

## **DRMS: A NEW STRATEGIC STAKE FOR CONTENTS INDUSTRIES: THE CASE OF THE ONLINE MUSIC MARKET**

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**ABSTRACT.** DRMS are often described as essential in the development of the legal online supply of content, notably of music (In this paper, we do not study the cases of sites that sell pre-recorded music, such as Amazon). That is why they are becoming a crucial stake for the whole recovering music industry. In the first section, we will precise the strategic role of DRMS. The market for DRMS in the online music supply is a very recent one, but it is expected to grow rather fast. Moreover, DRMS are becoming the heart of the online music value chain. The aim of this paper is to study the technological competition between the firms that try to impose their standard on the growing market of DRMS. Because this competition relies on the lack of interoperability and on a possible monopolization, we find that the results of this competition may not benefit the content industries.

### 1. A GROWING MARKET AND A CRUCIAL STAKE FOR THE MUSIC INDUSTRY

The recording industry has always been very dependent on existing technologies. The compact disc and the Internet have been the latest examples, two ambiguous examples that have certainly led to the development of Digital Rights Management systems (DRMS). The compact disc has been a kind of gold mine for the recording industry, at least for the major companies. However, the appearance of blank CDs allowed music to be copied in a much better way than on blank tapes. Major companies used to consider the Internet as just another way to distribute their music, but, in 1999, Napster made them realize that there might be something else behind this tool. The following development of online piracy has obliged the music industry to find solutions. DRMS appear as one of these.

**1.1. DRMS: a way to enable legal online supply to develop.** A content may be distributed in a secure way thanks to either a hardware decoder (such as the decoders for the French pay-TV Canal +) or a software decoder (on a PC for example). DRMS are not limited to technical means of content protection. They also enable a provider to trace the spread of content and to manage access rights. The function of DRMS is to enable a secure distribution of digital content.<sup>1</sup> More precisely, DRMS have three functions (OECD, 2005):

- (1) They encrypt content to keep it unavailable from unauthorized users.
- (2) They provide a license system that controls the access to the content, which can be done under specific circumstances.

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<sup>1</sup>DRMS use mark-up languages such as XrML and ODRL.

- (3) They authenticate the identity of every user in order to determine the extent of his access rights and of his use of data.<sup>2</sup>

A few years ago, some authors assumed that DRMS could stand as an alternative to copyright (see for example Samuelson, 2003). The former was technical and contractual while the latter was legal. However, two problems have appeared to confront the DRM argument:

- (1) A contract has value only for those that agree to it. It cannot be used against other people, contrary to the law.
- (2) The law must be a framework for technical protection, in order to avoid overprotection, such as the technical protection of works that are in the public domain.

That is why, in fact, DRMS appear as complementary of, rather than as an alternative to, copyright. The advent of international legislations that prohibit the circumvention of technical protections (DMCA in the United States, EUCD in the European Union) relies upon both technical and legal protection.

Technical protection in the digital space enables the exclusion of users from access to content. DRMS are extending the classical distribution model that relies on subscription or payment made at every use. Thus they are again making it possible to exclude, in order to fight against the non-rivalry property of digital content. Online distribution stands out as a sophisticated reproduction of offline distribution.

DRMS also make it possible to version. Authorized uses are specified for every content and the tariff adapted to every use (Meurer, 1997). Shapiro and Varian (1999) coined the phrase “versioning” to represent the ability to charge different prices for different kinds, levels and combinations of product. Versioning is a market based equivalent to offering more personalized options to individual users. DRMS may govern a wide range of user behaviors such as the number of times a work may be accessed, the duration of access, the ability to reproduce or transmit the work, or the payment schedule for additional access (Burk, 2004).

The online music market really started to grow in 2004, following the failure of Musicnet and Pressplay, launched by the major recording companies in 2001. Many reasons are invoked to explain the current success of online music distribution sites. First there are reasons that concern the development of Internet as a whole, which are mainly linked to technical progress. Notably, in 2001, broadband was very rare in the OECD countries (OECD, 2005). Also more portable devices are now available, and they are, like computers in general, capable of saving more music. The second kind of reasons are linked to the behaviour of the major companies of the recording industry and thus indirectly to the DRMS. These major companies were not able to find an agreement and to cooperate as in the case of the failure of the SDMI consortium. They were also rather reluctant towards the online distribution since it could cannibalize their physical retail sales (OECD, 2005). The development of illegal supply has urged them to give wider access to their catalogues. But they do it only because there are DRMS that are supposed to prevent the unauthorized spread of their contents.

