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**Marketing Digital Music:
Can DRM Help?**

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Marketing Digital Music: Can DRM Help?

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Abstract

We argue that Digital Rights Management technologies can serve a number of marketing purposes that will make it easier for newcoming artists to expose their products to consumers and that will allow established artists to fine tune their offerings to consumers' tastes.

Keywords: Digital Rights Management, File-sharing, Peer-to-peer, Marketing strategies, Digital products

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Introduction

The music market is characterized by a strong heterogeneity in music tastes among consumers that vary not only with respect to music genres but also within each genre. It is therefore difficult for a consumer to evaluate a new album from a catalog. This is especially true for new releases about which consumers have less information. For this reason, music can be classified as an experience good that consumers need to "taste" before they can make an informed purchase decision. Successfully transmitting that information is one of the main challenges facing music producers and retailers. Record companies usually dedicate a substantial budget on production, marketing and promotion of new CDs. Chuck Philips, who interviewed executives from the music industry, reports that "it costs about \$2 to manufacture and distribute a CD, but marketing costs can run from \$3 per hit CD to more than \$10 for failed projects".¹ The Record Industry Association of America (RIAA) elaborates on those costs:

Then come marketing and promotion costs -- perhaps the most expensive part of the music business today. They include increasingly expensive video clips, public relations, tour support, marketing campaigns, and promotion to get the songs played on the radio. (...) Labels make investments in artists by paying for both the production and the promotion of the album, and promotion is very expensive. (www.riaa.org, RIAA-Key stats-Facts-Cost of CD).

The nature of those costs is clearly identified in Hilary Rosen's statement in the Napster case:²

Record companies search out artists and help to develop their talent and their image. Much goes into developing artists, maximizing their creativity and helping them reach an audience. In addition to providing advance payments to artists for use by them in the recording process, a record company invests time, energy and money into advertising

¹ "Record Label Chorus: High Risk, Low Margin", Chuck Philips, Los Angeles Times, May 31, 2001

² quoted from a press release from the RIAA on May 25, 2000 available on the RIAA.com website

costs, retail store positioning fees, listening posts in record stores, radio promotions, press and public relations for the artist, television appearances and travel, publicity, and Internet marketing, promotions and contests. Those costs are investments that companies make to promote the success of the artist so that both can profit from the sale of the artist's recording. In addition, the record company typically pays one half of independent radio promotions, music videos, and tour support. If a recording is not successful, the company loses its entire investment, including the advance. If a recording is successful, the advance is taken out of royalties, but the other costs I mentioned are the responsibility of the record company.

This is the old way of doing business, which has led to the rise of a few superstars who cater to the millions. The widespread use of fast internet connections in home computing offers consumers a new way to acquire information about new music. Indeed, after the Napster experience, it has become clear that there is a cheaper way for consumers to obtain that information: by searching, downloading and testing digital music files made available through Peer-to-Peer (P2P) or other file-sharing technologies. This information transmission technology is fundamentally different from traditional marketing and promotion channels, as consumers, not firms, spend time and resources to listen to new music downloaded from the internet. Consumers thus have the opportunity to discover new products and new artists, some of which would have been excluded from traditional distribution channels. Emerging artists therefore see file-sharing and new digital distribution technologies as a way to enter the market at a low cost. In a recent Pew Internet Report, based on interviews with 2755 musicians in the US who were asked about their opinions on file-sharing on the internet, 35 percent of the respondents answered that free downloads helped their career.

