APPENDIX

Appendix I - Digital Rights Management: The Technological Scenario

A. Historical background to the concept of digital rights language

The birth of the concept of DRM technology in legal scholarship is often associated with the publication of an essay by scientist Mark Stefik in the Berkeley Technology Law Journal of 1997.[1] At that time, Stefik worked as the principal scientist at Xerox's Palo Alto Reserch Center (PARC), in California.[2] As a researcher of Xerox Corporation, Stefik patented a system for controlling the distribution and use of digital works that was regularly improved over years and resulted in a number of patents issued by all the most important patent offices of the world.[3] On the grounds of the radical innovation produced by Stefik's research, Xerox set up a new company (ContentGuard) that acquired the patent portfolio originally owned by Xerox and specialised in the development of what is called today "digital rights management" (DRM).[4] DRM is a general expression that describes a set of combined technologies that may establish a secure distribution channel for digital content. These technologies include measures of encryption, copy-control, digital watermarking, fingerprinting, access control, authentication, key management, revocation, *etc*.[5] Today's idea of bundling technical measures for the purpose to control the distribution and use of digital works is closely linked to the groundbreaking system foreseen by Stefik in 1997. Stefik showed that the association of trusted systems with digital property rights would have compelled a

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1 See Stefik, 'Shifting the Possible: How Trusted Systems and Digital Property Rights Challenge Us to Rethink Digital Publishing', (12) *Berkeley Technology Law Journal* 1997, p. 137.

2 Mark Stefik is now research fellow at PARC and manager of the Human-Document Interaction Area in the Information Sciences and Technology Laboratory: see http://www2.parc.com/istl/members/stefik/homeinfo.htm.

3 See the Esp@cenet user interface developed by the European Patent Office (EPO), available at: http://v3.espacenet.com. The above-mentioned Xerox's patent portfolio includes a patent family list of 34 members derived from 24 applications under the classification number EP0715245. This data also contains reference to the equivalent patents issued by the U.S. and Japan patent offices.

4 A detailed list of Xerox's worldwide patents, which are owned now by ContentGuard, is available at: http://www.ContentGuard.com/patents.asp.

5 See Bechtold, 'The Present and Future of Digital Rights Management', op. cit., p. 598.

re-consideration of the notion of digital publishing. This new distribution system that connected publishers of electronic materials to content buyers was based on the notion of *trusted* system, which describes a system that can be relied on to follow certain rules.[6] Under this notion, the "trust" of each system is determined and measured according to the rules that the system is ordered to follow by its programmer.[7] Under Stefik's model, these rules to be followed by both the publisher's and the user's computers referred to the terms, conditions and fees for using published materials electronically. To prevent the unauthorised or the unaccounted distribution and usage of these materials over digital networks, Stefik thought of a method in which the owner of a work could attach usage rights to that work. The expression "usage rights" was used to refer to permissions granted through contract by the owner of a digital work to its buyers. In Stefik's mind, each usage permission had associated with it certain optional specifications outlining the conditions and fees upon which the permitted use may be exercised. This way, the publishing system would have resulted in the specification of certain usage rights (*e.g.*, the rights to access, copy, transfer, print, loan and modify the protected content) which came always with the protected work and established what Stefik called a "digital rights language".[8]

In the trusted system model relied on by Stefik for the purpose to establish a secure method of digital publishing, electronic materials are stored in a repository and are encrypted (*i.e.*, translated into a secret code) or made unreadable to unauthorised parties by means of a digital watermark (*i.e.*, a pattern of visible or invisible bits inserted into a file in order to attach copyright information). For the security of their communications, the publisher's system and the user's system rely normally on public key (or asymmetric) systems of cryptography. In these systems two types of keys are used to encrypt and decrypt the content to deliver: a public key and a private key. The keys are designed with a specific mathematical relationship with each other, meaning that anything encrypted in the public key can be decrypted by (and only by) the private key. Usually, the longer is the key, the more difficult is to decode a message without having access to that key. By the combination of trusted systems and the expression of digital rights languages, the publisher's repository is able to process each request to access a digital work by examining the user's corresponding rights. The enforcement of these rights on the user's system is ensured by digital work "playback devices", which are coupled to the repository that contains the work and are used to play, display or print the work. For this system to work, therefore, both the publisher's and the user's repositories which exchange data one another are required to have some part that is trusted by means of DRM technology that uses the same encoding and decoding languages.

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6 See Stefik, 'Shifting the Possible […]', op. cit., p. 139.

7 See Stefik, 'Shifting the Possible […]', op. cit., p. 139 ("Suppose that you have a digital work stored on a trusted system, and you do not have a right to copy the work. Then if you ask the trusted system to make a copy, it simply will not do it. Instead, it will give you an error message").

8 *Ibidem*, p. 140.

B. The function of rights expression languages (RELs)

Typically, a DRM system protects copyright by either encrypting information so that only authorised users can access it or marking the information with a digital watermark (or a similar method) in a way that the content cannot be freely distributed, copied, shifted, printed, modified, *etc*. These possibilities of control and rights management over any kind of digital representation of text, pictures, databases, music, or video, are conferred by technical means of expressing usage rights. The technical means to express digital rights can be differently combined and implemented into formal languages that DRM systems are able to interpret precisely. At the time of Stefik's aforementioned publication, Xerox's Digital Property Rights Language (DPRL) had developed sixteen distinct kinds of rights. In this language, each distinct "right" was made of a number of permitted acts that a certain user purpose requires to perform. For instance, "transport rights" included the permission to copy, transfer and loan the protected work, whereas "derivative work rights" included the permission to extract, embed and edit the work.[9] Moreover, Stefik explained that Xerox's DPRL empowered the publisher of electronic materials to re-establish "natural" categories of use while regulating the transfer of information between repositories. In this respect, the DPRL was already able to enforce and differentiate the exercise of the rights to copy, transfer and loan a digital work. The digital right to *copy* enabled the making of a new, usable copy on a certain repository without deleting the original copy, with a subsequent increase of the number of usable copies. To the contrary, the exercise of the digital rights to *transfer* and to *loan* implied that, once a repository transferred or loaned a copy to another repository, the original copy of the work on the first repository was no longer available (or could not be used for the time of the loan in favour of the follow-on repository).[10]

For this secure distribution system to function effectively on the widest amount of networked computers, the highest degree of interoperability between publishers' and users' machines was required. To this end, a standard digital rights language needed to be created for the purpose to specify permissions and conditions associated with digital content as well as services. Only a standard digital property language would have accomplished this task. That is why the idea of a standard Rights Expression Language (REL) emerged and developed quickly.

A standard REL provides a *universal* method for specifying associated information necessary to enable e-commerce transactions in usage rights over digitised content (*e.g.*, how to pay fees, secure digital rights, authenticate typologies of users qualified to obtain certain usage rights, and so on). A REL must be viewed as a machine-readable language that can declare rights and permissions by the use of "metadata" (*i.e.*, information that describes how, when and by whom a particular set of data was collected, and how the data is formatted). In his 1997 essay, Stefik addressed the original concept of digital rights language by using the denomination of DPRL. This denomination was subsequently replaced by the currently used

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9 See Stefik, 'Shifting the Possible […]', op. cit., p. 140.

10 *Ibidem*, pp. 145-46.

expression "eXtensible Rights Markup Language" (XrML).[11] This new denomination witnesses the translation of the original DPRL into the syntax of the eXtensible Markup Language (XML) set out by the World Wide Web Consortium (known under the acronym of W3C) for the primary purpose to facilitate the sharing of data across different systems, particularly systems connected via the Internet.[12] Both the DPRL and the XrML technologies were developed and patented after years of research at Xerox's PARC.

In response to a call for proposals delivered by the Motion Picture Experts Group (MPEG), a working group established under the shield of the International Organization for Standardization (ISO), the new owner of the Xerox technologies (*i.e.*, ContentGuard) proposed the adoption of the XrML for the setting of a universally recognised REL standard.[13] As a result of this initiative, in December 2001 ContentGuard's XrML was selected as the basis for the development of the MPEG-21 REL standard.[14] This process of standardisation has culminated in the formation of an ISO standard of Rights Expression Language.

As from early 2004, the MPEG-21 (officially known as "ISO/IEC 21000-5:2004") has been approved as an ISO standard and has been endorsed by companies such as IBM, Universal Music Group, Reuters, Microsoft, Intel, Philips, Panasonic as well as major content owner organisations such as the Motion Picture Association of America (MPAA) and the Recording Industry Association of America (RIAA), as active participants.[15] Of particular relevance is the endorsement of the quasi-monopolist on the world market for personal computer operating systems, Microsoft, which has expressed its intention to integrate the MPEG-21/XrLM standard into its potentially ubiquitous DRM technology (*i.e.*, Windows Media Rights Manager).[16] The strategic interest of Microsoft in this standard technology was recently evidenced by its acquisition of the ownership of ContentGuard in joint venture with Time Warner and Thomson in March 2005.[17]

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11 See http://www.xrml.org/index.asp.

12 See http://www.w3.org/XML/.

13 See http://www.chiariglione.org/mpeg. MPEG is a working group of the ISO (http://www.iso.org) in charge of the development of standards for coded representation of digital audio and video. This working group specified the widely adopted standards of data compression and encoding known as "MPEG-1" and "MPEG-2".