The fact that most of the online distributors only distribute protected content and that the majority of the portable devices are compatible with at least one

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<sup>2</sup>This authentication is necessary for DRMS to work well. However it may cause problems – that we do not study – in terms of respecting the privacy of data.

DRMS show that these systems are already at the core of online music distribution. Actually, most content owners believe that the counter attack to piracy must be a technical one. Since technology allows IRPs to be circumvented, the former could also prevent the latter from being circumvented. DRMS stand out as a concrete application of this approach. Thanks to the DRMS, producers and online distributors can propose an online paying supply that could replace the illegal and free one on peer-to-peer (P2P) networks (Einhorn, 2004). DRMS grant the owners a certain kind of control over their content, unlike the MP3 format that is used on P2P networks.<sup>3</sup> It remains uncertain as to whether or not this belief will be upheld. First, there is no perfect protection when it deals with content that is supposed to be eventually read. Supporters of DRMS argue that they are meant to deter most, if not all, illegal users. In any case, they could also complicate legal use whereas the Internet makes it even easier to get access to illegal content or ways to circumvent technical protections (Doctorow, 2004).

However, the online music market is now very successful. This is mainly due to Apple, a newcomer in this industry whose platform distribution iTunes Music Store stands out as the leader,<sup>4</sup> principally because it was the first to give access to the catalogues of every major.

**1.2. A newly born market.** Content suppliers are the demanders of DRMS. Almost none of them use their own protection system. Rather they let more specialized firms cope with this aspect of their business. As a matter of fact, this activity requires huge and constantly renewed investments since these techniques are rapidly obsolescent and so they are never invincible (Doctorow, 2004). Only big firms have the capacity to combine the competences and the financial resources required.

DRMS solutions are sold by major firms on the supply side of the market for technical protection of content. This market was born in the middle of the nineties and is still evolving.<sup>5</sup> Many sellers have disappeared, some have been bought by more powerful firms. Almost every seller of DRMS solutions has entered into partnerships with huge firms such as Microsoft, Adobe or IBM.

According to one of the rare studies on this subject, published by the company Digital Tech Consulting (see Digital Tech Consulting, 2005), the industry of technical protection and DRMS will have a turnover of 1.9 billion dollars in 2009, whereas it is only 600 million in 2004. In 2004, there was almost no turnover for DRMS for portable terminals but it should reach 525 million dollars. Those DRMS are the main source of growth for this market.<sup>6</sup>

Among all DRMS suppliers, DRMS software publishers are in a favorable position, especially in the field of online music distribution on computers. Few firms are

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<sup>3</sup>This is also a reason why this format is so appreciated by the users of P2P networks.

<sup>4</sup>On the American market, from December 2003 to July 2004, Apple's market share reached 70%, far beyond Napster (11%), Musicmatch (6%), RealNetworks (6%) and Walmart (6%) (Source: NPD Group). Other reasons may be invoked in order to explain Apple's success, such as the design of the site and the price strategy: every song was sold for \$0.99, which is altogether simple and rather cheap.

<sup>5</sup>The market for DRMS is hard to assess since most of the transactions are made between firms (B2B relations).

<sup>6</sup>The DRMs suppliers for cell phones supply licenses and receivers to phone manufacturers that are in accordance with specifications (as for the DRMS) defined by the Open Mobile Alliance. Conflicts are appearing on the price of these licenses.

now dominating the market: Apple (AAC format and Fairplay DRMS), Microsoft (WMA format and Windows Media DRMS), Real Networks (Real Audio and Liquid formats and Helix DRMS) and Sony (ATRAC3 format and Open MagicGate DRMS). The online music market is likely to be monopolized (Picker, 2002). And the small number of DRMS providers only worsens the situation. Since, as we will see, these DRMS stand out as a crucial asset in the online distribution value chain, to control the DRMS market amounts to control over a huge part of the online music market.

**1.3. DRMS: the heart of the digital world.** We are witnessing tremendous changes with the meeting of content industries on one hand and digital technologies (data processing, software, consumer electronics, telecommunication) industries on the other. The latter are globalized and their economic weight is much greater. Thus in 2003, the cultural industries' (television, press, publishing, movies, radio, recording, video games, content websites) global turnover was four times less significant, with 767 billion dollars on the one hand and 2790 on the other (Chantepie and Le Diberder, 2005). A digital convergence is now taking place. Broadband access is now possible with copper cable and the ADSL, cable, satellite or cell phone – “the convergence is no longer the merger of markets and professions, rather it takes the form of a broadband platform that connects heterogeneous terminals to diverse services. The different actors in data processing, telecommunication, EGP and content will now be obliged to go through it” (Lequeux and Rallet, 2005, p 3, our translation).

