the recording device was blocked.

Some years later the film industry divided the world into six regions and coded DVDs for delivery to each of those regions accordingly. A DVD from one region will not play in a DVD machine from another region. The basis for that division of the global market thus effected was provided at least in part by the import controls provided by copyright laws in different territories.

There is therefore a well established, albeit recent, history of the interposing of copyright interests between the delivery and execution of instructions governing the functioning of machines.

DRM systems logically advance this process: they give the content provider, through the digital licensing mechanism, control over the functioning of the machine on which the content will be used in relation to the use of that content. Usually, there is no alternative digital licence other than that of the content provider, and without the instructions contained in the digital licence the machine will simply not function in relation to the content in question. In simple terms this might be seen as a record company not only delivering the CD but also the remote control device enabling it to be played.

Understandably, a growing number of commentators have highlighted this direct association between rights in content and the functionality of the machine as well as the dominance of the rightsholder in the digital licensing process. Their concerns come back again to a central theme of this study: How can legally enforceable exceptions to copyright be implemented in an environment over which, through rules applied to content, the content provider exercises exclusive control? Deidre Mulligan and Aaron Burstein consider, in relation to the United States Copyright Act, what is required to resolve this situation:

> "If RELs are to be agnostic as to legal context they must at least support the expression of the exceptions and limits on exclusivity found in copyright policy. To do so, several additional steps must be taken to better align RELs, and thereby DRMs, with copyright policy. First, the REL must be supported by a messaging protocol that enables statements of "rights" in multiple directions and from multiple sources, and resolves conflicting assertions of rights. The messaging protocol and REL must allow for the assertion and exercise of rights not yet granted or recognized and their later resolution. Second, recognized social norms regarding the use of works should be easy to reflect in RELs. Third, recognizing that RELs alone cannot address the imbalance that DRM can introduce protocols for processing and enforcing REL-based rules should provide a buffer between rights holders and the users of copyrighted works. This separation would both alleviate some of the concerns relating to DRM technology and privacy and protect the kinds of unauthorized but fair use that the Copyright Act allows."[44]

There are a number of points to consider here: the idea that the control function can be exercised or at least influenced from a source or actor other than the content provider; the idea of building REL instructions to allow machines to function in accordance with exceptions and limitations to copyright; that some method has to be found to provide the contextual information necessary to assess the applicability of an exception to copyright to a particular use without encroaching on the privacy of the user.

Establishing standards for technology and for technology-related practices is a cornerstone of the information society. And, as we have seen, there are clear precedents where the content industry has introduced copyright-based controls into the functionality of devices. There would seem to be therefore no logical reason why the public interest aspects of copyright law could not form the basis for controlling the functioning of a machine, where necessary, overriding the instructions of the copyright owner.

The practical reality is very different. The digital copying and DVD regional agreements referenced above were voluntary standards driven by industry and by the content industry in particular. Industry has no incentive to press for standards threatening control of content.

Furthermore, as various legislative initiatives in the United States over the last few years have shown, technology interests are becoming increasingly resistant to controls on the capability of the technologies they develop. Again, there is no real likelihood of technology interests promoting voluntary standards along the lines suggested by Mulligan and Burstein.

This leaves solutions mandated by law as the only option. Again there are precedents for this: the *Serial Copy Management System* (SCMS)[45] control on second generation digital

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[44] Mulligan, Deidre and Burstein Aaron: Implementing Copyright Limitations in Rights Expression Languages, 2002; available at <http://crypto.stanford.edu/DRM2002/mulligan_burstein_acm_drm_2002.doc>.

[45] According to the Wikipedia the *Serial Copy Management System* or *SCMS* was created in response to the digital audio tape (DAT) invention, in order to prevent DAT recorders from making second-generation or serial copies. SCMS sets a "copy" bit in all copies, which prevents anyone from making further copies of those first copies. It does not, however, limit the number of first-generation copies made from a master.

copying is part of the United States of America Audio Home Recording Act and controls on the copying of analogue video recording are also mandated in United States of America law. Again, however, mandated solutions seem unlikely to succeed.

First, there is no precedent at international level for mandated technical solutions in the field of copyright. And while the current importance of the United States consumer technology market could lead to a *de facto* globalisation of a United States mandated solution, there would be no guarantee of its sustainability.

Second, mandated technical solutions are difficult to formulate and are often quickly outdated by further advances in technology. Given the currently immature state of DRM technologies, the risk of ending up encumbered with at best an ineffectual and at worst, an obstructive mandated "solution" is heightened accordingly.

Implementation, both from a technical and operational perspective, would be a totally different proposition.

As to the second idea – encompassing exceptions and limitations to copyright in REL expressions – Professor Ed Felton does not appear to share the optimism of Mulligan and Burstein as to the ready achievability. Focusing first on the concept of fair use in United States of America law he describes the mismatch of legal and computer code standards:

> "The legal definition of fair use is, by computer scientists' standards, maddeningly vague. No enumeration of fair uses is provided. There is not even a precise algorithm for deciding whether a particular use is fair. Instead, the law says that judges should make case-by-case decisions based on four factors: the nature of the use; the nature of the original work; the portion of the original work used; and the effect of the use on the market. The law does not say exactly how these factors should be evaluated or even how the factors should be weighted against one another.
>
> To a computer scientist, such imprecision is a bug"[46]

Professor Felton concludes that the specific contextual analysis required for application of the fair use exception is beyond current computing capability, falling well into the area of "Artificial Intelligence hard problems". Moving beyond the generality of fair use, he considers specific exceptions and limitations but even here he stresses the complexities involved in developing and implementing solutions:

> "If DRM systems can't make the right judgment in every case, perhaps they can get some special cases right. Perhaps they can allow backup copies or personal use within the home. Perhaps these special cases are simple enough that they can be reasonably approximated.
>
> But even these seemingly simple cases are more difficult than they might initially seem. A backup, for instance, is most useful if it can be restored on a different machine (in case the original machine breaks). But backup cannot simply provide a mechanism for moving a file from one machine to another; such a general file transfer facility is a

[46] Felton, E. "A Skeptical View of DRM and Fair Use" Communications of the ACM April, Vol. 46, No. 4 31(2003).

ready loophole for infringers. The solution may involve centralized record keeping, ensuring a backup is not restored too frequently or in too many places, though such record keeping raises privacy issues.

The point is not that handling backup is impossible but that it is surprisingly challenging. To date there has been no satisfactory solution to these problems, though it may be because most of the development effort has been (mis)directed toward the effort to build all-encompassing DRM systems. There may be hope, however, for a bottom-up approach that tries to handle a few cases well."

The reference to the "all-encompassing DRM system" is an important one. It highlights the dangers of assuming an entirely automated and secure rights management technology can be devised, employing a comprehensive REL to accurately express the authority to perform acts consistent with copyright law. Such a system would be virtually impossible to develop – and even harder to operate.

Assuming for a moment however that some method could be found for defining rules derived from specific and limited exceptions to copyright, how would these rules be inserted into the DRM process?

Would it be through some form of default control in the packaging process, in the policy management process or somewhere else? Would it come from an assertion of some established usage "right" on the part of the user? How, from a technical, REL perspective would these exceptions or user "rights" be expressed and enforced; how would their possible abuse be policed?

The instructions and conditions embodied in RELs are nothing more than that; they are not an analogue for the complex rights systems embodied in copyright law and without the capacity for contextual modulation they are unable to replicate the function of legal rights expressions.

In summary, the problems to be addressed are as follows:

– Computing systems are unable to automate the process of contextual analysis associated with many exempted uses of copyright works;

– Existing RELs neither in their semantics nor in their associated messaging protocols easily allow for the implementation of exempted uses;

– Capturing and processing contextual information to assist in the authorisation of exempted uses risks compromising user privacy;

– There is no practical means of securing a default position in any DRM system which would guarantee authorisation of exempted uses;

– Where authorised exempted use occurs there must be some mechanism to ensure the consequences of that use do not interfere with the overall security of the content.

G. DRM: operations and administration

As has been seen in the previous paragraphs, the idea of there existing an all-embracing, automated process for defining and implementing rights in a way that is fully consistent with copyright law is more than likely illusory. Indeed, whatever the capability of the particular DRM system, it will need to be deployed and managed by some trusted entity. This is because for the DRM system to function effectively there are certain tasks that have to be performed. Needless to say, the operational management requirements tend to increase in line with the sophistication of the solutions the DRM system offers.

Examining all the aspects of the operational management activity is beyond the scope of this study. The cryptographic systems used in advanced DRM systems involve highly complex key generation and management processes which need not be discussed here. Our review of relevant tasks can therefore be broken down into three areas:

– Authorisation;

– Authentication; and

– Revocation.

1. *Authorisation*

As we have described at various points in this study, the principal function of a DRM system is to enable certain acts to occur in relation to a piece of content in accordance with the intent and authority of the content provider. For a device to perform an authorised act in relation to a piece of content it has to have the necessary instructions in relation to the particular content and a specified user or class of users.

In DRM terms authorisation therefore involves a number of different steps:

– Identifying the content;
– Identifying the user or class of users; and
– Specifying the rules for the act (i.e. expressing through the REL the permitted act and any conditions applied to it).

In practical terms the process of authorisation is set up during the packaging of a particular piece of content. Packaging refers to the process whereby a particular item of content is prepared for delivery to and use in a device which is under the control of a DRM system. This may involve the conversion of the item of content into a particular digital format – an MP3 audio file or a PDF document for example. The content in the specified digital format is then encrypted and the package is given some form of identification so that the content in encrypted form can be readily found and identified in use.

The key used for encrypting and decrypting the content package is then stored with the rules (permitted acts and conditions) applicable to the item of content. As we have seen earlier in this study, the key can then be delivered to the intended user of the content along with the rules for the content use either simultaneously with the encrypted content package or independently.

This is a highly simplified outline of the authorisation process intended only to indicate the range of activities and complexity involved in the process. And while a number of highly complex processes are involved, software written for DRM packaging renders it largely invisible to the normal user through simple interfaces.

As noted, a key requirement of an efficient DRM system is the ability to ensure that the authorised acts can only be performed by the intended user or class of user. That is where the process of authentication comes into play.

2. *Authentication*

In computer security, authentication is the process by which a computer, computer program, or another user[47] attempts to confirm that the computer, computer program, or user from whom the second party has received some communication is, or is not, the claimed first party.

Again, a detailed examination of authentication processes and technologies is not required here; the objective is to introduce the concept to non-technical readers.

In a leading reference work on the subject,[48] Richard E. Smith describes the five basic elements of an authentication process:

> "Regardless of whether an authentication system is computer based or not, there are several elements usually present and certain things usually take place. First of all, we have a particular person or group of people to be authenticated. Next, we need a distinguishing characteristic that differentiates that particular person or group from others. Third, there is a proprietor who is responsible for the system being used and relies on mechanised authentication to distinguish authorised users from other people. Fourth, we need an authentication mechanism to verify the presence of the distinguishing characteristic. Fifth, we grant some privilege when the authentication succeeds by using an access control mechanism and the same mechanism denies the privilege if the authentication fails."