14 See MPEG-21 Overview v.5, at: http://www.chiariglione.org/mpeg/standards/mpeg-21. The MPEG describes its REL as follows: "The REL is intended to provide flexible, interoperable mechanisms to support transparent and augmented use of digital resources in publishing, distributing, and consuming of digital movies, digital music, electronic books, broadcasting, interactive games, computer software and other creations in digital form, in a way that protects digital content and honours the rights, conditions, and fees specified for digital contents. It is also intended to support specification of access and use controls for digital content in cases where financial exchange is not part of the terms of use, and to support exchange of sensitive or private digital content."

15 See http://www.xrml.org/xrml_endorsers.asp.

16 See http://www.microsoft.com/windows/windowsmedia/howto/articles/drmarchitecture. aspx.

17 See http://www.microsoft.com/presspass/press/2005/mar05/03-15ContentGuardPR. mspx.

C. Intellectual property protection of DRM technology components

DRM technologies were defined earlier as a compound of technologies including encryption and management devices. To give shape to a certain DRM system, the maker of each system needs to choose between alternative, specific technologies that carry out functions such as digital rights expression, data compression, encoding and transmission, and communication between hardware and software that adopt the same DRM system. Each of these devices may be subject to patent protection, considering that they are very often the fruit of costly research programs funded by private corporations. Examples of patent protection can be found at several layers of the technological chain which permits DRM systems to exist and operate.

C1. Patent protection of RELs

The aforementioned case of MPEG-21, which developed as a *de facto* REL standard using the proprietary format of ContentGuard's XrLM, is a paramount example of how the use of DRM technologies by content traders and media players manufacturers is subject to the licensing power of the patent holders over system components. The recent acquisition of ContentGuard Holdings, the world leader on the market for DRM technologies, by a joint venture of giants from the industries of software (*i.e.*, Microsoft), content (*i.e.*, Time Warner), and hardware and media players (*i.e.*, Thomson), demonstrates to what extent the blocking, exclusionary power conferred by patented DRM standard components on the fast-growing markets for copyrighted digital works is considered crucial.

C2. Patent protection of audio/video encoding technologies

Another DRM-related standard device which is subject to patent protection, and which is consequently not freely available to the content and information technology industries, is the audio/video coding technology known as "MPEG-4", which is a development of the former compression standards known as MPEG-1 and MPEG-2.[18] These encoding standards (which include the well-known "MP3" format used mostly by unauthorised file-sharers on peer-to-peer networks) were developed by the contribution of two dozens of companies under the supervision of the MPEG and approved as international standards by the ISO. The latest MPEG-4, in particular, is a standard used primarily to compress audio and video digital data.[19] Introduced in late 1998, MPEG-4 is the designation for a group of audio and video coding standards and related technology agreed upon by the MPEG.

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[18] See the entries "MPEG-1" and "MPEG-2" at http://www.wikipedia.org.

[19] See Overview of the MPEG-4 Standard: http://www.chiariglione.org/mpeg/standards/mpeg-4/mpeg-4.htm

The uses for the MPEG-4 standard are web (streaming media) and CD distribution, conversational (videophone) and broadcast television, all of which benefit from compressing the audio-video stream. MPEG-4 has absorbed many of the features of MPEG-1 and MPEG-2 and other related standards, adding new features including the possibility of supporting externally specified DRM systems.

The fact that MPEG-4 is a *proprietary* technology means that, although software to create and play back MPEG-4 audio and video files may be readily available, a licence is needed to use it legally in the architecture of DRM systems. Patents covering this encoding standard are claimed by multiple holders, which gathered up in the patent pool known as "MPEG Licensing Authority" to provide a one-stop shop for companies using this standard.[20] However, this licensing activity was recently suspended due to much uncertainty arising about the list of companies owning patents covering the technology.[21] Evidence of such uncertainty is given by the patent infringements recently claimed by AT&T Corporation, which is not part of the MPEG-4 patent pool, against several companies including Apple Computer, CyberLink, DivX, InterVideo, *etc*. AT&T warned these companies that the use of the MPEG-4 video technology without its authorisation was infringing a number of patents related to video compression, which AT&T said are an essential component of this standard technology.[22]

C3. Patent protection of communication protocols

For DRM systems to run on all trusted computer systems where content traders want digital works to be distributed and used, computers need to adopt certain application programming interfaces (so-called "APIs"). An API is the interface that a computer system, library or application provides in order to allow requests for services to be made of it by other computer programmes, and/or to allow data to be exchanged between them.[23] One of the primary purposes of an API is to describe how to access a set of functions. For instance, a computer programme can (and often must) use its operating system's API to allocate memory and access files. In the same way as many types of systems and applications that implement APIs (*e.g.*, graphics systems, databases, networks, web services, *etc*), DRM systems may turn out to be accessible and usable only via a particular API. For instance, this is the case of the DRM system created and implemented by Apple Computer on the complementary products of its online music platform. Thanks to patented APIs, Apple's DRM system ("Fairplay") enables a secure transfer of content from the iTunes Music Store to the customers' personal computer (equipped

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20 See http://www.mpegla.com/index1.cfm. The purpose of the MPEG-4 Patent Portfolio Licence is that of enabling companies using this standard to obtain access to essential MPEG-4 patents owned by many patent holders in a single transaction rather than negotiating direct licences with each of them individually.

21 See http://www.mpegla.com/m4s/

22 For more information, see 'AT&T Warns Apple, Others, of Patent Infringement', *PC Magazine*, 9.2.2006, available at http://www.pcmag.com.

23 See the entry "Application programming interface" (API) at: http://www.wikipedia.org.

with the iTunes media player), and from the personal computer to the well-known iPod portable media player. In this way, DRM-protected music downloads cannot be legally transferred out of Apple's platform without using Apple's proprietary APIs. This example shows that patented communication protocols have the consequence of making the possibility of accessing DRM-protected materials subject to the licensing power of the patent holder over the protocols.

D. The advent of "trusted computing" platforms

D1. The notion of 'Trusted Computing' (TC)

Today's industrial development of rights management technologies shows that the picture drawn few years ago by Mark Stefik about the possibility of using trusted systems for the purpose to make digital works perfectly excludable and manageable has become more than a theoretical setting. The most important novelty in this field is, by far, the development of the concept of "Trusted Computing" (TC). This expression refers to private initiatives such as the Trusted Computing Platform Alliance (TCPA), established in 1999 by leading firms in the software, hardware and content industries (*e.g.*, Compaq, Hewlett Packard, IBM, Intel, Microsoft, Sony and Sun Microsystems).

In April 2003, TCPA's project was incorporated into a bigger not-for-profit organisation whose creation was promoted by the same group of stakeholders with the denomination of "Trusted Computing Group" (TCG).[24]

As explained by Anderson:

"[I]in this context, 'trusted' means that software running on a machine can be trusted by third parties, who can verify that a program running on a machine with which they are communicating has not been modified by the machine's owner. Programs will also be able to communicate securely with each other, and with their authors […]".[25]

Even if TC platforms do not provide all the necessary technical elements required for DRM systems, the idea of TC can be viewed as an attempt to transpose and develop the logic of DRM technology into hardware architectures. The mission statement of the TCG asserts that the main goal of TC mechanisms is that of protecting data security by creating a standard for a trusted hardware computing platform.[26] Nonetheless, TC platforms can be shaped so as to perform digital rights

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[24] See http://www.trustedcomputinggroup.org. For now the TCG has 125 members, including component vendors, software developers, systems vendors and network and infrastructure companies.

[25] See Anderson, ''Trusted Computing' and Competition Policy', op. cit., p. 36.

[26] See http://www.trustedcomputinggroup.org. As reported by the mission statement of the TCG, the primary goal of trusted computing is "to help users protect their information assets (data, passwords, keys, *etc*) from compromise due to external software attack and physical theft." The organisation aims "to develop, define, and promote open

management tasks. Indeed, by enabling functions such as the secure attestation of the state of a computing platform, the creation of trusted computer identities and the provision of protected storage, TC mechanisms have the potential to enable control over the conditions of access to and use of data stored and transmitted across hardware, software, peripherals and mobile devices which adopt the same trusted specifications.

What distinguishes TC platforms from DRM technology is that, to ensure trust between third parties wishing to securely transfer data one another (*e.g.*, emails, corporate documents, *etc*), the former rely on a much more pervasive presence of monitoring and reporting devices than DRM systems do. For instance, the set of trusted specifications developed by the TCG includes a Trusted Platform Module (TPM) used in personal computers and other systems; a software interface specification to enable application development for systems using the TPM; a Trusted Server specification; and a specification called Trusted Network Connect to enable protection of the network. Other work groups are addressing storage, peripherals, mobile devices and other aspects of the trusted enterprise.[27]

As critically pointed out by Anderson, the TCG project proposes a re-design of the personal computer hardware in which a hardware security component, known among technologists as "Fritz-chip", monitors what software and hardware are running on a machine.[28] Fritz-chip is a nickname for the hardware component of the software-execution monitoring system that the TCG indicates as TPM.[29] The Fritz chips installed into different machines can communicate one with another and play the role of certifiers assuring third parties that the user's machine is the machine that the user claims it to be, and that this machine is running the software that the user claim it to be.[30] The presence of hardware security components on all machines and applications that support certain TC platform specifications empow-

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standards for hardware-enabled trusted computing and security technologies, including hardware building blocks and software interfaces, across multiple platforms, peripherals, and devices. TCG specifications will enable more secure computing environments without compromising functional integrity, privacy, or individual rights."