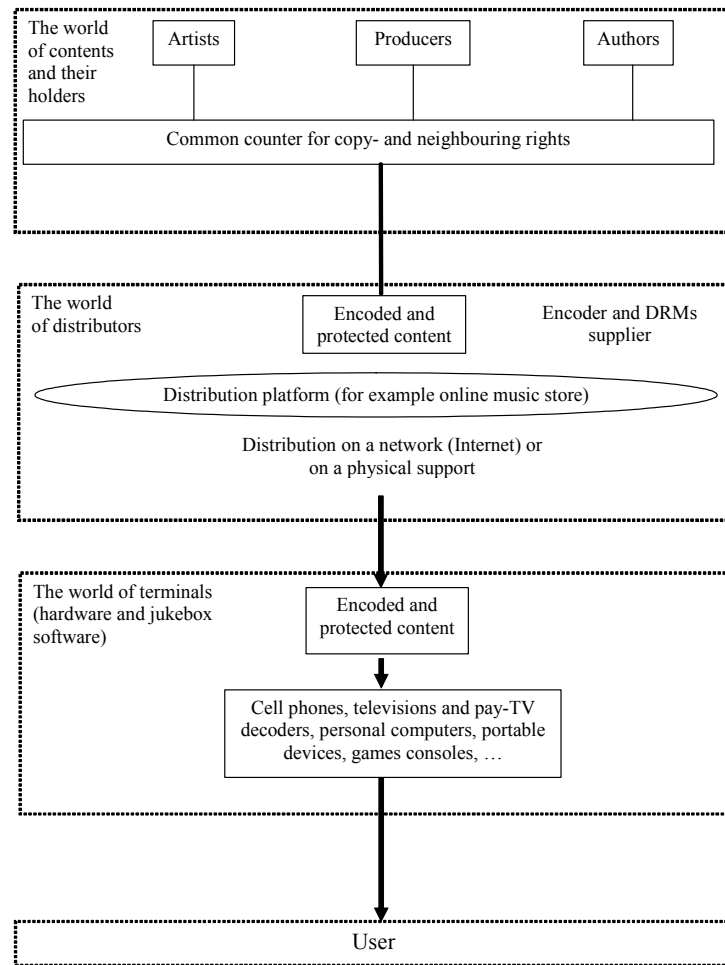
Whether specialized or not, digital terminals could now be connected and contents could go from one to another, if they were interoperable, which they are not. Interoperability may be defined as “the ability for two or more software programs or systems that have complementary functions to operate together thanks to the use of common standards” (Morvan 1991, p 135, our translation). That is to say that it is the process that enables two previously incompatible systems to become compatible.

Henceforth, the domestic digital world has a heart. One has to control this heart as well as the associated standards in order to retain control of the relation with the customer. Firms in consumer electronics and software programming are now competing to become the gatekeepers of digital distribution, using this relationship, the control of access and the protection of contents (Chantepie and Le Diberder, 2005).

In this competition, DRMS stand out as a crucial aspect since they are necessary to get access to the customer. They make it possible to establish a connection between four worlds (see fig. 1):

- the world of content (cinema, music, games, ...) and their owners.
- the world of distributors. They have to encode content and to manage the distribution platform.
- the world of terminals; hardware manufacturers and jukebox software producers make it possible to store and to read dematerialized musical content on terminals (such as PCs, cell phones, TVs, games consoles, ...)
- the world of users.

The DRMS supplier negotiates, on the one hand with hardware manufacturers, whose products are equipped with DRMS, and on the other hand with content distributors such as the online music platforms. Some actors, like Napster, deal



Inspired by Chantepie, 2003, p.80

FIGURE 1. The “Four Worlds” of DRMS

only with distribution and not with content or terminal production. Others are white label services, that is to say they take care of distribution for some of the most famous brands. For example, Loudeye/OD2 works on behalf of Amazon or Barnes & Noble and, in France, Virgin Mega deals with its own distribution as well as working for other brands.

Content distributors negotiate the conditions of distribution with rights owners for all the rights concerned by DRMS. So there is seldom a direct link between the owners or their representatives and the DRMS suppliers (see fig.2). Sony is the only firm that has chosen vertical integration along the entire online distribution chain (content, online distribution with Sony Connect, DRMS and hardware).

