Digital Rights Management and Consumer Acceptability

A Multi-Disciplinary Discussion of Consumer Concerns and Expectations

State of the Art Report - First Supplement

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INDICARE

The Informed Dialogue about Consumer Acceptability of DRM Solutions in Europe

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eContent

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INDICARE Project

INDICARE – The Informed Dialogue about Consumer Acceptability of Digital Rights Management Solutions – addresses problems pointed out in the eContent work programme 2003-2004: "There has been little attention to the consumer side of managing rights. Questions remain open as to the level of consumer acceptability of rights management solutions. Interface and functionality of systems, as well as policy issues linked to privacy and access to information should be the investigated. The consumer question also involves the easiness of access, the legitimate use of content and business models and the easiness of access for disabled persons" (p. 19). In addition to consumer issues INDICARE addresses the user side, in particular concerns of creators and small and medium-size information providers.

INDICARE maintains an informed dialogue about consumer and user issues of DRM. Informed dialogue means that discussions are stimulated and informed by good quality input such as news information and profound analyses. Options for participation and more information are provided at the project website:

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- Berlecon Research GmbH, Berlin
- Institute for Information Law (IViR), University of Amsterdam
- Budapest University of Economics and Technology, SEARCH Laboratory

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Acronyms

3GSM	Third Generation System for Mobile Communications
A2K	Access To Knowledge
AAC	Advanced Audio Coding
AACS	Advanced Access Content System
AES	Advanced Encryption Standard
AGORA	Access to Global Online Research in Agriculture
ANSI	American National Standards Institute
BEUC	Bureau Européen des Unions de Consommateurs
CD	Compact Disc
CEN	Comité Européen de Normalisation/European Committee for Standardisation
CIPPIC	Canadian Internet Policy & Public Interest Clinic
CPCM	Copy Protection and Content Management
CPTECH	Consumer Project on Technology
DLNA	Digital Living Network Alliance
DMCA	Digital Millennium Copyright Act
DRM	Digital Rights Management
DVB	Digital Video Broadcasting
DVD	Digital Versatile Disc
EEA	European Economic Area
ECLG	European Consumer Law Group
EFF	Electronic Frontier Foundation
ENABLED	Enhanced Network Accessibility for the Blind and Visually Impaired
EUAIN	European Accessible Information Network
EUCD	European Copyright Directive
FAO	Food and Agriculture Organization in the United Nations
FLOSS	Free, Libre, Open Source Software
FTP	File Transfer Protocol
HDN	Home Digital Entertainment Networks
HINARI	Health InterNetwork Access to Research Initiative
ICT	Information and Communication Technologies
INASP	International Network for the Availability of Scientific Publication
IP	Intellectual Property
IPMP	Intellectual Property Management & Protection (MPEG)
IRC	Internet Relay Chat
ISSS	Information Society Standardisation System
IST	Information Society Technologies
ITU	International Telecommunications Union
MP3	Moving Picture Experts Group Layer 3-audio compression
MPEG	Moving Picture Expert Group
MPEG LA	MPEG Licensing Administration
OMA	Open Mobile Alliance
P2P	Peer-to-Peer
PII	Personally Identifiable Information
PC	Personal Computer
PDR	Personal Digital Recorder
PSP	PlayStation Portable
REL	Rights Expression Language
RNIB	Royal National Institute for the Blind
SCCR	WIPO Standing Committee on Copyright and Related Rights
SD Card	Secure Digital Card
TACD	TransAtlantic Consumer Dialogue

TCB	Trusted Computing Base
TCE	Trusted Computing Environment
TPM	Technological Protection Measure
TTP	Trusted Third Party
UFC	Union Fédérale des Consommateurs
UMD	Universal Media Disc
USI	Usage State Information
UrhG	Urhebberechts Gesetz
W3C	World Wide Web Consortium
WAI	Web Accessibility Initiative
WCAG	Web Content Accessibility Guidelines
WCT	WIPO Copyright Treaty
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMA	Windows Media Audio
WPPT	WIPO Phonograms and Performances Treaty
XrML	Extensible Rights Markup Language

1 Introduction

This is the first supplement to the INDICARE State-of-the-Art Report.[1] The INDICARE State-of-the-Art Report sought to provide a first overview of the social, technical, legal and economic discussion about Digital Rights Management (DRM) and consumer interests. It pinpointed the areas in which the need for more discussion and more experience is evident. It also identified a number of issues that need to be looked at more closely, such as the need for a joint dialogue, more involvement from consumer representatives and the need to learn about their interests and preferences, the need to explore the potential of consumer-friendly technologies and business models, and the need to improve the legal standing of consumers and clarify what fair DRM use is. The report does not aim so much at providing answers to what we consider pressing issues—the answers still need to be worked out—but at raising issues and providing input for an informed discussion.

The goal of this supplement is twofold. First, it responds to selected aspects of the comments we received on the report, most of which were published in INDICARE Monitor Articles. Commentators pointed out new developments in their countries, agreement, divergent opinions or flawed presentations, as well as controversial questions they felt were not mentioned in the first report or should be treated in more depth. The second goal of the supplement is to provide an update and report on new developments since the first State-of-the-Art Report was published in December 2004, and to determine if and how the "state of the art" has changed.

The INDICARE State-of-the-Art Report closely monitors the developments in the DRM sector and will continue to do so. The next update is planned for the beginning of 2006. In this way, we hope to provide a continuous and up-to-date platform for a common level of knowledge and understanding for what is largely an interdisciplinary discussion. The authors of this supplement are:

- Ulrich Riehm and Carsten Orwat, both from ITAS, wrote Chapter 2, Consumer Concerns.
- Margreet Groeneboom and Natali Helberger, both from IViR, wrote Chapter 3, Legal Aspects.
- Nicole Dufft from Berlecon Research is the author of Chapter 4, the Business Aspects.
- Kristof Kerény from the SEARCH Laboratory at the Department of Measurement and Information Systems (DMIS) of Budapest University of Technology and Economics (BUTE) contributed Chapter 5, the Technical Aspects.
- This supplement was edited by Natali Helberger, Institute for Information Law (IViR), who also wrote this introduction and the outlook.

Different resources were used, including in-house expertise, literature analyses, comments from experts on the first State-of-the-Art Report, ex-

[1] Helberger (2004b) (hereinafter "State-of-the-Art Report").

changing information with experts and consumer representatives, and input from industry players.

The authors would like to thank those who contributed to this supplement by responding to the report and sharing their views and expertise. Their engagement, comments, suggestions, encouragements and information deserve to be reported on first in this supplement. They clearly demonstrate that the issue of DRM and consumers is important and controversial, that lots of work still needs to be done, but that many excellent and committed experts have taken up the challenge.

Comments on this supplement and/or on the first State-of-the-Art Report are more than welcome and deemed valuable for the next update.

2 Consumer Concerns

2.1 Introduction

With the present supplement of the chapter "Consumer Concerns" of the State-of-the-Art Report we firstly would like to respond to comments by providing more details on the addressed topics. Secondly, we would like to add findings on new developments and arguments from ongoing discussions. For a closer consideration we selected three consumer issues:

- Concept of Authorized Domain (Section 2.2);
- Consumers with Disabilities (Section 2.3);
- International aspects of DRM and their potential impact on developing countries Section 2.4).

2.2 Authorized Domain

One of the consumer issues that raises discussion is the concept of the so-called "Authorized Domain", also known as "home digital entertainment networks" (HDEN), "personal private network", "personal area network", "home domain" or "digital home".[2] The concept of the Authorized Domain is considered in the following because it is also intensively discussed at the European level - especially by the High Level Group on DRM[3]. There, the concept is regarded as one of the important open cross-industry standards to reach interoperability between DRM systems, similar to standards of the Open Mobile Alliance (OMA) or the Moving Picture Experts Group (MPEG). The objective is to reach the "... proper overall functioning of all elements of interoperating systems."[4]

The Authorized Domain framework was introduced by the Digital Video Broadcasting (DVB) consortium to allow for interoperability among compliant consumer electronic devices in so-called "home content delivery networks" or "home networks". The Authorized Domain normally spans over home devices but also portable devices and cars "which are owned, rented or otherwise controlled by members of a single household."[5] With the advent of new digital consumer products, such as the personal digital recorder (PDR), and the option of digital copying without loss of quality, it is claimed to be necessary to use "Copy Protection and Content Management" (CPCM) systems to ensure a secure end-to-end distribution of digital content to consumer devices and to prevent unauthorized copying and "mass redistribution" of digital audio and video content.[6]

DRM-based content legally distributed to an Authorized Domain can be copied and moved within the domain and be transferred to other domains

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2 See also the work of the Digital Living Network Alliance (DLNA): http://www.dlna.org/.
3 HLG DRM (2004).
4 HLG DRM (2004), p. 9.
5 DVB (2004).
6 E.g. Hibbert, C. (2003); Vevers and Hibbert (2002).

only under the conditions the content distributor allows and that are managed by strict control mechanisms of DRM systems. To this end, so-called Usage State Information (USI), which contains the usage control information, is bound to the content. Currently, the details of what constitutes an Authorized Domain are under development.[7] For instance, it is unclear, how the registration of devices is managed and how much sovereignty to define a home network is left to consumers themselves, what information users are compelled to provide, how far online connections are required, which licensing organisations will emerge and what roles and authority they will have.

