

INDICARE Monitor

About Consumer and User Issues of Digital Rights Management Solutions

www.indicare.org

ISSN 1614-287X

INDICARE Monitor Vol. 2, No 8, 28 October 2005

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The **IN**formed **DI**alogue about **C**onsumer **A**ceptability of **DRM** Solutions in **E**urope



Editorial of INDICARE Monitor Vol. 2, No 8, 28 October 2005

By: Knud Böhle, ITAS, Karlsruhe, Germany

Abstract: Two articles in the present issue of the INDICARE Monitor challenge the techno-legal content protection paradigm in different ways; a) by pointing to business models exploiting either side effects of piracy or leveraging degradation of (illegal) content; and b) by demonstrating – for a niche segment of the online music market – that a business model based on reciprocity can lead to voluntary payments. In addition you will find a cautious investigation of the question if and how Creative Commons can take advantage of TPMs, and a careful analysis of a law suit dealing with Apple's protectionist FairPlay strategy from the perspective of competition law. Finally we present a very selective review of four recent OECD studies on segments of the digital media industry – filtering out what the OECD has to say about DRM.

Keywords: editorial – INDICARE

About this issue

Alternatives to the techno-legal content protection paradigm

Vural Ünlü, consultant and author of a book on „Content Protection – Economic analysis and techno-legal implementation“ starts from the assumption that loss of revenues in the music industry is indeed to a significant extent due to copyright infringements. Based on sound knowledge of network economics he argues that there are business models to fight piracy and to regain revenues without strong technical protection measures (TPM). Responding to consumer needs by increasing the utility of products and services is key. Two strategies are discussed: one in which side effects of piracy are exploited, and a second in which content degradation is suggested, i.e. ways to increase the utility difference between original and pirated products by either combining media products with services difficult to copy, by increasing transaction costs for illegal offerings, or psychological devaluation of pirated goods.

While Ünlü provides theoretical background why increasing utility makes DRM protection less necessary, Tobias Regner and Javier Barria, both researchers at Imperial College London, have investigated a case in point: Magnatune - an online music label with ca. 200 artists on contract and at the same time an online music shop. What makes it specific is first that the online store allows unlimited streaming or, in other words, informed choice before purchasing, and second that buyers can choose the price they are willing

to pay within a range from US \$ 5 to 18. The researchers performed an empirical analysis based on data provided by Magnatune and found among other things that buyers pay considerably more on average than the minimum of US \$ 5. They conclude that this consumer behaviour is due to the consumer friendliness of the service, encouraging people to reciprocate and thus to pay more than required. They admit that this finding refers to a niche market and „cannot be easily applied to the mass market“.

CC and TPM

Jordan S. Hatcher has worked at the AHRC Research Centre at the University of Edinburgh on a study exploring the possibility to use Creative Commons licenses for public sector information. One of the research questions he investigated was if CC licenses are compatible with technical protection measures. For the INDICARE Monitor he expands on this subject very cautiously. First he investigates password protected authenticated environments (e.g. intranets, virtual learning environments, digital repositories) and concludes that CC licenses do allow password schemes. Second, he analyses TPMs attached to actual works in order to guarantee integrity, tracking of use, and prevention of commercial use. He concludes that cautiously applied TPMs „can be used to enhance the attractiveness of CC licenses“. What is also worth highlighting is that public sector organizations obviously have different needs than individual authors - a perspective

that is often not taken into account in discussions on CC.

FairPlay plays fair from the point of view of French competition law

Natali Helberger thoroughly discusses an interesting law suit in which a French media company whose activities include running online music stores wanted to get access to Apple's FairPlay DRM system in order to be able to offer its music in a format suitable for the iPod. The question was if Apple could be forced on the grounds of competition law to license its technology to a media company interested in increasing its customer base. The legal concept called „Essential Facilities Doctrine“ was the legal lever used to open access to Apple's DRM system. It did not work out for the media company. This article, apart from being an interesting piece of legal reasoning, can also be read as a chapter in the standards war. For INDICARE of course the consequences of these strategies and battles for consumers are of utmost interest and consequently addressed in Natali's contribution.

Review of OECD studies

The Working Party on the Information Economy (WPIE) of the OECD has published four reports on digital media dealing with

scientific publishing, music, online computer games and mobile content. The studies aim to describe these sectors in terms of changing market structures, business models, value chains etc. DRM is not a central issue in these studies. Nevertheless we wanted to find out what stance the OECD takes in these matters. *Philipp Bohn* has taken a closer look and discusses what the OECD has to say about DRM. In the field of scientific publishing, especial Open Access publishing, the OECD does not see a role for DRMS. In music markets DRMS may play an important role protecting intellectual property rights. With respect to mobile music policy issues related to DRM are highlighted (e.g. infrastructure, interoperability). In the study on computer games DRM has not been an issue – although it is mentioned once. The OECD admits that further studies into DRM may be required, and in fact, meanwhile another division of the OECD, the OECD CCP Secretariat of which the European Commission is an active member – CCP meaning Consumer Policy Committee – has prepared an issue paper on DRM, which however is not yet publicly available – but watch the following space: http://www.oecd.org/department/0,2688,en_2649_34267_1_1_1_1_1,00.html.

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Status: first posted 28/10/05; licensed under Creative Commons

URL: http://www.indicare.org/tiki-read_article.php?articleId=151

Profitable piracy and content degradation An alternative to strong content protection

By: Vural Ünlü, Cogitans Consulting GmbH, Munich, Germany

Abstract: In the quest to safeguard their means of existence, the media industries have been focusing on techno-legal content protection in an isolated and excessive manner and neglecting consumer interests in their profitability calculus. Economic reasoning shows, however, that the reflection of consumer needs in the design of DRMS is of pivotal importance. Selfish economic reasoning demonstrates that decision makers in the media industry must analyse and integrate the notion of consumer utility in their overall strategy. The paradox of profitable piracy and content degradation strategies are discussed that must be taken into account when deciding on an appropriate level of copyright protection.

Keywords: Economic analysis - business models, consumer expectations, DRMS, economic theory, media markets, piracy

Introduction

Media managers are complaining heavily about piracy. Although the scale of losses claimed by their representative bodies should be accepted with caution, it can still be seen that the dimension of content piracy is substantial. The significant decrease in revenue cannot be explained in terms of ageing demographics, the excess revenues generated during the vinyl-to-CD conversion cycle and greater competition for the disposable income of young consumers, but rather is to a significant extent attributable to copyright infringements (C.S.a.T.B. 2000).

The techno-legal paradigm of strong protection

In a situation with extensive intellectual property piracy, where current legislation fails to provide the necessary security, media companies are developing self-help mechanisms in order to safeguard sustained sources of direct revenue. The content industry is determined to address this critical situation by seeking techno-legal means of preventing the uncontrolled redistribution of content. *Technical strategies* aim to protect the economic interests of media companies through the deployment of Technical Protection Measures based on key technologies such as encryption, watermarking and rights expression languages (Ünlü and Hess 2004). In this context, Charles Clark has stated that „The answer to the machine is in the machine“ (Clark 1996); in other words, the survival of the media industries presupposes the development of suitable technical infrastructure.