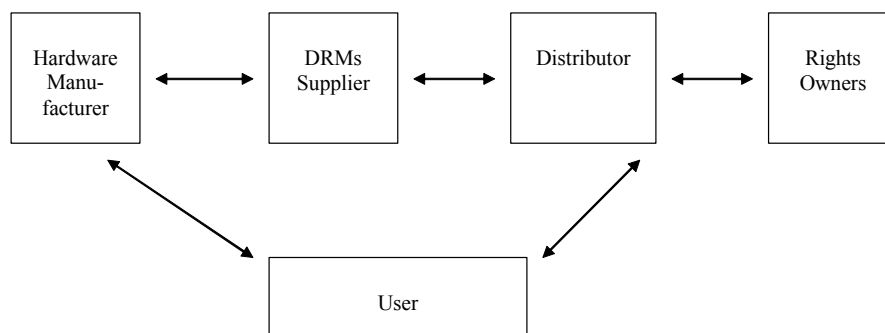


FIGURE 2. The Main Actors in the Online Music Market

## 2. COMPETITION BETWEEN STANDARDS

The few leading DRMS providers are now competing to impose their own system. The online music market stands as no exception. The coexistence of competing protection projects can be compared to a competition between standards.

**2.1. Firms' strategies to impose their standard.** Besen and Farrell (1994) analyze the process of standard-setting in the case of a two-firm competition. Three cases may be distinguished:

- (1) In the first ("Tweedledum and Tweedledee"<sup>7</sup>), every firm tries to impose its own standard;
- (2) In the second ("the Battle of the Sexes"), both firms agree on the necessity of an unique standard, but each one would like its own to become this unique standard;
- (3) In the third ("Pesky Little Brother"), one firm tries to keep control of its standard whereas the other tries to join it.

With more than two firms, strategies become more complicated, mixing the features of the three described situations. At first sight, the market for DRMS is very alike the first case: every firm is competing in order to impose its own standard. According to Besen and Farrell (1994), firms can use four types of strategies:

- (1) "building an early lead" with as numerous users as possible (customers and/or firms using these DRMS for distribution or for reading), especially in order to benefit from network externalities;
- (2) "attracting the suppliers of complements";
- (3) "product preannouncements" in order to attract customers and to deter competitors;
- (4) "price commitments".

In the first two situations, "penetration pricing" towards customers or the other firms stands out as a classical strategy (Katz and Shapiro, 1986).

<sup>7</sup>This is a reference to the characters of *Through the Looking-Glass and What Alice Found There*, the sequel to *Alice in Wonderland* written by Lewis Carroll. A nursery rhyme quoted by the author begins with: "Tweedledum and Tweedledee agreed to have a battle...".

As for intellectual property rights, two strategies are possible in a context of technological competition (Shapiro and Varian, 1999): on the one hand, the firm can decide to close, that is to say to restrain the access to its licenses. On the other hand, the firm can decide to open, that is to say to allow as many firms as possible to get an access to its licenses so that their products may be interoperable with the one of the firm.

This difference is very striking in the DRMS market. Some firms have decided to restrain the access of the other actors to their licenses. That is the case of Apple, which is criticized by other firms on this market. Apple's iPods are almost the only portable devices that are designed to read songs bought on Apple's iTunes (converted into AAC format and protected by Fairplay DRMS). Conversely, until recently (see below) iPods could only read music protected by Fairplay or else encoded in MP3. Apple refuses (except under very restrictive conditions<sup>8</sup>) to grant a license for its DRMS to other music online distributors and portable devices manufacturers. Thus, Apple cannot count on the support of firms producing complementary goods. However, it reduces competition for its online music site and its portable device. The risk for Apple is to fail in imposing its own standard, just like Sony with the Betamax in the eighties (Bernoff, 2004). Until recently, Sony had followed the same strategy but it has announced in 2005 that it would join the Coral consortium, and then cooperate with competitors (see below). However, Sony will not abandon its Atrac 3 format because of its audio quality.

Other DRMS software publishers have decided to open their DRMS, in the sense that they allow almost as many licenses as possible in order to impose their standard to other firms and then to consumers. This is the case for Microsoft and Real Networks. Microsoft does not sell portable devices and as usual focuses on software publishing. It proposes its DRMS to as many hardware manufacturers (more than 70 portable devices manufacturers) and online distributors (for example Virgin Mega, Movie system, Movielink,<sup>9</sup> Napster, Wal-Mart, OD2, AOL, ...) as possible. Licenses are sold at a very low price, which could be compared to a predatory pricing set up to deter potential competitors, to lock the market and eventually to raise prices once the market is monopolized. Moreover, although the license may be rather cheap, there are still installation costs. Finally, these DRMS only work with Microsoft's operating system (OS), which forces the user to buy this OS and not to leave it. Thus, Microsoft's strategy consists in trying to keep the PC, and above all, its OS, as the core of the distribution of content and to make money with it, not with DRMS.