Per se, the effort to establish a certain degree of interoperability can be regarded as beneficial for consumers, compared to a situation where incompatible devices with proprietary DRM hinder consumers to use content on different devices and under the assumption that DRM systems would be needed for digital content distribution. As Bechtold brought in,

> "... authorized domain architectures have their own problems and they are not a perfect solution to translate copyright limitations into the digital realm. However, they are an example of a value-centred design process that attempts to take extra-technological values into account while a DRM architecture is designed."[8]
> "They are an example how engineers respond to consumer expectations and legal values enshrined in copyright laws."[9]

Among the problems of the Authorized Domain concept is the problematic definition of social entities as formulated by Doctorow:

> "With regard to 'authorized domain' and the idea that a cartel will set out devices that know what constitutes a household. In the DRM meetings I've attended where this is being implemented, the notion of an authorized domain is being driven by assumptions about what constitutes a family that are far from universal. It might be impossible for a child who is in joint custody to her parents to bring her videos from one parent's home to another. A family where one party travels too often may find its media fragmented and locked out of its devices. Divorce, marriage, custody – all of these are moving from the realm of the social contract to a determination made in secret by a cartel of content companies who are locking in all their views of what constitutes a valid household."[10]

Another problematic issue is the build-in of usage caps and limits that can be also seen as an intervention in consumer sovereignty. This takes place in situations in which definitions by external parties of how one can use one's belongings is least expected, namely in the private home.[11] Once again Doctorow:

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7 For different approaches of technical realisation see, for instance, Pestoni et al. (2004), van den Heuvel et al. (2002), Popescu et al. (2004) or Andreaux et al (2004).
8 Bechtold (2004).
9 Bechtold (2004).
10 Doctorow (2005).
11 See for similar critics Yoshida (2004).

> "Further to authorized domain: even within an authorized domain, the DRM systems envisioned will allow rights holders to restrict how you use the media you lawfully acquire. The authorized domain allows a rights holder to give you the flexibility to watch a movie anywhere in your household, but it does not require that the rights holder do so: already in the proposal for the authorized domain is the ability to limit viewing to a single device, or to cap the number of viewings, or to limit viewings to "local" devices (i.e., even though your authorized domain includes your car, a music company can still force you to buy music that only plays in your house, and you'll have to buy the same music over again for your car)."[12]

Furthermore, the handling of information about the content use in Authorized Domains is an unresolved privacy issue, for instance, to which degree personally identifiable information (PII) is required for transactions or produced in transactions and uses. Also the proposed revocation mechanism of compromised devices of an Authorized Domain raises privacy concerns, since it may need a continuous monitoring and identification of consumers' property by commercial actors.

In such home networks many players provide different devices which have many attributes that determine the options how consumers can access and use digital content. In the combined implementation of such attributes an exponential number of design options is possible. It is highly possible that in such complex environments there are results that frustrate consumers, for instance, an involved DRM system impede the use of privately produced content such as movies from the family, or one DRM system is less secure against external attacks. This risk is much higher in complex home network environments encompassing many devices with many more control variables and also more players with diverging interests than in "linear" DRM-based distribution models with a single vendor who may also possess the DRM technology.

A further question is how the inevitable central position of commercial actors who define Authorized Domains, compliant devices, and device requirements will result in possibilities to control the market entrance of new suppliers and, thus, influence the level of competition, product prices and product diversity as well as consumers' choice? It is also an open issue if manufacturers of open-source-based solutions are excluded from market entrance by certain specifications.

In conclusion, with regard to the many consumer issues which are touched by the Authorized Domain, one can demand that consumer organisations or other consumer representatives should be involved in the realisation and standardisation work to ensure that consumer needs are properly considered right from the beginning.

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[12] Doctorow (2005).

2.3 Consumers with Disabilities

In Chapter 3.9 of the INDICARE State-of-the-Art Report the main concerns of consumers with disabilities related to DRM were discussed. We didn't receive any critics or comments on this part of the report so we will just point to some further developments in the field of DRM and disabled persons. In the following we will address four topics:

- Content accessibility (Section 2.3.1);
- The implementation of the European Copyright Directive (EUCD)[13] in the European Member states (Section 2.3.2);
- A proposal for the implementation of copyright exceptions in DRM systems for disabled persons (Section 2.3.3); and finally we will draw your attention to
- Two recent surveys underway (Section 2.3.4).

2.3.1 Content Accessibility

As a starting point we refer to the four caveats with respect to accessibility put forward by Joe Clark, researcher and author on content accessibility: [14]

1. Digital rights management, as currently designed, will harm people with disabilities and others who rely on accessibility features.
2. DRM must need to specifically enable at least the same level of customer use of, reuse of, and tinkering with accessibility features that are enjoyed today.
3. DRM must be exempted for the process of producing captioning, audio description, subtitling, and dubbing, whether those producers are deemed "professional" or "amateur" by DRM licensors or anyone else.
4. DRM must not prevent legitimate, legal adaptations of copyrighted works for people with disabilities.

There is one particularity with digital content, DRM and people with disabilities. While normally DRM is about access and usage control, in the case of disabled people the manipulation of content for specific needs is much more important. The making of derivative works is in this context a real issue, think of transforming books into reading/audio books for blind persons or subtitling films for deaf people.

There is an established debate about content accessibility. Accessibility is a precondition for disabled persons to use content from any media type regardless of being secured by DRM or not. In other words DRM design should follow the guidelines of web accessibility and web accessibility guidelines should consider the special requirements of DRM systems.

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[13] Council 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, 22 June 2001, OJ L 167, p. 10 (hereinafter "European Copyright Directive (EUCD)").

[14] Clark (2003).

A recent survey from the beginning of 2005, directed to web developers, and conducted by the EU project ENABLED, showed that quite a large number of websites is not accessible. The survey showed that most web developers are not aware of this issue or lack the proper knowledge.[15]

To achieve greater awareness of this topic and to guide (web) content accessibility design there are important activities of several institutions from which we would like to highlight two. The Web Accessibility Initiative (WAI), established in the context of the World Wide Web Consortium (W3C), has released its working draft of Version 2 of the Web Content Accessibility Guidelines (WCAG). The comment period was extended by January 2005.[16] CEN, the European Committee for Standardization, and its Information Society Standardization System (ISSS) proposed an activity on Accessible Document Processing. A first Workshop should take place in May 2005. One key objective of this effort is to integrate accessibility components within the document management and publishing process rather than as an add-on. This activity is scheduled to run two years with a final meeting in spring 2007.[17]

2.3.2 Implementing the EU Copyright Directive

The Berkman Center for Internet and Society at Harvard Law School published a report on the ongoing implementation of the EU Copyright Directive (EUCD) in the EU member states.[18] Our interest here is on exceptions to copyright for disabled persons, which are included in Article 5(3)b of the EUCD. According to Gasser and Girsberger, a first group of countries, e.g. Denmark, Greece and the United Kingdom have integrated exceptions for disabled individuals in their national law. A second group, like Austria and The Netherlands, have decided to trust in market-forces and the "threat of regulation" and not to intervene legally at this point. A third group of countries (e.g. France[19], Finland, Spain, Sweden) has not yet implemented the EUCD. The situation remains to be quite complex and varies significantly from jurisdiction to jurisdiction.[20]

2.3.3 A Proposal to Implement Copyright Exceptions for Disabled People

Dominik Knopf, a researcher at the Institute of Information Law, Karlsruhe, is proposing a solution to integrate copyright exceptions in DRM systems.[21] One of his examples is the exception for disabled people in German law (§ 45 UrhG). Knopf makes four general points: he rejects the usual object-oriented DRM approach in favour of user-specific DRM; the DRM architecture includes a trusted third party (TTP) to secure privacy of consumers and to

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15 ENABLED (2005).
16 WAI (2004).
17 CEN/ISSS (2005).
18 Gasser and Girsberger (2004), see also Groenenboom (2005).
19 The French Draft on "author's and related rights" from November 2003 contains two exceptions, one on private copies and a second on handicapped people (Schöpfel 2004). It is not yet implemented.
20 Gasser and Girsberger (2004), p. 25.
21 Knopf (2005).

bear witness of the consumer's characteristics relevant for the copyright exemption including those for people with disabilities; the users need a hardware dongle for identification; and watermarks are the way to maintain the link between the consumer and the content he controls.

His scenario to include exceptions for disabled people in a DRM system is as follows: The TTP should be an institution, which has already access to information regarding the degree and the kind of the handicap of the consumer. This could be e.g. an insurance company or a public office. It has to identify the disabled individuals and to guarantee their status to the content vendor. The consumers buy the content and supply the TTP afterwards a certificate of the content provider which proves their legitimate purchase. After verifying this certificate the TTP asks the content owner for a copy of the content. This copy is then personalized to an anonymized ID by the vendor, resent to the TTP, which transfers it to the consumer in an accessible format or in a format enabled to be transformed in an accessible format by the consumer himself. In case of a copyright infringement, the TTP can resolve the anonymized ID to the personal data of the consumer.[22] It has to be noted that all these processes should be automated.

Whatever realistic this proposal is – Knopf discusses the problems and advantages of his approach in his article – it shows the way to come from complaints about the limitations of DRM systems for disabled people to a constructive discussion about solutions.

2.3.4 Recent Surveys on the Use of DRM Systems by Disabled Persons

There is little empirical knowledge about how Digital Rights Management is impeding access to information in the everyday life of people with disabilities. Recently two institutions have started surveys on this topic. The UK's Royal National Institute for the Blind is looking for examples of how DRM systems block access by blind or partially sighted people,[23] and the European Accessible Information Network (EUAIN), funded by the eInclusion thread of the European Commission's 6th framework IST programme, will start in April 2005 an online questionnaire about the use of DRMs in different countries throughout Europe and beyond. The purpose of this questionnaire is among others to look at current DRM and TPM practices and to examine how and why they can inhibit equitable access by print disabled people.[24]

We are looking forward with great interest to these studies and hope to present results in the INDICARE Monitor and to include them in the second update of the INDICARE State-of-the-Art Report.