Smith then illustrates these elements in a variety of contexts including entering the cave in the story of Ali Baba with the Open, Sesame password, using an automated bank teller machine (ATM), and logging onto a computer system with a password.

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47 An important point for the non-technologist to understand is that when references are made to "users" in describing computing processes, the reference can be both to a human actor or another device.

48 Smith, Richard E.: Authentication, Addison-Wesley, 2002.

Authentication Element	*Cave of the 40 Thieves*	*ATM*	*Password Login*
Person, principal entity	Anyone who knew the password	Owner of a bank account	Authorised user
Distinguishing characteristic	Knowledge of and ability to express the password "Open, Sesame"	ATM card and personal Identification Number (PIN)	Secret password
Proprietor, system owner, administrator	The forty thieves	Bank	Enterprise owning the system
Authentication mechanism	Magical device that responds to the correct words	Card validation system	Password validation system
Access control mechanism	Mechanism to move stone	Allows banking transactions	Login, access controls

The term commonly used for the distinguishing characteristic of an individual or group is "attribute". It is important to underline that the particular attribute which a user relies on to secure authentication within a system is not necessarily created for the user by the proprietor of the system. Most commonly users select their own attributes by choosing a password which they alone know. Sometimes official attributes are required: a social security or passport number, a student identity card number.

One area where authentication mechanisms have been in general use for some time – and which is of particular relevance to this study – is the field of higher education. A leading example is the Athens system created and run in the United Kingdom by Eduserv.[49] This provides the authentication and access control mechanisms for the majority of higher education institutions in the United Kingdom. Once they hold the necessary authentication password teachers and students alike are able to log onto the institution's systems providing access to its digital resources.

A more recent development in this field is the Shibboleth standard.[50]

Shibboleth is an initiative to develop an open, standards-based solution to the needs of organizations to exchange information about their users in a secure, and privacy-preserving manner. The initiative is facilitated by Internet2 and a group of leading campus middleware architects from member schools and corporate partners.

The organizations that may want to exchange information include higher education, their partners, digital content providers, government agencies, etc. The purpose of the exchange is typically to determine if a person using a web browser (e.g., Internet Explorer, Netscape Navigator, and Mozilla) has the permissions to access a resource at a target resource based on information such as being a member of an institution or a particular class. The system is privacy-preserving in that it leads with this information, not with an identity, and allows users to determine whether to release additional information about themselves.

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49 Information available at <http://www.eduserv.org.uk>.

50 Information available at <http://shibboleth.internet2.edu/seas.html>.

An open solution means both an open architecture and a functioning, open-source implementation. Standards-based means that the information that is exchanged between organizations can interoperate with that from other solutions.

Key concepts within Shibboleth include:

– Federated Administration. The origin campus (home to the browser user) provides attribute assertions about that user to the target site. A trust fabric exists between campuses, allowing each site to identify the other speaker, and assign a trust level. Origin sites are responsible for authenticating their users, but can use any reliable means to do this.

– Access Control Based On Attributes. Access control decisions are made using those assertions. The collection of assertions might include identity, but many situations will not require this (e.g. accessing a resource licensed for use by all active members of the campus community, accessing a resource available to students in a particular course).

– Active Management of Privacy. The origin site and the browser user control what information is released to the target. A typical default is merely "member of community". Individuals can manage attribute release via a web-based user interface. Users are no longer at the mercy of the target's privacy policy.

– Standards Based. Shibboleth will use OpenSAML[51] for the message and assertion formats, and protocol bindings which is based on Security Assertion Markup Language (SAML) developed by the OASIS Security Services Technical Committee.

3. *Revocation*

Revocation is essentially the reversal of the processes of authorisation and authentication described above. It can occur for any number of reasons, but among the most common reasons are changes in status of the content item or user or the response to some threat to the system.

The change of status situation is a normal occurrence. The authentication system used in institutions of higher education as described above regularly have to accommodate changes in the status of particular students. Clearly, as they leave the institution their institutional privileges are lost and both authority to use the institution's digital resources as well as the ability to authenticate oneself as an authorised user are revoked.

Revocation in an academic environment might also occur as a student moves from one academic year to the next; attributes will change accordingly and can be used for reserving certain resources to particular groups of students.

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[51] Information available at <http://www.opensaml.org>.

Security is the other area where revocation is most commonly provided for. If the system proprietor or administrator perceives that a particular user is attempting to hack the security of the system, it should be possible revoke that user's ability to access the system.

The principle of revocation is therefore relatively straightforward. The implementation is more complex.

First of all, the mechanisms in the system facilitating revocation should be able to respond efficiently to the particular need. The revocation may need to be effected in rapid response to a threat or an attack to the security or integrity of the system; it should occur accurately, ensuring the target is correctly identified and the right action taken. There should be no disruption to other users on the system.

Secondly, the ability of the system proprietor or administrator to deny particular users access to the system illustrates the power that the proprietor or administrator wields over the access and use of content as whole. The potential for abuse is significant.

To counter this threat, revocation should only be performed in accordance with clear and well-established policies. There should be clearly stated criteria for exercising the right to revoke a user and for dealing with the consequences of revocation.

CHAPTER 6

TRUSTED INTERMEDIARIES

In this study we have advanced a number of propositions:

- That there exist no DRM systems capable of automating the full range of rights management processes customarily required by copyright law;

- That where a DRM system is used for managing the copyright in an item of content, the same or a comparable DRM system is required to manage (at least some of) the exceptions to that copyright;

- That there are a variety of tasks both integral and extraneous to the specific DRM mechanism that have to be performed by some entity or entities to enable the DRM system to function efficiently; and

- That there needs to exist an unbroken chain of trust throughout the automated rights management process; the technology of the system as well as its operational managers have to be trustworthy.

These propositions lead logically to our final area of enquiry: consideration of the intermediary entities that are required to facilitate the implementation of copyright exceptions through automated rights management systems. We have to reflect on the role of such entities and the requirements of that role.

We also suggest a convergence in the role of managing the copyright based exceptions to technically enforced protection and the management (as described in the previous chapter) of the technology required to give effect to those exceptions.

There are few if any precedents for these roles in the copyright field, whether in the administration of rights or exceptions, including compulsory licences. We have therefore to launch our enquiry from basic assumptions about the likely components of the intermediary role and see what analogues can be found in other fields.

A preliminary consideration is the requirement that the intermediary entity, and processes in which it engages, have to be "trusted" in the sense we have adopted throughout this study: the capability of delivering predictable results. The intermediary entity proposition we consider here involves the bringing together or an infinite number of both content providers and end users: all of these have to be able to rely on the role of the intermediary. Content providers need to be assured that content they entrust to the intermediary will be managed and protected in strict accordance with their instructions and the requirements of the law. End users will rely on the intermediary, perhaps exclusively, for access to relevant content and must be guaranteed the sustainability and efficiency of that supply.

In short, our search is for a basic model for a trusted intermediary to implement through technical measures certain exceptions to copyright in a way that respects fully the rights of content providers and the legitimate expectations of end users.

A. Trusted third parties

We start our enquiry with a brief and very basic examination of an established intermediary function and entity, that of the trusted third party in a Public Key Infrastructure security system.

In cryptography, the term "trusted third party" (TTP) is applied to an entity which facilitates interactions between two parties who both trust the third party; they use this trust to secure their own interactions. TTPs are common in systems involving cryptographic protocols, for example, a certificate authority (CA).[52]

People who wish to communicate confidentially and securely with each other encrypt their messages so that only the two parties hold the necessary keys to decrypt them and render them legible. The problem with traditional encryption systems was that passing the key from one person to another was a relatively insecure process. The key exchange could be intercepted by a hostile third party.

Public key cryptography provided a solution to this problem. It involves the use of one key to encrypt a message and a second related key to decrypt it. The two keys are matched: one is publicly accessible, like the telephone number of a listed telephone subscriber. The other key is held privately and exclusively by the owner of the keys. Using this system, the sender of the secret message can look up the public key of the intended recipient and encrypt the message with that key. When it is received by the intended recipient he is able to decrypt the message with his privately held key.

The issue which this process obviously threw up was how far the sender could be sure that the publicly accessible number was indeed the number of the intended recipient. If it was not, the message transmission would fail. The solution involved the services of a trusted third party to guarantee the accuracy of the public key as being that of the intended recipient. Consider the following example:

Suppose Alice and Bob[53] wish to communicate securely — they may choose to use cryptography. Without ever having met Bob, Alice may need to obtain a key to use to encrypt messages to him. In this case, a TTP is a third party who may have previously seen Bob (in person), or is otherwise willing to vouch that this key (typically in an identity certificate) belongs to the person indicated in that certificate, in this case, Bob. (In discussions, this third person is often called "Trent".) Trent gives it to Alice, who then uses it to send secure messages to Bob. Alice can trust this key to be Bob's if and only if she trusts Trent. In such discussions, it is simply assumed that she has valid reasons to do so.

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52 A *Certification Authority* (CA) is a body, either public or private, that seeks to fill the need for trusted third party services in electronic commerce by issuing digital *certificates* that attest to some fact about the subject of the certificate. Information available at <http://www.law.miami.edu/%7Efroomkin/articles/trustedf.htm - ENDNOTE22>.

53 For those readers unfamiliar with the parlance of cryptographers, Alice and Bob are the standard names for the different actors in a particular interaction. There are a series of other such names.

An important reference text on the function and responsibilities of trusted third parties is the Technical Report of ISO/ IEC entitled "Guidelines for the use and management of Trusted Third Party services."[54] The introduction to the report describes the subject matter as follows:

> "Achievement of adequate levels of business confidence in the operation of IT systems is underpinned by the provision of practical and appropriate legal and technical controls. Business must have confidence that IT systems will offer positive advantages and that such systems can be relied upon to sustain business obligations and create business opportunities.
>
> An exchange of information between two entities implies an element of trust, e.g. with the recipient assuming that the identity of the sender is in fact the sender, and in turn, the sender assuming that the identity of the recipient is in fact the recipient for whom the information is intended. This "implied element of trust" may not be enough and may require the use of a Trusted Third Party (TTP) to facilitate the trusted exchange of information. The role of TTPs includes providing assurance that business and other trustworthy (e.g. governmental activities) messages and transactions are being transferred to the intended recipient, at the correct location, that messages are received in a timely and accurate manner, and that for any business dispute that may arise, there exist appropriate methods for the creation and delivery of the required evidence for proof of what happened. Services provided by TTPs may include those necessary for key management, certificate management, identification and authentication support, privilege attribute service, non-repudiation, time stamping services, electronic public notary services, and directory services. TTPs may provide some or all of these services.
>
> A TTP has to be designed, implemented and operated to provide assurance in the security services it provides, and to satisfy applicable legal and regulatory requirements. The types and levels of protection adopted or required will vary according to the type of service provided and the context within which the business application is operating."

The report then proceeds to list the key requirements of an effective trusted third party:

(a) operate within a legal framework which is consistent among the participating entities;

(b) offer a range of services, with minimum services clearly defined;

(c) have defined policies, in particular a public security policy;

(d) be managed and operated in a secure and reliable manner, based on an information security management system and trustworthy IT systems;

(e) conform to national and international standards, where applicable;

(f) follow an accepted best code of practice;

(g) publish practice statements;

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[54] Information technology – Security techniques - Guidelines for the use and management of Trusted Third Party services, Technical Report Document ISO/IEC TR 14516, 2002.