27 See https://www.trustedcomputinggroup.org/about/faq/.

28 See Anderson, ''Trusted Computing' and Competition Policy', op. cit., p. 36. The above-mentioned nickname refers to former U.S. Senator Ernest "Fritz" Hollings, who sponsored the adoption of the Consumer Broadband and Digital Television Promotion Act, which aimed at mandating the inclusion of such a chip in every computer. See the entry "Fritz chip" at http://www.wikipedia.org.

29 The TCG defines TPM as follows: "The TPM is a microcontroller that stores keys, passwords and digital certificates. It typically is affixed to the motherboard of a PC. It potentially can be used in any computing device that requires these functions. The nature of this silicon ensures that the information stored there is made more secure from external software attack and physical theft. Security processes, such as digital signature and key exchange, are protected through the secure TCG subsystem. Access to data and secrets in a platform could be denied if the boot sequence is not as expected. Critical applications and capabilities such as secure email, secure web access and local protection of data are thereby made much more secure."
See http://www.trustedcomputinggroup.org/about/faq/.

30 See Anderson, ''Trusted Computing' and Competition Policy', op. cit., p. 36.

ers content creators to maintain some control over their digital works, regardless of where the works may subsequently move. This is a consequence of the fact that, by requiring installation of security components (such as the TPM) on personal computers and other devices, TC technology ends up removing effective control of a machine from its owner.

The removal of control can be effectively achieved because trusted platforms need to adopt cryptographic keys to allow the user's hardware, software and data to be certified in terms of identity and authenticity in respect of third parties. Given that, under the trusted platform models that have been developed until now, the certifying parties owing and managing cryptographic keys are either the content owners (*e.g.*, movie, music, software distributors) or developers of particular TC applications (*e.g.*, a media player), the risk that the end-user's machine may be "locked-in" in a particular TC platform is very high. Obviously, the extent to which the owner of a personal computer may be deprived of control over his or her hardware and applications depends largely on the architecture of each trusted platform. For instance, considering that privacy is a necessary element of a trusted system and that the user's privacy is inevitably restricted by the operation of monitoring and reporting components, the TCG assures that its model of trusted platform leaves the system owner with the ability to choice whether to opt-in and use the trusted subsystem or to preserve the machine's openness.[31]

D2. The case of Microsoft: toward integration between DRM and TC systems

According to different tastes of supporters and opponents of trusted platforms, the letter T of the acronym TC has been read alternatively as "trustworthy" or "treacherous". For instance, Microsoft prefers the former denomination because it emphasises that any content or application running on a trusted computer can be certified, in terms of user's security, by its legitimate owner.[32] This certification process is ensured by the operation of the TPM containing the Fritz chip, which receives encrypted data from the content or software distributor and decrypts it by means of a key that is downloaded automatically from a server under the control of the content owner or the software vendor. Opponents such as Richard Stallman of the Free Software Foundation, instead, claimed that "treacherous" computing would be a more appropriate name for a technology that will inevitably deprive computer users of control over their machines.[33] According to Stallman, this technology is specifically designed to make sure that the machine will systematically disobey its user. Indeed, each "trusted" hardware includes digital encryption and

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[31] See http://www.trustedcomputinggroup.org/about/faq/.

[32] See Anderson, ''Trusted Computing' and Competition Policy', op. cit., p. 36; Bill Gates, *Trustworthy Computing*, Executive E-mail, 18 July 2002, available at: http://www.microsoft.com/mscorp/execmail/2002/07-18twc.asp.

[33] See Stallman, 'Can you trust your computer?', available at http://www.gnu.org/philosophy/can-you-trust.html

signature devices whose keys are kept secret from the hardware owner, so that personal computers will stop from functioning as general-purpose computers.[34] Under this pervasively restrictive communication system, Stallman argued, every operation may require explicit permission, with the consequence that sharing unauthorised data would become impossible, at least with encrypted content acquired by companies that implement TC mechanisms.[35]

With the advent of TC platforms, moreover, another fanciful Stallman's prediction has come true. As considered earlier, Stallman is the author of a science fiction tale (set in 2047) that depicts a future world in which the exercise of the rights to access and read digitised information is kept under the strict control of central licensing "authorities".[36] Under today's TC platforms, this picture comes out of that science fiction setting and enters everyday life. The TC platform implemented by Microsoft as from the launch on the market of the Windows Server 2003 work group operating system had the potential to eliminate unlicensed software directly.[37] By means of this system, owners of proprietary software making available their programmes for Microsoft's platform were enabled to monitor which other programs end-users could run, which documents or data they could access, and what programmes they could pass them to. After having been installed into each computer network, trusted applications supporting Microsoft's platform were programmed to continually download new authorization rules through the websites of the respective software owners, so that those rules could be automatically imposed on the user's work or programme.[38] This online monitoring activity was allowed by the operation of Microsoft's TPM, which registered and maintained a list of the hardware and system components mounted on each trusted machine. In the meanwhile, Microsoft developed a very similar TC platform to be implemented into a future version of its (almost ubiquitous) personal computer operating system (*i.e.*, Windows). This platform was originally called Palladium and now it is known as Next-Generation Secure Computing Base (NGSCB). The content industry has welcomed this new Microsoft project because it will allow them to support stronger DRM technologies.

In the last years, Microsoft has developed its proprietary DRM technology with a view to bundling it with its proprietary media player (*i.e.*, Windows Media Player) and integrating it into the new NGSCB platform. While pursuing this vertical integration strategy, Microsoft has initially developed and improved its own

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34 See Stallmank, 'Can You Trust Your Computer?', op. cit.

35 *Ibidem*.

36 See Stallman, 'The Right to Read', op. cit.: see §1.5., see *supra*.

37 See Anderson, ''Trusted Computing' and Competition Policy', op. cit., p. 37.

38 Anderson, ''Trusted Computing' and Competition Policy', op. cit., p. 37, explained that Microsoft's Windows Server 2003 inverted the system by which trusted machines were programmed in order to deliver through the Internet hardware and software information that enabled the above-mentioned monitoring system. Whereas, in original trusted platforms, control was exerted "from the bottom up through the TC hardware", the Windows Server platform was designed so that monitoring took place "from the top" (*i.e.*, from websites under the software and content owners' control) "down through the applications".

Windows Media Rights Manager system. As disclosed by a Microsoft's scientist, the main purpose of this DRM system was that of providing owners of digital media supporting the Microsoft platform with the technical opportunity to treat the consumer as *both* a content user and the one that content owners want to protect their content from.[39] More recently, the position of Microsoft in the field of DRM technologies was strengthened by the acquisition of joint ownership of the world leader company on the market for DRM solutions (*i.e.*, ContentGuard). Together with Time Warner and Thomson, Microsoft has consequently acquired joint ownership of ContentGuard's patent portfolio, which includes foundational DRM technology such as the XrML format that is used by today's international standard of REL (*i.e.*, MPEG-21).

The strengthened position of Microsoft following this acquisition raised competition concerns especially in the European Union. In August 2004, after having been noticed under the EU Merger Regulation[40] about a joint venture established by Microsoft and Time Warner for the acquisition and governance of ContentGuard, the European Commission decided not to immediately authorise (and to assess in more depth) this operation.[41] The Commission expressed the concern that the operation might have created or strengthened Microsoft's "already leading position" in the DRM solutions market:

> "Under Microsoft's and Time Warner's joint ownership […] ContentGuard may have both the incentive and the ability to use its IPR portfolio to put Microsoft's rivals in the DRM solutions market at a competitive disadvantage. This joint acquisition could also slow down the development of open interoperability standards. As such, this would allow the DRM solutions market to "tip" towards the current leading provider, Microsoft."[42]

Following the Commission's objections, the shareholding structure and governing rules of ContentGuard were significantly modified. The Commission considered that Microsoft, Time Warner and the new stakeholder Thomson each held a one third stake and, in the absence of stockholder voting agreements, none of them had control over ContentGuard.[43] In reviewing whether the transaction involving Thomson would fall under the EU Merger Regulation, the Commission concluded that, through the conjunction of Thomson's acquisition of an equity stake, and of changes in ContentGuard's governance structure, no shareholder could exert con-

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39 See Pruneda, 'Windows Media Technologies: Using Windows Media Rights Manager to Protect and Distribute Digital Media', *MSDN Magazine,* December 2001 ("DRM Security"), available at: http://msdn.microsoft.com/msdnmag/issues/01/12/drm/.

40 Council Regulation 139/2004/EC on the control of concentrations between undertakings, OJ L 24, 29.01.2004.

41 See Case No. COMP/M. 3445 Microsoft/Time Warner/Content Guard/JV.

42 See Press Office of the Commission of the European Communities, *Commission opens in-depth investigation into Microsoft/Time Warner/Content Guard JV*, Press Release IP/04/1044, 25 August 2004, available at http://europa.eu.int/rapid/searchAction.do.

43 See Press Office of the Commission of the European Communities, *Mergers: Microsoft and Time Warner abandon acquisition of control in ContentGuard as Thomson purchases a one third stake*, Press Release, IP/05/295, 15 March 2005, available at http://europa.eu.int/rapid/searchAction.do.

trol over ContentGuard.[44] Therefore, this transaction was deemed not to be subject to EU merger rules so that the involved companies could withdraw their notification under the Merger Regulation.

44 *Ibidem*.