On the contrary, record companies distributing incumbent artists claim that unabated internet piracy could mean the end of the industry as a whole. Five percent of the respondents of the previous survey claimed that file-sharing hurt their career. Unlike CDs and audio tapes, digital music files that can be found on file-sharing networks can be separated from their physical support. They can be quickly compressed and exchanged over the internet, a process which is significantly faster and more flexible than renting a

CD in a media library or borrowing it from a friend. Unlike traditional means of copying, file-sharing technologies provide a large scale diffusion channel that is virtually impossible to monitor, as a single copy can be downloaded by any user across the world.³

In short, digital music is perceived differently by newcomers and incumbent artists in the market. The main claim of this article is that new digital technologies can be used to expose consumers to music of newcoming artists, but also to allow them to receive improved products from established artists. However, entrants and incumbents need to follow different marketing strategies. On the one hand, digital copies and original CDs are mostly complements for new entrants, as consumers use copies to discover, listen to and purchase new music that they enjoy. On the other hand, copies and originals are often substitutes for incumbent artists, as a significant number of consumers copy but do not purchase the original they already know.⁴ For both groups, strategies of the music industry will involve the use of Digital Rights Management (DRM) to protect digital music.

In its attempt to embrace digital music distribution, the music industry is growingly relying on DRM, a small piece of software that can detect, monitor and block (unauthorized) use of copyrighted material. Digital Rights Management for music generally includes: copy control, watermarking (a digital identification technology inserted in digital files, i.e. ex ante constraints), fingerprinting (which converts the files content into a unique identification number, i.e. ex post control), authentication and access control. Technological protection can limit the uses of music files downloaded from online retailers. The most common restrictions consist of limiting the number of computers that the user can transfer his or her files to (typically between 3 and 5) as well

³ To deal with such a threat, record companies are now suing internet users who share copyrighted files over P2P networks freely and anonymously without the authorization of copyright owners. The number of lawsuits has reached more than 10000 in April 2005. Most cases are settled out of court with a fine of \$3,000-\$4,000.

⁴ Even for this latter group there exist complementary products such as live concerts, which make free or subsidized releases of their material an attractive promotion tool for a record company, especially if DRM can be used to collect valuable information about consumers. Record companies and artists could benefit from the sale of complementary products by sharing revenues from these complementary products, as illustrated by the contract between EMI and Robbie Williams (see e.g. “Robbie signs '£80m' deal”, BBC News, October 2, 2002).

as the number of times a playlist can be burned on a CD-R (typically between 7 and 9).

Technology companies use different DRM technologies and different audio formats. Apple's iTunes service uses the Advanced Audio Coding (AAC) format along with FairPlay DRM. Users can burn a playlist 7 times and transfer music files to up to 5 computers. Users can offer their playlists for preview to other members of the community. iTunes' users can offer musical gifts to other subscribers of the music service. In response to Apple, Microsoft has developed its own series of DRM solutions. The first type of DRM protection is implemented in its Windows Media Audio (WMA) music format that is used by many e-tailers and works like Apple's DRM, restricting the number of CD burns and transfers to desktop computers. The most recent DRM solution, Janus, can also limit the use of a music file in time thus enabling business models based on subscription services that do not limit the number of computers or portable players the music file can be uploaded to. In terms of business strategy, it is rent vs. buy. In May 2004, Sony launched its Connect Store, which offers music for downloads of released and unreleased songs and remixes. Sony uses the ATRAC3 format and develops its own OpenMG/MagicGate DRM technology that is in use in most of its portable CD and digital music players. The existing restrictions limit the transfer of music files to only one computer. Restrictions on the use of music files depend on the artist and the album. Music downloads are only compatible with the Sony SonicStage software and portable players that uses the DRM OpenMG/MagicGate.

While policy-makers have given their support to DRM,⁵ several academic researchers have strongly argued against it. For instance, Samuelson (2003) argues that DRM goes beyond the Copyright act. Indeed, DRM can protect any digital content even if it is not protected by the Copyright law such as documents in the public domain. It reduces the value of fair use and can force consumers to view content that they do not wish to (such as ads and FBI warnings). Because of such restrictions, DRM sometimes stands for "Digital Restrictions Management". Moreover, it can potentially protect over an infinite

⁵ Following the World Intellectual Property Organization (WIPO) convention in Geneva, in 1998, U.S. Congress enacted the Digital Millenium Copyright Act (DMCA) that extends the Copyright Act. The

amount of time, which is contrary to the spirit of the Copyright Act. In a sense, DRM create the basis for an ever-going payment system.