(h) record and archive all evidence relevant to their services;

(i) allow for independent arbitration, without compromising security;

(j) be independent and impartial in their operation, (e.g. accreditation rules); and

(k) assume responsibility of liability within defined limits for availability and quality of service.

Obviously, the element of trust is fundamental to the role of the trusted third party. The report describes this as follows, identifying the essential trust components of the entity in question:

"The use of a TTP and its services depends on the fundamental observation that the services provided by the TTP will be trusted by other TTPs and entities. This trust results from the confidence that the TTP is managed correctly and its services are operated securely. Therefore it should give assurance that the TTP itself and the services it provides are according to the defined policies. Especially, the security policy should cover all security aspects related to the management of the TTP and the operation of the services.

The confidence can be established through evidence of the management and operational TTP aspects. Evidence should be given that the management aspects are proper and sufficient to completely achieve the objectives, that the management system is effective, suitable to minimise risks and to counter threats, and the safeguards are documented and understood by personnel, not outdated or superseded and are implemented properly.

To gain confidence in the management and operational aspects a TTP especially should provide evidence that:

(a) there is an appropriate Security Policy in place;

(b) security problems have been addressed by a combination of correctly implemented security procedures and mechanisms;

(c) the operations are being carried out correctly and in keeping with a clearly defined set of roles and responsibilities;

(d) the interfaces and procedures for communicating with entities are appropriate for the functions to be performed and are correctly used;

(e) rules and regulations are followed by management and staff, and are consistent with a stated or targeted level of trustworthiness;

(f) the quality of the processes, operations and working practices have been suitably accredited;

(g) the TTP meets its contractual obligations according to a formal contract with its users;

(h) there is a clear understanding and acceptance of the liability aspects;

(i) compliance with laws and regulations is maintained and audited;

(j) known threats and safeguards to mitigate those threats are clearly identified;

(k) a Threat and Risk Assessment is done initially and reviewed/updated on a regular basis to ensure that confidentiality, integrity, availability and reliability requirements are met;

(l) proper organizational and personnel measures are met;

(m) the trustworthiness of the TTP can be relied upon and that it can be checked and verified, and

(n) that the TTP is monitored by some type of administrative authority to oversee that its operation is within its accreditation rules."

B. Trusted digital repositories

The trusted intermediary role envisaged for the tasks under consideration here will no doubt encompass that of the repository. This will almost certainly be the case where the provision of content for particular uses involves the conversion of the original content format in some way.

The concept of the trusted repository is not new. The following definition of the trusted digital repository is taken from a report[55] on trusted digital repositories published in 2002 by the Research Libraries Group in Mountain View, California:

"A trusted digital repository is one whose mission is to provide reliable, long-term access to managed digital resources to its designated community, now and in the future. Trusted digital repositories may take different forms: some institutions may choose to build local repositories while others may choose to manage the logical and intellectual aspects of a repository while contracting with a third-party provider for its storage and maintenance.

The infrastructure of the institution (a large university or national repository versus a small library, archives, or museum) will be a determining factor in the nature of the overall digital repository system, but another factor will be equally important: the repository's "designated community"- its identified group of potential users - will determine what is deposited (content and format), how the digital information is managed and preserved, and how it is disseminated and accessed. Despite their different organizational models, all digital repositories will need to address the same underlying issues of not only functionality, but of reliability."

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[55] Trusted Digital Repositories: Attributes and Responsibilities; RLG; Mountain View, CA; May 2002.

The report goes on to list the responsibilities of an efficient trusted repository:

– accept responsibility for the long-term maintenance of digital resources on behalf of its depositors and for the benefit of current and future users;

– have an organizational system that supports not only long-term viability of the repository, but also the digital information for which it has responsibility;

– design its system(s) in accordance with commonly accepted conventions, and standards to ensure the ongoing management, access, and security of materials deposited within it;

– establish methodologies for system evaluation that meet community expectations of trustworthiness;

– be depended upon to carry out its long-term responsibilities to depositors and users openly and explicitly;

– have policies, practices, and performance that can be audited and measured.

C. Others

Outside cryptography, the law in many places makes provision for trusted third parties upon whose assertions parties to a transaction may rely. For instance, a notary public acts as a trusted third party for authenticating the validity and execution of documents.

In the field of copyright we find two kinds of organizations that bear some resemblance to the requisite intermediary entities. On the one hand are the (normally public) institutions of registration and legal deposit for copyright materials. To greater or lesser extent, these entities are able to vouch for certain information regarding material that is registered and/ or deposited. At the very least they provide a source for verification of the precise substance of the material in question. In some cases they are able to furnish information as to the original owner of the rights in the material as well as the date of creation.

On the other hand there is a multitude of entities responsible for the collective administration of copyright. Many of these have a long operational history and highly developed licensing infrastructures; others are of more recent origin with a less extensive scope of operation, often established to manage the consequences of advances in technology such as the widespread use of photocopying. Examples of the latter include the Spanish Reproduction Rights Centre (CEDRO)[56] in Spain and the CAL in Australia. Both these organizations recognise the potential for development of their existing intermediary role as can be seen from the CAL Case Study included earlier in this study.

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[56] The Centro Español de Derechos Reprográficos (CEDRO) is a non-profit association of authors and publishers of books, periodicals and other publications in any medium. The association collectively protects and manages members' intellectual property rights (copying, processing, public disclosure and distribution). CEDRO was authorised for its role in 1988 by the Spanish Ministry of Culture under the Intellectual Property Act. <http://www.cedro.org/ingles_mision.asp>.

Potential intermediary entities can also be found in the target fields of this study. Indeed, a number of organizations representing the interests of visually impaired people are already developing their role as trusted intermediaries in the acquisition of content, its conversion into accessible formats, its secure delivery to qualified recipients. Examples of such entities in Europe include Braille Net[57] in France and the Danish National Library for the Blind[58] (DBB) in Denmark.

Another major development in this connection is occurring in the United States under the auspices of the Department of Education. The United States Department of Education's Office of Special Education Programs has awarded CAST[59] two five-year Cooperative Agreements to establish two national centers to further develop and implement the National Instructional Materials Accessibility Standard (NIMAS). NIMAS guides the production and electronic distribution of digital versions of textbooks and other instructional materials so they can be more easily converted to accessible formats, including Braille and text-to-speech.

Version 1.0 of the NIMAS standard was developed in 2002-2004 by the National File Format Technical Panel comprised of 40 technology specialists, educators, disability advocates, and publishers, and is based on the ANSI/NISO Z39.86 (DAISY 3) specification.

The object of this program is to ensure that required texts are available in timely fashion to disabled students in need of accessible formats. A key element of the program is the designation of a central repository for the deposit of relevant texts and for management of the format conversion and distribution.

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57 Braillenet is focuses on achieving full web accessibility for visually impaired people. <http://www.braillenet.org/>.

58 DBB - The Danish National Library for the Blind - is an institution under the The Danish Ministry of Culture. DBB provides services to the blind, the visually impaired and other persons whose handicap prevents them from reading standard printed material. <http://www.dbb.dk/English/facts.asp>.

59 Center for Applied Special Technology. Information available at <http://www.cast.org>.

CHAPTER 7

CONCLUSIONS

Imagine the use of a particular copyrighted work within an educational context recognised by the applicable law as giving rise to an exception to copyright or, perhaps, a licensed extension thereof. Within that context a student is given an assignment to produce a multi-media work bringing together audio, audio-visual and text materials from a variety of sources – some in the public domain, others from commercial copyright owners.

Provided the assignment is performed in a controlled environment which conforms to the permitted educational environment, and provided the product of that assignment is likewise controlled, it is relatively easy to conceive of a system of technical control which will map directly to the contours of the regulation derived from the copyright law.[60]

That system would involve a number of components:

– A dedicated network of trusted devices through which content could be sourced, on which the assignment is performed, and on which the product could be made available;

– A central network administrator that would enforce the policies governing use of the system;

– A mechanism for authenticating the student as someone entitled to use a device within the network and to obtain and perform certain acts on content accessed via that device; and

– A control mechanism to ensure content accessed and used via an authorised device did not find its way onto unauthorised devices.

Such systems are commonplace in many walks of life today: in the work place, in state administration, in education. The problem facing the use of DRM systems in general is that answers have to be found regarding implementation of exceptions and limitations to copyright beyond centrally administered networks.

This is so for several reasons. The strength of the Internet as an information resource lies in the distributed management and use of content resources. At the same time, users of copyright protected materials want to enjoy access to content permitted by law on devices of their own choice.

The implementation of exceptions and limitations to copyright law in the electronic environment should not however be constrained to centralised network systems.

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[60] Apart, of course, from the potential restriction in the use of the public domain material contained in the multi-media assignment product. That is not the issue here.

Imagine therefore the same scenario minus the centrally administered network. The student would be using an uncontrolled device and would be free, technically, to obtain the necessary content from any available source: by downloading from the Internet, by a file transfer mechanism or from a convertible physical source. Likewise, the product of the assignment would be, again from a technical point of view, freely distributable.

This scenario is of course at odds with copyright law and with the rights of the copyright owner. It is, however, a scenario which is likely to become the norm not only in the field of education but in relation to the use of copyright materials generally. The dilemma is therefore to find a technical solution for this scenario which enables lawful use of content outside the confines of strictly controlled networks.

As we have seen, the problem of finding technical solutions to implement the full scope of copyright law outside a centrally administered and strictly controlled environment is significant. It involves addressing the expectations of users regarding the scope of exceptions and limitations, the complexities of writing machine readable rules which accurately encompass specific exceptions and limitations, the complexities involved in devising technical mechanisms for providing the contextual basis for the interpretation of machine based rules, and the complexities involved in managing the consequences of the application of such a rule.

This study has attempted to break down in an objective way the various issues and concerns of both copyright owning content providers and the end users of copyright materials. It has looked at the capabilities and limitations of the relevant technologies, it has reviewed the relevant law, it has considered possible future developments in both the use and protection of copyright materials.

A number of conclusions can be easily stated; others require more extensive treatment.

First of all, while the issue of digital lock-up has to be taken very seriously it should not obscure the underlying facts and issues nor impede rational investigation of accommodation between the rights of copyright owners and the interests of end users. The technology considered responsible for the perceived lock-up is essentially neutral: indeed, appropriately deployed and administered, it will likely prove a key contributor to the necessary accommodation.

Secondly, DRM technology is unable to replicate the full scope of copyright practice. Again, as we have seen, even for relatively straightforward copyright-based tasks DRM technologies require considerable extraneous support to ensure they work efficiently and securely.

Third, in both of the target fields under consideration, other kinds of technology are dramatically changing the way content is accessed and used. Traditional approaches and demarcations are disappearing rapidly. Universal access via technology is becoming the norm. In both areas, these are generally perceived to be positive developments but they hold complex implications for rights management.