Appendix II - Examples of National Transposition of Article 6(4) of the Infosoc Directive

The following table summaries in a chronological order how a few national legislations that are mentioned in the book transposed Article 6(4) of the InfoSoc Directive. The following table overviews some of the most interesting and recent (*e.g.*, Spain's and France's) implementation of the legal infrastructure aimed at preserving copyright exceptions from the operation of technological protection measures. The different sections of the table can be read as follows:

- The "Member States" column lists the selected Member States and the acts by which they implemented the InfoSoc Directive;
- The "Preserved exceptions" column shows how the concerned legislators interpreted the list of exceptions regarding the end-user that Article 6(4) intended to protect from technical restrictions;
- The "Private copying" column shows whether and how these Member States exercised the option left by the second sub-paragraph of Article 6(4) for the inclusion of the private copying exception into the set of privileged (*i.e.*, preserved) exceptions;
- The "*Ad hoc* Authority" column evidences the establishment or the preexistence of *ad hoc* authorities that supervise (or govern) administrative or judicial proceedings aimed at enforcing rights and duties provided by Article 6(4);
- The "Administrative or judicial remedies" column, finally, shows the legal techniques by which the examined legislations gave shape to the legal mechanism safeguarding the enforceability of certain users' acts.

Member State	Preserved exceptions	Private copying	*Ad hoc* Authority	Administrative or judicial remedies
Denmark (Danish Copyright Act of 17 December 2002)	Reproduction within archives, libraries and museums Production of anthologies for educational use Use of works of fine art in critical or scientific presentations Reproduction for visually handicapped and hearing-impaired persons	Not included	Copyright Licence Tribunal (see the new §75d(1))	The Copyright Licence Tribunal can order the copyright holder to provide the user with the means to benefit from the exceptions. These means may either an analogue copy of the work or codes, keys, equipment for decryption, *etc*. If the right holder does not comply with the Tribunal's order within 4 weeks, the user is entitled to circumvent the technical measure.
Greece (Law 3057/2002, which amended the Greek Copyright Act, *i.e.*, Law 2121/1993)	Reproduction for private use on paper or any similar medium Reproduction for teaching purposes Reprography within libraries and archives Use for the benefit of people with disability	Not included	Mediators selected from a list drawn up by the Copyright Organisation Court of Appeals of Athens	Right-holders and third parties benefiting from the exceptions may request the assistance of one or more mediators selected from the list of mediators drawn up by the Copyright Organisation. The mediators make recommendations to the parties. If no party objects within one month from the forwarding of the recommendation, all parties are considered to have accepted the recommendation. Otherwise, it is upon the Court of Appeal of Athens to settle the dispute.

Member State	Preserved exceptions	Private copying	*Ad hoc* Authority	Administrative or judicial remedies
Italy (Law N.68/2003, which amended the Copyright Act, *i.e.*, Law 633/1941)	Reproduction for private use on paper or similar media Reprography within publicly accessible libraries, museums and archives Reproduction, quotation and communication to the public of the copyrighted work for purposes of review, teaching and scientific research, provided that teaching and research uses have non-commercial ends and serve illustration purposes only Reproduction and communication to the public of certain uses of the copyrighted work made by people with disabilities (See Art.71-quinquies, §2,Copyright Act)	Art.71-sexies, §4, provides that, notwithstanding the application of technological measures, the natural person who acquires lawfully a copy of the work, or who has lawful access to it, shall be able to carry out a private copy, even if analogical only, for personal use, on condition that this possibility does not conflict with a normal exploitation of the work and does not determine an unreasonable prejudice to the right-holder.	Copyright Committee	Where associations of right-holders and beneficiaries of the preserved exceptions fail to find an agreement for the making available of the means to exercise such exceptions, each association can ask the Copyright Committee to undertake the mandatory procedure of conciliation created under Art.194-bis of the Copyright Act. These proceedings foresee the appointment of a special commission that aims at proposing a solution for the settlement of disputes. If the conciliation fails, each party is entitled to undertake ordinary civil proceedings after 90 days from the undertaking of the conciliation procedure (Art.71-quinquies and 194-bis of the Copyright Act).

Member State	Preserved exceptions	Private copying	*Ad hoc* Authority	Administrative orjudicial remedies
Germany (German Copyright Act of 9 September 1965, amended on 10 September 2003)	Exceptions concerning: People with disabilities Collections for school or educational use School broadcasts and works made available for teaching and research Inclusion of the work in personal files, if and to the extent that reproduction for this purpose is necessary and not done for commercial purposes Personal use in teaching or for examinations. (See §95b(1))	The exception of private copying may be enforced against technological protection measures, but only in respect of: Reproduction on paper or similar media by photographic techniques Reproduction for personal academic use Therefore, the right-holder is not obliged to support the user if he or she wants to make a *digital* private copy of the work. (See §53(1))	There is no special authority	Firstly, it is provided that contractual agreements that override right holders' obligations in respect of guaranteed exceptions are null and void (see §95 (b)(1)). Secondly, right-holders who do not make the necessary means available according to §95(b)(1) face an administrative fine of up to € 50.000,00 (see §111(a)(1) no. 2). No special remedy is provided

Member State	Preserved exceptions	Private copying	*Ad hoc* Authority	Administrative or judicial remedies
United Kingdom (Copyright and Related Rights Regulations 2003 of 3 October 2003, which amended Chapter III of the UK Copyright, Designs and Patent Act 1988)	Research and private study Things done for purposes of instruction or examination (See §296ZE; Schedule 5A, Part I)	§296ZE (Schedule 5A, Part I) provides that the private copying exception shall be expressly preserved in respect of: Copying made by a visually impaired person wishing to have access to a single personal copy of the protected work (see §31A) Multiple copies for visually impaired persons (see §31B) Recording for purposes of time-shifting in respect of broadcasts (see §70)	Secretary of State	Either the beneficiary of a preserved exception or a person being a representative of a class of persons prevented from carrying out a permitted act may issue notices of complaints to the Secretary of State. Where the Secretary of State finds that no subsisting voluntary measure or agreement provides the user with means to carry out one of the preserved exceptions, the Secretary may order the owner of the rights in the work to which the measure has been applied to make available to the complainant the means of carrying out the permitted act to the extent necessary to benefit from that act. Failure to comply with his direction will amount to a breach of statutory duty (see §296ZE).
Netherlands	Educational uses Uses by disabled people	Private copying is included among the exceptions for which the Minister of Justice may issue orders in respect of rightholders.	Minister of Justice	Government orders (*i.e.*, Decrees by the Minister of Justice) may establish rules obliging the author or his successor in title to provide the user of a literary, scientific or artistic work with the means necessary to benefit from guaranteed exceptions (see Art. 29(a)(4)).

Member State	Preserved exceptions	Private copying	Ad hoc Authority	Administrative or judicial remedies
Belgium (Law of 22 May 2005, which amended the Copyright Act of 30 June 1994)	Production of anthologies Reproduction for private use on paper or any similar medium Reproduction for purposes of teaching and scientific research Reproduction and communication to the public in respect of uses carried out by people with disabilities	Art. 79bis, §2, al.2, provides that the King, on deliberation of the Council of Ministers, may add the exception of private copying on any medium other than paper to the list of guaranteed exceptions.	President of the Court of First Instance	Belgian law states the imperative (*i.e.*, mandatory) character of copyright exceptions explicitly (see Art.23-bis of the Belgian Copyright Act). Where copyright holders do not comply with the obligation to take adequate and voluntary measures in a reasonable time (see Art.79bis, §2), the President of the Court of First Instance can ascertain the violation of this obligation and order right-holders to make the means to benefit from the preserved exceptions available (see Art. 87bis).

Member State	Preserved exceptions	Private copying	*Ad hoc* Authority	Administrative or judicial remedies
Spain (Law N.23/2006 of 7 July 2006, which amended the Intellectual Property Act of 12 April 1996)	Exceptions to the benefit of people with disabilities Reproduction, distribution and communication to the public of short excerpts from copyrighted works for purposes of teaching illustration, as provided by Art. 32(2) (see Art. 161(1). It is noteworthy that Art. 161(1) does not include and preserve the exception provided under Art.32(1), which allows quotation for teaching and research purposes. To the contrary, it is expressly provided that acts of extraction and quotation for purposes of teaching and scientific research shall be preserved from the operation of technical measures in respect of databases protected by copyright and the so-called *sui generis* right (see Art. 161(1)(d) and (g)).	Art. 161(1)(a) provides that the exception of private copying (see Art. 31(2)) shall be included in the list of preserved exceptions. However, the Spanish Government is entitled to modify, by means of decree, the regime of *digital* private copying by removing it from the range of preserved exceptions in so far as this solution is suggested by consideration of social needs and technological developments (See the First Additional Provision). Consistently with this provision, the Government is also entitled to phase out copyright levies in respect of equipment, hardware and media that prove not to serve purposes of private copying (see Art. 25(7), letter d).	Intellectual Property Commission, whose tasks may include, on determination of (future) Government decrees, the modification and development of functions of arbitration, mediation, determination of compensation fees in respect of private copying; and the resolution of disputes between collecting societies, user associations and broadcasters (see the Second Additional Provision).	Where right-holders and/or agreements between interested parties fail to make available the means to exercise the exceptions preserved by Art. 161(1), the beneficiaries of such exceptions may undertake civil proceedings. Moreover, when the beneficiary of a preserved exception is a consumer under the meaning of the 1984 Spanish Consumer Protection Act, civil proceedings may be undertaken, on behalf of the consumer, by qualified entities (*i.e.*, consumer associations) that are entitled to take action in court for the enforcement of consumer protection regulations (see Art. 161(2)).