Real Networks also tries to impose its DRMS by licensing them to as many firms as possible. But its strategy relies less on low prices and more on interoperability. Actually, unlike Microsoft, Real Networks has no OS to promote. It has then decided to make its DRMS compatible with other OS such as Linux. Real Networks' strategy is confirmed by the launch during summer 2004 of the technology named "Harmony". This technology enables the music downloaded from RealNetworks Music Store to be read on portable devices and jukeboxes initially only compatible with Apple's or Microsoft's DRMS. That is to say that a song downloaded from this site can henceforth be read on an iPod.

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<sup>8</sup>For example, Apple made an exception in the case of Hewlett Packard's portable devices.

<sup>9</sup>Now Canal + Active.

This is the third case for Besen and Farrell (1994), “Pesky little brother”. Apple, and to a far lesser extent Microsoft, tries to impose its own standard without seeking an agreement with its competitors. On the other hand, Real Networks tries to avoid a competition between standards by assuring compatibility. This kind of competition is more likely to happen in the case of asymmetric firms, which seems to be the case here. According to Besen and Farrell, for the firm that wants to avoid compatibility the solution is either legal or technological. Apple does not seem to have the intent to sue its competitor by claiming that its IPRs have been violated. Rather, it tries to renew its technology sufficiently often. Thus, in December, iTunes and iPods were updated and the reading on an iPod of music bought on RealNetworks Music Store became impossible. This may only be the beginning of a race between these firms.

The common point of Apple (closed strategy) and Microsoft (open strategy) is that they compete on the DRMS market in order to get a dominant position for a compatible product, the OS for Microsoft, the portable device for Apple. And music is a loss leader. Actually, it pushes customers into buying iPods or to retaining use of Windows.

The conflict between standards is not unavoidable. It results from the strategies of actors that want to benefit from “architectural franchise” (Ferguson and Morris, 1993), that is to say a technology that has become an established standard. Such a conflict does not exist in the P2P networks. In these networks, content is encoded in more open formats such as MP3, Divx, Mpeg4. Such formats are furthermore used outside these networks. For example, most portable devices read MP3,<sup>10</sup> which seems normal since most users use this format and its license is easily available. This is less obvious for online distributors that want to control the distribution of their content. MP3 does not enable them to do so because no DRMS can be associated with it. Some distributors such as MP3tunes or emusic.com use it anyway because of its wide compatibility, an aspect that is greatly valued by customers.

**2.2. Interoperability versus licenses.** In the short term, competition between technologies is profitable, notably since it spurs innovation on. However, it is generally admitted that one condition for its efficiency in the longer term is that the different systems are interoperable.<sup>11</sup> A whole literature has developed the social benefits resulting from the uniformization of technical standards and on the other hand, the problems caused by the lack of interoperability between standards (see for example Gates, 1998). Interoperability may be defined as “the ability for two or more software programs or systems that have complementary functions to operate together thanks to the use of common standards” (Morvan 1991, p 135, our translation).

When there is no interoperability, the same work may be protected by different DRMS and the use of each version is strictly limited to one or a few distribution platforms or terminals. DRMS suppliers could make systems interoperable. If they did so, a work could circulate, in a secure way, on different terminals (PCs, cell phones, . . .), on different distribution platforms (Virgin Mega, iTunes, . . .) or between any platform and any terminal (see fig.3). The interoperability of DRMS

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<sup>10</sup>The devices sold by Sony had stood until recently as one of the few exceptions.

<sup>11</sup>Some markets may be considered as exceptions. For example, video games do not seem to need interoperability.



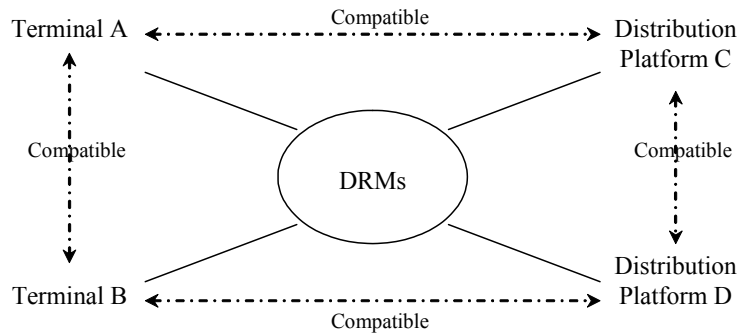


FIGURE 3. Interoperability and Convergence

enables this convergence (see section 1.3). Thus, the use of a work is not limited to a specific terminal.