2.4 International Aspects of DRM

In a reviewof the INDICARE State-of-the-Art Report from April 2005, the Consumer Project on Technology (CPTech) missed major international as-

[22] Knopf (2005).
[23] RNIB (2005).
[24] EUAIN (2005).

pects of DRM and especially the potential impact of DRM on developing countries. Manon Ress from CPTech pointed out, that DRM technologies had been addressed in various international fora. CPTech's members actively participate in various national and international forums about DRM and its implication for consumers. Manon Ress listed a number of examples of international fora that deal with DRM. Special emphasis should be given to the activities in the context of the World Intellectual Property Organization (WIPO) and its Copyright and Performance and Phonograms Treaties (WCT, WPPT) since 1995 (see Sections 3.4.2 and 3.5).[25] Furthermore, there are the American National Standards Institute (ANSI) the International Telecommunications Union, ITU-R Working Party 6M. Some organisations active in this field are, apart from CPTech, the Electronic Frontier Foundation (www.eff.org), the Open Knowledge Forum (www.okfn.org), IP Justice (www.ipjustice.org), the Union for the Public Domain (www.public-domain.org), Alternative Law Forum (www.altlawforum.org, Bangalore) and the Canadian Internet Policy & Public Interest Clinic (CIPPIC). European and US-based consumer groups such as the members of the TransAtlantic Consumer Dialogue (TACD.org) are also discussing DRMs and putting forward their concerns.[26]

We appreciate this comment by CPTech. Although the main focus of INDICARE is on consumer and user issues of DRM in the European context, we are aware that the international regulation framework by WIPO and other international organisations dealing with intellectual property is of high relevance for the national regulation too. So INDICARE will give this issue more attention than we did before.

In the following we pick up three issues related to DRM and developing countries:

- First the impact of the international scientific publishing system on developing countries (Section 2.4.1);
- Second the special chances of open source software for developing countries (Section 2.4.2); and
- third a short critical discussion of some open questions with regard to the concept of "public domain" in relation to the developing countries (Section 2.4.3).

2.4.1 Impact of International Scientific Publishing

Colin Darch[27] from the University of Cape Town presented some arguments against the "northern intellectual property rights regime". He argued that from the point of view of less-developed countries IP protection measures which are good for Northern content industries, i.e. mainly those from North America and Europe, may not necessarily be good for scholarly communication and knowledge production in the less-developed world. Darch

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[25] WIPO's Standing Committee on Copyright and Related Rights published a comprehensive study on "Current Developments in the field of Digital Rights Management" (Cunard et al. 2003).

[26] Ress (2005).

[27] Darch (2003).

fears that the new IP regimes and technical protection measures stifle creativity and technological innovation. Darch points to the unequal exchange between northern countries and the South. To give an example: While the globalized system of rewarding research is privileging publications in European and US journals, the access to these very expensive journals is prohibitive for the less developed world. Scientists from developing countries create less "marketable" knowledge and cultural content, because among other things of a less developed research infrastructure, and besides that their knowledge is often expropriated.

There are a few programmes supported by "big" science publishers like AGORA (Access to Global Online Research in Agriculture in conjunction with Food and Agriculture Organization in the United Nations (FAO)), HINARI (Health InterNetwork Access to Research Initiative in conjunction with WHO) or INASP (International Network for the Availability of Scientific Publication). They provide free or cheap access for universities and research institutions in the developing world to the huge scientific journal databases. One can argue that these programmes are only possible with some kind of technological access control and protection measures, exactly what we call DRM technologies. But these access supporting programmes are also door openers for the Northern system of IP commodification and scientific publishing in these countries.

2.4.2 The Role of Open Source Software

There is also an established debate on open source software (or free, libre, open source software – FLOSS) and its special importance for developing countries. Software can be subject to intellectual property which is often secured by technical measures similar to DRM systems. In contrast, Ghosh[28] points to the advantages of FLOSS in developing countries: they are enablers for growth because they are good learning tools in software development, they could be adapted to the special circumstances of these countries, which are quite different from the industrialised countries, and they are means to actively participate in the global ICT economy without spending a lot of money to international software firms and become depended from them.

Witten[29] argues that especially open source software for digital libraries could be one of the most useful applications for developing countries, since the software would facilitate establishment and maintenance. It is universally available, adaptable to requirements of these countries, empowers the people with essential skills and brings benefits in almost every other sphere of application. While computers per se are not a priority in these countries, Witten argues, simple, reliable access to practical information relevant to these basic needs – like health, agriculture, nutrition, hygiene, sanitation, and safe drinking water – certainly is. So "Digital Libraries provide perhaps

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[28] Gosh (2003).
[29] Witten (2004).

the first really compelling raison d'être for computing technology in the developing world."[30]

2.4.3 Open Questions Related to the Public Domain

The public domain is a critical issue in the debate on DRM and developing countries. The concept of public domain does not prevent others from commercialising contents that are in the public domain; everybody may use public domain content. But the financial and technological capacities to digitise the analogue cultural heritage of developing countries and to develop and market services are concentrated in the developed countries. So, without monopolizing this content in a legal sense, big industry players could establish a factual monopoly of such services and expropriate the developing countries from benefiting from their cultural heritage. It could be worth mentioning to reflect the concept of public domain in the special case of developing countries again.

The "Book mobile" is an example to bring digitised books in the public domain via a van with satellite connections and on-demand print facilities to rural areas in developing countries.[31] Technology in this sense has the potential to give access to a huge realm of books in an economic and flexible manner and not to impair the use of the cultural heritage through DRM.

Another example of this issue, referenced in the INDICARE blog[32], is an electronic library which contains over 17,000 books from the Jewish cultural heritage. Among these are thousands of extremely rare Torah writings that have not been published for hundreds of years. They had been digitised from the original printings and put in a sophisticated database. Most of them belong to the public domain but are now available online only to registered and paying users as a result of DRM use.

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30 Witten (2004).
31 Frost (2004).
32 See http://www.indicare.org/tiki-view_blog_post.php?blogId=12&postId=403

3 Legal Aspects

3.1 Introduction

A number of legal activities have taken place in the months following the publication of the first INDICARE State-of-the-Art Report. The year began with the 3rd DRM Conference in Berlin on 13 and 14 January, where, among other things, a wide range of legal issues were discussed.[33] It was good news that the organizers scheduled a special programme dedicated to consumer protection and consumer protection law issues. During the podium discussions—and the coffee breaks—it was widely agreed that consumer protection is an issue that is gaining importance in the legal discussion around DRM. The opinions are, however, still divided over the question of whether the protection of consumers using digital content should be dealt with within the framework of or in addition to copyright law, if business and technical solutions are the better route to follow or if a combination of all of these options should be followed. The relevance of consumer protection law was further emphasized during a conference organized by the Shidler Center for Law, Commerce & Technology at the University of Washington, Seattle, in March 2005. One of the main conclusions of the conference was that consumer protection is not an anachronism but a must in the digital economy. Among others, Professor Pamela Samuelson took the discussion a step further by looking more closely at the Digital Millennium Copyright Act (DMCA) and identifying a number of rules that actually deal with consumer protection. This is certainly an area that will see more discussion in the future. The same is true for the role of consumer expectations as an indication of the fairness of DRM use and how these expectations can be best defined and protected. This topic was extensively discussed during the two conferences, as well as during the second INDICARE Workshop and expert meetings held by the European Consumer Law Group (ECLG), the European Consumers' Organisation (BEUC) and the European Commission, to name but a few.

Other issues the legal discussion revolved around were, first, the issue of how to realize the conditions to exercise exceptions; second, whether there is a need to redefine exceptions, for example, in the form of rights or of a previously specified number of copies and uses; and third, issues of how to protect consumers before and after they have bought digital content. In this context, transparency and contractual issues, such as the legal consequences of remote revocation and questions of liability for the security of consumer hardware, must be mentioned. In this process, some recommendations were made that will be introduced further below in Section 3.3.

The following provides a concise overview of the most recent legal developments in DRM and consumer interests. The chapter starts with an overview of the implementation of the European Copyright Directive using examples from Belgium, Germany and Norway (Section 3.2). Two other sec-

[33] Orwat (2005).

tions take a closer look at the initiatives that some consumer representatives have taken in Europe (Section 3.3), as well as at the European legislation in the pipeline or recently adopted proposals (Section 3.4). Finally, as we will see in the section preceding the conclusion (Section 3.6), DRM and consumer interests is not an issue that is restricted to Europe (Section 3.5).

3.2 Implementation of the European Copyright Directive

3.2.1 General Overview

The implementation of the EUCD in Europe is still ongoing. It has been implemented by Austria, Belgium, Denmark, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, The Netherlands, Poland, the Slovak Republic, Slovenia and the United Kingdom. The Member States that still have to implement the EUCD are Cyprus, the Czech Republic, Estonia, Finland, France, Latvia, Lithuania, Portugal, Spain and Sweden.

In November 2004, the Berkman Center for Internet & Society released their report "Transposing the Copyright Directive: Legal Protection of Technological Measures in EU Member States".[34] The Berkman review provides input that is also valuable for the discussion of the ongoing revision of the Copyright Directive. The report assesses the implementation of the Directive by several EU Member States and concludes that Articles 6 and 8 of the EUCD have been implemented in very different ways. In practice, this results in a situation where something might be unlawful in one Member State but lawful in another. The report also draws attention to the fact that the US Digital Millennium Copyright Act (DMCA) makes a distinction between copy-control and access-control devices, while the EUCD does not. The DMCA defines access control as "measures that effectively control access to a copyrighted work"[35] and copy-control devices as "measures that effectively protect the right of a copyright owner".[36] In the DMCA, circumvention of access-control devices is forbidden, while it is *not* forbidden to circumvent copy-control devices.[37] However, trafficking in access-control and copy-control circumvention devices is forbidden.[38]

Following is a discussion of selected examples of the implementation of the Directive into national laws. These examples were chosen as recent proposals to, among others, improve the position of consumers regarding DRM use and to trigger a broader discussion in all of the Member States.