Member State	Preserved exceptions	Private copying	*Ad hoc* Authority	Administrative or judicial remedies
France (Law N. 2006-961 of 1 August 2006, which amended the Intellectual Property Code)	Quotation for purposes of review, critic, teaching, and research Performance and reproduction of excerpts from protected works for teaching and research ends, provided that these uses are addressed to school audiences and do not pursue any commercial purpose Personal consultation of works within libraries and archives Uses by non-profit entities and institutions that provide publicly accessible establishments (*e.g.*, libraries, educational institutions) where copyrighted works are made available to people with disabilities Extraction and re-use of protected databases to enable uses by people with disabilities within publicly accessible establishments Extraction and re-use of a substantial part of protected databases for purposes of teaching illustration and scientific research, on condition that these uses are carried out to the benefit of school audiences and have no commercial ends (see Art. L.331-8)	Art.L.331-8, §1, provides that reproduction for strictly personal use shall be included into the circle of preserved exceptions in respect of both copyright and related rights. It is noteworthy that the Authority for the Regulation of Technical Measures is entitled to determine the *minimum number* of personal copies that technical measures must allow to make. This determination shall take place while taking into account the *nature* of the protected work and its possible *types of exploitation* enabled by technical measures (Art.L.331-8, §3).	Art. L.331-17 established the Authority for the Regulation of Technical Measures, which is defined as an independent, administrative body.	The new provision of Art. L.335-1, §6, of the French Intellectual Property Code (enacted by Art.13 of Law N.2006-961) provides that technical measures cannot lawfully oppose copyright exceptions as well as usage rights conferred by the right-holders through contract. Beneficiaries of preserved exceptions can commence proceedings before the Authority for the Regulation of Technical Measures where such exceptions should turn out to be technically restricted. If the Authority fails to propose a solution agreed upon by both the beneficiary of an exception and the copyright owner, the Authority is entitled to either dismiss the claim or order the copyright owner to make available the means allowing the beneficiary to carry out the preserved use (see Articles L.331-12 to L.331-16).

Appendix III - 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 (Official Journal L 167, 22.06.2001, p.10)

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Articles 47(2), 55 and 95 thereof,

Having regard to the proposal from the Commission (1),

Having regard to the opinion of the Economic and Social Committee (2),

Acting in accordance with the procedure laid down in Article 251 of the Treaty (3),

Whereas:

(1) The Treaty provides for the establishment of an internal market and the institution of a system ensuring that competition in the internal market is not distorted. Harmonisation of the laws of the Member States on copyright and related rights contributes to the achievement of these objectives.

(2) The European Council, meeting at Corfu on 24 and 25 June 1994, stressed the need to create a general and flexible legal framework at Community level in order to foster the development of the information society in Europe. This requires, inter alia, the existence of an internal market for new products and services. Important Community legislation to ensure such a regulatory framework is already in place or its adoption is well under way. Copyright and related rights play an important role in this context as they protect and stimulate the development and marketing of new products and services and the creation and exploitation of their creative content.

(3) The proposed harmonisation will help to implement the four freedoms of the internal market and relates to compliance with the fundamental principles of law and especially of property, including intellectual property, and freedom of expression and the public interest.

(4) A harmonised legal framework on copyright and related rights, through increased legal certainty and while providing for a high level of protection of intellectual property, will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry, both in the area of content provision and information technology and more generally across a wide range of industrial and cultural sectors. This will safeguard employment and encourage new job creation.

(5) Technological development has multiplied and diversified the vectors for creation, production and exploitation. While no new concepts for the protection of intellectual property are needed,

the current law on copyright and related rights should be adapted and supplemented to respond adequately to economic realities such as new forms of exploitation.

(6) Without harmonisation at Community level, legislative activities at national level which have already been initiated in a number of Member States in order to respond to the technological challenges might result in significant differences in protection and thereby in restrictions on the free movement of services and products incorporating, or based on, intellectual property, leading to a refragmentation of the internal market and legislative inconsistency. The impact of such legislative differences and uncertainties will become more significant with the further development of the information society, which has already greatly increased transborder exploitation of intellectual property. This development will and should further increase. Significant legal differences and uncertainties in protection may hinder economies of scale for new products and services containing copyright and related rights.

(7) The Community legal framework for the protection of copyright and related rights must, therefore, also be adapted and supplemented as far as is necessary for the smooth functioning of the internal market. To that end, those national provisions on copyright and related rights which vary considerably from one Member State to another or which cause legal uncertainties hindering the smooth functioning of the internal market and the proper development of the information society in Europe should be adjusted, and inconsistent national responses to the technological developments should be avoided, whilst differences not adversely affecting the functioning of the internal market need not be removed or prevented.

(8) The various social, societal and cultural implications of the information society require that account be taken of the specific features of the content of products and services.

(9) Any harmonisation of copyright and related rights must take as a basis a high level of protection, since such rights are crucial to intellectual creation. Their protection helps to ensure the maintenance and development of creativity in the interests of authors, performers, producers, consumers, culture, industry and the public at large. Intellectual property has therefore been recognised as an integral part of property.

(10) If authors or performers are to continue their creative and artistic work, they have to receive an appropriate reward for the use of their work, as must producers in order to be able to finance this work. The investment required to produce products such as phonograms, films or multimedia products, and services such as "on-demand" services, is considerable. Adequate legal protection of intellectual property rights is necessary in order to guarantee the availability of such a reward and provide the opportunity for satisfactory returns on this investment.

(11) A rigorous, effective system for the protection of copyright and related rights is one of the main ways of ensuring that European cultural creativity and production receive the necessary resources and of safeguarding the independence and dignity of artistic creators and performers.

(12) Adequate protection of copyright works and subject-matter of related rights is also of great importance from a cultural standpoint. Article 151 of the Treaty requires the Community to take cultural aspects into account in its action.

(13) A common search for, and consistent application at European level of, technical measures to protect works and other subject-matter and to provide the necessary information on rights are essential insofar as the ultimate aim of these measures is to give effect to the

principles and guarantees laid down in law.

(14) 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.

(15) The Diplomatic Conference held under the auspices of the World Intellectual Property Organisation (WIPO) in December 1996 led to the adoption of two new Treaties, the "WIPO Copyright Treaty" and the "WIPO Performances and Phonograms Treaty", dealing respectively with the protection of authors and the protection of performers and phonogram producers. Those Treaties update the international protection for copyright and related rights significantly, not least with regard to the so-called "digital agenda", and improve the means to fight piracy world-wide. The Community and a majority of Member States have already signed the Treaties and the process of making arrangements for the ratification of the Treaties by the Community and the Member States is under way. This Directive also serves to implement a number of the new international obligations.

(16) Liability for activities in the network environment concerns not only copyright and related rights but also other areas, such as defamation, misleading advertising, or infringement of trademarks, and is addressed horizontally in Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the internal market ("Directive on electronic commerce")(4), which clarifies and harmonises various legal issues relating to information society services including electronic commerce. This Directive should be implemented within a timescale similar to that for the implementation of the Directive on electronic commerce, since that Directive provides a harmonised framework of principles and provisions relevant inter alia to important parts of this Directive. This Directive is without prejudice to provisions relating to liability in that Directive.

(17) It is necessary, especially in the light of the requirements arising out of the digital environment, to ensure that collecting societies achieve a higher level of rationalisation and transparency with regard to compliance with competition rules.

(18) This Directive is without prejudice to the arrangements in the Member States concerning the management of rights such as extended collective licences.

(19) The moral rights of rightholders should be exercised according to the legislation of the Member States and the provisions of the Berne Convention for the Protection of Literary and Artistic Works, of the WIPO Copyright Treaty and of the WIPO Performances and Phonograms Treaty. Such moral rights remain outside the scope of this Directive.

(20) This Directive is based on principles and rules already laid down in the Directives currently in force in this area, in particular Directives 91/250/EEC(5), 92/100/EEC(6), 93/83/EEC (7), 93/98/EEC(8) and 96/9/EC(9), and it develops those principles and rules and places them in the context of the information society. The provisions of this Directive should be without prejudice to the provisions of those Directives, unless otherwise provided in this Directive.

(21) This Directive should define the scope of the acts covered by the reproduction right with regard to the different beneficiaries. This should be done in conformity with the acquis communautaire. A broad definition of these acts is needed to ensure legal certainty within the internal market.

(22) The objective of proper support for the dissemination of culture must not be achieved by sacrificing strict protection of rights or by tolerating illegal

forms of distribution of counterfeited or pirated works.

(23) This Directive should harmonise further the author's right of communication to the public. This right should be understood in a broad sense covering all communication to the public not present at the place where the communication originates. This right should cover any such transmission or retransmission of a work to the public by wire or wireless means, including broadcasting. This right should not cover any other acts.

(24) The right to make available to the public subject-matter referred to in Article 3(2) should be understood as covering all acts of making available such subject-matter to members of the public not present at the place where the act of making available originates, and as not covering any other acts.

(25) The legal uncertainty regarding the nature and the level of protection of acts of on-demand transmission of copyright works and subject-matter protected by related rights over networks should be overcome by providing for harmonised protection at Community level. It should be made clear that all rightholders recognised by this Directive should have an exclusive right to make available to the public copyright works or any other subject-matter by way of interactive on-demand transmissions. Such interactive on-demand transmissions are characterised by the fact that members of the public may access them from a place and at a time individually chosen by them.