Interoperability is particularly important in an industry where firms benefit from network externalities. If a firm succeeds in imposing its own DRM system, it will benefit from a positive network externality linked with the building up of a virtual network made of every content and service compatible with the DRMS (Bomsel and Geffroy, 2005).

The very existence of different competing and uninteroperable systems seems bad for content producers as well as users. Technical conflicts are likely to happen if the same content is protected with different systems at different stages of their valorization. They would be harmful for content producers whose interest is to have their products made compatible with any reader or computer. From their point of view, different countries should also make sure that their chosen standards are interoperable. This is because of the global dimension of the distribution of content through the Internet (Hoeren, 1995). This can explain why in November 2004, in the USA, during the first Digital Entertainment Awards, Rhapsody obtained the “Best Downloadable or Subscription Music Service” and Harmony the “Digital Music Innovation of the Year”.<sup>12</sup> In fact, content producers have no interest in the existence of uninteroperability.

And neither do the consumers. When there is no common standard, they must choose where they download music from by choosing the right sites protected by the right DRMS according to the device or the jukebox they use. Instead, consumers would rather make their choices depending on the artist, the composer or the type of music. The coexistence of several DRMS for the same type of content and without interoperability restrains the choices of the customers, in terms of reader to use or sites to download from. The customer will have access to digital content according to his equipment and no longer according to his tastes and choices. Moreover, he will always have to juggle with the compatibilities between sites and readers in a constantly evolving market.

<sup>12</sup>[http://www.realnworks.com/company/press/releases/2004/billboard\\_awards.html](http://www.realnworks.com/company/press/releases/2004/billboard_awards.html).

In any case, most DRMS suppliers refuse interoperability, invoking safety risks in case of total interoperability (Burk, 2004), as confirmed by the hearing of these suppliers by the American Congress in April 2005.

Three paths may lead to interoperability: either the private agents voluntarily find an agreement and define common standards, or one succeeds individually in imposing its own standard, or a norm is imposed by a public agent. In so far as national governments do not seem to have the will to impose one common standard, either firms will agree on minimal common standards or competition will last until one imposes its standards. These are the cases formerly identified as “The Battle of the Sexes” and “Tweedledum and Tweedledee” (Besen and Farrell, 1994).

In order to come to an agreement on a standard, firms will have to negotiate. Besen and Farrell distinguish several ways of negotiating. For example firms may set up an hybrid standard or let another firm, possibly some kind of joint-venture, deal with it, so that none of the firms involved in the agreement is favored. The latter solution looks like the strategic framework used by the firms that belong to the Marlin Joint Development Association (MJDA).<sup>13</sup> The Coral consortium seeks to produce DRMS that would compete with that of Apple and especially that of Microsoft. It comes after and seems very linked to the Coral consortium, notably since most members of the two projects are the same. This consortium has aimed at granting interoperability between the DRMS produced by its members.<sup>14</sup> Even though appealing, the MJDA may not succeed because of the difficulties that are encountered when it deals with coordinating firms, especially when these firms want to profit from this consortium without “losing” too much knowledge or technical skills.<sup>15</sup> Never-the-less, if the MJDA were to succeed, this might not be better from the producers’, distributors’ and consumers’ point of view. In fact, it could mean higher access costs to technologies. These costs would be at least partially faced by consumers. Most of all, independent producers or distributors would not be able to bargain with a firm or a consortium that had monopolized the market for DRMS.

Total interoperability could cause security problems. Besides, intellectual property hinders the interoperability of DRMS standards. Interoperability can be considered as a necessary condition for free competition and most of all diversity of agents. The reason is that when DRMS are not interoperable producers and distributors must get access to every DRMS which may appear not to be affordable for independent producers and distributors. However, the conflicts between competition law and intellectual property rights are recurrent (Eagles, 2000). In the particular context of the rapidly emerging market of online music, they take two main forms:

- (1) On the one hand, online distributors have to get rights to exploit content. They must get these rights from owners. In 2001, as the online market was hardly emerging, the majors of the recording industry tried to make a strategic use of their catalogues to prevent potential competition and to maintain their positions. That is why some of the majors created Pressplay and others Musicnet, two online music distribution sites. Both were failures.

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<sup>13</sup>Sony, Philips, Samsung, Matsushita and Intertrust (a firm that is specialized in DRMS) are members of this consortium.

<sup>14</sup>Both projects are different. On the one hand, the members of the Coral consortium elaborate individually DRMS that have to be interoperable. On the other hand, members of the MJDA are working together to produce DRMS.

<sup>15</sup>See for example the problems encountered by the SDMI consortium.