While DRM raises many concerns both on legal and economic grounds (see Peitz and Waelbroeck (2005) for a discussion), we would like to argue in this article that DRM can serve as a marketing tool to allow newcoming artists to enter the market at a low cost and to better tailor established or well known music to consumers' tastes. Whether society eventually benefits is an open question. To answer that question it is important to grasp the effect of DRM on the production and the distribution of digital products. The reminder of the article is organized as follows. In the first part, we discuss marketing strategies based on Digital Rights Management for newcoming artists. In the second part, we discuss how versioning, group pricing, targeted advertising, and other marketing strategies can be implemented using DRM technologies to promote music sales of established artists or titles. Although our analysis focuses on music as a digital product, several insights apply to other digital products.

I. DRM and Entrants

Music requires some form of experimentation. Although testing new digital products has always been possible (e.g. by listening to music in record stores), file-sharing makes trying and sampling new music much easier. Songs are often a click away from being listened to on a computer or portable MP3 player. Thus artists have a new opportunity to expose consumers to their music. Many of these artists could not distribute their music to a large audience before because revenues for CD sales would not cover the high fixed costs of marketing and promotion. The situation has changed as sampling may partly replace costly promotions on television and radio as a channel for information transmission.

DMCA makes it a crime to circumvent anti-DRM piracy measures built into most commercial software

A number of recent articles analyze the informational role of unauthorized copies on firms' profits and strategies and on welfare.

Sampling

Duchêne and Waelbroeck (2003) analyze the effect of increasing copyright protection on distribution and protection strategies of a firm selling music. They assume that digital copies available through peer-to-peer (P2P) play an informational role. They propose a simple model in which an original provides additional value compared to the copy and where consumers are heterogeneous with respect to the opportunity cost of spending time online searching for files. They model the demand for a new product that is not distributed through the traditional marketing/promotion technology by assuming that consumers can only purchase a good after they have downloaded a digital copy that includes information on the characteristic of the product. They consider a single firm that decides how much costly technological protection (DRM) to implement in different legal enforcement regimes. Technological protection increases the disutility of a copy but at the same reduces the fair use value of the original product (although they assume that the first effect dominates the second). A strengthening of legal protection reduces the surplus of copiers through the increase in the expected penalty if caught copying. In this framework, they show that increasing copyright protection has a direct effect on copiers but also an indirect effect on buyers as technological protection and prices increase with legal protection, unambiguously reducing consumer surplus.

Peitz and Waelbroeck (2004) analyze a single firm selling a certain number of products that fit different tastes. Consumers derive some utility from downloading a copy plus an additional utility associated with the purchase of the original of a product provided that is not too different from their ideal product. Consumers can obtain information on the horizontal characteristics of products by downloading from P2P networks. Without the availability of digital copies, consumers have to make an uninformed choice and thus choose at random between the available products. P2P allows a user to sample and to quickly find new products that he likes if cross-recommendations and other means for directed search are available. Thus a consumer can obtain a very precise signal of the

products that fit his taste best. Peitz and Waelbroeck show that for a sufficiently large number of products, the firm can benefit from the sampling (or matching effect) of digital copies that leads to a higher willingness to pay for the original and that dominates the direct substitution between copies and original products. If alternatively the firm decided to promote the product through traditional channels the firm would bear the cost of such information transmission; in addition, the fit would not be as optimal because a firm typically would not promote all products.

There are a number of surveys that document sampling behavior among internet users. According to a survey by IPSOS (2002), 31% of music downloaders listen to newcoming artists. This percentage can be seen as a lower bound on the sampling effect, because current P2P networks are not good at providing cross-recommendations, customized playlists etc. Consumers are also able to experiment with new music, as claimed by 27 % of those who report that their listening or purchasing habit has changed after listening to MP3 files. In a survey on Graduate School students, Bounie, Bourreau and Waelbroeck (2005) find that more than 90% of the respondents discovered new artists by downloading music files, while 65% reported that, after listening to MP3 files, they purchased albums that they would not have purchased otherwise.