Technical strategies are effective only when accompanied by contract-based *legal strategies* (e.g. mass market licenses or technology licenses) and by an appropriate legal framework that supports the use of DRMS solutions by ensuring the protection of technical measures (Bechtold 2002). In fact, the technological and legal approaches provide mutual support for one another, thereby constituting a protective unity. Technology prevents infringements, while legal measures provide deterrents regarding circumvention of the technology.

In the quest to safeguard their means of existence, the media industries have been focusing on techno-legal content protection in an isolated and excessive manner and neglecting consumer interests in their profitability calculus. Numerous voices support the so called „Napsterization“ threat model that assumes that one crack is sufficient to enable a pirate to inject the content into P2P networks, leading to the perfect public good problem, a phenomenon also referred to as „ROCE“ (Rip Once, Copy Everywhere). Therefore, in accordance with the Napsterization model, the DRMS security design selected must be absolutely bullet-proof in order to prevent a single attack which threatens the entire economic value of the content.

A paradigm based on consumer needs

However, this would not make sense, either from a technical or from an economic perspective. From a technical viewpoint, it will

never be possible to implement complete protection. Even if technological protection measures can remain a step ahead of the attack techniques and tools of the hacker community, the fundamental problem of the „analogue hole“ will continue to exist. This refers to the possibility of digitising high-quality analogue copies and distributing at least one copy in media networks, with the resulting snowball effects (due to the problem of the „digital hole“). Thus, sooner or later, the availability of unauthorised copies must be expected.

In economic terms it is not necessary to increase protection levels excessively or to make technical installations bullet-proof. DRM systems have a substantial price attached to them. The costs of setting up, deploying and maintaining the technical infrastructure seriously erode revenue potentials (Ünlü and Hess 2005). Therefore, in some situations weaker protection may be preferable to stronger forms of content protection. Shapiro and Varian summarise this by stating, „The important thing is to maximise the value of your intellectual property, not to protect it for the sake of protection“ (Shapiro and Varian 1999). The need to fine-tune the level of content protection is a well-investigated research issue. Empirical case studies show that liberal download sites with a low protection level, such as iTunes, have proven successful in the marketplace, while many strong content protection systems, such as Sony’s Key2Audio system, have been outright commercial flops (von Walter and Hess 2004).

Thus, economic reasoning shows that the reflection of consumer needs in the design of DRMS is of pivotal importance. Therefore, this contribution seeks to show that decision makers in the media industry must analyse and integrate the notion of consumer utility in their overall strategy. The technical design of DRMS and the scope of content protection must be aligned to consumer interest and the given competitive situation. For this purpose, more abstract industrial organization-models are helpful to determine this optimal level of protection and understand how this level depends on the given market structure (Yoon 2001).

The following arguments demonstrate that a lower level of technical content protection can both satisfy consumer needs and increase profits. Thus, consumer requirements are reconciled with the economic imperative. The corollary is that hurting consumer interests can lead to a depression of profits. Therefore, consumer-friendly technical installations should be desirable, not in order to demonstrate excessive civil responsibility on the part of the media industries and concede to consumers their well-deserved legal freedom. Instead, the idea is to selfishly maximize profits by accounting for the needs of honest and potentially illicit consumers.

Paradox of profitable piracy

The pirating of copyright materials is considered harmful to the interests of the copyright owner. However, some economists argue that the toleration of certain levels of piracy can enhance profits and accommodate consumer demand for more liberalized usage, a position which may appear counterintuitive at first sight. Three factors associated with „profitable piracy“ have been identified in the economic literature: indirect appropriation, experience effects and network externalities (King and Lampe 2002).

In the case of *indirect appropriation*, the copyright owner is able to obtain revenue from unauthorised copies by charging a higher price for the original media products from which unauthorised copies are made. The logic behind this approach is straightforward: If the copyright owner knows which originals will be used to make copies, a higher price can be charged for these originals. This allows the copyright holder to capture some of the revenues that could have been appropriated through ordinary sales if unauthorised copying had been prevented (Liebowitz 1985).

Experience effects can also lead to profitable piracy. Information goods can be considered to be experience goods, since consumers are not perfectly informed about the characteristics of media products prior to consumption. Copies provide information concerning the value of a product, and this in turn promotes the purchasing decision. Network technologies, such as Peer-to-Peer (P2P) systems, can

help copyright owners by making it easier for consumers to inspect the media products (e.g. by sampling songs), so as to facilitate the purchasing decision. If P2P systems were merely used to „try out“ content, then their use would be complementary to retail purchasing, rather than a substitute for it. In addition, the exchange of media products stimulates demand by allowing consumers to sample content that is subsequently bought.

Finally, *network externalities* are highly relevant in markets for information goods in cases where consumer valuation of a good increases when more consumers have purchased it. For example, in the case of online games, network effects emerge from the liquidity of the player pool. Both legal and illegal copies of the game application can expand the „network“ of consumers of that online game. Due to the existence of network effects, unauthorised copying and consumption provide value to legitimate buyers. It thus seems reasonable that illicit copying may benefit rights holders for information goods that exhibit network effects (Conner and Rumelt 1991).

Effects of content degradation

Media companies can also engage in content degradation activities, by focusing on ways to increase the utility difference between original and pirated products. An important parameter is the degradation factor that represents the utility discount of the media product vis-à-vis the original product. A low degradation factor means that the pirated product is only slightly degraded and provides almost the same utility to the consumer as the original product. Conversely, a high degradation factor reflects substantial degradation and consequently a significant loss of utility vis-à-vis the original product. The concept of content degradation can be interpreted in two ways:

First, it can be interpreted as the quality discount of the pirated product in relation to the original product. In the case of analogue reproduction, copies represent poor substitutes for originals (e.g. „screener“ copies produced illicitly in cinemas). Although this does not apply to digital reproduction, original content often provides consumers with a higher level

of utility, to the extent that it is bundled with valuable additional services, which are unobtainable or difficult to obtain from pirates. For instance, software products are often supplied with manuals and support services, such as technical support; and discounts on upgrades may be provided.

Alternatively, it can be interpreted as a transaction cost disadvantage incurred when purchasing the product from a pirated source. In this interpretation, a high degradation level means that the transaction cost is prohibitively high when purchasing from a pirate, with the result that the valuation of the original media product is reduced almost to zero. For example, in the case of highly degraded media product, a consumer who wishes to purchase from an original content provider can simply buy the content legally via a known (online) retailer. If instead the customer wishes to purchase from the pirate, it is first necessary to find the pirated product, which implies higher search costs and possibly greater download costs than in the case of purchasing the original product. Thus, the overall transaction costs of purchasing from a pirate may be much higher than are those for purchasing from a legal source. This reduces the level of utility of pirated products.

Content degradation strategies

Content degradation strategies assume that the media company can determine the level of degradation of competing pirated products. While network effects are inherent in a media product and therefore constitute a given exogenous parameter, it can be argued that the quality difference between a pirated product and the original is something that can be deliberately designed into the competing products. In fact there are at least three strategies which could cause customers to have a reduced willingness for pirated as opposed to original products (Ünlü 2005).

First, media companies can combine their information products with (physical) services that are difficult to copy. For example, this could take the form of more sophisticated (including individualised) artwork accompanying audio CDs, or bundling media products with promotional activities, such as sweepstakes.