Fourth, there seems little evidence to suggest that legislative initiatives, whether at international or national level, are required in order to deliver appropriate solutions. The steps already undertaken by WIPO in assisting the development of national copyright law are extensive, as are its efforts to support the constructive interpretation and application of the international norms. The model provisions on the exceptions related to the use of copyright materials by visually impaired people are a particular case in point:

> "Notwithstanding the provisions of Section 6(1)(a) and (d), it shall be permitted without the authorization of the author or other owner of copyright to reproduce a published work for visually impaired persons in an alternative manner or form which enables their perception of the work, and to distribute the copies exclusively to those persons, provided that the work is not reasonably available in an identical or largely equivalent form enabling its perception by the visually impaired; and the reproduction and distribution are made on a non-profit basis.
>
> The distribution is also permitted in case the copies have been made abroad and the conditions mentioned above have been fulfilled."

Fifth, the most promising avenue appears to involve two basic components:

– The development and use of voluntary licensing arrangements relevant to the new environment; and

– The establishment of trusted intermediaries charged with the trusted implementation of contractually-based licensing arrangements.

Sixth, to promote the developments suggested in the preceding conclusion, WIPO should consider further work in a number of areas:

– Continuing development of model provisions and/ or best practice statements for interpretation of the exceptions in national laws relating to the target fields dealt with in this study, which take account as far as possible of the impact and potential of the new technology;

– Studying in greater detail the use of statutory and voluntary licensing schemes and entities in the target areas of this study. This would help to foster a better common understanding of the benefits and utility of the various structures and processes in use. Based on the knowledge acquired thereby, consideration might also be given to the development of model templates for the voluntary licensing of copyright materials;

– Conducting further research into the concept of the trusted intermediary as introduced in this study. As indicated there are numerous organizations already performing many of the functions of such an intermediary: their objectives, processes and experiences should provide extensive and valuable information as to the role such entities can play in bridging the inevitable divide between the mechanisms of law and technology.

[Annex follows]

ANNEX

DETAILED LEGAL ANALYSIS

Provisions relating to visually impaired people

Australia

Reference 1	PART VB: Division 3– Reproduction and communication of works by institutions assisting persons with a print disability 135ZN
Works Covered	Published edition of a work (being a work in which copyright does not subsist)
Exception or Compulsory Licence	Exception
Principal Beneficiary	A body administering an institution assisting persons with a print disability
Targeted End User	Persons with a print disability
Act Covered	Making of one or more facsimile copies of the whole or a part of the edition
Rights Covered	Reproduction
Scope of Exception/ Licence	The copy, or each of the copies, is made in the course of the making of a reproduction of the whole or a part of the work by, or on behalf of, a body administering an institution assisting persons with a print disability for use in the provision, whether by the institution or otherwise, of assistance to such persons

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Reference 2	135ZP (1)
Works Covered	Literary or dramatic work
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A body administering an institution assisting persons with a print disability
Targeted End User	Persons with a print disability
Act Covered	Making or communication (…) of one or more records embodying a sound recording of the work or of a part of the work
Rights Covered	Reproduction; communication
Scope of Licence	Making or communication by, or on behalf of, a body administering an institution assisting persons with a print disability of one or more records embodying a sound recording of the work or of a part of the work
Modality of Exercise	(a) a remuneration notice, given by or on behalf of the body to the relevant collecting society, is in force; (b) each record is made, or each communication is carried out solely for the purpose of use in the provision, whether by the institution or otherwise, of assistance to persons with a print disability; and (c) the body complies with subsection 135ZX (1) or (3) or section 135ZXA, as the case requires, in relation to each copy or communication.

Conditions Applied	1. 135ZX Records notices and sampling notices: marking and record-keeping requirements (1) Where a records notice is given by, or on behalf of, an administering body to a collecting society in respect of licensed copies made in hardcopy form or analog form, the administering body shall: (a) mark, or cause to be marked, in accordance with the regulations, each such licensed copy made by it, or on its behalf, while the notice is in force, or any container in which such a copy is kept; (b) make, or cause to be made, a record of the making of each such licensed copy that is carried out by it, or on its behalf, while the notice is in force, being a record containing such particulars as are prescribed; (c) retain that record for the prescribed retention period after the making of the copy to which it relates; and (d) send copies of all such records to the collecting society in accordance with the regulations. (3) If a sampling notice is given by, or on behalf of, an administering body to a collecting society in respect of licensed copies made in hardcopy form or analog form, the administering body must mark, or cause to be marked, in accordance with the regulations, each such licensed copy made by it, or on its behalf, while the notice is in force, or any container in which such a copy is kept. 135ZXA Electronic use notices: notice requirements etc. If an electronic use notice is given by, or on behalf of, an administering body to a collecting society, in respect of licensed copies made in electronic form or licensed communications, the administering body must: (a) give a notice, in accordance with the regulations, in relation to each such copy

	or communication made by it, or on its behalf, while the electronic use notice is in force, containing: (i) statements to the effect that the copy or communication has been made under this Part and that any work or other subject-matter contained in the copy or communication might be subject to copyright protection under this Act; and (ii) such other information or particulars (if any) as are prescribed; and (b) in the case of each such communication made by it, or on its behalf, while the electronic use notice is in force—take all reasonable steps to ensure that the communication can only be received or accessed by persons entitled to receive or access it (for example, teachers or persons receiving educational instruction or other assistance provided by the relevant institution); and (c) comply with such other requirements (if any) as are prescribed in relation to each such copy or communication made by it, or on its behalf, while the electronic use notice is in force. 2. 135 ZP (3) Where a sound recording of a work has been published, subsection (1) does not apply to the making of any record embodying a sound recording of the work (including a record that is a copy of that first-mentioned sound recording) for, or on behalf of, a body administering an institution assisting persons with a print disability unless the person who makes that record, or causes that record to be made, is satisfied, after reasonable investigation, that no new record that embodies only a sound recording of the work can be obtained within a reasonable time at an ordinary commercial price.

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Reference 3	135ZP (2)
Works Covered	Published literary or dramatic work
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A body administering an institution assisting persons with a print disability
Targeted End User	Persons with a print disability
Act Covered	Making or communication of one or more Braille versions, large-print versions, photographic versions or electronic versions of the work
Rights Covered	Reproduction; communication
Scope of Licence	Making or communication by, or on behalf of, a body administering an institution assisting persons with a print disability, of one or more Braille versions, large-print versions, photographic versions or electronic versions of the work or of a part of the work
Modality of Exercise	As for 135 ZP (1)
Conditions Applied	1. As for 135ZP (1) 2. Where a Braille version/ large print version/ photographic version/ of a work has been separately published, [Compulsory Licence] does not apply to the making of a Braille version of the work, or of a part of the work, unless the person who makes that version, or causes that version to be made, for, or on behalf of, a body administering an institution assisting persons with a print disability is satisfied, after reasonable investigation, that no new copy of a Braille version of the work, being a version that has been separately published, can be obtained within a reasonable time at an ordinary commercial price. 3. [Compulsory Licence] does not apply to the making or communication of an electronic version of the work, or of a part of the work, unless the person who makes

	or communicates the version, or causes the version to be made, or communicated, for, or on behalf of, a body administering an institution assisting persons with a print disability is satisfied, after reasonable investigation, that an electronic version of the work, being a version that has been separately published, is not available within a reasonable time at an ordinary commercial price.

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Reference 4	135ZQ
Works Covered	Published literary or dramatic work
Exception or Compulsory Licence	Exception
Principal Beneficiary	A body administering an institution assisting persons with a print disability
Targeted End User	Persons with a print disability
Acts Covered	Making of a *relevant reproduction* or a *relevant communication* of the work, or of a part of the work; *Relevant communication*, in relation to a work or part of a work, means: (a) the communication of a sound recording of the work, or part of the work; or (b) the communication of an electronic version of the work. *Relevant reproduction*, in relation to a work or part of a work, means: (a) a reproduction of the work, or part of the work; or (b) a record embodying a sound recording of the work, or part of the work; or (c) a Braille version, a large-print version, a photographic version or an electronic version of the work, or part of the work.

Rights Covered	Reproduction; communication
Scope of Exception	Reproduction or communication is made solely for use in the making by, or on behalf of that body, of a reproduction or communication of the work, or of a part of the work, under section 135ZP for a person with a print disability
Modality of Exercise	1. For the making of a relevant reproduction, being a record embodying a sound recording in analog form, of a work, or of a part of a work, at the time the record was made, there [must be] embodied on the record, immediately before the beginning of that sound recording, a sound recording of the prescribed message. 2. For the making of a relevant reproduction in hardcopy form of a work, or of a part of a work, the body by whom, or on whose behalf, the relevant reproduction is made [must] mark it, or cause it to be marked, in accordance with the regulations. 3. [Licence] is (…) taken never to have applied to the making of a relevant reproduction or relevant communication of a work, or of a part of a work, if, within 3 months after the relevant reproduction or relevant communication was made, the body by whom, or on whose behalf, the relevant reproduction or relevant communication was made has not given to a collecting society (if any) a notice of the making of the relevant reproduction or relevant communication. The notice must be in writing and must specify: (a) the name of the body; and (b) the work, or the part of the work, reproduced or communicated; and (c) the date on which the reproduction or communication was made.
Conditions Applied	1. If (…) the reproduction or communication is used otherwise than for use in the making by, or on behalf of that body, of a reproduction or communication

	of the work, or a part of the work, under section 135ZP for a person with a print disability [Limitation] does not apply, and is taken to never have applied, to the making of the relevant reproduction or relevant communication. 2. The copyright in a published literary or dramatic work is infringed by a person who does any of the acts specified in section 38 in relation to a relevant reproduction of a work, or of a part of a work, if the person knows, or ought reasonably to have known, that the reproduction was made solely for use in the making by, or on behalf of, a body administering an institution assisting persons with a print disability of a copy of the work, or of a part of the work, as the case may be, for a person with a print disability.

The Republic of Korea

Reference 1	Article 30(1)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Any person or entity
Targeted End User	Any person or entity
Works Covered	Work already made public
Rights cvered	Reproduction; adaptation
Scope of Exception	Produce a version of the work in braille

§

Reference 2	Article 30(2)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Any person or entity
Targeted End User	Blind persons
Works Covered	Work already made public

Rights Covered	Reproduction
Scope of Exception	Making sound recordings of a work already made public, exclusively for the purpose of providing such recordings for the use of the blind at the facilities established for the promotion of the welfare of the blind as prescribed by the Presidential Decree.

Spain [61]

Reference 1	31.3
Exception or Compulsory	Exception
Principal Beneficiary	Any person or entity
Targeted End User	Blind persons
Works Covered	Published Works
Rights covered	Reproduction
Scope of Exception	Reproduction for the private use of visually impaired people provided that the reproduction makes use of the Braille system or another specific process and that the copies are not used for profit generating purposes.

United Kingdom

Reference 1	31A Making a single accessible copy for personal use
Exception or Compulsory Licence	Exception
Principal Beneficiary	Visually impaired person
Works Covered	(a) a literary, dramatic, musical or artistic work; or (b) a published edition

[61] At the time of publication, draft legislation implementing the EC Copyright Directive was under consideration in the Spanish Parliament. See commentary in Chapter 4.