3.2.2 Belgium

One of the countries that has recently implemented the EUCD is Belgium.[39] A proposal to implement the EUCD has already been forwarded in 2001, but

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[34] Gasser and Girsberger (2004).
[35] Article 1201 (a) (1) (A) DMCA.
[36] Article 1201 (b) (A) DMCA.
[37] Article 1201 (a) (1) (A) DMCA, see also Anthony Reese (2003).
[38] Article 1201 (a) (2) DMCA for access control devices and § 1201 (b) (A) DMCA for copy control devices.
[39] The law has been adopted at the time of writing but was it has not yet been published

after the legislative elections of 2003, the whole process had to start over again. The new Bill was introduced in January 2004 and the proposal has recently been adopted by parliament.[40] There are two subjects in the proposal that are worth mentioning here.[41]

First, consumers can start an injunction procedure if they want to benefit from the exceptions to copyright and the right holders have not taken (sufficient) voluntary measures. In this case, consumers can ask the president of the Court of First Instance to enjoin right holders to let them benefit from the exceptions. Such an injunction can only be started for certain exceptions identified in the Copyright Act. Excluded from the injunction procedure are the private copying exception and the copying of works that were delivered "on demand".[42]

Second, and as a result of recent case law in Belgium and France concerning technologically protected music CDs, an article that protects the expectations of consumers with regard to the normal use of products that (appear) to have been protected by a technical protection measure (TPM) was introduced as Article 79bis, par. 4: "the technological measures of protection are not allowed to prevent the lawful acquirers of works and other subject matter to use those works according to their normal use".

The normal use of a work is defined in the Explanatory Memorandum as: "depending upon the nature of the work, its playing, its hearing or its viewing by the lawful acquirer thereof, e.g. the acquirer of an audio CD or of a DVD".

This definition is similar to that of the exception for the *normal use* of the software provided in Article 5.1 of the European Software Directive.[43] Moreover, the Memorandum makes a reference to Article 5.1 of the Software Directive.

3.2.3 Germany

Germany implemented the compulsory provisions of the EUCD in September 2003. This was the so-called *Erster Korb* (first basket) of amendments to existing copyright law.[44] The implementation of the remaining optional provisions has been reserved, due to a lack of time, for a second legislative

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40 Projet de loi transposant en droit belge la directive européenne du 22 mai 2001 sur l'harmonisation du droit d'auteur et des droits voisins dans la société de l'information, http://www.dekamer.be/FLWB/pdf/51/1137/51K1137016.pdf and http://www.senate.be/www/?MIval=/Dossiers/DossierFiche&LEG=3&NR=1073&LANG=nl

41 Dusollier (2004).

42 An injunction is possible with regard to the exceptions mentioned, being: the making of an anthology of works aimed at teaching purposes (proposed Article 21 of the Belgium Copyright Act), reprography (proposed Article 22, §1, 4 of the Belgium Copyright Act), reproduction of works for the illustration of teaching (proposed Article 22, §1, 4bis & 4ter of the Belgium Copyright Act), some acts of reproduction made by libraries, archives and museums (proposed Article 22, §1, 8 of the Belgium Copyright Act), ephemeral recordings of works made by broadcasting organizations (proposed Article 22, §1, 10 of the Belgium Copyright Act), exception in favour of handicapped persons (proposed Article 22, §1, 11 of the Belgium Copyright Act).

43 Council Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs, 17 May 1991, OJ L 122, p. 42 (hereinafter "Software Directive").

44 See also State-of-the-Art Report, p. 53.

round, the so-called *Zweiter Korb* (second basket).[45] Questions that were discussed during this second round and that are relevant for the purpose of this report are the regulation of private copying, technological protection measures, private copying exceptions and the levies issue.

In September 2004, the proposal for the *Zweiter Korb* was released by Germany's Federal Ministry of Justice. After a Symposium in Munich in November 2004 during which it was possible to comment on the proposal,[46] the possibility to comment in writing or via an online forum that was created particularly for this purpose (see Section 3.3.2), was adapted. The proposal is now in parliament. The main characteristics of the new proposal and future German copyright law concerning private copying, technological measures and levies are described below.

In principle, Germany recognizes the private copying exception, including digital copies and copies made from content that is delivered to consumers online and on demand. It is worth noting, however, that the previous provision restricting the private copying exception to lawfully acquired copies has been broadened and now also disables the private copying exception in cases in which it is obvious to the consumer that a copy has been made *or offered for download* illegitimately. Requests from the music industry to restrict the private copying exception to analogue copies, prohibit private copying of on-demand content, or a restriction to time shifting or of the number of copies, did not find their way into the proposal. The same is true, however, for the requests of consumer representatives to guarantee that consumers can benefit from the private copying exception even where technological protection measures are in place. The Federal Ministry of Justice takes the (debatable) position that the purpose of the private copying exception is to protect the interests of right holders only by permitting private copying and giving right holders the right to collect remuneration in the form of levies. The private copying exception, so says the Ministry, was not introduced to protect consumer interests.

In other words, under future German law, consumers can benefit from the private copying exception only where content providers decide not to use technological protection measures. As a result, the private copying exception, although still existent, is at the disposal of content providers.

As far as the issue of levies is concerned, the new draft regulation stipulates that consumers may not be charged twice—if DRM is in place, right holders cannot claim a share of the levies. In future, the principle "the more copy protection in place, the lower the profits from levies", will apply. The draft proposal leaves open how this principle must be translated into practice. Measuring the degree of copy protection and relating it to a particular sum a right holder is entitled to receive can be very difficult to realize. Another amendment in this context is that it is henceforth the task of the parties, notably collecting societies, equipment and carrier-media producers, to

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[45] See Referentenentwurf für ein Zweites Gesetz zur Regelung des Urheberrechts in der Informationsgesellschaft, 27 September 2004 (hereinafter „proposal"), available at: http://www.urheberrecht.org/topic/Korb-2/bmj/760.pdf

[46] See http://www.vzbv.de/mediapics/urheberrecht_zweiter_korb_02_11_04.pdf and http://www.kopienbrauchenoriginale.de/enid/8d.html

determine the amount of the levies, not that of the legislator. All the legislator does is determine the factors that are relevant in this context, such as, among others, the degree to which equipment and carrier media are actually used for copying, and the degree of technological protection that is in place.

3.2.4 Norway

On 11 February 2005 a white paper on the implementation of the EUCD in Norway (to fulfil Norway's obligations as a European Economic Area (EEA) State) was submitted by the Norwegian Ministry of Culture and Church Affairs. With regard to the aspect of consumer interests, there are two issues worth mentioning:[47]

- A broader consumer protection might be realized by the "relevant playback equipment" article. This means that a person may legally circumvent a TPM for *private* purposes in order to "play back" within the private sphere. An example is the CD that cannot be played on the car stereo. It is also permitted to make a copy to facilitate the realization of the "relevant playback equipment" article.
- More restrictions would be the result of the article concerning private-use copying because, according to the Norwegian proposal, private copying will only be possible with regard to a "lawful source of copying". The draft provision resembles a similar condition in the German copyright law.[48]

3.3 Consultation Procedures and Information Initiatives

3.3.1 European Level

Meanwhile, on a European level, several instances are or were involved in DRM and consumer interest discussions. In the first State-of-the-Art Report, we reported that the High Level Group on DRM presented its Final Report on 8 July 2004 and subsequently conducted an informal public consultation on it.[49] A summary of the results of this consultation can be found online.[50] In the course of this consultation, it was further re-affirmed that consumer interests were not sufficiently dealt with in the July version of the report, and that negotiations with consumer representatives should continue in order to reach an agreement on these issues. To open the possibility for further discussion and share the results of the consultation, a workshop titled "Towards Reaching Consensus on Digital Rights Management" was organized on 6 April 2005. The workshop's agenda included topics such as interoperability, trust and confidence, levies and what the July version of the report called "legitimate services".[51] Unfortunately, the consultations of the High Level Group were concluded without reaching a consensus on consumer issues.

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47 Rieber-Mohn (2005).
48 Artikel 53 of the German Copyright Law.
49 See State-of-the-Art Report, p. 19.
50 European Commission (2005).
51 European Commission (2005).

In relation to privacy, the Data Protection Working Party focused on DRM in Article 29 of their report "Working document on data protection issues related to intellectual property rights".[52] The Working Party is concerned about the fact that the legitimate use of technologies to protect works could be detrimental to the protection of personal data. As for the application of data protection principles to the digital management of rights, an increasing gap between the protection of individuals in the offline and online worlds has been observed, especially in terms of the tracing and profiling of individuals. The Working Party calls for a development of technical tools that offer privacy-compliant properties, and more generally, for a transparent and limited use of unique identifiers with a choice for the user. As stated, this document is still a working document on which it was possible to comment until 31 March 2005.

Third, the European Consumer Law Group (ECLG) released its report on Copyright Law and Consumer Protection in January 2005.[53] The report focuses on TPM and DRM and the implications for the exercise of the private-use exception. According to the report, consumer organizations could play an important role in the following areas:

- Participating in consumer-awareness campaigns;
- Transparency;
- Monitoring and compliance of TPMs with legitimate consumer rights and interests;
- Research;
- Regulatory participation;
- Self-regulation (for instance act as a partner in the elaboration of codes of conduct).

In addition, BEUC organized an expert meeting in March of this year to specifically discuss the issue of DRM and consumer interests; thereby signalizing the priority this issue is given.

3.3.2 National Initiatives

France

French consumer protection groups, which are particularly active in this field, undertook some noteworthy initiatives. To begin with, the *UFC* (Union Fédérale des Consommateurs – Federal Consumer Union) *Que Choisir* organized the public debate *Les consommateurs face au contrôle de l'usage* in Paris on 11 April 2005.[54] Another meeting with the title "Quels échanges d'œuvres numériques pour quelle société" was organized on 20 April. [55]

Another type of activity French consumer organizations are involved in is the initiation of court proceedings where they feel that consumer interests

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52 Article 29 Data Protection Working Party (2005).
53 European Consumer Law Group (2005).
54 For more information visit: http://www.temps-nouveaux.net/article.php3?id_article=122
55 For more information visit: http://www.temps-nouveaux.net/article.php3?id_article=123

are violated. One recent judgement concerned the issue of private copies.[56] The Court of Appeal of Montpellier decided on 10 March 2005 in favour of a legitimate consumer interest in private copies. Of particular interest for the given context is another decision of the Court of Appeal of Paris of 22 April 2005.[57] The Court blocked the use of DVD copy protection in a suit launched by *UFC Que Choisir* concerning the DVD "Mulholland Drive," which was also the subject of an earlier proceeding.[58] In contrast to the opinion of the lower court, the Court of Appeal of Paris found that the technical protection scheme in place ran counter to consumers' private copying rights. The judgement overruled the lower court's earlier judgement, claiming that consumer interests were not violated in the case of copy-protected CDs because, so the court in the earlier case, there was no right to private copying.[59] According to Julien Dourgnon, spokesman for *UFC Que Choisir,* this ruling means that 80 percent of the DVDs now on the French market are equipped with illegal mechanisms.[60] The Court also found that the producers of the DVD did not inform consumers sufficiently and hence violated consumer protection law. The indication "CP", meaning "copying prohibited", was not specific enough and was printed too small. Further cases are pending.