Stars versus niche performers

Zhang (2002) argues that the current distribution technology makes it easier for artists with a large audience (or stars) and harder for marginal artists to be distributed in the market. P2P networks offer a cheaper way to acquire information for consumers and therefore make it possible for a marginal artist to enter the market. Zhang proposes a model of the music industry with two products that are horizontally differentiated. The star artist is pushed by a big label and the marginal artist has no backing. Zhang assumes that prices are exogenously fixed and identical for both products. Without piracy, the star artist chooses persuasive advertising expenditures to maximize his profits. Although the marginal artist is not naturally kept prevented from distributing his product, the star artist will distort demand in his favor. This distortion can be so large that the marginal artist is driven out of the market. With piracy, this artist can distribute his songs on P2P networks.

Zhang assumes that only a portion of consumers have access to P2P, that digital copies provide information on the true characteristics of the products and that a fraction of these consumers (the “honest” downloaders) purchases one of the two albums that provides the highest utility. Thus marginal artists can gain from the exposure effect on P2P networks, while the star unambiguously loses. Although some of the particular modeling features can be questioned, Zhang’s reasoning is based on the general notion that in a world with stars and niche performers, the current distribution technology benefits the promotion of stars. With digital copies, niche performers can reach consumers more easily. In effect, this suggests that the distribution of album sales would be less skewed.

This argument has received wide attention, especially after the publication of an article by Chris Anderson in *Wired*. According to him, “suddenly popularity has no longer a monopoly on profitability.” (Chris Anderson, “The Long Tail”, in *Wired*, Oct. 12, 2004). Combined with sophisticated software that tracks and aggregates what consumers listen to and purchase, infomediaries can come up with recommendations that guide a consumer to discover products down the long tail that he could hardly ever have discovered through traditional promotion and distribution channels.

Sampling and file-sharing technologies might thus reduce the stardom phenomenon and raise the amount of variety available on the market. We give two examples. First, Peitz and Waelbroeck (2005) point out that the two most legally downloaded songs in September 2004 in the UK were not even in the top 20 singles chart. Similarly, Gopal et al. (2004) document changes in popularity on chart rankings in the file-sharing era. Second, the possibility to sample music of newcomers is also offered by many music e-tailers. For instance, Yahoo! Who's Next pages offer music fans the possibility to discover new artists through editorial reviews, radio stations and music videos. Similarly, Napster Fast Forward provides experts' recommendations on artists who are likely to break soon.

Examples of uses of DRM by entrants

Because digital music is easy to share on P2P networks, several technology companies

offer flexible DRM protection to maximize the potential audience of an artist who wants consumers to discover his or her work. We discuss two such offers: Altnet and Trustyfiles. It is also interesting to observe that Soulseek P2P service has created Soulseek Records to distribute and promote new artists initially exchanged on the file-sharing network, so that promotion on P2P networks and physical distribution need not necessarily be separated.

Altnet

Altnet is the leading online distributor of licensed digital entertainment, enabling record labels, film studios, as well as software and video game developers to market and to sell their media to a worldwide audience of 70 million users. Altnet powers leading Peer-to-Peer applications, internet portals and affiliate websites with access to Altnet's library of rights-managed, downloadable content and integrated payment processing gateway. Kazaa and Grokster feature Altnet music, games, videos and software files. Every time a user downloads and plays a music or video file, a Digital Rights Management window appears, featuring an image of the band, album cover art or other promotional material to help market the file. Each file is 'wrapped' with Altnet's secure rights management technology, which protects the content and allows the file to be sold in the Altnet Payment Gateway. This wrapper also allows Altnet to track sales performance for the file. Content providers can customize this space to provide interactive marketing functionality such as: asking for a user's e-mail address, advertising a special promotion, linking to merchandise fulfillment and concert tickets sites, fan clubs, band pages, etc.