Acts Covered	Making of an accessible copy
Rights Covered	Reproduction; adaptation
Scope of Exception	If a visually impaired person has lawful possession or lawful use of a copy ("the master copy") of the whole or part of [a work] which is not accessible to him because of the impairment, it is not an infringement of copyright in the work, or in the typographical arrangement of the published edition, for an accessible copy of the master copy to be made for his personal use
Modality of Exercise	(a) An accessible copy made under this section must be accompanied by: (i) a statement that it is made [pursuant to this provision]; and (ii) a sufficient acknowledgement. (b) If a person makes an accessible copy on behalf of a visually impaired person under this section and charges for it, the sum charged must not exceed the cost of making and supplying the copy.

§

Reference 2	31B Multiple copies for visually impaired persons
Exception or Compulsory Licence	Exception
Principal Beneficiary	Approved body
Targeted End User	Visually impaired person
Works Covered	(a) a commercially published literary, dramatic, musical or artistic work; or (b) a commercially published edition,
Acts Covered	Making or supplying accessible copies for the personal use of visually impaired persons
Rights Covered	Reproduction; adaptation; distribution
Scope of Exception	Where an approved body has lawful possession of a copy ("the master copy") of the whole or part of a work it is not an

	infringement of copyright in the work, or in the typographical arrangement of the published edition, for the body to make, or supply, accessible copies for the personal use of visually impaired persons to whom the master copy is not accessible because of their impairment.
Modality of Exercise	(a) An accessible copy made under this section must be accompanied by: (i) a statement that it is made under this section; and (ii) a sufficient acknowledgement. (b) If an approved body charges for supplying a copy made under this section, the sum charged must not exceed the cost of making and supplying the copy.
Conditions Applied	(a) The limitation does not apply: (i) if the master copy is of a musical work, or part of a musical work, and the making of an accessible copy would involve recording a performance of the work or part of it; or (ii) if the master copy is of a database, or part of a database, and the making of an accessible copy would infringe copyright in the database. (b) The limitation does not apply in relation to the making of an accessible copy for a particular visually impaired person if, or to the extent that, copies of the copyright work are commercially available, by or with the authority of the copyright owner, in a form that is accessible to that person. (c) An approved body making copies under this section must, if it is an educational establishment, ensure that the copies will be used only for its educational purposes. (d) If the master copy is in copy-protected electronic form, any accessible copy made of it under this section must, so far as it is reasonably practicable to do so, incorporate the same, or equally effective, copy protection (unless the copyright

	owner agrees otherwise). (e) If an approved body continues to hold an accessible copy when it would no longer be entitled to make or supply such a copy under that subsection, the copy is to be treated as an infringing copy. (f) If an accessible copy which would otherwise be an infringing copy is subsequently sold or let for hire or offered or exposed for sale or hire or included in a broadcast or cable programme service. (i) it is to be treated as an infringing copy for the purposes of that dealing; and (ii) if that dealing infringes copyright, is to be treated as an infringing copy for all subsequent purposes.

§

Reference 3	31C Intermediate copies and records
Exception or Compulsory Licence	Exception
Principal Beneficiary	Approved body
Targeted End User	Visually impaired person
Works Covered	(a) a commercially published literary, dramatic, musical or artistic work; or (b) a commercially published edition,
Acts Covered	Holding an intermediate copy of the master copy Lending or transfering the intermediate copy to another approved body
Rights Covered	Reproduction; distribution; communication; lending
Scope of Exception	(a) An approved body which is entitled to make accessible copies under section 31B may hold an intermediate copy of the master copy which is necessarily created during the production of the accessible copies

	(b) An approved body may lend or transfer the intermediate copy to another approved body which is entitled to make accessible copies of the work or published edition under the limitation
Modality of Exercise	(a) If an approved body charges for lending or transferring the intermediate copy, the sum charged must not exceed the cost of the loan or transfer. (b) An approved body must: (i) keep records of accessible copies made under section 31B and of the persons to whom they are supplied; (ii) keep records of any intermediate copy lent or transferred under this section and of the persons to whom it is lent or transferred; and (iii) allow the copyright owner or a person acting for him, on giving reasonable notice, to inspect the records at any reasonable time. (c) Within a reasonable time of making an accessible copy under section 31B, or lending or transferring an intermediate copy under this section, the approved body must: (i) notify each relevant representative body; or (ii) if there is no such body, notify the copyright owner. A relevant representative body is a body which represents particular copyright owners, or owners of copyright in the type of copyright work concerned and has given notice to the Secretary of State of the copyright owners, or the classes of copyright owner, represented by it.

United States of America

Reference 1	Chapter 1 of title 17, United States Code, section 121.

Exception or Compulsory Licence	Exception
Principal Beneficiary	An authorized entity: a nonprofit organization or a governmental agency that has a primary mission to provide specialized services relating to training, education, or adaptive reading or information access needs of blind or other persons with disabilities
Targeted End User	Blind or other persons with disabilities: individuals who are eligible or who may qualify in accordance with the Act entitled "An Act to provide books for the adult blind," approved March 3, 1931 (2 U.S.C. 35a; 46 Stat. 1487) to receive books and other publications produced in specialized formats
Works Covered	Published, non-dramatic literary work
Rights Covered	Reproduction; adaptation; distribution
Scope of Exception	Reproduce or distribute copies or phonorecords of a previously published, non-dramatic literary work if such copies or phonorecords are reproduced or distributed in specialized formats exclusively for use by blind or other persons with disabilities
Modality of Exercise	(a) The work must be reproduced or distributed only in Braille, audio, or digital text, exclusively for use by blind or other persons with disabilities; (b) Copies must carry a notice that any further reproduction or distribution in a format other than a specialized format is an infringement and include a copyright notice identifying the copyright owner and the date of the original publication.
Conditions Applied	This exception does not apply to standardized, secure, or norm-referenced tests and related testing material, or to computer programs, except the portions thereof that are in conventional human language (including descriptions of pictorial works) and displayed to users in the ordinary course of using the computer programs.

Provisions relating to distance education

Australia

Reference 1	Part VA—Copying and communication of broadcasts by educational and other institutions Division 1—Preliminary 135A Interpretation:
Administering body	means a body administering an *institution*
Institution	means: (a) an educational institution; or (b) an institution assisting persons with an intellectual disability.

§

Reference 2	Division 2—Copying and communication of broadcasts 135E Copying and communication of broadcasts by educational institutions
Works Covered	broadcast any work, sound recording or cinematograph film included in a broadcast
Exception or Compulsory Licence	Compulsory licence
Principal Beneficiary	Administering body
Targeted End User	
Acts Covered	Making or communication, by or on behalf of an administering body, of a copy of the broadcast
Rights Covered	Reproduction; communication
Scope of Licence	Where the copy or communication is made by, or on behalf of, a body administering an educational institution—the copy or communication is made solely for the educational purposes of the institution or of

	another educational institution
Modality of Exercise	A remuneration notice, given by or on behalf of the administering body to the collecting society, [must be] in force 135K Marking and record keeping requirements (1) Where a records notice is given by, or on behalf of, an administering body, the body shall: (a) mark, or cause to be marked, in accordance with the regulations, each copy in analog form of a broadcast made by it, or on its behalf, while the notice is in force, or any container in which such a copy is kept; (b) make, or cause to be made, a record of each copying of a broadcast, and each communication of such a copy, carried out by it, or on its behalf, while the notice is in force, being a record containing such particulars as are prescribed; (c) retain that record for the prescribed retention period after the making of the copy or communication to which it relates; and (d) send copies of all such records to the collecting society in accordance with the regulations. (3) Where a sampling notice is given by, or on behalf of, an administering body, the body shall mark, or cause to be marked, in accordance with the regulations, each copy in analog form of a broadcast made by it, or on its behalf, while the notice is in force, or any container in which such a copy is kept. 135KA Notice requirements in respect of communications If a remuneration notice is given by, or on behalf of, an administering body to a collecting society in respect of communication of copies of broadcasts made by, or on behalf of, the body while the remuneration notice is in force, the body must, except in such circumstances (if any) as are prescribed:

	(a) give a notice, in accordance with the regulations, in relation to each such communication made by it, or on its behalf, while the remuneration notice is in force, containing: (i) statements to the effect that the communication has been made under this Part and that any work or other subject-matter contained in the communication might be subject to copyright protection under this Act; and (ii) such other information or particulars (if any) as are prescribed; and (b) in the case of each such communication made by it, or on its behalf, while the remuneration notice is in force—take all reasonable steps to ensure that the communication can only be received or accessed by persons entitled to receive or access it (for example, teachers or persons receiving educational instruction or other assistance provided by the relevant institution); and (c) comply with such other requirements (if any) as are prescribed in relation to each such communication made by it, or on its behalf, while the remuneration notice is in force.
Conditions Applied	Where a copy, or communication of a copy, of a broadcast: (a) is used for a purpose [outside the scope of the licence]; (b) is made, sold or otherwise supplied for a financial profit; or (c) is given to an administering body when there is not in force a remuneration notice given by that body to the collecting society; with the consent of the administering body by whom, or on whose behalf, it is made, [the Compulsory Licence] does not apply, and shall be taken never to have applied, to the making of the copy or communication.

§

Reference 3	135F Making and communication of preview copies
Works Covered	broadcast any work, sound recording or cinematograph film included in a broadcast
Exception or Compulsory Licence	Compulsory licence
Principal Beneficiary	Administering body
Targeted End User	
Act Covered	Making of a preview copy of the broadcast
Rights Covered	Reproduction
Scope of Licence	The copy is made by, or on behalf of, an administering body (...) and used solely for the purpose of enabling that body to decide whether or not the copy should be retained for the educational purposes of the institution administered by it.
Modality of Exercise	A remuneration notice, given by or on behalf of the administering body to the collecting society, [must be] in force
Conditions Applied	a preview copy shall be destroyed within 14 days after the day on which it was made (in this section called *the preview period*). A preview copy may be retained after the end of the preview period where the relevant institution is an educational institution [and] the copy is retained solely for the educational purposes of the institution. Where a preview copy is retained subsection 135E (1) applies in relation to the copy after the end of the preview period as if the copy had been made solely for a purpose referred to therein. Where a preview copy is neither destroyed within the preview period nor retained [as per b. above] [the Compulsory Licence] does not apply, and shall be taken never to have applied, to the making of the copy.

§

Reference 4	135F (7) Communication of preview copies
Works covered	(a) broadcast (b) any work, sound recording or cinematograph film included in a broadcast
Exception or Compulsory Licence	Exception
Principal Beneficiary	Administering body
Targeted End User	
Act Covered	Communication of a preview copy
Rights Covered	Communication
Scope of Exception	The communication is made solely to enable an administering body to decide whether or not that copy should be retained (…) for the educational purposes of the institution administered by it
Conditions Applied	the communication is made only to the extent necessary for the purpose mentioned and the communication is made within the preview period.