Germany

An initiative of a different kind was launched in Germany; not by consumer organizations, but by Germany's Federal Ministry of Justice. Within the framework of the negotiations concerning the reform of the German copyright law, and here more specifically the second step in this process, the *Zweite Korb*, the Ministry launched an online information campaign. At www.kopien-brauchen-originale.de, interested parties can find information on the legislative process, participate in discussions on the online forum and read the results of consultations and speeches. The goal of the initiative is, so says the Ministry, to enhance the transparency of the legislative process.

3.4 New Legislation and Legislation in the Pipeline

3.4.1 Europe: Unfair B2C Commercial Practices Directive

The proposal for the Unfair B2C Commercial Practices Directive was amended by the European Parliament on 24 February 2005.[61] All 19 amendments were adopted by the Commission on 15 March 2005 and the Directive was formally adopted on 18 April 2005.[62] One amendment that

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56 http://www.foruminternet.org/telechargement/documents/ca-mtp20050315.pdf

57 See the press report at: http://tinyurl.com/bg7hd.

58 Helberger (2004a).

59 Helberger (2004a).

60 Cited in the Associated Press, 26 April 2005, available at http://www.ap.org

61 European Parliament (2005)

62 At the time of writing the Directive has not yet been published. See also pages 54-56 of the INDICARE State of the Art Report and http://europa.eu.int/comm/consumers/cons_int/safe_shop/fair_bus_pract/index_en.htm. For a consolidated text see http://register.consilium.eu.int/pdf/en/05/st03/st03616.en05.pdf

improves the protection of consumers in making an informed decision about a transaction, namely Article 7 paragraph 2 (amendments of the Parliament are in italic, the editor), is worth mentioning here:

> "It shall also be regarded as a misleading omission when a trader hides or provides in an unclear, unintelligible, ambiguous or untimely manner such material information as referred to in paragraph 1, *taking into account the matters described in that paragraph*, or fails to identify the commercial intent of the commercial practice if not already apparent from the context *and where, in either case, this causes or is likely to cause the average consumer to take a transactional decision that he would not have taken otherwise".*

This addition grants consumers more protection because it protects them against misleading information from the trader who might otherwise push them towards a decision to buy something what they would otherwise not have bought.

3.4.2 WIPO: Treaty on the Protection of Broadcasting Organizations

The main focus of the WCT and the WPPT is on protecting authors', phonogram producers' and performers' rights and on effective measures against circumvention of DRM technologies or so called technological protection measures (see also Section 2.4). The Treaties were one of the first international instruments to provide provisions on the protection of TPMs, and formed a basis for the DMCA and the European Copyright Directive. Currently the WIPO Standing Committee on Copyright and Related Rights (SCCR) prepares a treaty on the protection of broadcasting, cablecasting and webcasting, which are in the opinion of CPTech and other digital civil rights organisations[63] even more problematic than the provisions in the WCT and WPPT. Brazil and Chile claimed that some of the obligations in the proposed Broadcast Treaty could have the impact, that information in the public domain could not be accessed by the public.

3.5 DRM from a Global Perspective

DRM is not only a European issue. To begin with, the relevant provision in the WCT and WPPT on the protection of TPMs triggered national and regional initiatives to introduce anti-circumvention rules in and outside of Europe (see Section 3.4.2). TPMs continue to be an important issued that is being addressed at the WIPO level. The issue of TPMs is included in the Program and Budget Committee's proposed programme and budget for 2006/7, which was discussed in the committee meeting in April 2005.[64] First, the programme expresses that

> "...with the increased application of TPMs to ensure legitimate delivery and use of digital copyright content, the conditions under which

[63] See also Doctorow (2005).
[64] WIPO (2005).

> beneficiaries of exceptions and limitations are afforded access to TPM-protected content has become an issue of growing concern, including with respect to implementation of the WCT and WPPT. The need for interoperability between copyright content in digital form and digital devices is increasingly apparent, and a number of ongoing standards initiatives in the field of DRM create implications for the copyright system that are not widely understood…".[65]

The proposed actions include research and consultations on the impact of the internet on the collective management of copyright, the treatment of security interests in copyright assets, updates on the development and use of digital rights management tools, and the evolving role of internet intermediaries. Another of the proposed actions consists of a workshop on DRM standards processes and new business models, and emerging user practices. In addition, the proposed programme explicitly mentions that TPMs belong to the Standing Committee's Work Plan.[66]

In response to the concerns Chile and Brazil expressed with regard to the proposed Broadcaster Treaty (see Section 3.4.2) and its impact for the public domain, the TACD initialised the "Access to Knowledge" (A2K) initiative. Part of the initiative is to draft a treaty or a similar initiative to restore the balance between the granting and exercise of exclusive rights in works and the exceptions and limitations in copyright law as well as, more generally, to protect and promote access to knowledge. The initiative is supported by consumer representatives, librarians, experts from governments, international and civil society organizations and other stakeholders.[67] A first preparatory meeting was held in March in Geneva when experts and interested parties presented and discussed proposals of possible elements of a treaty. At a second meeting in May in London, the consolidated draft proposal was further discussed with a wider round of experts from different countries, disciplines and backgrounds. At this second meeting, the draft proposal progressed considerably.

Moreover, during the 7th Annual TACD Meeting, which took place in Washington DC from 16-19 April 2005, TACD formulated recommendations for the governments of the United States and the European Union on the preconditions that DRM should meet in order to qualify for legal protection. Recommendations were made on the access and use of content, privacy, interoperability, transparency, security, anti-competitive behaviour and redress.[68]

Another initiative that is (also) directed at DRMs at a global level stems from the Canadian Internet Policy & Public Interest Clinic (CIPPIC),[69] which was founded in 2003 at the Faculty of Law of the University of Ottawa and aims at promoting a balance in policy and law-making on issues arising out

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65 WIPO (2005), Program 4 under the Strategic Goal One (to promote an IP culture), Use of Copyright in the Digital Environment.

66 WIPO (2005), Program 14 under Strategic Goal Three (Progressive Development of International IP Law), the Law of Copyright and Related Rights.

67 See also http://www.cptech.org/ip/wipo/ci-tacd04132005.html and http://lists.essential.org/pipermail/a2k/

68 The recommendations will be published on http://www.tacd.org

69 http://www.cippic.ca

of new technologies. One of these new technologies is DRM. CIPPIC published an interesting letter about DRM, its legal protection and developing countries. In the letter, which was written for the International Telecommunications Union (ITU) Report on Digital Rights Management, CIPPIC express strong doubts whether DRM is suitable for developing countries because it may jeopardize the economic, cultural and sovereign interests of developing nations.[70]

3.6 Conclusion

The discussion has finally started—at least as far as the legal side is concerned. The past months have seen a number of conferences and important expert meetings take on the challenge. National, European and international consumer representatives, non-governmental organisations, government and industry representatives are mobilizing forces and creating awareness for a digital consumer agenda by actively participating in conferences and legislative procedures, organizing meetings, initiating proceedings and seeking to improve the transparency of the sector. However, the past months have also demonstrated that legislators are slower to respond to the concerns about DRMs and consumers. More work needs to be done, more awareness created, more agreement reached on issues such as transparency, interoperability, private copying, fairness of access and usage conditions, and more knowledge gained about consumer preferences and habits before these initiatives can make their way into legal proceedings.

[70] http://www.cippic.ca/en/news/documents/Letter_to_Mark_Jeffrey_Feb_26_2005.pdf

4 Technical Aspects

4.1 Introduction

The first State-of-the-Art Report, in the chapter describing technical aspects, tried to introduce the technical background to current DRM solutions. While in some fields we can see rapid changes, other issues – mainly the theoretical background to copy protection (e.g. encryption, access control) – remain unchanged over a longer period.

We have also received constructive criticism on our previous work, mainly requesting factual corrections and further explications regarding rights expression languages (RELs).

This update will try to give coverage of news related to DRM technology since the publication of the first State-of-the-Art Report. We will make some corrections about REL's, update on new DRM developments and the recent announcement of a supposedly more secure operating system for mobile devices and mobile phones.

4.2 Rights Expression Languages

We have received quite a few comments on the chapter dealing with Rights Expression Languages (RELs). Though we know that a more detailed description could have been helpful to those interested, we think that this short introduction was enough for those with a general interest, and a lot more about this topic would have been too technical. Also, different comments on the State-of-the-Art Report viewed this topic, (especially symmetric RELs) from different angles, but we do not want to take a stand on either side. Therefore we will not cite or answer comments in this update – we think that the topic was given due weigh and do not intend to go into the very heated discussion which followed on the INDICARE web site.

There is, however, one issue in which we have to correct ourselves. According to Chris Barlas's comment[71], we misrepresented the relation between MPEG's activities and other leading standards, e.g. XrML. First of all we wrote about MPEG (the Moving Pictures Experts Group) in general, where we should have specified it further. MPEG-21, the MPEG Multimedia Framework initiative is the working group which is concerned with IPMP and DRM. We wrote about MPEG's IPMP (Intellectual Property Management and Protection) as if it was a rights expression language. In fact it is not, it covers rather "all the activities that can be brought together generally under the DRM acronym". Moreover, MPEG's REL is not *concurrent* with XrML, the rights expression language supported by Microsoft, but is *based on* XrML. For full clarification about the issue please read the referenced INDICARE article on the project web page. We are sorry if we caused confusion with the inaccurate coverage of the issue in the State-of-the-Art Report.