Secondly, media companies could increase transaction costs for illegal purchases. One approach would be for legal companies to penetrate P2P networks and supply illegal downloaders with fake pirated goods. This would greatly increase the search costs involved in finding genuine pirated goods. This has occurred in the case of Madonna's „American Life“ album, where fans seeking tracks from P2P networks have downloaded files which are blank except for Madonna delivering a message to those attempting to download her new songs. This could at least provide a fresh approach to the problem of music piracy and file-trading.

Thirdly, through fear campaigning, media companies could highlight the ethical and legal problems associated with piracy. This could result in a psychological devaluation of pirated media products.

It can be seen that there are various ways to deliberately increase the degradation level, which can also be used in combination. In all these cases, media companies have to incur additional costs in order to increase the utility difference between original and pirated products. Related costs include production costs for additional physical components, server and broadband capacity to infiltrate P2P networks, and advertising costs.

The benefit of „homemade“ content degradation is that it reduces the need for technical protection. This means that content degradation is in some sense a substitute for a higher protection level. Therefore, with a bundle of

degradation measures, the need for high-security, illiberal DRMS can be reduced. Honest consumers are not hurt but – instead – benefit from this downward adjusted level of protection. However, efforts to increase the quality difference between original and pirated products (e.g. by means of content individualisation) also imply costs which should not be unreasonably high (Ünlü 2005).

Bottom line

The aim of this article was to demonstrate that consumer and media industry interest must not diverge. On the contrary, optimised profits can only be achieved by accounting for consumer welfare. Specific characteristics of markets for information goods (which exhibit network effects) must be taken into account when deciding on an appropriate level of copyright protection. Besides, product design decisions can add value to products confronted with piracy, when such measures are a cost-effective alternative to technological protection measures. Based on theoretical evidence, there is reason to suggest that media managers should be careful not to implement excessively high levels of protection. Consumer interests have normative implications for the ideal design of a DRMS. In future, further research efforts should be made to investigate the interrelationship between consumer utility and the need for technical protection from an economic perspective.

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URL: http://www.indicare.org/tiki-read_article.php?articleId=148

Magnatune - A voluntary-based model for online music

By: Tobias Regner and Javier Barria, Imperial College London, United Kingdom

Abstract: The article analyses the behaviour of consumers of the online music label Magnatune. Its online store allows users unlimited streaming. This comprehensive pre-purchase access facilitates music discovery and allows an informed buying decision. Consumers may pay what they want for music albums as long as the payment is within a given price range (\$ 5-\$ 18). Our empirical analysis shows that the average payment is \$ 8.20, far more than the minimum of \$ 5 and even higher than the recommended price of \$ 8. We conclude that Magnatune's open contracts design can encourage people to reciprocate and make voluntary payments.

Keywords: Economic analysis – business models, consumer behaviour, economic theory, music markets, reciprocity, social preferences

Introduction

Social preferences have been increasingly studied in theoretical and empirical research. We develop a social preferences-based model to analyse the music industry which struggles to adjust its conventional business model to the challenges of P2P file sharing networks. Conventional online music stores attempt to implement Digital Rights Management (DRM) systems in order to stop illicit copying. However, effective copy protection appears to be hard to achieve as P2P file sharing still thrives. Moreover, common DRM systems restrict consumers in their

consumption in various ways (limitations on sampling, burning or transferring content).

The niche label Magnatune (cf. sources) goes another way. It lets consumers choose from a given price range (\$ 5 to \$ 18). They can pay what they want for music. Moreover, Magnatune offers a free and comprehensive music discovery tool. An online radio service with unlimited streaming lets consumers try out songs they are interested in. We collected a data set of all the label's transactions over 18 months and analysed the payments that consumers made.

The results of our investigation of this alternative business model – the variable pricing concept of Magnatune – are presented in the following. First we describe Magnatune in detail; next we introduce our theoretical model and highlight the findings of our data analysis. Finally we draw conclusions from the research performed. The complete theoretical model and the full regression analysis of the data can be found in an extended paper (Regner and Barria 2005).

The music label Magnatune

The label was founded in October 2003 and it has around 200 artists on contract. Magnatune prides itself of having a very strict selection process to guarantee high quality. The revenue is evenly split between artist and Magnatune and its slogan is: „We're a record label. But we're not evil.” File quality and format is up to the consumer. Even CD-quality files can be downloaded and the formats on offer give a good choice: WAV, MP3, OGG, FLAC and AAC. The payment is variable as consumers can set the price themselves. The given price range for an artist's album is \$ 5 to \$ 18 and Magnatune recommends \$ 8. The actual price is selected by the consumer in a pop-up menu where \$ 8 is the default setting.

Payment is processed by credit card or PayPal. As it is not compulsory to leave an e-mail, consumers can remain anonymous at Magnatune. Albums can be downloaded online or bought as a CD. A fee (\$ 4.97) for the physical costs of material and shipping is due for CD purchases. Magnatune is based in the USA, but as an online store it has consumers around the world.

Magnatune's artists are categorised in various different genres. There is a wide range of music available from classical music to Electronica, Jazz and Blues, Metal&Punk, New Age, Rock and Pop, World and several more. Magnatune can be seen as a niche label that offers music of relatively unknown artists. Mainstream music of famous artists is not sold. Therefore, the focus of Magnatune – and the article's – is music of less-known artists and subsequently uncertain quality.

Experience good aspects are well taken into account at Magnatune as music discovery is greatly facilitated. Full streaming access to all songs is provided in low or high quality. An online radio service can be used to listen to genre selections or artists' albums. Visitors of the site are allowed to test the available music as often as they want. Essentially, consumers have all possible means available to sample music and find out how much a song/album is worth to them before having to make a decision on the payment. This stands in stark contrast to the usual practice of conventional online music stores where merely 30 seconds snippets of songs are available for sampling if at all.

Summary of the model

We studied the relationship between labels and consumers using a moral hazard model for our analysis. It takes social preferences (see Camerer 2003) into account and it considers the importance of free sampling of experience goods (e.g. music). Magnatune's comprehensive pre-purchase access allows consumers to make an informed buying decision. They can experience the information good long enough to determine how much it is worth to them and decide whether they really want to buy it. This full pre-purchase access can also be regarded by consumers as kind behaviour of labels (as it allows them to make an informed choice). Consumers are willing to reciprocate by making a high voluntary payment, if they are socially-minded. Selfish consumers would free ride and would only pay the minimum.

In the model the label offers music online on its web site and consumers purchase albums. The payment of consumers is not enforceable as substitutes are available for free in P2P file-sharing networks. It is therefore subject to moral hazard. Moreover, the value of consumption depends on the amount of pre-purchase access to music. Limited access and restricted sampling mean a lower value for consumers than comprehensive pre-purchase access.

In contrast to a conventional label the set up of Magnatune allows for an open contracts design. The agents have the opportunity to respond to the action of the other. Thus, both

sides are encouraged to reciprocate. Fairness and reciprocity can also be regarded as the enforcement device of this contract (see Fehr et al. 1997 for a similar model in a labour market context). The fact that the consumer in our model is free to choose the payment from a given range adds this feature to the contract design. Hence, our model consists of two stages. First, the label decides whether it allows free comprehensive pre-purchase access to the music or not. Then, the consumers make their purchase and payment decision (being kind, e.g. a voluntary payment, or not).