§

Reference 5	Part VB-Reproducing and communicating works etc. by educational and other institutions Division 2-Reproduction by educational institutions of works that are in hardcopy form 135ZG Multiple reproduction of insubstantial parts of works that are in hardcopy form
Works Covered	Literary or dramatic work
Exception or Compulsory Licence	Exception
Principal Beneficiary	Administering body
Targeted End User	

Act Covered	Reproduction
Rights Covered	Reproduction
Scope of Exception	Making of one or more reproductions of a page or pages of the work in an edition of the work if the reproduction is carried out on the premises of an educational institution for the purposes of a course of education provided by it.
Modality of Exercise	
Conditions Applied	1. [Limitation] does not apply to the making of a reproduction of more than 2 of the pages of a work in an edition of the work unless: (a) there are more than 200 pages in the edition; and (b) the total number of pages so reproduced does not exceed 1% of the total number of pages in the edition. 2. Where: (a) a person makes, or causes to be made, a reproduction of a part of a work contained on a page or pages in an edition; and (b) subsection (1) applies to the making of that reproduction; that subsection does not apply to the making, by or on behalf of that person, of a reproduction of any other part of that work within 14 days after the day on which the previous reproduction was made.

§

Reference 6	135ZH Copying of printed published editions by educational institutions
Works Covered	Printed published edition of a work (being a work in which copyright does not subsist)
Exception or Compulsory Licence	Exception
Principal Beneficiary	A body administering an educational institution

Targeted End User	
Act Coveredg	Making of one or more facsimile copies of the whole or a part of the edition
Rights Covered	Reproduction
Scope of Exception	making of one or more facsimile copies of the whole or a part of the edition, if the copy, or each of the copies, is made in the course of the making of a reproduction of the whole or a part of the work by, or on behalf of, a body administering an educational institution for the educational purposes of that institution or of another educational institution
Modality of Exercise	
Conditions Applied	

§

Reference 7	135ZJ Multiple reproduction of printed periodical articles by educational institutions
Works Covered	Article contained in a printed periodical publication
Exception or Compulsory Licence	Compulsory Licence
Targeted End User	
Act Covered	Making of one or more reproductions of the whole or a part of that article
Rights Covered	Reproduction
Scope of Licence	The making of one or more reproductions of the whole or a part of that article by, or on behalf of, a body administering an educational institution
Conditions Applied	This section does not apply in relation to reproductions of, or of parts of, 2 or more articles contained in the same periodical publication unless the articles relate to the same subject-matter

§

Reference 8	135ZK Multiple reproduction of works published in printed anthologies
Works Covered	Literary or dramatic work, being a work contained in a printed published anthology of works and comprising not more than 15 pages in that anthology
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A body administering an educational institution
Targeted End User	
Act Covered	Making of one or more reproductions of the whole or part of the work
Rights Covered	Reproduction
Scope of Licence	The making of one or more reproductions of the whole or part of the work by, or on behalf of, a body administering an educational institution.
Modality of Exercise	As for 135ZJ

§

Reference 9	135ZL Multiple reproduction of works that are in hardcopy form by educational institutions
Works Covered	Literary, dramatic, musical or artistic work (other than an article contained in a periodical publication)
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A body administering an educational institution
Targeted End User	
Act Covered	Making of one or more reproductions of the whole or part of the work
Rights Covered	Reproduction
Scope of Licence	The making of one or more reproductions

	of the whole or part of the work by, or on behalf of, a body administering an educational institution.
Modality of Exercise	As for 135ZJ
Conditions Applied	This provision does not apply in relation to reproductions of the whole, or of more than a reasonable portion, of a work that has been separately published unless the person who makes the reproductions, or causes the reproductions to be made, for, or on behalf of, the body is satisfied, after reasonable investigation, that reproductions (other than second-hand reproductions) of the work cannot be obtained within a reasonable time at an ordinary commercial price.

§

Reference 10	Division 2A—Reproduction and communication of works that are in electronic form 135ZMB Multiple reproduction and communication of insubstantial parts of works that are in electronic form
Works Covered	Published literary or dramatic work
Exception or Compulsory Licence	Exception
Principal Beneficiary	An educational institution
Targeted End User	
Act Covered	(a) the making of one or more reproductions of a part of the work; or (b) communicating a part of the work;
Rights Covered	Reproduction; communication
Scope of Exception	The reproduction or communication is carried out on the premises of an educational institution for the purposes of a course of study provided by it.
Modality of Exercise	
Conditions Applied	Subsection (1) does not apply to the reproduction or communication of more than 1% of the total number of words in the

	work If: (a) a person makes, or causes to be made, a reproduction of a part of a work or communicates a part of a work; and (b) subsection (1) applies to the making of the reproduction or to the communication; that subsection does not apply to the making by, or on behalf of, that person of a reproduction or to the communication by that person, of any other part of that work within 14 days after the day on which the previous reproduction or the first communication of the work was made. If: (a) a person communicates a part of a work by making the part available online; and (b) subsection (1) applies to the communication; that subsection does not apply to the making available online by that person of any other part of that work while the part previously made available online continues to be so available.

§

Reference 11	135ZJ Multiple reproduction of printed periodical articles by educational institutions
Works Covered	Article contained in a periodical publication
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A body administering an educational institution
Targeted End User	
Act Covered	(a) The making of one or more reproductions of the whole or a part of the article; or

	(b) The communication of the whole or a part of the article
Rights Covered	Reproduction
Scope of Licence	The making of one or more reproductions of the whole or a part of that article by, or on behalf of, a body administering an educational institution
Modality of Exercise	1. A remuneration notice, given by or on behalf of the administering body to the collecting society, [must be] in force 2. The reproduction is carried out solely for the educational purposes of the institution or of another educational institution 3. The body complies with subsection 135ZX (1) or (3) or section 135ZXA, as the case requires, in relation to each reproduction or communication
Conditions Applied	This section does not apply in relation to reproductions of, or of parts of, 2 or more articles contained in the same periodical publication unless the articles relate to the same subject-matter

§

Reference 12	135ZMD Multiple reproduction and communication of works that are in electronic form by educational institutions
Works Covered	Literary, dramatic, musical or artistic work (other than an article contained in a periodical publication)
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A body administering an educational institution
Targeted End User	
Act Covered	(a) The making of one or more reproductions of the whole or a part of the work; or (b) The communication of the whole or a

	part of the work
Rights Covered	Reproduction; communication
Scope of Licence	The making of one or more reproductions of the whole or a part of that article by, or on behalf of, a body administering an educational institution
Modality of Exercise	1. A remuneration notice, given by or on behalf of the administering body to the collecting society, [must be] in force 2. The reproduction is carried out solely for the educational purposes of the institution or of another educational institution 3. The body complies with subsection 135ZX (1) or (3) or section 135ZXA, as the case requires, in relation to each reproduction or communication
Conditions Applied	1. [The licence] does not apply in relation to the reproduction or communication of: (a) the whole, or of more than a reasonable portion of, a literary or dramatic work; or (b) the whole, or of more than 10% of, a musical work; that has been separately published unless the person who makes the reproduction or communication, or causes it to be made, for, or on behalf of, the body is satisfied, after reasonable investigation, that the work is not available in electronic form within a reasonable time at an ordinary commercial price. 2 If a person communicates a part of a work by or on behalf of a body administering an educational institution, by making the part available online [the licence] does not apply to the making available online by, or on behalf of, that body of any other part of that work while the part previously made available online continues to be so available.

The Republic of Korea

Reference 1	Article 23(1)
Works Covered	Works made public
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	A publisher of textbooks.
Targeted End User	A person giving or receiving instruction
Act Covered	Copying of a work
Rights Covered	Reproduction
Scope of Exception	The work may be reproduced in the textbook to the extent deemed necessary for the purpose of education at high schools, their equivalents or lower level schools.
Modality of Exercise	
Conditions Applied	The publisher shall pay compensation to the owner of authors' economic rights as determined and announced officially by the Minister of Culture and Tourism according to the criteria for compensation prescribed under subparagraph 1 of Article 82, or shall deposit the same as prescribed by the Presidential Decree. Broadcasting or reproduction of a work done at high schools, their equivalents or lower level schools as prescribed under Paragraph (2) is not obliged to pay a compensation.

§

Reference 2	Article 23(2)
Works Covered	Works made public
Exception or Compulsory Licence	Compulsory Licence
Principal Beneficiary	Educational institutions established by special Acts, or the Education Act, or operated by the state or local government
Targeted End User	A person giving or receiving instruction

Act Covered	Broadcasting or copying
Rights Covered	Broadcasting and Reproduction
Scope of Exception	The work may be broadcast or reproduced to the extent deemed necessary for the purpose of education.
Modality of Exercise	
Conditions Applied	The educational institutions shall pay compensation to the owner of authors' economic rights as determined and announced officially by the Minister of Culture and Tourism according to the criteria for compensation prescribed under subparagraph 1 of Article 82, or shall deposit the same as prescribed by the Presidential Decree. Broadcasting or reproduction of a work done at high schools, their equivalents or lower level schools as prescribed under Paragraph (2) is not obliged to pay a compensation.

Spain[62]

Reference 1	Article 32(1)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Any person or institution
Targeted End User	A person giving or receiving instruction
Works Covered	Third party works
Act Covered	Inclusion of extracts of the works of others.
Rights Covered	Reproduction
Scope of Exception	The exception relates only to published third party works and provided they are only used for the purpose of analysis, comment or critical assessment.
Modality of Exercise	
Conditions Applied	The source and name of the author have to be stated.

[62] At the time of publication, draft legislation implementing the EC Copyright Directive was under consideration in the Spanish Parliament. See commentary in Chapter 4.

United Kingdom

Reference 1	CDPA 1988 s.32 (1)
Exception or Compulsory Licence	Exception
Principal Beneficiary	A person giving or receiving instruction
Targeted End User	A person giving or receiving instruction
Works Covered	Literary, dramatic, musical or artistic work
Act Covered	Copying of a work
Rights Covered	Reproduction
Scope of Exception	Work is being copied in the course of instruction or of preparation for instruction
Modality of Exercise	Copying must be done by a person giving or receiving instruction, and not by means of a reprographic process
Conditions Applied	Where a copy is made in accordance with this exception but is subsequently sold or let for hire or offered or exposed for sale or hire it shall be treated as an infringing copy for the purpose of that dealing, and if that dealing infringes copyright for all subsequent purposes

§

Reference 2	CDPA 1988 s.32 (2)
Exception or Compulsory Licence	Exception
Principal Beneficiary	A person giving or receiving instruction
Targeted End User	A person giving or receiving instruction
Works Covered	Sound recording, film, broadcast or cable programme
Act Covered	Copying of a sound recording, film, broadcast or cable programme in the making of a film or film sound track
Rights Covered	Reproduction
Scope of Exception	The subject matter is copied by making a

	film or film sound-track in the course of instruction, or of preparation for instruction, in the making of films or film sound-tracks.
Modality of Exercise	Copying must be done by a person giving or receiving instruction
Conditions Applied	Where a copy is made in accordance with this exception but is subsequently sold or let for hire or offered or exposed for sale or hire it shall be treated as an infringing copy for the purpose of that dealing, and if that dealing infringes copyright for all subsequent purposes.