[71] Barlas (2005).

4.3 Content Distribution

In the State-of-the-Art Report we reported extensively on different ways of content distribution and different DRM protection methods which exist for different carriers. In this section we will try to give some updates about what has happened since the publication of our first report, and we highlight some news items and ongoing discussions about content protection issues.

4.3.1 CD

At the time of writing this update, the CD copy protection scene is not wholly consistent. While Sony Music Entertainment in Japan has dropped the marketing of copy-protected CDs, in the United States, they plan to launch (with their sibling company BMG) a new copy protection scheme for our good old discs, licensed from First 4 Internet, a UK-based content management technology provider[72]. After BMG's previously failed attempt to provide a secure solution[73], Sony BMG now hopes that the new, strongly encrypted form of music provision will be bullet-proof against ripping attempts. Whether this will cause inconveniences for consumers with experience of other CD copy-protection systems is hard to predict, but publishers should be aware of previous problems experienced when playing copy-protected CDs on different devices.

Meanwhile, Macrovision has announced a large patent portfolio, which covers CD copy protection methods that do not require modifications to existing players, while providing protection against the illegal ripping of content. Microsoft also licenses some analogue anti-rip technology from Macrovision, which they will probably build into their next generation of Media Player software, and also the upcoming new Windows operating system, called Longhorn. Microsoft claims that they want to ensure interoperability between their and Macrovision's technology, meaning that it will probably not be possible in the future to grab Macrovision-protected content on Windows-powered computers.

4.3.2 DVD

Again, Macrovision has introduced a new technology called RipGuard, that will supposedly frustrate current DVD-ripping and descrambling software activities. They claim that it will provide a near-to-perfect solution for content providers. While still showing perfect quality pictures and sound "on every current DVD drive and player in the market". The RipGuard technology protects DVDs against being hacked and the content being transferred to computer hard drives. However, we have yet to hear of DVDs on the market that cannot be ripped.

Meanwhile, the copy protection system of the next generation DVDs is being prepared. The Advanced Access Content System (AACS) will use 128 bit AES encryption, the industry standard, for an adequately high level of

[72] See also http://www.cdfreaks.com/news2.php?ID=11076
[73] See also http://www.theregister.co.uk/2003/10/08/shift_key_breaks_latest_cd/

protection. Moreover, by creating a cryptographic trust chain from content supplier to the device, AACS will enable the revocation of compromised keys, thus complicating the work of hackers: if one decryption key is hacked, it will be revoked and no new movies will be encrypted with that particular key any more. This means that compromised players could continue to play old discs, but not new releases. This type of revocation does not need on-line connectivity for players, but we may come to the point in the future when every use of content will be negotiated and authorised on-line.

While AACS may provide safer protection for movies than what we have now, one has to keep in mind that new generation DVDs will not instantly replace today's vulnerable media, thus piracy will probably continue for a longer period in the same manner as now.

4.3.3 Memory Card

Memory cards are widely used in portable devices, e.g. mobile music capable phones and MP3 players. While data (files) on the memory card is usually not protected, content found on these cards – for example in music files – is typically protected somehow, e.g. with Microsoft's Windows Media DRM solution.

SanDisk, the inventor of the market leading Secure Digital (SD) memory card format, have announced that they are working together with NDS, a major provider of technology solutions for digital pay TV and digital content protection for mobile devices. They are going to integrate NDS's mVideoGuard Mobile DRM technology (fully compatible with OMA DRM 2.0) directly into their cards, so that the new generation of cryptographically secure mobile flash storage cards could provide a complete end-to-end solution to bring premium entertainment content to consumers while addressing the security concerns of content providers.

This development is welcome with some groups, since the open industry standard of OMA might help in realising interoperability between devices.

4.3.4 New Generation Media

In the first State-of-the-Art Report we wrote about Universal Media Discs (UMD), as a new media format from Sony. Now that PlayStation Portable (PSP) has been on the market both in Japan and in the United States, we know more about this new format, and we can speculate further on the motivation behind it.

UMD is a CD-like disc, measuring only 60 mm in diameter, half that of a CD or DVD. While one reason for creating a new format was certainly to produce a new type of media, which, while maintaining the low cost-to-capacity ratio of optical discs, fits into pocket-sized devices (one certainly needs a large pocket for a CD or DVD), the other reason must have been that Sony wanted to obstruct piracy. Since UMD burners are not available on the market and discs are also protected with the industry standard AES encryption, it is unclear whether Sony will ever license the new format to other vendors. So there is not much chance that consumers will ever be able to create their own UMD discs.

This, however, is provoking a lot of discussion on web-based fora: Consumers would normally like to see UMD burners in their homes, since they naturally compare UMDs with their only alternative in PSP: Memory Stick. MS is Sony's flash memory card format, and as such is quite expensive. So, if someone wanted to put some music or a movie on their PSP, they could either use a 2 GB Memory Stick (sold for around 350 Euros) or a 1.8 GB UMD (expected to be around 1-2 Euros). Anyone can see why consumers would like to see blank, writable UMD discs. On the other hand, flash memory prices are falling rapidly, so UMDs will probably lose their only big advantage within a couple of years. As one reader points out:

> "UMDs are HUGE compared to flash cards in physical dimensions. They require ENORMOUS amounts of power compared to flash memory cards.
> Stuffing a UMD in a handheld device is a giant step backwards for technology." [74]

Will this "step backward" be justified by the new business models which are made possible by UMD's DRM capability? This is an important question for consumer acceptability.

4.4 Usage Control

In this section we would like to mention two interesting developments. First we are going to talk about diversifying standards so that content in the development stage will not be so easy to steal, and next we will write about an upcoming, more secure computing platform.

4.4.1 New Internal Formats

A well organised network of "content pirates" working at movie or music publishers or studios engage in stealing content long before it is published to consumers. Bill Rosenblatt, on DRM Watch[75] draws readers' attention to a new solution against this type of piracy: a new type of player, special software or hardware components would be needed to play such CDs or DVDs aimed at the producers of content. Dolby and Philips Labs, among others, have such solutions. They include some sort of watermarking on DVDs which identifies the content, its owner and the recipient. So, by introducing special new formats for industry use, potential pirates in such inside jobs will have a more difficult time doing their "dirty work" of content lifting.

4.4.2 Secure Computing Platform for Mobile Phones and Mobile Devices

We conclude this chapter with some brief remarks about secure computing platforms for mobile phones and mobile devices. The issue of secure plat-

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[74] The short article and discussion can be read at http://engadget.com/entry/1234000840028378/

[75] See also http://www.drmwatch.com/

forms will be dealt with more in depth in the next update of the State-of the-Art Report.

In February 2005, Symbian, a UK based company which provides the operating system for most of today's advanced smart phones, announced its coming version of the Symbian Operating System. Symbian OS version 9 introduces the so-called Platform Security, which builds a Trusted Computing Environment (TCE) around a Trusted Computing Base (TCB). In Platform Security sensitive operations will be controlled by so-called "capabilities", which will only be granted by trusted software companies, e.g. by Symbian itself. So, hacking audio drivers to obtain digital music decrypted by the legitimate DRM application (as in the case of Total Recorder or AudioJacker) will hardly be possible.

Moreover, Symbian will provide a DRM framework and a reference implementation, also governed by a capability, relying on Platform Security. Thus, as device manufacturers hope, a very secure operating system for next generation mobile phones and other mobile devices will be created, secure in the sense that it will rely on trusted components, and so it will be more difficult to bypass built-in protection measures.

We do not yet know when the first actual mobile phone running Symbian OS 9 will hit the market, but it will certainly create a new era for secure copy protection and DRM solutions. On the PC scene however, things are not going to change so fast. Microsoft have announced that their Next-Generation Secure Computing Base is not going to debut in Longhorn next year.

4.5 Conclusion

As one can see from the above examples, newer and newer technical measures are being developed and implemented in order to make DRM systems more secure. The greatest risk, however, is involved in maintaining compatibility. Introducing completely new media formats is very expensive. First of all, everything that was available in some "old" format must also be available in the "new" format so that consumers are willing to transfer to the new system. Secondly, new formats have to provide significant advantages over the old, less secure media, otherwise consumers will be less motivated to invest in new player equipment. And thirdly, since not everyone will transfer to the new systems within a few years, content providers will also have to continue publishing every piece of new content in the old, vulnerable format.

5 Business Aspects

5.1 Introduction

The main conclusion that we have drawn from the analysis of business aspects in the first State-of-the-Art Report can be summarized as follows:

1. Only if DRM-based business models can offer real added value, will consumers accept them and be willing to pay for them.
2. Content providers are only just starting to experiment with new DRM-based business models. The extent to which these truly benefit consumers is rather limited.
3. Mainly due to lacking interoperability, costs of DRM systems currently seem to outweigh benefits from a consumer point of view.
4. Attractive business models for digital content do not necessarily have to rely on DRM (alone).

This supplement and update looks at recent developments on the marketplace that might alter or aggravate these conclusions. We start with an overview of ongoing discussions on the role of DRM for digital content business models (5.2). Section 5.3 looks at the latest market developments that help to increase interoperability of digital content formats. In section 5.4 we look at new DRM-based business models offered at the marketplace. We close with an overview of recent alternative business models for digital content that are not (solely) based on DRM (5.4).

5.2 Changing Role of DRM: From Copy Protection to Business Model Enabler?

Recent discussions on the role of DRM increasingly focus on the question in how far DRM technology is actually well suited for achieving its primary goal of protecting digital content from being used illegitimately:

> „A meta-question that's often missed here is, "Does DRM work at its stated purpose?" ... is there any evidence that DRM has ever been successfully used to keep a work from being shared on the Internet or sold by counterfeiters on CD or DVD? My experience of this suggests that DRM is a complete failure at accomplishing its stated goal: In other words, DRM costs consumers a lot and does not prevent piracy..."[76]
>
> "The SOTA (State-of-the-Art) Report avoids coming out and saying that all protection schemes thus far have been a failure once their features became known."[77]

If expensive DRM systems cannot prevent digital content from being used illegitimately, but rather discourage consumers from legally purchasing digital content, the question emerges what DRM is actually good for.