(26) With regard to the making available in on-demand services by broadcasters of their radio or television productions incorporating music from commercial phonograms as an integral part thereof, collective licensing arrangements are to be encouraged in order to facilitate the clearance of the rights concerned.

(27) The mere provision of physical facilities for enabling or making a communication does not in itself amount to communication within the meaning of this Directive.

(28) Copyright protection under this Directive includes the exclusive right to control distribution of the work incorporated in a tangible article. The first sale in the Community of the original of a work or copies thereof by the rightholder or with his consent exhausts the right to control resale of that object in the Community. This right should not be exhausted in respect of the original or of copies thereof sold by the rightholder or with his consent outside the Community. Rental and lending rights for authors have been established in Directive 92/100/EEC. The distribution right provided for in this Directive is without prejudice to the provisions relating to the rental and lending rights contained in Chapter I of that Directive.

(29) The question of exhaustion does not arise in the case of services and on-line services in particular. This also applies with regard to a material copy of a work or other subject-matter made by a user of such a service with the consent of the rightholder. Therefore, the same applies to rental and lending of the original and copies of works or other subject-matter which are services by nature. Unlike CD-ROM or CD-I, where the intellectual property is incorporated in a material medium, namely an item of goods, every on-line service is in fact an act which should be subject to authorisation where the copyright or related right so provides.

(30) The rights referred to in this Directive may be transferred, assigned or subject to the granting of contractual licences, without prejudice to the relevant national legislation on copyright and related rights.

(31) A fair balance of rights and interests between the different categories of rightholders, as well as between the different categories of rightholders and users of protected subject-matter must be safeguarded. The existing exceptions and limitations to the rights as set out by

the Member States have to be reassessed in the light of the new electronic environment. Existing differences in the exceptions and limitations to certain restricted acts have direct negative effects on the functioning of the internal market of copyright and related rights. Such differences could well become more pronounced in view of the further development of transborder exploitation of works and cross-border activities. In order to ensure the proper functioning of the internal market, such exceptions and limitations should be defined more harmoniously. The degree of their harmonisation should be based on their impact on the smooth functioning of the internal market.

(32) This Directive provides for an exhaustive enumeration of exceptions and limitations to the reproduction right and the right of communication to the public. Some exceptions or limitations only apply to the reproduction right, where appropriate. This list takes due account of the different legal traditions in Member States, while, at the same time, aiming to ensure a functioning internal market. Member States should arrive at a coherent application of these exceptions and limitations, which will be assessed when reviewing implementing legislation in the future.

(33) The exclusive right of reproduction should be subject to an exception to allow certain acts of temporary reproduction, which are transient or incidental reproductions, forming an integral and essential part of a technological process and carried out for the sole purpose of enabling either efficient transmission in a network between third parties by an intermediary, or a lawful use of a work or other subject-matter to be made. The acts of reproduction concerned should have no separate economic value on their own. To the extent that they meet these conditions, this exception should include acts which enable browsing as well as acts of caching to take place, including those which enable transmission systems to function efficiently, provided that the intermediary does not modify the information and does not interfere with the lawful use of technology, widely recognised and used by industry, to obtain data on the use of the information. A use should be considered lawful where it is authorised by the rightholder or not restricted by law.

(34) Member States should be given the option of providing for certain exceptions or limitations for cases such as educational and scientific purposes, for the benefit of public institutions such as libraries and archives, for purposes of news reporting, for quotations, for use by people with disabilities, for public security uses and for uses in administrative and judicial proceedings.

(35) In certain cases of exceptions or limitations, rightholders should receive fair compensation to compensate them adequately for the use made of their protected works or other subject-matter. When determining the form, detailed arrangements and possible level of such fair compensation, account should be taken of the particular circumstances of each case. When evaluating these circumstances, a valuable criterion would be the possible harm to the rightholders resulting from the act in question. In cases where rightholders have already received payment in some other form, for instance as part of a licence fee, no specific or separate payment may be due. The level of fair compensation should take full account of the degree of use of technological protection measures referred to in this Directive. In certain situations where the prejudice to the rightholder would be minimal, no obligation for payment may arise.

(36) The Member States may provide for fair compensation for rightholders also when applying the optional provisions on exceptions or limitations which do not require such compensation.

(37) Existing national schemes on reprography, where they exist, do not create major barriers to the internal market.

Member States should be allowed to provide for an exception or limitation in respect of reprography.

(38) Member States should be allowed to provide for an exception or limitation to the reproduction right for certain types of reproduction of audio, visual and audio-visual material for private use, accompanied by fair compensation. This may include the introduction or continuation of remuneration schemes to compensate for the prejudice to rightholders. Although differences between those remuneration schemes affect the functioning of the internal market, those differences, with respect to analogue private reproduction, should not have a significant impact on the development of the information society. Digital private copying is likely to be more widespread and have a greater economic impact. Due account should therefore be taken of the differences between digital and analogue private copying and a distinction should be made in certain respects between them.

(39) When applying the exception or limitation on private copying, Member States should take due account of technological and economic developments, in particular with respect to digital private copying and remuneration schemes, when effective technological protection measures are available. Such exceptions or limitations should not inhibit the use of technological measures or their enforcement against circumvention.

(40) Member States may provide for an exception or limitation for the benefit of certain non-profit making establishments, such as publicly accessible libraries and equivalent institutions, as well as archives. However, this should be limited to certain special cases covered by the reproduction right. Such an exception or limitation should not cover uses made in the context of on-line delivery of protected works or other subject-matter. This Directive should be without prejudice to the Member States' option to derogate from the exclusive public lending right in accordance with Article 5 of Directive 92/100/EEC. Therefore, specific contracts or licences should be promoted which, without creating imbalances, favour such establishments and the disseminative purposes they serve.

(41) When applying the exception or limitation in respect of ephemeral recordings made by broadcasting organisations it is understood that a broadcaster's own facilities include those of a person acting on behalf of and under the responsibility of the broadcasting organisation.

(42) When applying the exception or limitation for non-commercial 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 organisational structure and the means of funding of the establishment concerned are not the decisive factors in this respect.

(43) It is in any case important for the Member States to adopt all necessary measures to facilitate access to works by persons suffering from a disability which constitutes an obstacle to the use of the works themselves, and to pay particular attention to accessible formats.

(44) 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.

(45) The exceptions and limitations referred to in Article 5(2), (3) and (4) should not, however, prevent the definition of contractual relations designed to ensure fair compensation for the rightholders insofar as permitted by national law.

(46) Recourse to mediation could help users and rightholders to settle disputes. The Commission, in cooperation with the Member States within the Contact Committee, should undertake a study to consider new legal ways of settling disputes concerning copyright and related rights.

(47) Technological development will allow rightholders to make use of technological measures designed to prevent or restrict acts not authorised by the rightholders of any copyright, rights related to copyright or the sui generis right in databases. The danger, however, exists that illegal activities might be carried out in order to enable or facilitate the circumvention of the technical protection provided by these measures. In order to avoid fragmented legal approaches that could potentially hinder the functioning of the internal market, there is a need to provide for harmonised legal protection against circumvention of effective technological measures and against provision of devices and products or services to this effect.

(48) Such legal protection should be provided in respect of technological measures that effectively restrict acts not authorised by the rightholders of any copyright, rights related to copyright or the sui generis right in databases without, however, preventing the normal operation of electronic equipment and its technological development. Such legal protection implies no obligation to design devices, products, components or services to correspond to technological measures, so long as such device, product, component or service does not otherwise fall under the prohibition of Article 6. Such legal protection should respect proportionality and should not prohibit those devices or activities which have a commercially significant purpose or use other than to circumvent the technical protection. In particular, this protection should not hinder research into cryptography.

(49) The legal protection of technological measures is without prejudice to the application of any national provisions which may prohibit the private possession of devices, products or components for the circumvention of technological measures.

(50) Such a harmonised legal protection does not affect the specific provisions on protection provided for by Directive 91/250/EEC. In particular, it should not apply to the protection of technological measures used in connection with computer programs, which is exclusively addressed in that Directive. It should neither inhibit nor prevent the development or use of any means of circumventing a technological measure that is necessary to enable acts to be undertaken in accordance with the terms of Article 5(3) or Article 6 of Directive 91/250/EEC. Articles 5 and 6 of that Directive exclusively determine exceptions to the exclusive rights applicable to computer programs.

(51) The legal protection of technological measures applies without prejudice to public policy, as reflected in Article 5, or public security. Member States should promote voluntary measures taken by rightholders, including the conclusion and implementation of agreements between rightholders and other parties concerned, to accommodate achieving the objectives of certain exceptions or limitations provided for in national law in accordance with this Directive. In the absence of such voluntary measures or agreements within a reasonable period of time, Member States should take appropriate measures to ensure that rightholders provide beneficiaries of such exceptions or limitations with

appropriate means of benefiting from them, by modifying an implemented technological measure or by other means. However, in order to prevent abuse of such measures taken by rightholders, including within the framework of agreements, or taken by a Member State, any technological measures applied in implementation of such measures should enjoy legal protection.

(52) When implementing an exception or limitation for private copying in accordance with Article 5(2)(b), Member States should likewise promote the use of voluntary measures to accommodate achieving the objectives of such exception or limitation. If, within a reasonable period of time, no such voluntary measures to make reproduction for private use possible have been taken, Member States may take measures to enable beneficiaries of the exception or limitation concerned to benefit from it. Voluntary measures taken by rightholders, including agreements between rightholders and other parties concerned, as well as measures taken by Member States, do not prevent rightholders from using technological measures which are consistent with the exceptions or limitations on private copying in national law in accordance with Article 5(2)(b), taking account of the condition of fair compensation under that provision and the possible differentiation between various conditions of use in accordance with Article 5(5), such as controlling the number of reproductions. In order to prevent abuse of such measures, any technological measures applied in their implementation should enjoy legal protection.