The theoretical model explains when consumers make a voluntary payment. Social preferences are incorporated into the utility function with a reciprocity payoff. This applies the psychological game theory framework developed in Geanakoplos et al. (1989) and is based on the seminal work of Rabin (1993) and Dufwenberg and Kirchsteiger (2004). The utility function of socially minded individuals increases not only in their material payoffs but also in the psychological payoffs which depend on the individuals' kindness to others and beliefs about that. Essentially, utility increases when the signs of kindness and beliefs about the other's kindness match. Two equilibria – a negative reciprocity equilibrium (both playing nasty) and a positive reciprocity equilibrium (both playing kind) – are possible. Consumers will prefer to make a voluntary payment once reciprocity gains outweigh the material loss of making the higher payment. However, consumers and label have to be sufficiently motivated by reciprocity for this to happen.

As concerns for reputation do not play a role in this context we conclude that the premium exceeding the minimum price of \$ 5 should be motivated by social preferences, e.g. reciprocity.

Data analysis

Our data set goes back to the actual start of Magnatune's service in September 2003 and contains all 14,367 album purchases from then until January 2005. Upon initial contact Magnatune was interested in research collaboration and hence provided the data. Apart from the payment information we also

collected the purchase date, an encrypted identifier of the consumer, his/her gender and country of residence, the artist, the music genre, the means of payment, the type (download or CD) and whether an e-mail address was left or not. In addition to these variables we computed the total amount of purchases and the number of a respective purchase of a consumer. Moreover, we created a dummy variable for female consumers, if no e-mail was left, if a CD was purchased, if PayPal was used and also various country and genre dummies. The number of purchases has been fairly stable over time and there is only minor fluctuation since October 2003.

The average payment for an album is \$ 8.197, the median and mode of the distribution are both \$ 8. Only 14.5% of all purchases were at the required minimum of \$ 5. No time trend can be seen during the observation period. The data has been generated by 7,620 different consumers; most of them (4,986) purchased only one album. On average consumers bought 1.86 albums. The most albums a consumer purchased were 49. Payments made vary between the minimum of \$ 5 and the highest price possible.

Further interesting findings are: Consumers who leave an e-mail tend to spend more on a purchase. The average payment is \$ 8.23 when consumers left their e-mail, while it is \$ 7.82 when consumers preferred to remain anonymous. The two payment options credit card (\$ 8.21) and PayPal (\$ 8.16) average very similar payments. CD buyers pay a fee (\$ 4.97) for the physical costs of material and shipping. Still, the sale of CDs (\$ 8.93) generates a higher payment than the sale of downloadable files (\$ 8.17). About two thirds of sales come from the U.S. After correcting for currency and GDP differences between countries only minor variations in the size of payments can be observed.

The average payment decreases with the total of purchases a consumer has made. While the average payment for one-time purchases is \$ 8.29, the average payment with more than four purchases is only \$ 8.06. There seems to be a decreasing individual trend line for frequent consumers. However, the average

payment of first-time buyers is stable around \$ 8.26 and they are also „joining” Magnatune at a stable rate over the months.

Conclusions

Our model explains the behaviour of Magnatune consumers who consistently pay more than the requested minimum price and even pay more on average than the recommended/default price. We conclude that reputation effects cannot play a role in this environment. Therefore, social preferences are the likely motivation of the consumers that make voluntary payments.

Reciprocity is the source of social preferences in the model. The comprehensive and free pre-purchase access of Magnatune allows consumers to make an informed buying decision. This is regarded as kind behaviour by sufficiently socially-minded consumers and it triggers a kind reaction. They make a voluntary payment, while self-interested consumers only pay the minimum. All consumers do maximise their utility.

Our empirical analysis shows that the average payment is \$ 8.20, far more than the minimum of \$ 5 and even higher than the recommended price of \$ 8. A regression analysis shows that several factors have an impact on the size of the payment. The pur-

chase of a CD (instead of the mere download) has a positive effect as well as some genres, e.g. „rock”. The number of purchase and the anonymity of the consumer affect the payment negatively. The dummy for female consumers is not significant.

Compared to a conventional online music store that charges a fixed price of – for instance – \$ 8 an album (and offers only limited sampling possibilities if at all) Magnatune makes more visitors acquainted with its songs and thus turns more visitors of the site into consumers; and they still pay more than the recommended price of \$ 8.

Bottom line

Still, despite the positive results of voluntary contributions and variable pricing for music it is important to stress that a niche of the market has been analysed and the results for rather unknown artists cannot be easily applied to the mass market. Nevertheless, the open contracts design of Magnatune should be regarded as a promising alternative to strictly DRM-based stores. In an artist life-cycle model it suits artists in an early stage where they are not (yet) well-known. Then, the experience good aspect of pre-purchase access and the higher exposure it allows is relatively more important.

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URL: http://www.indicare.org/tiki-read_article.php?articleId=147

Can TPMs help create a commons? Looking at whether and how TPMs and Creative Commons licenses can work together

By: Jordan S. Hatcher, JD - Austin, Texas

Abstract: The Common Information Environment (CIE) recently released a report concerning the possibility of using Creative Commons licenses for information produced by public sector bodies (Barker et al. 2005). One of the issues that came up during the study was the compatibility of Creative Commons (CC) licenses and Digital Rights Management technologies (referred to here as Technical Protection Measures). Many public sector bodies felt that password protection schemes were a practical necessity and would not consider CC if they could not place materials behind a password. This article expands upon the conclusion in the report that CC licenses do allow password schemes and considers a broader scope of TPMs. Though any organization or individual looking to implement TPMs on CC licensed content must tread carefully, TPMs can be used to enhance the attractiveness of CC licenses.

Keywords: Creative Commons, public sector information, technical protection measures, watermarks

Introduction

This past summer, the Common Information Environment (CIE) group – a collection of public sector organizations that work together to provide information services to UK citizens – sponsored a study into the applicability of Creative Commons (CC) licenses to UK public sector organizations. Under this study, Intrallect and the AHRC Research Centre for Studies in Intellectual Property and Technology Law at the University of Edinburgh examined „the potential for Creative Commons licenses to clarify and simplify the process of making digital resources available for re-use”. The public sector organizations concentrated on in the study included museums, libraries, and teachers from all levels of education. Any public sector body, however, could apply the information in this report (and in this article) with, of course, taking into consideration laws such as the recent *Directive on the re-use of public sector information* (Directive 2003/98/EC).

Copyright issues can often hinder sharing between organizations and by end-users. Take, for example, a teacher who wants to create a set of handouts and a PowerPoint for a class on 20th century Spanish art. There are, perhaps, 10 other teachers that have taught this same class. In order to assist in creating her class, this teacher would like to build on some of these other materials and to include

some pictures of the artwork. Copyright law states that she will need to get permission from each author – which means contacting each artist and teacher (and possibly their institution) and getting written permission to use the materials. This process of asking permission can be very time-consuming and most teachers will either use the materials without asking (infringement) or not use the materials at all. This creates a major stumbling block to an organization aimed at literally creating a „Common Information Environment” where information can be freely shared. Licenses such as the ones offered by Creative Commons are seen as potentially solving these problems essentially by labeling the content as „shareable” and therefore removing the need for end-users to go through the tedious process of asking permission.