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[76] Doctorow (2005).
[77] Merrill (2005).

Recent discussions, e.g. at the Berlin DRM conference[78], increasingly point to DRM as an enabler of new business models: DRM technology allows providers to offer differentiated service offerings to their customers, such as pre-listening and pre-viewing, renting, streaming, etc. It is still open, though, whether the promise of greater flexibility for consumers from DRM-based business models can actually be fulfilled or not. As Cory Doctorow notes:

> "Regarding flexible business models: while there is the theoretical possibility that DRM could enable a marketplace of infinite price discrimination, where someone who merely wants to listen to a track once pays less than someone who acquires the permanent right to listen to the same music, it should be noted that to date, DRM systems have been used exclusively to sell music with less flexibility than non-DRM equivalents at higher prices – in other words, DRM in the market is used exclusively to charge consumers more for less."[79]

Timmo Ruikka, Vice President at Nokia, has a different view:

> "I found the issue of new business models and flexibility offered by DRM to be incompletely articulated in the report. I personally believe that there can be HUGE value to users in getting something less (in usage rights) than what the content industry is afraid to distribute in wide circulation (that being the freely copiable personal copy like the CD disk is today). If it is a good deal, users can accept something less than permanent and something that is less than freely transferable. This does assume that prices also come down from the early trial phase that we are witnessing now... Also, the flexibility will be in the incredible selection and in the tailoring to changing needs and tastes: having a constantly updated top 100 songs in your pocket is flexibility even if you cannot transfer any of those tracks to another device..."[80]

Ultimately, market success of different digital content offerings will reveal what kind and what degree of flexibility consumers are actually demanding. One of the most important prerequisites for greater flexibility in the use of digital content is interoperability. Only if DRM systems interoperate, can protected content be purchased and subsequently be used seamlessly on various platforms and devices. Before we look at the latest market developments towards new and more flexible business models, we therefore take a look at the latest movements towards increasing interoperability.

5.3 Standards and Interoperability: New Developments

One of the most important recent development in the area of DRM interoperability and standardisation in our view is the cooperation of Microsoft and Nokia announced at the 3GSM World Congress in Cannes in February 2005. According to the announcement, Nokia will integrate Microsoft's Windows

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78 Third Digital Rights Management Conference 2005, January 13-14, http://www.digital-rights-management.org. See also Section 3.1.

79 Doctorow (2005).

80 Ruikka (2005).

Media technology including the Windows Media DRM system into its music-focused phones. As a result, digital music in WMA-format will be playable on Nokia phones. In return, Microsoft agreed to support the mobile DRM standards developed by the Open Mobile Alliance (OMA) and AAC codes in its PC-based Windows Media Player. Other device manufacturers will probably follow Nokia and support Windows Media technologies. Microsoft already announced that it will pursue an open licensing policy for its DRM technologies. As a result, Windows Media DRM and OMA DRM could become de-facto-DRM standards for digital music.

While this development means on the one hand a further concentration of market power in the hands of Microsoft and Nokia, consumers could on the other hand benefit from the resulting increase in interoperability: music purchased via different platforms will be playable on different selected devices, which clearly increases the value of DRM-protected digital music downloads. This requires, however, that the promise of interoperability of both companies will actually be realized – so far it is only a marketing announcement. Experience shows that true interoperability between different software versions and device generations is very difficult to achieve.[81]

In addition, there are still open licensing issues of the OMA DRM standard. These are intended to be solved by MPEG LA, a company that offers a patent portfolio license for OMA DRM 1.0 technology.[82] This enables OMA-users to take essential patents from multiple patent holders as an alternative to negotiating separate licenses with each. Efficient access to essential patents is seen as an important prerequisite for the development and deployment of DRM technology. However, strong complaints about MPEG LA's portfolio license have resulted in an ongoing discussion about patent claims and license terms.[83] This led MPEG LA to revise its terms: The revised license terms now envision that device manufacturers have to pay $0.65 per OMA-capable device and service providers have to pay a flat $ 0.25 per subscriber per year for delivery of digital assets employing OMA DRM 1.0. A patent portfolio for OMA DRM 2.0 is being worked on.[84]

5.4 New DRM-Based Business Models

In the last State-of-the-Art Report we stated that: „To date, only simple business models have been realized, and providers only start experimenting with more creative ones that give consumers a strong value proposition." The development of new DRM-based business models is a continuous process we are observing. What we see is that content providers are increasingly relaxing their usage rules so far that consumers do not feel restricted by the applied DRM technology. Digital music platform Musicload, for example, experienced a substantial drop in customer care support requests after us-

81 Dufft (2005).
82 Horn (2005).
83 Guth and Iannella (2005).
84 See e.g. INDICARE Blog:
http://www.indicare.org/tiki-view_blog_post.php?blogId=12&postId=407 and
http://www.indicare.org/tiki-view_blog_post.php?blogId=12&postId=417

age rights had been significantly relaxed to 10 burns and 10 copies allowed.[85]

5.4.1 Viral Marketing, Compensation Schemes and P2P

Another trend that can be observed - particularly in the US but also in Europe - is that an increasing number of providers is experimenting with viral marketing features based on P2P technology, superdistribution, and/or compensation schemes.[86]

Snocap, a US company founded by Napster creator Shawn Fanning, for example, has developed a music licensing platform expected to launch in 2005 that allows music download services and P2P networks to offer music not only for downloading but also for sharing. The centralised system will act as licensing and copyright management service, ensuring that only licensed content is shared or downloaded. Snocap uses a fingerprinting system, which scans downloads and shares as they pass through the system and manages the resulting royalty payments to content owners. Snocap already has licensing agreements with three of the largest labels, Sony BMG, Universal Music Group, and EMI. Snocap is expected to facilitate the creation of legitimate, authorized P2P services for consumers.[87]

While Snocap can be regarded as a digital music wholesaler, Musicmatch, a US "retailer" of digital music and music software, offers in its new On Demand service a feature that allows subscribers to share playlists of tracks with friends. If these are not subscribers, they will be able to listen to each playlist track up to three times before they have to pay. A playlist may contain a maximum of 20 tracks and can be sent to a maximum of 20 friends at a time.

Melodeo, a provider of mobile music shop solutions for mobile operators, announced a peer-to-peer music-sharing feature via Bluetooth. Users of Melodeo's mobile music shop, which is currently implemented by Telefonica Spain, will be able to send their purchased songs legally to their friends' mobile phones. These DRM-secured songs allow the recipients to preview it for 30 seconds. If a recipient wants to purchase a song, a Melodeo server sends a decryption key to unlock this song and to bill it. A sender who shares music with a friend may also be eligible to receive a reward from the operator after the friend purchases a certain number of tracks.[88]

More sophisticated compensation schemes for legal content sharing are also finding their way into DRM-based business models. US-based weedshare.com, for example, compensates users that redistribute purchased songs via any P2P network, File Transfer Protocol (FTP), Internet Relay Chat (IRC) or on CD/DVD. For each sale the rights holder gets 50%, Weed

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85 T-Online Tech Talk: "Die Zukunft des Digital Rights Management – Kopieren ohne Grenzen oder Grenzen furs Kopieren?", Hamburg February 22, 2005, http://ww.musicload.de

86 Einhorn and Rosenblatt (2005).

87 See also Tony Smith: "Shawn Fanning's Snocap touts vision of P2P heaven" http://www.theregister.co.uk/2004/12/03/snocap_launch/

88 See also INDICARE Blog entry by Danny Vogeley: "Mobile superdistribution finally to take off?" http://www.indicare.org/tiki-view_blog_post.php?blogId=12&postId=342

gets 15% and a reseller gets 20%. The Weed software manages the transactions and licenses for the files, which were purchased.

> "Weed has a different view on Internet file-sharing. Instead of trying to shut down file-sharing, we think people should be paid for it. Instead of punishing fans who don't respect artists' rights, we think it makes more sense to reward those who do."[89]

Similarly, US company Peer Impact is currently running the beta-version of a content distribution network that allows members who have purchased content from the service to market and redistribute it to other members. When a sale has been made and inventory is drawn from a member's shared folder, that member is rewarded with cash credit called Peer Cash. Peer Cash can then be used to purchase additional digital music and other content via the service.

Content owners and providers finally seem to recognize that the consumption of content – and particularly that of music – is something very social, which results in the demand for sharing and recommending features. The example of Snocap shows that even major labels are starting to serve this demand. This is clearly beneficial for consumers that are enabled to legally share and enjoy digital content with their peers. The same holds true for compensation schemes – even though it is still open in how far these will actually work and be accepted by consumers. And – as section 5.5 below will show – compensation schemes do not necessarily require DRM systems, they can be realised with unprotected content-formats as well.

5.4.2 Subscription, Rental and Streaming Services

A rising number of music stores is also experimenting with business models that are not based on the tradition pay-per-download approach and are extending the flexibility in the use of purchased music. Music subscription service Napster, for example has three different market offerings: First, Napster Light, a traditional pay-per-download offering (£0.79 per track). Second, Napster, a subscription service for £9.95 per month that allows users to download an unlimited number of tracks to PC for the subscription period. But to burn tracks to CD or transfer them to a portable device, consumers have to pay an additional £0.79 per song. And, third, the new NapsterToGo service that allows users to download and transfer an unlimited amount of tracks to portable players for the subscription period for £14.95 per month. However, the applied DRM system prevents songs from being accessed after the subscription ends.

Similarly, UK-based Wippit offers in addition to a pay-per-download model an unlimited download model for €6.99 a month or €74.99 year. In comparison to Napster, though, songs do not expire after the subscription period.