(53) The protection of technological measures should ensure a secure environment for the provision of interactive on-demand services, in such a way that members of the public may access works or other subject-matter from a place and at a time individually chosen by them. Where such services are governed by contractual arrangements, the first and second subparagraphs of Article 6(4) should not apply. Non-interactive forms of online use should remain subject to those provisions.

(54) Important progress has been made in the international standardisation of technical systems of identification of works and protected subject-matter in digital format. In an increasingly networked environment, differences between technological measures could lead to an incompatibility of systems within the Community. Compatibility and interoperability of the different systems should be encouraged. It would be highly desirable to encourage the development of global systems.

(55) Technological development will facilitate the distribution of works, notably on networks, and this will entail the need for rightholders to identify better the work or other subject-matter, the author or any other rightholder, and to provide information about the terms and conditions of use of the work or other subject-matter in order to render easier the management of rights attached to them. Rightholders should be encouraged to use markings indicating, in addition to the information referred to above, inter alia their authorisation when putting works or other subject-matter on networks.

(56) There is, however, the danger that illegal activities might be carried out in order to remove or alter the electronic copyright-management information attached to it, or otherwise to distribute, import for distribution, broadcast, communicate to the public or make available to the public works or other protected subject-matter from which such information has been removed without authority. In order to avoid fragmented legal approaches that could potentially hinder the functioning of the internal market, there is a need to provide for harmonised legal protection against any of these activities.

(57) Any such rights-management information systems referred to above may, depending on their design, at the

same time process personal data about the consumption patterns of protected subject-matter by individuals and allow for tracing of on-line behaviour. These technical means, in their technical functions, should incorporate privacy safeguards in accordance with Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and the free movement of such data(10).

(58) Member States should provide for effective sanctions and remedies for infringements of rights and obligations as set out in this Directive. They should take all the measures necessary to ensure that those sanctions and remedies are applied. The sanctions thus provided for should be effective, proportionate and dissuasive and should include the possibility of seeking damages and/or injunctive relief and, where appropriate, of applying for seizure of infringing material.

(59) In the digital environment, in particular, the services of intermediaries may increasingly be used by third parties for infringing activities. In many cases such intermediaries are best placed to bring such infringing activities to an end. Therefore, without prejudice to any other sanctions and remedies available, rightholders should have the possibility of applying for an injunction against an intermediary who carries a third party's infringement of a protected work or other subject-matter in a network. This possibility should be available even where the acts carried out by the intermediary are exempted under Article 5. The conditions and modalities relating to such injunctions should be left to the national law of the Member States.

(60) The protection provided under this Directive should be without prejudice to national or Community legal provisions in other areas, such as industrial property, data protection, conditional access, access to public documents, and the rule of media exploitation chronology, which may affect the protection of copyright or related rights.

(61) In order to comply with the WIPO Performances and Phonograms Treaty, Directives 92/100/EEC and 93/98/EEC should be amended,

HAVE ADOPTED THIS DIRECTIVE:

CHAPTER I

OBJECTIVE AND SCOPE

Article 1

Scope

1. This Directive concerns the legal protection of copyright and related rights in the framework of the internal market, with particular emphasis on the information society.

2. Except in the cases referred to in Article 11, this Directive shall leave intact and shall in no way affect existing Community provisions relating to:

(a) the legal protection of computer programs;

(b) rental right, lending right and certain rights related to copyright in the field of intellectual property;

(c) copyright and related rights applicable to broadcasting of programmes by satellite and cable retransmission;

(d) the term of protection of copyright and certain related rights;

(e) the legal protection of databases.

CHAPTER II

RIGHTS AND EXCEPTIONS

Article 2

Reproduction right

Member States shall provide for the exclusive right to authorise or prohibit direct or indirect, temporary or permanent reproduction by any means and in any form, in whole or in part:

(a) for authors, of their works;

(b) for performers, of fixations of their performances;

(c) for phonogram producers, of their phonograms;

(d) for the producers of the first fixations of films, in respect of the original and copies of their films;

(e) for broadcasting organisations, of fixations of their broadcasts, whether

those broadcasts are transmitted by wire or over the air, including by cable or satellite.

Article 3

Right of communication to the public of works and right of making available to the public other subject-matter

1. Member States shall provide authors with the exclusive right to authorise or prohibit any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access them from a place and at a time individually chosen by them.

2. Member States shall provide for the exclusive right to authorise or prohibit the making available to the public, by wire or wireless means, in such a way that members of the public may access them from a place and at a time individually chosen by them:

(a) for performers, of fixations of their performances;

(b) for phonogram producers, of their phonograms;

(c) for the producers of the first fixations of films, of the original and copies of their films;

(d) for broadcasting organisations, of fixations of their broadcasts, whether these broadcasts are transmitted by wire or over the air, including by cable or satellite.

3. The rights referred to in paragraphs 1 and 2 shall not be exhausted by any act of communication to the public or making available to the public as set out in this Article.

Article 4

Distribution right

1. Member States shall provide for authors, in respect of the original of their works or of copies thereof, the exclusive right to authorise or prohibit any form of distribution to the public by sale or otherwise.

2. The distribution right shall not be exhausted within the Community in respect of the original or copies of the work, except where the first sale or other transfer of ownership in the Community of that object is made by the rightholder or with his consent.

Article 5

Exceptions and limitations

1. Temporary acts of reproduction referred to in Article 2, which are transient or incidental [and] an integral and essential part of a technological process and whose sole purpose is to enable:

(a) a transmission in a network between third parties by an intermediary, or

(b) a lawful use

of a work or other subject-matter to be made, and which have no independent economic significance, shall be exempted from the reproduction right provided for in Article 2.

2. Member States may provide for exceptions or limitations to the reproduction right provided for in Article 2 in the following cases:

(a) in respect of reproductions on paper or any similar medium, effected by the use of any kind of photographic technique or by some other process having similar effects, with the exception of sheet music, provided that the rightholders receive fair compensation;

(b) in respect of reproductions on any medium made by a natural person for private use and for ends that are neither directly nor indirectly commercial, on condition that the rightholders receive fair compensation which takes account of the application or non-application of technological measures referred to in Article 6 to the work or subject-matter concerned;

(c) in respect of specific acts of reproduction made by publicly accessible libraries, educational establishments or museums, or by archives, which are not for direct or indirect economic or commercial advantage;

(d) in respect of ephemeral recordings of works made by broadcasting organisations by means of their own fa-

cilities and for their own broadcasts; the preservation of these recordings in official archives may, on the grounds of their exceptional documentary character, be permitted;

(e) in respect of reproductions of broadcasts made by social institutions pursuing non-commercial purposes, such as hospitals or prisons, on condition that the rightholders receive fair compensation.

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

(a) use for the sole purpose of illustration for teaching or scientific research, as long as the source, including the author's name, is indicated, unless this turns out to be impossible and to the extent justified by the non-commercial purpose to be achieved;

(b) 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;

(c) reproduction by the press, communication to the public or making available of published articles on current economic, political or religious topics or of broadcast works or other subject-matter of the same character, in cases where such use is not expressly reserved, and as long as the source, including the author's name, is indicated, or use of works or other subject-matter in connection with the reporting of current events, to the extent justified by the informatory purpose and as long as the source, including the author's name, is indicated, unless this turns out to be impossible;

(d) quotations for purposes such as criticism or review, provided that they relate to a work or other subject-matter which has already been lawfully made available to the public, that, unless this turns out to be impossible, the source, including the author's name, is indicated, and that their use is in accordance with fair practice, and to the extent required by the specific purpose;

(e) use for the purposes of public security or to ensure the proper performance or reporting of administrative, parliamentary or judicial proceedings;

(f) use of political speeches as well as extracts of public lectures or similar works or subject-matter to the extent justified by the informatory purpose and provided that the source, including the author's name, is indicated, except where this turns out to be impossible;

(g) use during religious celebrations or official celebrations organised by a public authority;

(h) use of works, such as works of architecture or sculpture, made to be located permanently in public places;

(i) incidental inclusion of a work or other subject-matter in other material;

(j) use for the purpose of advertising the public exhibition or sale of artistic works, to the extent necessary to promote the event, excluding any other commercial use;

(k) use for the purpose of caricature, parody or pastiche;

(l) use in connection with the demonstration or repair of equipment;

(m) use of an artistic work in the form of a building or a drawing or plan of a building for the purposes of reconstructing the building;

(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;

(o) use in certain other cases of minor importance where exceptions or limitations already exist under national law, provided that they only concern analogue uses and do not affect the free circulation of goods and services within the Community, without prejudice to the

other exceptions and limitations contained in this Article.

4. Where the Member States may provide for an exception or limitation to the right of reproduction pursuant to paragraphs 2 and 3, they may provide similarly for an exception or limitation to the right of distribution as referred to in Article 4 to the extent justified by the purpose of the authorised act of reproduction.

5. The exceptions and limitations provided for in paragraphs 1, 2, 3 and 4 shall only be applied in certain special cases which do not conflict with a normal exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder.