§

Reference 3	CDPA 1988 s.32 (3)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Any person or entity
Targeted End User	A candidate in an examination
Works Covered	All works
Act Covered	Anything done for an examination
Rights Covered	All rights
Scope of Exception	Anything done for the purposes of an examination by way of setting the questions, communicating the questions to the candidates or answering the questions.
Modality of Exercise	
Conditions Applied	(a) This exception does not extend to the making of a reprographic copy of a musical work for use by an examination candidate in performing the work. (b) Where a copy is made in accordance with this exception but is subsequently sold or let for hire or offered or exposed for sale or hire it shall be treated as an infringing copy for the purpose of that dealing, and if that dealing infringes copyright for all subsequent purposes.

§

Reference 4	CDPA 1988 s.33
Exception or Compulsory Licence	Exception
Principal Beneficiary	Any person or entity
Targeted End User	Any end user in an educational institution
Works Covered	Published literary or dramatic work
Act Covered	Copying of a short passage
Rights Covered	Reproduction
Scope of Exception	The inclusion of a short passage from a published literary or dramatic work in a collection which is intended in educational establishments for any use for the educational purposes of such an establishment and consists mainly of material in which no copyright subsists where the work itself is not intended for use in such establishments
Modality of Exercise	The collection must be described as being for use in educational establishments in its title and in any advertisements issued by or on behalf of the publisher, and The inclusion must be accompanied by a sufficient acknowledgement.
Conditions Applied	(a) The exception does not authorise the inclusion of more than two excerpts from copyright works by the same author in collections published by the same publisher over any period of five years. (b) In relation to any given passage the reference to excerpts from works by the same author: (i) shall be taken to include excerpts from works by him in collaboration with another, and (ii) if the passage in question is from such a work, shall be taken to include excerpts from works by any of the authors, whether alone or in collaboration with another.

§

Reference 5	CDPA 1988 s.34(1)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Teacher or pupil Any person for the purposes of instruction
Targeted End User	Teachers and pupils at an educational establishment and other persons directly connected with the activities of the establishment. (Another person is not for this purpose directly connected with the activities of the educational establishment simply because he is the parent of a pupil at the establishment.)
Works Covered	Literary, dramatic or musical work
Act Covered	Performance of a work
Rights Covered	Public Performance
Scope of Exception	The performance by a teacher or pupil must occur in the course of the activities of the establishment or must be for the purposes of instruction when done any other person
Modality of Exercise	
Conditions Applied	

§

Reference 6	CDPA 1988 s.34 (2)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Any person
Targeted End User (Audience)	Teachers and pupils at an educational establishment and other persons directly connected with the activities of the establishment. (Another person is not for this purpose directly connected with the activities of the educational establishment simply because he is the parent of a pupil at the establishment.)
Works Covered	Sound recording, film, broadcast or cable

	programme
Act Covered	Performance of a sound recording, film, broadcast or cable programme
Rights Covered	Public Performance
Scope of Exception	The performance must be before such an audience at an educational establishment for the purposes of instruction
Modality of Exercise	
Conditions Applied	

§

Reference 7	CDPA 1988 s.35
Exception or Compulsory Licence	Exception
Principal Beneficiary	An educational establishment
Targeted End User	
Works Covered	Broadcast or cable programme and any work included in the broadcast or cable programme
Act Covered	Copying of a broadcast or cable programme
Rights Covered	Reproduction
Scope of Exception	A recording of a broadcast or cable programme, or a copy of such a recording, may be made by or on behalf of an educational establishment for the educational purposes of that establishment
Modality of Exercise	
Conditions Applied	(a) The exception does not apply if or to the extent that there is a licensing scheme certified under CDPA s.143[63] providing

[63] Section 143
(1) A person operating or proposing to operate a licensing scheme may apply to the Secretary of State to certify the scheme for the purposes of
(a) Section 35 (educational recording of broadcasts or cable programmes),
(2) The Secretary of State shall by order made by statutory instrument certify the scheme if he is satisfied that it

[Footnote continued on next page]

	for the grant of licences. (b) Where a copy is made under this exception but is subsequently sold or let for hire or offered or exposed for sale or hire, it shall be treated as an infringing copy for the purposes of that dealing, and if that dealing infringes copyright for all subsequent purposes.

§

Reference 8	CDPA 1988 s.36
Exception or Compulsory Licence	Exception
Principal Beneficiary	An educational establishment
Targeted End User	
Works covered	Passages from published literary, dramatic or musical works and the typographical arrangement thereof
Act Covered	Copying of passages
Rights covered	Reproduction
Scope of Exception	
Modality of Exercise	
Conditions Applied	(a) Not more than one per cent of any work may be copied by or on behalf of an establishment under this exception in any

[Footnote continued from previous page]

(a) enables the works to which it relates to be identified with sufficient certainty by persons likely to require licences, and
(b) sets out clearly the charges (if any) payable and the other terms on which licences will be granted.
(3) The scheme shall be scheduled to the order and the certification shall come into operation for the purposes of section 35 (…) as the case may be-
(a) on such date, not less than eight weeks after the order is made, as may be specified in the order, or
(b) if the scheme is the subject of a reference under section 118 (reference of proposed scheme), any later date on which the order of the Copyright Tribunal under that section comes into force or the reference is withdrawn.
(4) A variation of the scheme is not effective unless a corresponding amendment of the order is made; and the Secretary of State shall make such an amendment in the case of a variation ordered by the Copyright Tribunal on a reference under section 118, 119 or 120, and may do so in any other case if he thinks fit.
(5) The order shall be revoked if the scheme ceases to be operated and may be revoked if it appears to the Secretary of State that it is no longer being operated according to its terms.

	quarter, that is, in any period 1st January to 31st March, 1st April to 30th June, 1st July to 30th September or 1st October to 31st December. (b) Copying is not authorised by this section if, or to the extent that, licences are available authorising the copying in question and the person making the copies knew or ought to have been aware of that fact. However, the terms of a licence granted to an educational establishment authorising the reprographic copying for the purposes of instruction of passages from published literary, dramatic or musical works are of no effect insofar as they purport to restrict the proportion of a work which may be copied (whether on payment or free of charge) to less than that which would be permitted under this exception. (c) Where a copy is made under this exception but is subsequently sold or let for hire or offered or exposed for sale or hire, it shall be treated as an infringing copy for the purposes of that dealing, and if that dealing infringes copyright for all subsequent purposes.

United States of America

Reference 1	Section 110 - Limitations on exclusive rights: Exemption of certain performances and displays (1)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Instructors or pupils
Targeted End User	
Works Covered	Any work
Acts Covered	Performance or display
Rights Covered	Performance
Scope of Exception	Performance or display of a work by

	instructors or pupils in the course of face-to-face teaching activities of a nonprofit educational institution, in a classroom or similar place devoted to instruction
Modality of Exercise	
Conditions Applied	The limitation does not extend to a motion picture or other audiovisual work, if the performance, or the display of individual images, is given by means of a copy that was not lawfully made under [The Copyright Law], and the person responsible for the performance knew or had reason to believe it was not lawfully made

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Reference 2	Section 110 - Limitations on exclusive rights: Exemption of certain performances and displays (2)
Exception or Compulsory Licence	Exception
Principal Beneficiary	Instructors or pupils
Targeted End User	
Works Covered	(a) Nondramatic literary or musical work (b) reasonable and limited portions of any other work
Acts Covered	Performance or display
Rights Covered	Performance
Scope of Exception	The performance of a nondramatic literary or musical work or reasonable and limited portions of any other work, or display of a work in an amount comparable to that which is typically displayed in the course of a live classroom session, by or in the course of a transmission
Modality of Exercise	1. The performance or display is made by, at the direction of, or under the actual supervision of an instructor as an integral part of a class session offered as a regular part of the systematic mediated

	instructional activities of a governmental body or an accredited nonprofit educational institution 2. The performance or display is directly related and of material assistance to the teaching content of the transmission
Conditions Applied	(a) [The limitation does not apply] with respect to a work produced or marketed primarily for performance or display as part of mediated instructional activities transmitted via digital networks, or a performance or display that is given by means of a copy or phonorecord that is not lawfully made and acquired under this title, and the transmitting government body or accredited nonprofit educational institution knew or had reason to believe was not lawfully made and acquired; (b) the transmission is made solely for, and, to the extent technologically feasible, the reception of such transmission is limited to (i) students officially enrolled in the course for which the transmission is made; or (ii) officers or employees of governmental bodies as a part of their official duties or employment; (c) the transmitting body or institution must (i) institute policies regarding copyright, provide informational materials to faculty, students, and relevant staff members that accurately describe, and promote compliance with, the laws of the United States relating to copyright, and provides notice to students that materials used in connection with the course may be subject to copyright protection; and (ii) In the case of digital transmissions apply technological measures that reasonably prevent retention of the work in accessible form by recipients of the transmission from the transmitting body or institution for longer than the class

	session and unauthorized further dissemination of the work in accessible form by such recipients to others (d) does not engage in conduct that could reasonably be expected to interfere with technological measures used by copyright owners to prevent such retention or unauthorized further dissemination

Provisions relating to the use and protection of technical measures

This section considers national provisions regarding technical measures applied to the protection of copyright works and other subject matter. As before, a template model is used in order to provide some basis for comparison between different national regimes. The template adopted for this analysis is as follows:

- Reference
- Definition of Technical Protection Measures (TPM)
- Definition of Rights Management Information (RMI)
- Definition of Circumvention Device
- Definition of Circumvention Service
- Targeted acts in relation to circumvention
- Exceptions to anti-circumvention regulation
- Administrative action

Australia[64]

Reference 1	Division 2A — Actions in relation to circumvention devices and electronic rights management information; 116A ~ 116D
Definition of Technical Protection Measures (TPM)	Technological Protection Measure means a device or product, or a component incorporated into a process, that is designed, in the ordinary course of its

[64] Under the Australia–United States Free Trade Agreement, which entered into force on January 1, 2005, changes will be made in the sections of the Copyright Act concerning the use and protection of technical measures.

	operation, to prevent or inhibit the infringement of copyright in a work or other subject-matter by either or both of the following means (a) by ensuring that access to the work or other subject matter is available solely by use of an access code or process (including decryption, unscrambling or other transformation of the work or other subject-matter) with the authority of the owner or exclusive licensee of the copyright; (b) through a copy control mechanism.
Definition of Rights Management Information (RMI)	Electronic rights management information in relation to a work or other subject-matter means information that: (a) is electronic; and (b) either: (i) is or was attached to, or is or was embodied in, a copy of the work or subject-matter; or (ii) appears or appeared in connection with a communication, or the making available, of the work or subject-matter; and (c) either: (i) identifies the work or subject-matter, and its author or copyright owner (including such information represented as numbers or codes); or (ii) identifies or indicates some or all of the terms and conditions on which the work or subject-matter may be used, or indicates that the use of the work or subject-matter is subject to terms or conditions (including such information represented as numbers or codes).
Definition of Circumvention Device	Circumvention device means a device (including a computer program) having only a limited commercially significant purpose or use, or no such purpose or use, other than the circumvention, or facilitating the circumvention, of an technological protection measure

Definition of Circumvention Service	Circumvention service means a service, the performance of which has only a limited commercially significant purpose, or no such purpose or use, other than the circumvention, or facilitating the circumvention, of a technological protection measure
Targeted acts in relation to circumvention	116A (i) making (ii) selling, letting for hire, or by way of trade offering or exposing for sale or hire or otherwise promoting, advertising or marketing, (iii) distributing for the purpose of trade, or for any other purpose that will affect prejudicially the owner of the copyright; (iv) exhibiting in public by way of trade; (v) importing into Australia for any of the purposes itemized in (i) to (iv) above (vi) making available online to an extent that will affect prejudicially the owner of the copyright; (vii) providing a circumvention device where the person knew, or ought reasonably to have known, that the device or service would be used to circumvent, or facilitate the circumvention of, the technological protection measure. 116B Removing or altering any electronic rights management information attached to a copy of a work or other subject-matter in which copyright subsists without the permission of the owner or exclusive licensee of the copyright and the person knew, or ought reasonably to have known, that the removal or alteration would induce, enable, facilitate or conceal an infringement of the copyright in the work or other subject-matter.