Through stakeholder workshops conducted as part of the study it quickly emerged that Technical Protection Measures (TPMs) may be both desirable and potentially a problem under the terms of the Creative Commons suite of licenses. At first blush the two may seem too incompatible at all to work together: CC encourages openly and freely sharing material while some see TPMs as restricting sharing. The key to resolving this superficial conflict resides in realizing the true scope of CC licenses and TPMs. Crea-

tive Commons licenses, do not simply allow a free-for-all among users. There are certain limits and responsibilities on behalf of the user, such as non-commercial use restrictions in the CC-NC license or attribution requirements. As any reader of the INDICARE Monitor will surely know, TPMs don't mean total control. Consumer perception, however, often equates TPMs with severe restrictions. Thus some clarification of how CC licenses and TPMs can work together is in order.

This article first takes a look at the problems and needs of end-users. This section identifies possible areas where TPMs may be a solution to some of the misapprehensions that organizations may have in using Creative Commons licenses. The next section then looks at the license itself to see the possible TPMs that organizations could use and still remain compliant with the license. The next two sections deal with two different kinds of TPMs, those that deal with access to the work versus those that deal with the work itself. The article then briefly concludes with a word of caution about some of the solutions in this area.

Problems and needs of end-users

Several questions and problems arose during the course of the study where technological measures were identified as being either useful or essential to end-users in order for them to feel comfortable with using Creative Commons licenses. These areas primarily concerned:

- ▶ **Authenticated Environments** – Many participants were interested in placing CC-licensed materials in such authenticated environments as intranets, virtual learning environments, and digital repositories. The practical difficulties of separating out CC-licensed material from restricted access material proved the most major stumbling block when considering these licenses. If the licenses prohibit use of the material behind a password (authentication), then most institutions would not use Creative Commons simply because of the extra expense of maintaining a separate access system (website, database, etc).
- ▶ **A desire to track use of the work** – Many groups would like to see how their works are being used both for grant purposes, such as to report back to funding organizations on the effectiveness of a project, and to be able to assess their own effectiveness.
- ▶ **Preventing commercial use** – There was a significant interest (67%) (Barker et. al. 2005, p. 11) in the Non-Commercial license option and thus an interest in ways to maintain this restriction.
- ▶ **Guaranteeing integrity of the work** – Many participants were concerned about the reputational harm caused by end-users altering their works in unacceptable ways. A way to guarantee the integrity of the work was seen as desirable in order to prevent this harm

The last three areas deal with technological measures directly affecting the works, while the first area only considers measures that control access to the area where the work is stored. The next step is to examine the licenses themselves to see if these four areas may be used within the terms of the license.

Terms in the Creative Commons

The Creative Commons movement started in the United States and has evolved into a worldwide phenomenon. The goal of the licenses is to provide a simple way for users to allow others to share their works in a „some rights reserved” environment. Instead of hiring a copyright lawyer or going through the tedious process of drafting their own license, users can go to one of the Creative Commons websites and click through various options to arrive at a license. A wealth of information is available on their site and within the CIE report about the different options available, and readers are encouraged to find out more through these sources.

Despite the different options, such as the Non-Commercial restriction mentioned above, each license is made up of a set of „baseline rights” that are a part of every license. The language addressing Technical Protection Measures is in this section. The first question is to consider what TPMs the

Creative Commons licenses prohibit. In regards to TPMs, the generic license states:

4. Restrictions ***

a. *** You may not distribute, publicly display, publicly perform, or publicly digitally perform the Work with any technological measures that control access or use of the Work *in a manner inconsistent with the terms of this License Agreement.* (2.5 BY)

Jurisdiction specific licenses such as the England and Wales licenses or the German licenses are ported from the generic license; therefore the generic license is the focus of this article. The emphasized portion quoted above demonstrates that CC licenses only prohibit TPMs that change the rights granted by the license.

Because these licenses only bar TPMs that alter or restrict the terms of the license, the next step is to pinpoint the rights granted by the license. The baseline rights also contain the following grant to the end-user:

3. License Grant. ***

a. to reproduce the Work, to incorporate the Work into one or more Collective Works, and to reproduce the Work as incorporated in the Collective Works;
b. to create and reproduce Derivative Works;
c. to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission the Work including as incorporated in Collective Works;
d. to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission Derivative Works. (2.5 BY)

Obviously the sections granting derivative work rights are altered and new language is added in licenses with the „No Derivative” option. Besides the above grants, there are additional restrictions, such as „keep[ing] intact all copyright notices” and requiring attri-

bution of the work. When these two parts of the license are read together, it seems that there is significant room for TPMs to work in the Creative Commons environment. The CC website even mentions that TPMs can be used with the licenses (FAQ, 5.12 and 5.13).

Authenticated environments

Password protected or otherwise authenticated environments are probably the easiest area to address when examining TPMs and Creative Commons. Examples include intranets, virtual learning environments (VLE) (online classes), and digital repositories (such as for teaching materials). These environments need to be authenticated because they require access to copyright restricted material, such as licensed textbook material in a VLE. These passwords are contemplated only to gain *access* to the storage area of the work and not placed on the work itself. Placing a password on the work itself, such as can be done in Adobe when creating *.pdf files, would be both unnecessary and would violate the terms of the license by restricting the ability to reproduce and distribute the work.

Authentication schemes are based more on practical necessity and not on a desire to restrict certain uses of the works. As a result, the institutions involved do not have a desire to prohibit any of the granted rights inside or outside of the password system. End-users would still be free to distribute or reproduce the work both inside *and* outside the password-protected domain. Clearly, any attempt to restrict them from taking CC-licensed work outside of the authenticated environment would contravene the rights granted by the license (distribution, reproduction, etc.). Based on this, Creative Commons licenses do not restrict institutions from placing materials inside of an authenticated environment. Care would have to be taken by organizations using password schemes that they do not include terms in the contract for registration that violate the CC license (such as forbidding distribution outside of the system) or in the case of Non-Commercial CC licenses try to make commercial use of the user registration or use data gathered within the system.

„Direct” TPMs

Technical Protection Measures that cover the three other areas mentioned – guaranteeing integrity, tracking use, and preventing commercial use – all involve TPMs attached to the actual works themselves. Again, using Adobe as an example, users *could* create *.pdf files that prohibit printing or copying portions of the work, but features such as these would plainly violate the terms of the license. Exactly what types of TPMs comply with CC licenses is outside the scope of this article, but one in particular is worth mentioning: Watermarking.

Watermarking, like the password protection schemes mentioned, is the least invasive method and thus most likely to comport both philosophically and legally with the Creative Commons family of licenses. Simply placing some information in the work would not hamper the ability to copy and distribute the work. They would perhaps be most useful for those using the „No Derivative” CC license. Watermarking could allow for users to authenticate the integrity of the content and for content creators to track use. The use information can then be passed on to funding agencies or used internally in order to assess the usefulness of the licenses in encouraging re-use. These watermarks could also help prevent commercial use for organizations using the non-commercial (NC) option.