- (2) On the other hand, online distributors have chosen to use DRMS in order to distribute music in a safe way. Then they must obtain licenses from the owners of these DRMS. These owners decide whether or not to grant them licenses, and at which price. Moreover, the DRMS that stand out as a way to protect Intellectual Property Rights (IPRs) are themselves protected by IPRs (patents in the USA, author's rights and patents in the EU). The main owners of intellectual property rights in this field are companies such as Contentguard (owned by Time Warner, Microsoft Corporation and Thomson) or Intertrust (wholly owned by Fidelio Acquisition which is led by Sony and Philips).

Most DRMS do not belong to open source, and then are protected by IPRs and distributed through computer licenses. A software company does not sell its programs the way a more "traditional" company sells its products. It sells computer licenses which are contracts between the company and the user that allows a constrained use of the software. As a counterpart to this use, the user pays royalties. DRMS licenses are a model of how a firm can take advantage of its IPRs. These powerful tools serve the strategy of their owners but they may increase the product's costs and slowing down the standardization process.

**2.3. The possible abuses of dominant position.** Access to a DRMS license can lead to a conflict between online distributors and DRMS suppliers. Thus, in France, the online distributor Virgin Mega raised a complaint against Apple in 2004. The reason was that Virgin Mega could not get a license to add Fairplay to its platform. This refusal was interpreted by the distributor as an abuse of dominant position by Apple that was said to have a dominant position on the markets for digital portable devices and for legal online music distribution.

In fact, Apple not only supplies DRMS, it also competes with Virgin Mega for the online distribution of music and most of all it sells portable devices. Moreover, it is impossible to read a song downloaded from Virgin Mega's site with an iPod because of the lack of interoperability between Virgin Mega DRMS and the iPod's DRMS. In fact, Virgin Mega uses Windows Media DRM whereas an iPod can read protected songs only when they are protected by Apple's proprietary DRMS, Fairplay.

The Council of Competition did not decide in favour of Virgin Mega<sup>16</sup> for many reasons:

- (1) Firstly, studies showed that most of the downloaded music was not read on portable devices but rather used with different aims. Moreover, the iPod's position on the market for portable devices appeared to be – and still seems – rather fragile. On the one hand, new portable devices were expected to arrive quickly. These devices were compatible with other DRMS, particularly Microsoft's. On the other hand when including devices without a hard disk, Apple's domination seemed less clear. All these arguments can be summarized as the existence of substitutes.
- (2) Secondly, it was possible to circumvent DRMS by burning CDs and then encoding the burnt tracks using the MP3 format, which is a bit binding

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<sup>16</sup>Decision of November 9th, 2004 relative to practices implemented by the company Apple Computer, Inc. in the sectors of the music downloading on Internet and digital portable devices.

but very easy. Thus anyone could transfer songs downloaded from Virgin Mega's site to an iPod.

(3) Finally, iTunes' success has not been proved to be linked to Apple's DRMS.

Considering the jurisprudence and all these arguments, the council decided that the abuse of dominant position was insufficiently characterized. As a conclusion, in our opinion it seems that the existence of Real Networks' "Harmony" (see above) reinforces the Council's decision.

The issue of essential facilities could also have been evoked in this case. This doctrine is sometimes used in the EU competition law. According to it, the abuse of a dominant position may consist of the fact that a firm controls an installation that is considered to be an essential facility. This installation could be infrastructures, goods or services. It cannot be rebuilt with reasonable means and its access is crucial for the competitors of the dominating firm. More precisely, a firm holds a dominant position when its business is to supply this installation. Then it abuses its position when it refuses to give access to competitors without an objective reason. The decision made by the Council of Competition, without making explicit reference to this doctrine indicates that Apple did not have to give Virgin Mega access to its DRMS.

Jurists remain reserved as far as the use of the essential facilities' doctrine is concerned in the case of IPRs (Lipsky and Sidak, 1999, Lucas and Lucas, 2001<sup>17</sup>). According to them, new products and new services are not likely to be invested in if the owners of IPRs cannot keep control of the granting of licenses. As for the American courts, they are hesitating in the way to balance copyright and antitrust laws. The fact that there is a copyright cannot always be considered per se as leading to market power or to an abuse of this power (Einhorn, 2004).

Thus, no firm appears, at the moment, to be abusing a dominant position on the market for DRMS. However, one must keep in mind that DRMS suppliers are in a strong position in the online music distribution supply chain. This could lead them to a dominant position or a monopoly if one standard succeeds. DRMS are described by their supporters as a handy means, that could be respectful to existing exceptions to IPRs, such as private copying. However, this particular means is strictly controlled by its owner. Although content owners may find Windows Media DRM very practical, they cannot choose options outside the framework imposed by Microsoft.