	116C (i) distributing for the purpose of trade; (ii) importing into Australia for the purpose of trade; (iii) communicating to the public a work or other subject-matter in which copyright subsists without the permission of the owner or exclusive licensee of the copyright where any electronic rights management information attached to the copy has been removed or altered and the person knew that the electronic rights management information had been so removed or altered without the permission of the owner or exclusive licensee of the copyright and, further, the person knew, or ought reasonably to have known, that the acts referred to would induce, enable, facilitate or conceal an infringement of the copyright in the work or other subject-matter.
Relevant exceptions to anti-circumvention regulation	This provision does not apply in relation to the supply of a circumvention device or a circumvention service to a person for use for a permitted purpose if: (a) the person is a qualified person; and (b) the person gives the supplier before, or at the time of, the supply a declaration signed by the person: (i) stating the name and address of the person; and (ii) stating the basis on which the person is a qualified person; and (iii) stating the name and address of the supplier of the circumvention device or circumvention service; and (iv) stating that the device or service is to be used only for a permitted purpose by a qualified person; and (v) identifying the permitted purpose by reference to one or more of sections (...) Part VB; and (vi) stating that a work or other subject-

	matter in relation to which the person proposes to use the device or service for a permitted purpose is not readily available to the person in a form that is not protected by a technological protection measure. Note 1: a work or other subject-matter is taken not to be readily available if it is not available in a form that lets a person do an act relating to it that is not an infringement of copyright in it as a result of (…) Part VB. Note 2: *qualified person* means (...) a person authorised in writing by a body administering an institution (within the meaning of Part VB) to do on behalf of the body an act that is not an infringement of copyright because of that Part.
Administrative action	

United Kingdom

Reference 1	CDPA 1988 s.296ZA ~ 296ZG
Definition of Technical Protection Measures (TPM)	Technological measures include any technology, device or component which is designed, in the normal course of its operation, to prevent or restrict acts that are not authorised by the copyright owner of a work (other than a computer program) and are restricted by copyright. Such measures are "effective" if the use of the work is controlled by the copyright owner through (a) an access control or protection process such as encryption, scrambling or other transformation of the work, or (b) a copy control mechanism, which achieves the intended protection.
Definition of Rights Management Information (RMI)	Rights management information means any information provided by the copyright owner or the holder of any right under copyright which identifies the work, the author, the copyright owner or the holder of any intellectual property rights, or

	information about the terms and conditions of use of the work, and any numbers or codes that represent such information.
Definition of Circumvention Device	In relation to criminal liability: Any device, product or component which is primarily designed, produced, or adapted for the purpose of enabling or facilitating the circumvention of effective technological measures In relation to civil liability: Any device, product or component which - (i) is promoted, advertised or marketed for the purpose of the circumvention of, or (ii) has only a limited commercially significant purpose or use other than to circumvent, or (iii) is primarily designed, produced, or adapted for the purpose of enabling or facilitating the circumvention of, specific technological measures.
Definition of Circumvention Service	(a) In relation to criminal liability A service the purpose of which is to enable or facilitate the circumvention of effective technological measures (b) In relation to civil liability A service which - (i) is promoted, advertised or marketed for the purpose of the circumvention of, or (ii) has only a limited commercially significant purpose other than to circumvent, or (iii) is primarily designed, produced, adapted or performed for the purpose of enabling or facilitating the circumvention of, specific technological measures.
Targeted acts in relation to circumvention	– doing anything which circumvents technological measures where the perpetrator knows, or has reasonable grounds to know, that he is pursuing

	that objective. (296ZA) – manufacturing for sale or hire, or importing otherwise than for private and domestic use, or in the course of a business - (i) selling or letting for hire, or (ii) offering or exposing for sale or hire, or (iii) advertising for sale or hire, or (iv) possessing, or (v) distributing, and distributing otherwise than in the course of a business to such an extent as to affect prejudicially the copyright owner, a circumvention device (296ZB)(1) (c) provides, promotes, advertises or markets in the course of a business, or otherwise than in the course of a business to such an extent as to affect prejudicially the copyright owner, a circumvention service. (296ZB)(2)
Relevant exceptions to anti-circumvention regulation	296ZE (…) (2) Where the application of any effective technological measure to a copyright work other than a computer program prevents a person from carrying out a permitted act in relation to that work then that person or a person being a representative of a class of persons prevented from carrying out a permitted act may issue a notice of complaint to the Secretary of State. (3) Following receipt of a notice of complaint, the Secretary of State may give to the owner of that copyright work or an exclusive licensee such directions as appear to the Secretary of State to be requisite or expedient for the purpose of (a) Establishing whether any voluntary measure or agreement relevant to the copyright work the subject of the complaint subsists; or

	(b) (where it is established there is no subsisting voluntary measure or agreement) ensuring that the owner or exclusive licensee of that copyright work makes available to the complainant the means of carrying out the permitted act the subject of the complaint to the extent necessary to so benefit from that permitted act. "permitted act" means an act which may be done in relation to copyright works, notwithstanding the subsistence of copyright, by virtue of a provision of this Act (…) including: section 29 (research and private study) section 32(1), (2) and (3) (things done for purposes of instruction or examination) section 35 (recording by educational establishments of broadcasts) Note 1: Permitted act does not extend to section 31 dealing with access to content by visually impaired persons. Note 2: The provisions of s.296ZE do not apply to copyright works made available to the public on agreed contractual terms in such a way that members of the public may access them from a place and at a time individually chosen by them.
Administrative action	

United States of America

Reference 1	§ 1201 ~ § 1205
Definition of Technical Protection Measures (TPM)	Technological measure: undefined but note (…) "a technological measure "effectively controls access to a work" if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of

	the copyright owner, to gain access to the work.”
Definition of Rights Management Information (RMI)	“copyright management information” means any of the following information conveyed in connection with copies or phonorecords of a work or performances or displays of a work, including in digital form (…) (1) The title and other information identifying the work, including the information set forth on a notice of copyright. (2) The name of, and other identifying information about, the author of a work. (3) The name of, and other identifying information about, the copyright owner of the work, including the information set forth in a notice of copyright. (4) With the exception of public performances of works by radio and television broadcast stations, the name of, and other identifying information about, a performer whose performance is fixed in a work other than an audiovisual work. (5) With the exception of public performances of works by radio and television broadcast stations, in the case of an audiovisual work, the name of, and other identifying information about, a writer, performer, or director who is credited in the audiovisual work. (6) Terms and conditions for use of the work. (7) Identifying numbers or symbols referring to such information or links to such information. (8) Such other information as the Register of Copyrights may prescribe by regulation, except that the Register of Copyrights may not require the provision of any information concerning the user of a copyrighted work.
Definition of Circumvention Device	Any technology, product, service, device, component, or part thereof, that:

	(a) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title; (b) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or (c) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title. Note 1: To "circumvent a technological measure" means to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner
Definition of Circumvention Service	See under circumvention device
Targeted acts in relation to circumvention	(a) Circumventing a technological measure that effectively controls *access* to a work protected under this title. (b) Manufacturing, importing, offering to the public, providing, or otherwise trafficking in any technology, product, service, device, component, or part thereof [which is a circumvention device] (c) Manufacturing, importing, offering to the public, providing, or otherwise trafficking in any technology, product, service, device, component, or part thereof that is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively *protects a right* of a copyright owner (d) Knowingly and with the intent to induce, enable, facilitate, or conceal infringement

	(1) providing copyright management information that is false, or (2) distributing or importing for distribution copyright management information that is false. (e) Without the authority of the copyright owner or the law (1) intentionally removing or altering any copyright management information, (2) distributing or importing for distribution copyright management information knowing that the copyright management information has been removed or altered without authority of the copyright owner or the law, or (3) distributing, importing for distribution, or publicly performing works, copies of works, or phonorecords, knowing that copyright management information has been removed or altered without authority of the copyright owner or the law, knowing, or, with respect to civil remedies under section 1203, having reasonable grounds to know, that it will induce, enable, facilitate, or conceal an infringement of any right under this title.
Relevant exceptions to anti-circumvention regulation	Nothing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement, including fair use, under this title. A nonprofit library, archives, or educational institution which gains access to a commercially exploited copyrighted work solely in order to make a good faith determination of whether to acquire a copy of that work for the sole purpose of engaging in conduct permitted under this title shall not be in violation of subsection (a)(1)(A). *Relevant class of exempted work added pursuant to the rulemaking process, October 2000:* Literary works, including computer programs and databases, protected by access control mechanisms that fail to

	permit access because of malfunction, damage or obsoleteness. *Relevant class of exempted work added pursuant to the rule making process, October 2003* Literary works distributed in ebook format when all existing ebook editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling of the ebook's read-aloud function and that prevent the enabling of screen readers to render the text into a "specialized format." For purposes of this exemption, "specialized format," "digital text" and "authorized entities" shall have the same meaning as in 17 U.S.C. 121.
Administrative action	During each 3-year period, the Librarian of Congress, upon the recommendation of the Register of Copyrights, who shall consult with the Assistant Secretary for Communications and Information of the Department of Commerce and report and comment on his or her views in making such recommendation, shall make the determination in a rulemaking proceeding (…) of whether persons who are users of a copyrighted work are, or are likely to be in the succeeding 3-year period, adversely affected by the prohibition [against circumvention] in their ability to make noninfringing uses (…) of a particular class of copyrighted works. In conducting such rulemaking, the Librarian shall examine - (i) the availability for use of copyrighted works; (ii) the availability for use of works for nonprofit archival, preservation, and educational purposes; (iii) the impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research; (iv) the effect of circumvention of

	technological measures on the market for or value of copyrighted works; and (v) such other factors as the Librarian considers appropriate. (d) The Librarian shall publish any class of copyrighted works for which the Librarian has determined, pursuant to the rulemaking conducted under subparagraph (C), that noninfringing uses by persons who are users of a copyrighted work are, or are likely to be, adversely affected, and the prohibition contained in subparagraph (A) shall not apply to such users with respect to such class of works for the ensuing 3-year period.

[End of Annex and of Study]