Streaming models are another alternative to pay-per-download. While streaming has so far particularly been popular in the US, an increasing num-

[89] See at http://www.weedshare.com

ber of streaming services is offered across Europe. Streaming services include audio, video, and game services for PCs and increasingly also for mobile devices. RealNetworks, for example, has become active in Europe, offering streaming technology and services for music, games, news, sports etc. In addition to its streaming service, Rhapsody recently introduced an unlimited subscription service that allows subscribers to download an unlimited number of songs and enjoy them offline for as long as they remain subscribers. Sony Networks' StreamMan is another example of a mobile music service that enables users to personalise and stream their favourite music to the mobile phone and the PC. It is currently available to Telia Sonera customers in Finland. Streaming, however, requires that users have broadband data connections preferably with flat fee data tariffs.

Alternative content business models give consumers more flexible ways to consume content and to choose a service-price-combination that best fits their specific needs. As far as DRM technology enables a greater choice of different product alternatives at different prices, it benefits consumers. However, as we will see below, differentiated business models are also available on the basis of DRM-free content formats.

5.5 Alternative Business Models: DRM-free Content Offerings

As lacking interoperability of DRM-protected content turns out as the major inconvenience for users and hence a major barrier to user acceptance of DRM, an increasing number of business models for digital music is evolving around DRM-free formats such as MP3. The advantage of these offerings for consumers is a higher degree of flexibility and ease of use when buying and using content: no technical usage restrictions apply; content is usually compatible to all operating systems and browsers; it can easily be transferred to other PCs or portable devices; and for web-based shops no additional software is needed. To limit the feeding of purchased content to P2P networks on a large scale, often watermarks are implemented to allow the track-back to the original user.

However, current DRM-free music stores are supported by unsigned artists and independent labels only. But the number of content owners that offer their content in MP3 format is growing. Emusic.com, for example, already has 3850 independent labels in its portfolio with a catalogue of 500.000 songs and is selling almost two million downloads each month. The store also offers differentiated subscriptions, e.g. 40 downloads per month for $9.99 or 90 downloads for $19.99. Other examples of DRM-free music stores are mp3tunes.com, bleep.com with MP3 tracks, or mindawn.com and OGGstar.com based on the DRM-free OGG Vorbis format.

Business models with DRM-free music also include compensation schemes and P2P features. The idea of compensation schemes is to compensate users for redistribution of their purchased songs, benefiting from viral marketing effects. In the potato-system,[90] for example, the user receives a resale link with a personal transaction number after he has purchased a

[90] See at http://www.potatosystem.com

DRM-free MP3 track. With this link, the user can offer the song for further resale. For every resale of this song, he will receive 20%. When the additional purchaser also sells this song, the original purchaser will still get 10%. This will go on, till the original purchaser receives a maximum commission of about 35%. The system is currently used by Motor FM and other labels, music stores, and artists.

In addition to plain DRM-free music stores, there are combined stores that offer both, DRM-protected and unprotected music, such as MediaMarkt, easymusic.com, wippit.com or medionmusic.de. There is no explicit price differentiation between DRM-protected and DRM-free music tracks, i.e. DRM-free tracks are generally not more expensive than DRM-protected songs. Whether a song is sold in WMA or MP3 format depends on the label that is licensing the song. MP3s offered usually have unique watermarks. These combined offerings put both types of content in direct competition to each other. They give consumers the freedom to choose between protected and unprotected content.

Even though the degree of product versioning is limited with unprotected content, the above examples show that differentiated business models can also be developed on the basis of DRM-free content formats. This somewhat weakens the argument that DRMs are needed for sophisticated market offerings.

5.6 Conclusion

The above examples also show that content owners and providers seem to have learnt from the experience with DRM technology over the past months. First, they have recognized that consumers are annoyed if DRM technology seriously restricts them in the use of purchased content. As a result, some providers have either relaxed their usage restrictions or are testing new usage rules and payment models. In addition, various market players and standardisation groups are working on achieving interoperability of DRM-protected content. However, while much is being SAID in this regard, much more actually needs to be DONE.

Second, content owners and providers start to understand that consumers want to share content. They are responding to this demand with new business models. Those are mostly just in trial phases, their actual success is still open.

Accordingly, the paid content market is still in an experimenting phase. Different business models are being tested on the market, DRM-protected as well as DRM-free models or combinations of both. It is not untypical that providers change their offerings or add new models to their existing ones. This trial and error process is, on the one hand, necessary to find which business models are most successful and accepted by consumers. On the other hand, the current state makes it rather difficult for consumers to understand and compare various market offerings. As Timo Ruikka points out:

> "Consumers ... need simplicity and predictability of stable, balanced, well defined typical consumption offerings. Now 3,000 service pro-

> viders are inventing the same packages in s-l-i-g-h-t-l-y different ways and it will drive consumers crazy."[91]

However, the market still has a long way to go until we can expect such "typical consumption offerings".

[91] Ruikka (2005).

6 Outlook

In the spirit of this report as a contribution to an ongoing discussion, we conclude with an outlook: a first pebble was thrown into the pool of DRM-controlled content and services. Now, awareness for consumer acceptability of DRM solutions is rippling into a variety of activities and discussions in which an increasing number of players are involved: industry and consumer representatives, law and policy makers, and academics.

For example, the discussion about DRM and the needs and interests of the disabled that was highlighted in Chapter 2. The EC-funded project ENABLED, the Royal National Institute for the Blind, and the European Accessible Information Network are examples of new platforms seeking to create more knowledge and prepare the ground for researchers and policymakers to come up with solutions. Another issue that moved into the spotlight is that of the Authorized Domain—an issue that, as the chapter demonstrated, has far-reaching consequences and includes many unresolved issues.

The topic of the Authorized Domain is one reflection on how the role of DRM is changing from copy protection to business-model enabler. Chapter 5 on Business Aspects discussed the comments we received that mused on what the role of DRM actually is and the likelihood of its moving away from mere content protection to an all-around technical content management solution. As Chapter 5 points out, such a development must not be for the worse. For example, some of the new DRM-based business models, such as viral marketing, schemes using P2P content-sharing modes or models based on the rental or streaming of electronic content, are developed to attract consumers by more flexibility, price and service differentiation, and consumer-friendly solutions. One can observe, with hindsight, that the business sector is quicker than, for example, the legal sector to pick up the vibes and respond to signals from the demand side, the consumers. Interestingly, most of the business models reported are based in the US, which inevitably triggers the question of where European undertakings stand in all this. One should be aware that, as Chapter 5 demonstrated, not only DRM-supported business models are being developed but also alternative models without DRM. Services failing to respond to consumer demand and take legitimate consumer interests into consideration face (global) competition with electronic services, including those from the US.

The chapter on the Legal Aspects, Chapter 3, noted that the message—no DRM-based models without consumer acceptance—which the market seems to be slowly understanding, has also drawn a wider circle and reached consumer representatives and policy and law makers in Europe, the US and the rest of the world. Various occasions in the first few months of this year offered the opportunity for parties to exchange views and work towards a consensus on many difficult questions, such as transparency, interoperability, private copying, and the fairness of access and usage conditions. Conferences, expert meetings and workshops mushroomed and more will follow. In particular, national, European and global consumer groups have developed a number of interesting and promising activities by actively partici-

pating in conferences and legislative procedures, organizing meetings, initiating proceedings and working to improve the transparency of the sector and the laws ruling it at a national, European and even WIPO level. However, the Chapter 3 also demonstrated that the legal sector is made of a more sluggish liquid. The ripples must first change into waves before anything here moves and improvements find their way into legal texts.

The movements that have been set in motion in businesses, technical research institutions, legislative bodies and consumer organisations will unfold within the coming months. We are curious about the results they will generate and what the state of the art will be when we draft the third and final update of this report.

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Online Resources

01.net :
http://tinyurl.com/bg7hd

3rd Digital Rights Management Conference 2005:
http://www.digital-rights-management.org

Access To Knowledge (A2K) Archives:
http://lists.essential.org/pipermail/a2k

Associated Press:
http://www.ap.org

Association Les Temps Nouveaux:
http://www.temps-nouveaux.net

Berkman center:
http://cyber.law.harvard.edu/media/files/eucd.pdf

Bundesministerium der Justiz:
http://www.bmj.bund.de

Canadian Internet Policy & Public Interest Clinic:
http://www.cippic.ca

la Chambre des Représentants de Belgique:
http://www.dekamer.be

Consumer Project on Technology:
http://www.cptech.org

Cour d'appel de Montpellier:
http://www.foruminternet.org/telechargement/documents/ca-mtp20050315.pdf

Digital Living Network Alliance (DLNA):
http://www.dlna.org/

Digital Video Broadcasting Project (DVB):
http://www.dvb.org

DRM Watch:
http://www.drmwatch.com

DVB Glossary:
http://www.dvb.org/documents//dvb_glossary.pdf

Electronic Frontier Foundation (EFF):
http://www.eff.org

Enhanced Network Accessibility for the Blind and Visually Impaired (ENABLED):
http://www.enabledweb.org/

European Accessible Information Network (EUAIN):
http://www.euain.org/

European Commission:
http://europa.eu.int

European Committee for Standardization (CEN/ISSS):
http://www.cenorm.be/

Heise:
http://www.heise.de/ct/aktuell/meldung/50805

INDICARE blog:
http://www.indicare.org/tiki-view_blog.php?blogId=12

Kopien brauchen Originale:
http://www.kopienbrauchenoriginale.de

Musicload:
http://www.musicload.de

Royal National Institute of the Blind (RNIB):
http://www.rnib.org.uk/

Senat de Belgique:
http://www.senate.be

The Register:
http://theregister.co.uk

Trans Atlantic Consumer Dialogue:
http://www.tacd.org

Union Fédérale des Consommateurs (UFC) Que Choisir:
http://www.quechoisir.org

Verbraucherzentrale Bundesverband e.V.:
http://www.vzbv.de

Web Accessibility Initiative (WAI):
http://www.w3.org/WAI/

World Intellectual Property Organisation (WIPO):
http://ww.wipo.int