TPMs placed directly on the works tread a fine line between allowing the freedoms granted under the license and the law (such as fair use/fair dealing) and the goal of limiting use of the work through technical means. Creative Commons as an organization takes a stance against using these technologies because they believe that this line is too fine. From their website:

Why don't we use technology to enforce rights? ... Perhaps the most familiar is the fact that technology cannot protect freedoms such as „fair use.” ... [M]ore importantly, we believe, technological enforcement burdens unplanned creative reuse of creative work. ... [W]e ... are concerned that the ecology for creativity will be stifled by the pervasive use of technology to „manage” rights. ...[W]e prefer [copyrights] be respected the old fashioned way - by people acting to respect the - freedoms, and limits, chosen by the author and enforced by the law. (FAQ 5.12)

Use of TPMs fits more into a „rights heavy” framework, whereas CC tries to make works easily and readily accessible to users. Organizations need to assess their goals for use of CC licenses and the possible impact of TPMs on re-use by the end-user before implementing any TPM.

Bottom line

Public sector organizations have different needs than individual authors. Thus, they may have more of a desire to use TPMs when making their content freely available. Creative Commons offers a host of licenses that allow the use of TPMs and make content freely available and therefore are an option. Certainly no matter what an organization decides about whether to use TPMs on the CC-licensed work within their control, great care will have to be taken so as to make sure that the license grants are respected. But rather than detracting from Creative Commons licenses, TPMs could enhance the attractiveness to a variety of public sector organizations, including schools, museums, and libraries.

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Acknowledgement

Part of this article has been previously published as an appendix to Barker et al. (2005).

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URL: http://www.indicare.org/tiki-read_article.php?articleId=146

Virgin Media versus iTunes – Using competition law as tool to enforce access to DRM ... and failing

By: Natali Helberger, IvIR, Amsterdam, The Netherlands

Abstract: Apple's tight control over the FairPlay DRM system has caused many iPod users to complain that they cannot play certain files on their iPod, namely the files they bought from other online services, using a different DRM system. The proprietary control over FairPlay is also a thorn in the flesh of iTunes rivals who sought various ways to get around FairPlay's lack of interoperability. The French enterprise VirginMega tried it the legal way - and so did it come that Apple's FairPlay was probably also the first case in which a competition authority in Europe had to decide if access to a Digital Rights Management system can be enforced on grounds of competition law.

Keywords: Legal analysis – access, competition law, DRMS, essential facilities doctrine, law suit, standardization - France

Introduction

Thanks to the early market instinct of iTunes, the success of the iPod, and the fact that the iPod does not play (DRM-protected) music other than FairPlay protected music, iTunes FairPlay DRM is a desirable resource for many of iTunes' competitors. Part of a clever business strategy, the iPod is able to play all files bought through iTunes and non-protected MP3 files from various (legal and illegal) sources, making it an attractive device for consumers. What the iPod does not do is to support any of the rivalling standards used by competing commercial download services, neither is it particularly willing to license FairPlay to rivals. In other words, Apple faces consumers with the choice: „Are you with us or are you with them?“

In response, there have been various attempts to get around Apple's refusal to licence FairPlay, so that competitors could make their services/devices compatible with the popular

iTunes standard. RealNetworks, for example, one of Apple's arch enemies, tried it with reverse engineering and sold music downloads for the iPod in its own unlicensed version of FairPlay . Apple changed its technology and threatened to file suit against RealNetworks (Bangeman 2004). Subsequently, RealNetworks changed its strategy and launched the „Freedom of Choice“ campaign to mobilise consumers against the rival's business methods and services. Goal of the campaign was, so RealNetworks, to help consumers „break the chains that tie their music device [iPod] to proprietary music downloads“. And, according to RealNetworks, „We are here to inform AND motivate“ (Realnetworks 2004). Having said that, it is obvious that RealNetworks' motives were not purely altruistic. RealNetworks understood very well that a combination of successful hardware and a proprietary software standard can be a very successful strategy to exclude unwanted competitors, such as RealNetworks, from

one's customer base (here: the large iPod population). Or to extend one's own customer base: this is what Microsoft is trying with its own Media Player technology which is offered at favourable licensing conditions to music services and device makers, thereby seeking to outdo Apple.

The French entertainment company Virgin-Mega tried another way: the legal way. It filed in 2004 a complaint against Apple Computers France with the French competition authority, the Conseil de la concurrence (Conseil de la concurrence 2004). Virgin-Mega offers its own music download service and uses for this purpose a different DRM solution, namely Microsoft's DRM. Because of the proprietary nature of the iPod, consumers who buy digital music files from VirginMedia cannot, thus the argument of VirginMega, transfer these files to their iPods. VirginMega requested a licence from Apple for FairPlay so that it could encode its music files in the FairPlay format. Apple refused. VirginMedia claimed that the refusal to grant access to the FairPlay DRM constitutes an abuse of a dominant position according to French competition law and Article 82 of the EC Treaty – and that is where the case became interesting for lawyers and the legal-minded. The goal of this article is to report about the decision – in a shortened and rather simplified version (for an extensive discussion, see Helberger 2005) - and the arguments that the French competition authority used to deny the request.

The infamous Essential Facilities Doctrine

The French competition authority examined the access request of VirginMega and recalled for this purpose the jurisdiction of French courts and the European Court of Justice in so called Essential Facilities Doctrine cases. Some words of explanation are in place.

Article 82 (a) of the EC Treaty contains a broad general principle that stipulates that companies in dominant positions must not refuse to supply their goods or services if refusal to supply would significantly impact competition. Having said this, the granting of access to a facility goes beyond the mere duty to supply. The obligation to share one's

own assets with competitors can result in considerable conflicts with commercial interests and economic freedoms, including the right to property and the freedom not to be forced to promote competitors at one's own cost (European Commission (1987), European Court of Justice (1998) and (1995), to name but some). In addition, the sharing of one's resources can trigger considerable security risks for the resource operator, as well as capacity problems and additional costs. All these are reasons why the European Court of Justice, the European Commission and scholars have argued that the obligation to share one's resources should remain subject to stricter conditions those foreseen by Article 82 (a) of the EC Treaty. Access obligations should be reserved for exceptional circumstances, which are summarised in the so called Essential Facilities Doctrine. The Essential Facilities Doctrine has been proclaimed by some scholars as a „powerful tool to pry open markets“ (Furse 1995), while it has been viewed rather critically by others.

The Essential Facilities Doctrine says that any dominant company that controls a so-called „essential facility“ and that refuses access to competitors without objective justification or that grants access only on terms less favourable than those that it offers its own associates, acts in breach of Article 82 (a) of the EC Treaty. An essential facility in the sense of the Essential Facilities Doctrine may be a product, a service, content, infrastructure, technical facilities or access to a physical thing such as a harbour or an airport. In other words, Virgin could stand a chance to force Apple's iTunes to share the FairPlay DRM if (1) Virgin can prove that Apple is a dominant player, that (2) FairPlay is a facility access on which Virgin depends if it wishes to supply its customers with music services and that (3) implementing an alternative DRM standard is not an economically viable option. Finally, it would have to (4) demonstrate that certain economic interests of iTunes, concerning available capacity, security, technical standards and reasonable remuneration interests, are accommodated.