Most content suppliers no longer produce DRMS. Instead, they have become customers of specialized DRMS suppliers. They are now very dependent on these firms. The closed strategy adopted by Apple, in which one firm controls the whole distribution process (see above) looks to be the most problematic one. Thus content suppliers may be experiencing moral hazard problems since they cannot assess the extent to which the supplier is making an effort to improve the system. In the end, the supremacy of one standard could lead to an increase in the price of licenses and the deterrence of competition. The already existing rules that prevent the circumvention of technologies of protection would then reinforce the market power. Unprecedented control over content potentially confers unprecedented market power on the developer of the dominant technical standard, facilitating anti-competitive

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<sup>17</sup>According to these authors, such an attitude would lead one to take for granted the principle that states that the rights owner in a dominant position is obliged to help other agents to compete with it.

conduct (Burk, 2004). On the contrary, the succeeding standard might be a more open and interoperable one. This could happen thanks to public intervention or to strategies taken by private actors. Then the content owners might recover their strong position.

### 3. CONCLUSION: CREATION IS MORE AND MORE DEPENDENT ON TECHNICAL INDUSTRIES.

Numerous analyses of the online music distribution consider DRMS as a crucial technology that enables the legal supply to grow and increases the revenue of the recording industry. However, newcomers are achieving a more and more significant place in this industry. Their core business is even farther from music than that of the major companies. This may be dangerous for artistic creation and cultural diversity. Until recently, competition policies, rather paradoxically, have stood as the last protection in favor of diversity of producers. For example, they have been used twice since 2000 to prevent EMI and Warner Music from merging. However, as the Sony-BMG merger may prove, they do not work any longer. In our case, they look to be the only way to prevent a monopolization of the DRMS market, but the possible effects of such policies are not quite predictable.

On the Internet there are many ways to get access to content. Therefore, numerous economic models may coexist. In the market sector, on the one hand there could be a market for highly value-added products based on control over access. Such a market would be supported by DRMS. On the other hand, the remaining products would be used as loss leaders in order to sell something else, such as portable devices, soft drink cans, subscriptions to the internet, etc.. In both cases, the American and Japanese firms that control access to, and the promotion of, products will get the most important place on this even more costly market.

Because of digital technologies, content industries are becoming dependent upon “technological” industries. These technologies were supposed to free the producers and artists from the power of the major companies. They were also supposed to give world-wide access. Quite on the contrary, they may reinforce the power of the firms that control DRMS and of some countries. This power is then reinforced by the legal rules that aim to protect those DRMS by prohibiting the circumvention of the technologies that protect content. At first sight it appears that the reinforcement of the law in favour of the DRMS as well as the development of these systems is a good thing for the rights owners. In fact, they can benefit from better control over their content as well as from a greater dissemination of it.

However it also appears that they are losing ground compared to online music sites and that the same might happen with DRMS providers. The most significant case concerns the price of online music. According to producers, \$0.99 for a song is far from being sufficient to recover the cost. Until now, they have not influenced the commercial strategy of online distributors. Taking into account the restricted number of DRMS providers – compared to the number of sites – content owners seem more than likely to lose ground. They may face two dangers. On the one hand, the lack of interoperability complicates the distribution of their music and deters customers from buying online. On the other hand, the possibility that one firm monopolizes the providing of DRMS which would give it market power over the whole online distribution of music. In both cases, this situation would cause harm, above all, to independent producers and distributors, who would be forced

to either negotiate with many different providers of incompatible services or to face higher access costs to online distribution due to a rise of the cost of DRMS.

The need for interoperability, as expressed by the EUCD, might be a solution to the current situation, particularly if it is combined with a competition policy that would be particularly cautious of the dangers of a monopolization of the market for DRMS. This interoperability has been requested by the members of the open source community (Espen, 2004). It might also be crucial for the existence of independent producers or distributors. Moreover, such bottlenecks may be threats to pluralism (European Council, 2004).

As a matter of fact, there are authorities that deal with the standardization of the technologies that enable the production, distribution, access to, and control over the reproduction of content. These authorities are from now on acting upon the future of cultural diversity. Recently a Convention on Cultural Diversity has been adopted at UNESCO. This is a step in the fight in favour of cultural diversity, which is thought to be too innovative and restrictive by some countries, such as the USA. However, considering the context, it may already be a rearguard action. For the most concerned countries, this convention must tend to defend sectorial and national cultural policies whereas in the digital paradigm the cultural industries are immersed in a globalized world where sectorial borders are being blurred and then set up again. Cultural diversity has to be defended by something other than traditional, sectorial and national legislations.

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