CHAPTER III

PROTECTION OF TECHNOLOGICAL MEASURES AND RIGHTS-MANAGEMENT INFORMATION

Article 6

Obligations as to technological measures

1. Member States shall provide adequate legal protection against the circumvention of any effective technological measures, which the person concerned carries out in the knowledge, or with reasonable grounds to know, that he or she is pursuing that objective.

2. Member States shall provide adequate legal protection against the manufacture, import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of devices, products or components or the provision of services which:

(a) are promoted, advertised or marketed for the purpose of circumvention of, or

(b) have only a limited commercially significant purpose or use other than to circumvent, or

(c) are primarily designed, produced, adapted or performed for the purpose of enabling or facilitating the circumvention of,

any effective technological measures.

3. For the purposes of this Directive, the expression 'technological measures' means any technology, device or component that, in the normal course of its operation, is designed to prevent or restrict acts, in respect of works or other subject-matter, which are not authorised by the rightholder of any copyright or any right related to copyright as provided for by law or the sui generis right provided for in Chapter III of Directive 96/9/EC. Technological measures shall be deemed 'effective' where the use of a protected work or other subject-matter is controlled by the rightholders through application of an access control or protection process, such as encryption, scrambling or other transformation of the work or other subject-matter or a copy control mechanism, which achieves the protection objective.

4. Notwithstanding the legal protection provided for in paragraph 1, in the absence of voluntary measures taken by rightholders, including agreements between rightholders and other parties concerned, Member States shall take appropriate measures to ensure that rightholders make available to the beneficiary of an exception or limitation provided for in national law in accordance with Article 5(2)(a), (2)(c), (2)(d), (2)(e), (3)(a), (3)(b) or (3)(e) the means of benefiting from that exception or limitation, to the extent necessary to benefit from that exception or limitation and where that beneficiary has legal access to the protected work or subject-matter concerned.

A Member State may also take such measures in respect of a beneficiary of an exception or limitation provided for in accordance with Article 5(2)(b), unless reproduction for private use has already been made possible by rightholders to the extent necessary to benefit from the exception or limitation concerned and in accordance with the provisions of Article 5(2)(b) and (5), without preventing rightholders from adopting adequate measures regarding

the number of reproductions in accordance with these provisions.

The technological measures applied voluntarily by rightholders, including those applied in implementation of voluntary agreements, and technological measures applied in implementation of the measures taken by Member States, shall enjoy the legal protection provided for in paragraph 1.

The provisions of the first and second subparagraphs shall not apply to works or other subject-matter 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.

When this Article is applied in the context of Directives 92/100/EEC and 96/9/EC, this paragraph shall apply mutatis mutandis.

Article 7

Obligations concerning rights-management information

1. Member States shall provide for adequate legal protection against any person knowingly performing without authority any of the following acts:

(a) the removal or alteration of any electronic rights-management information;

(b) the distribution, importation for distribution, broadcasting, communication or making available to the public of works or other subject-matter protected under this Directive or under Chapter III of Directive 96/9/EC from which electronic rights-management information has been removed or altered without authority,

if such person knows, or has reasonable grounds to know, that by so doing he is inducing, enabling, facilitating or concealing an infringement of any copyright or any rights related to copyright as provided by law, or of the *sui generis* right provided for in Chapter III of Directive 96/9/EC.

2. For the purposes of this Directive, the expression 'rights-management information' means any information provided by rightholders which identifies the work or other subject-matter referred to in this Directive or covered by the *sui generis* right provided for in Chapter III of Directive 96/9/EC, the author or any other rightholder, or information about the terms and conditions of use of the work or other subject-matter, and any numbers or codes that represent such information.

The first subparagraph shall apply when any of these items of information is associated with a copy of, or appears in connection with the communication to the public of, a work or other subject-matter referred to in this Directive or covered by the *sui generis* right provided for in Chapter III of Directive 96/9/EC.

CHAPTER IV

COMMON PROVISIONS

Article 8

Sanctions and remedies

1. Member States shall provide appropriate sanctions and remedies in respect of infringements of the rights and obligations set out in this Directive and shall take all the measures necessary to ensure that those sanctions and remedies are applied. The sanctions thus provided for shall be effective, proportionate and dissuasive.

2. Each Member State shall take the measures necessary to ensure that rightholders whose interests are affected by an infringing activity carried out on its territory can bring an action for damages and/or apply for an injunction and, where appropriate, for the seizure of infringing material as well as of devices, products or components referred to in Article 6(2).

3. Member States shall ensure that rightholders are in a position to apply for an injunction against intermediaries whose services are used by a third party to infringe a copyright or related right.

Article 9

Continued application of other legal provisions

This Directive shall be without prejudice to provisions concerning in particu-

lar patent rights, trade marks, design rights, utility models, topographies of semi-conductor products, type faces, conditional access, access to cable of broadcasting services, protection of national treasures, legal deposit requirements, laws on restrictive practices and unfair competition, trade secrets, security, confidentiality, data protection and privacy, access to public documents, the law of contract.

Article 10

Application over time

1. The provisions of this Directive shall apply in respect of all works and other subject-matter referred to in this Directive which are, on 22 December 2002, protected by the Member States' legislation in the field of copyright and related rights, or which meet the criteria for protection under the provisions of this Directive or the provisions referred to in Article 1(2).

2. This Directive shall apply without prejudice to any acts concluded and rights acquired before 22 December 2002.

Article 11

Technical adaptations

1. Directive 92/100/EEC is hereby amended as follows:

(a) Article 7 shall be deleted;

(b) Article 10(3) shall be replaced by the following:

"3. The limitations shall only be applied in certain special cases which do not conflict with a normal exploitation of the subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder."

2. Article 3(2) of Directive 93/98/EEC shall be replaced by the following:

"2. The rights of producers of phonograms shall expire 50 years after the fixation is made. However, if the phonogram has been lawfully published within this period, the said rights shall expire 50 years from the date of the first lawful publication. If no lawful publication has taken place within the period mentioned in the first sentence, and if the phonogram has been lawfully communicated to the public within this period, the said rights shall expire 50 years from the date of the first lawful communication to the public.

However, where through the expiry of the term of protection granted pursuant to this paragraph in its version before amendment by 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(11) the rights of producers of phonograms are no longer protected on 22 December 2002, this paragraph shall not have the effect of protecting those rights anew."

Article 12

Final provisions

1. Not later than 22 December 2004 and every three years thereafter, the Commission shall submit to the European Parliament, the Council and the Economic and Social Committee a report on the application of this Directive, in which, *inter alia*, on the basis of specific information supplied by the Member States, it shall examine in particular the application of Articles 5, 6 and 8 in the light of the development of the digital market. In the case of Article 6, it shall examine in particular whether that Article confers a sufficient level of protection and whether acts which are permitted by law are being adversely affected by the use of effective technological measures. Where necessary, in particular to ensure the functioning of the internal market pursuant to Article 14 of the Treaty, it shall submit proposals for amendments to this Directive.

2. Protection of rights related to copyright under this Directive shall leave intact and shall in no way affect the protection of copyright.

3. A contact committee is hereby established. It shall be composed of representatives of the competent authorities of the Member States. It shall be chaired

by a representative of the Commission and shall meet either on the initiative of the chairman or at the request of the delegation of a Member State.

4. The tasks of the committee shall be as follows:

(a) to examine the impact of this Directive on the functioning of the internal market, and to highlight any difficulties;

(b) to organise consultations on all questions deriving from the application of this Directive;

(c) to facilitate the exchange of information on relevant developments in legislation and case-law, as well as relevant economic, social, cultural and technological developments;

(d) to act as a forum for the assessment of the digital market in works and other items, including private copying and the use of technological measures.

Article 13

Implementation

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 22 December 2002. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

2. Member States shall communicate to the Commission the text of the provisions of domestic law which they adopt in the field governed by this Directive.

Article 14

Entry into force

This Directive shall enter into force on the day of its publication in the *Official Journal of the European Communities*.

Article 15

Addressees

This Directive is addressed to the Member States.

Done at Brussels, 22 May 2001.

For the European Parliament
The President
N. Fontaine
For the Council
The President
M. Winberg

(1) OJ C 108, 7.4.1998, p. 6 and OJ C 180, 25.6.1999, p. 6.

(2) OJ C 407, 28.12.1998, p. 30.

(3) Opinion of the European Parliament of 10 February 1999 (OJ C 150, 28.5.1999, p. 171), Council Common Position of 28 September 2000 (OJ C 344, 1.12.2000, p. 1) and Decision of the European Parliament of 14 February 2001 (not yet published in the Official Journal). Council Decision of 9 April 2001.

(4) OJ L 178, 17.7.2000, p. 1.

(5) Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs (OJ L 122, 17.5.1991, p. 42). Directive as amended by Directive 93/98/EEC.

(6) Council Directive 92/100/EEC of 19 November 1992 on rental right and lending right and on certain rights related to copyright in the field of intellectual property (OJ L 346, 27.11.1992, p. 61). Directive as amended by Directive 93/98/EEC.

(7) Council Directive 93/83/EEC of 27 September 1993 on the coordination of certain rules concerning copyright and rights related to copyright applicable to satellite broadcasting and cable retransmission (OJ L 248, 6.10.1993, p. 15).

(8) Council Directive 93/98/EEC of 29 October 1993 harmonising the term of protection of copyright and certain related rights (OJ L 290, 24.11.1993, p. 9).

(9) Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases (OJ L 77, 27.3.1996, p. 20).

(10) OJ L 281, 23.11.1995, p. 31.

(11) OJ L 167, 22.6.2001, p. 10.

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