The decision of the French Conseil de la concurrence

The decisions of the French competition authority is instructive as it is, to the knowledge of the author, the first time that a European competition authority had to decide about the legitimacy of a refusal to grant access to a DRM standard under competition law. It is interesting to note that the Conseil de la concurrence found that a technology that implements a proprietary standard could constitute an essential facility. In other words, it is not the facility itself but the standard that is embedded in the facility that can make it essential for market entry for others. In the end, it decided against a foreclosure effect, acknowledging that market foreclosure due to control over a dominant DRM standard could not be excluded under different circumstances (see Mazziotti 2005). The competition authority found Apple to be dominant in the markets for portable music players and downloaded music. For this purpose, the agency developed a number of arguments. The Conseil de la concurrence identified three aspects that were in its opinion relevant when deciding whether FairPlay is an essential facility:

- ▶ a. The actual usage habits of consumers regarding music download,
- ▶ b. Possibilities to circumvent the problem of lacking interoperability, and
- ▶ c. The developments in the market for portable music players.

The Conseil de la concurrence concluded that FairPlay was not an essential facility for the following reasons: First, the competition authority found that only a minor share of the market would listen to music from a portable device, the majority would listen to music via the computer or burn songs onto a CD. Second, and rather unorthodoxly, it described in detail a method how consumers could get around the existing lack of interoperability and download music from VirginMega onto their iPod. Third, the French competition authority found that the market for portable music players was sufficiently competitive and offered several portable players in addition to the iPod. In other words, there were alternative players available that could pro-

cess VirginMega's DRM standard. In conclusion, the French competition authority did not consider FairPlay an essential facility because consumers had a choice: access to the FairPlay standard was not necessary to offer consumers VirginMega's music. It furthermore found that the market for online music was actually competitive as there were at least two major operators active in that market (Conseil de la concurrence, paragraphs 96-103). In addition to its doubts whether the FairPlay DRM was an essential facility, the French competition authority also questioned the causality between VirginMega's lesser economic success and the access refusal. It argued that Apple probably had the more successful business strategy and was for this reason market leader, thereby raising the free-rider issue.

Discussion

Virgin's attempt to call upon competition law to get access to the FairPlay standard failed, at least before the French competition authority. I tend to say: rightly so. Because of its economic implications, the essential facilities doctrine should be applied with caution and be a last resort when competitors are otherwise completely excluded from offering a new service. This is not to say that the present development – segmentation of the music market into a number of competing and non-interoperable DRM standards – is a situation that should be tolerated. Far from it.

The point that I want to make is that because of the many insecurities and difficulties in defining whether its conditions are given, the Essential Facilities Doctrine does not provide potential market players with the legal security that is necessary when launching a new business. Moreover, the application of the Essential Facilities Doctrine to enforce access to a technical standard or interoperability is highly problematic, especially where such standards are protected by intellectual property rights and trade secrets (see the discussion in Leveque (2005) and Mazziotti (2005)). Another argument is that in the competition law analysis, economic reasoning commonly prevails; public information policy considerations about open access and the wide availability of different sorts of content

from different sources – non-economic arguments that play an important role in this context – often are not part of the competition analysis, or only to a very limited degree. Arguably, mandating access on a formal legal basis and by way of a constitutional law-making process is the preferable route to strike the needed balance.

A different question altogether is whether mandating access to a particular DRM standard is the solution to the problem of technical market segmentation as far as DRM is concerned. One aspect that is worth being considered in this context is that enforcing access to a particular DRM standard could further re-enforce the dominance of the FairPlay standard and discourage competitors from designing technically more advanced, and more consumer-friendly solutions. Mandated access regimes can be very questionable from the standpoint of static and dynamic efficiencies and consumer welfare. Access obligations could hamper investment by cutting down incentives to invest in technical innovation and improvement, and by discouraging other enterprises from doing so. As a consequence, mandated access could further strengthen the market position of a particular standard rather than remedying it.

Is it paramount for consumers that FairPlay licences its DRM standard to competitors? What probably matters most from the perspective of consumers is that their choice for a particular device does not tie them to one particular service only, but that they are able to switch between different services (see Duft et al. 2005). To this extent, it is the compatibility of the portable player that matters and that should be guaranteed. To realise this goal, one could think of rules obliging controllers of DRM technology to license their technology to the producers of portable

players at reasonable and non-discriminatory terms, similar to the rules that now already apply for conditional access controllers in digital broadcasting. One could also think of an obligation to conclude some form of interoperability agreement, e.g. following the model of simulcrypt agreements or common interface solutions that have been propagated for digital broadcasting. Speaking for myself, I would rather purchase a portable device that supports several different DRM standards than download music only from download services that support FairPlay. Am I being irrational here?

Bottom line

The arguments that the French competition authority used do not seem unique to the French music sector. In other European countries, portable music players are also by far not the only way to access music files from online download services, several download services are in competition and different portable music players are available to process their range of music. Another question could be whether the adaptation of the iPod to play additional DRM standards is compatible with national law. Fact is that strict scrutiny must be applied before granting access requests of competitors to a particular DRM standard. The decision confirms standing jurisdiction of the European Court of Justice and national courts that forcing undertakings to grant rivals access to their own resources must remain the absolute exception, and is eventually not even a means to achieve market competition and consumer welfare. Instead, solutions that support the compatibility of consumer devices are probably a more viable route to consider. Useful inspirations could be derived from the regulation of conditional access in digital broadcasting.

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Acknowledgement

Parts of this text are adapted from a recently published book by the author (Helberger 2005)

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Status: first posted 28/10/05; licensed under Creative Commons

URL: http://www.indicare.org/tiki-read_article.php?articleId=150

The OECD takes on digital content

By: Philipp Bohn, Berlecon Research, Berlin, Germany

Abstract: The OECD's Working Party on the Information Economy (WPIE) has recently published four extensive reports on digital content. Their relevance for the DRM discussion is analyzed in the course of this article. Where applicable, they are also contrasted with differing findings and positions.

Keywords: Review – business models, digital media, DRMS, information economy, OECD

WPIE on digital content

This summer, the OECD's Working Party on the Information Economy (WPIE) released separate reports on digital content in four areas: scientific publishing, music, online computer games and mobile content. They focus on new business models for digital content, changing value chains, growth drivers and barriers, changing market structures and their impact on economic growth and employment (cf. OECD website).

Focus on DRM

The analyses also cover copyright infringement and DRM issues. As could be expected, the reports have been received with mixed emotions. Free market advocates agree that they „do not underestimate the harms of copyright infringement; indeed, they urge the use of so-called 'digital rights management' technology to try to limit piracy. Yet the report cautions that these systems must not crush interoperability among different technologies. Moreover, the OECD worries that technologies may undermine 'fair use' provisions for lawfully excerpting portions of a work" (The Economist 2005).

Content providers follow a deviant agenda. Consequently, Adrian Strain, spokesperson for the International Federation of the Phonographic Industry (IFPI), objects: „The report does not recognize the vast proportion of the use of P2P services that is infringing copyright. It fails to acknowledge the extent of the damage that this does to the legitimate industry and oversimplifies the issues surrounding DRM in the development of the online music sector" (Gain 2005).

With one side claiming the reports to be fairly balanced and the other accusing it of

oversimplification, I want to take a closer look and discuss what the OECD has to say about DRM.

Scientific publishing

The report describes the industry structure and value chains as well as existing and new business models based on online access. It concludes with challenges and policy considerations. Digital rights management is mentioned only once throughout its 106 pages. Several surveys cited vaguely touch the fields of copyright and access (Accenture 2001, Kraemer et. al. 2002a, E-Business Watch 2002) asking about security concerns, lack of a transparent regulatory framework, inadequate legal protection for purchasers, etc.

However, more than 70 percent of enterprises responding to one survey stated that „goods and services do not lend themselves to selling online" (E-Business Watch 2002). „Given the potential for digital delivery, it is perhaps surprising that unsuitability of goods for online sales should be such a widely cited barrier for media and publishing firms. (...) It may also reflect security and copyright concerns" (p. 50).

The report then introduces the concept of *open access publishing*. Authors following this concept „grant to all users the free, irrevocable, worldwide, perpetual right of access to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose" (Bethesda Statement of Open Access Publishing 2003). Articles and papers are usually based on publicly funded research. Accordingly, funding agencies and institutions are more

and more adopting the open access policy. Thereby, they are stressing the importance of knowledge creation and distribution and the integration of all the actors and activities within innovative systems. According to the report, DRM does not lend itself to the idea of open access publishing, as it is primarily meant to limit users' rights in terms of openness and interoperability.

These findings are very much in sync with, for example, the interview INDICARE conducted with Arnoud de Kemp, who used to be responsible for Springer's digital publishing activities (Springer is a major scientific publisher). According to de Kemp, scientific publishers rely on watermarking at the most. Other, more restrictive approaches would contradict the nature of scientific discourse (de Kemp 2005).

Music

The report starts with a description of the music industry. It also traces changing value chains and business models. A special focus is distribution via P2P networks, including commercial P2P. Also, the impact of online music on artists and consumers is evaluated. The report closes with challenges and policy considerations.

The OECD's position on DRM in the music industry is quite balanced: „Despite their shortcomings, they [DRMs] may be an essential tool to protect intellectual property rights” (p. 94). They supposedly help to tailor content to the consumers' needs and preferences, leading to increased consumer choice and satisfaction. But two of DRM's shortcomings are also addressed: (i) the technology seems to have failed to prevent unauthorised uses, and (ii) increasing use of DRM has raised concern of potentially limiting usage rights.

However, the authors grant that „as opposed to some CD-Rom copy-protection technologies, so far DRMs have rarely been known to prevent legitimate uses of content and services. Still, developers of DRM, players in the market employing DRM, and users of DRM-protected material should be equally concerned to ensure appropriate usage rights, transparency, privacy, as well as ease and re-

liability of access” (p. 94). The analysis concludes that „one of the first aims should be openness and interoperability” (p. 95).

I agree that openness and interoperability are main issues to be resolved soon. However, I disagree that the restrictions DRM imposes on legitimately downloaded songs are less severe than in the CD-environment. Take for example music downloaded from iTunes – you cannot use them with portable devices supported by Microsoft's DRM and vice versa. The customer should be free to consume music on the device of his choice.

Online computer games

The report to a large degree follows the structure already described for scientific publishing and music. Beyond that, it identifies drivers of the online game industry (technology, demographic factors, venture capital, spillovers from computer games), as well as barriers to its development (broadband coverage and latency, market factors, industry and financial conditions).

Given that musical content mostly is the focus of attention when it comes to digital entertainment, I appreciate the OECD's effort to devote a separate report to computer games. However, DRM is only mentioned once in the 68-page report. The authors name copyright and piracy as one barrier to the development of the computer game industry, „as is the case for all software-related and digital content-based industries” (p. 43).

According to the report, there are some things that make the gaming industry distinct from other digital products such as movies or music: (i) games are not static, with evolving game conditions and players' positions, with two-thirds of programming remaining on the suppliers' servers, leading to (ii) server-based piracy (unauthorised access or copying of content located on servers) as an emerging challenge.

Finally, the question arises of how to handle items that gamers can develop themselves, leading to the issue of *user production rights*. This certainly deserves debate, given the outcome of several cases where digital items have been sold without the original owner's authorisation (BBC 2005; see also Vogeley

2005a and 2005b for a more detailed discussion on DRM and online gaming).

Mobile content

The report on mobile content has a more technological angle and stresses the need for a political framework. It also describes value chains, business models and the general state of mobile content (music, games, video, information, other).

WPIE is right in singling out mobile distribution, because „the mobile environment does pose some additional challenges” (p. 55). On the technical side, the authors identify the Open Mobile Alliance’s DRM, Microsoft’s Janus DRM and Apple’s FairPlay as the relevant regimes.

Asserting that it’s the industry’s obligation to provide marketable solutions, WPIE also calls for policy makers to take action, following the OECD Council Recommendation on Broadband Development: „Regulatory frameworks that balance the interests of suppliers and users, in areas such as the protection of intellectual property rights, and digital right management without disadvantaging innovative e-business models” (OECD 2004). (The European Commission is also represented in the OECD’s Council, its decision-making body.)

In particular, this means that national IP laws must be harmonised and anti-piracy enforcements be coordinated, which has already been recognised by the European Commission. On the business side, key issues include interoperability of DRM technologies and consumer acceptance.

The authors conclude that „IP, DRM and technical standards are essential to continued growth of mobile content. Industry and gov-

ernment-facilitated policies to encourage consensus and development in these areas must also take into account the mobile environment” (p. 61).

Again, I believe that the authors might be a bit too optimistic in assessing the industry’s basic willingness to strive for interoperability. Even given pan-European legislative initiatives, DRM-interoperability might still stand in the way of the individual stakeholder’s profit maximisation goals. The industry as a whole could so far not agree on a common mobile DRM standard. This is underlined by their inability to come to terms with MPEG LA, the company bundling patents relevant for the implementation of OMA DRM (MPEG LA 2005, see also the GSM Association’s response to MPEG LA’s revision and Faultline 2005 for further comment).

Bottom line

While the reports taken as a whole are very fair and balanced, taking into consideration the interests of all stakeholders, I disagree on some details concerning DRM, namely in the fields of music downloads and mobile content.

I largely agree with WPIE’s assessment of the situation in online gaming and scientific publishing, especially when it comes to open access publishing. Also, I can to some extent relate to both commentators cited in the beginning of the article: the reports rightly stress the overriding importance of DRM interoperability. At the same time and as the authors indirectly admit, DRM-related issues are presented in a slightly oversimplified way: „In sum, the social and economic dimension of DRMs may necessitate further study” (Music, p. 13).

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Status: first posted 21/10/05; licensed under Creative Commons

URL: http://www.indicare.org/tiki-read_article.php?articleId=149

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Acknowledgment: The INDICARE Monitor is an activity of the INDICARE project, which is financially supported as an Accompanying Measure under the [eContent Programme](#) of [Directorate General Information Society](#) of the European Commission (Reference: EDC - 53042 INDICARE /28609).

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