Altnet also works with Cornerband.com, which distributes music of signed-up artists and promotes "emerging" artists on its network. Cornerband.com explains: "Thirty new subscribing bands will be selected on a quarterly basis through a combination of an online rating system and a panel of expert judges from the music industry, offering the musicians in the Cornerband.com community to gain exposure to the millions of Kazaa Media Desktop users (KMD) worldwide through Altnet marketing.⁶ The rating is done by users of Kazaa/Cornerband.com. All Cornerband.com artists have control over the secure

distribution of their music, including the way in which songs are downloaded, sampled and priced to the consumer.

Altnet DRM. Each file in the Altnet library is copy-protected with Digital Rights Management security devices. Altnet licenses DRM technology from Microsoft Corporation to protect music and video files. Most of the files can be previewed for free during a set amount of time. At the end of the trial period, the user is prompted with information about purchasing the file. Each file has an individual pricing and license agreement. Altnet applies the Altnet GoldFile Signature to the files once they are protected with DRM, allowing for greater control and security for the file, and to track the number of times the file is downloaded. Altnet maintains control over the Digital Rights Management License Server, which performs several critical functions including: receiving requests from end users who wish to license DRM Files; denying or issuing licenses to end users as appropriate; storing statistical and historical information about the number and types of licenses issued.

Trustyfiles

Trustyfiles offers a software platform to share digital music files either through a public file-sharing network or through a private network to share files with friends only.⁷ Trustyfiles claims that rock band Heart sold more albums via file-sharing networks than through iTunes, Apple's music service. Artist Sananda Maitreya also developed an innovative launch for his "Angels & Vampires" project that features his own version of Trustyfiles P2P file sharing software. The campaign includes distribution of Weed format files over the major P2P networks (see the Trustyfiles.DRM section below). Sananda Maitreya has also released two new songs and a video exclusively through P2P.

Trustyfiles proposes several marketing services. First, the software is customizable with the logo of the band and links to commercial and promotional offers. Secondly, RazorPop

⁶ Cornerband.com website, category "band benefits".

⁷ TrustyFiles' advanced P2P search and download engine provides search, download, and sharing on Kazaa, Gnutella, and Gnutella2 networks, global search results, multisource downloading, and partial file downloading (i.e. downloading parts of a file instead of the whole file).

network (that works with Music Dish, a promotional platform for independent artists) offers a dedicated channel to files shared on Trustyfiles. Finally, Trustyfiles also offers Digital Rights Management solutions to license files and gather download statistics. Marketing services start at \$100 per year for 15 songs and two short videos. In other words, fixed costs are close to zero for such services.

Trustyfiles DRM. Files distributed through Trustyfiles software are encoded using the Windows Media Audio format and wrapped with a Digital Management Rights protection developed by Weedfiles.com who offers 5 dollars to new users to purchase their first songs. DRM protected files containing music can be heard three times for free, but if a consumer wants to listen to it more often he has to purchase it.

II. Marketing Strategies for Incumbents

Since Digital Rights Management technologies can monitor the use of music files, content providers can use this information to implement several well known business strategies. Here, we consider versioning, personalized and group pricing, test trials, and indirect remuneration schemes. While some of those strategies have been used for physical products, their relevance to DRM protected digital products is even more apparent. For a general discussion of pricing strategies for digital products including versioning, personalized and group pricing, see for instance Shapiro and Varian (1999) or Belleflamme (2005).

Versioning

Some of the consumers who are already informed about the music produced by incumbents choose to copy a product and do not plan to buy the original (for them, copies and originals are substitutes). In order to attract buyers, producers could therefore use versioning and release a new version on the market. As they differ according to their taste for music (for instance fans have a higher valuation than others), consumers will then

self-select into two groups, according to the version that they prefer: a low quality version that can be downloaded online in a compressed format (MP3) sold at a low price, and a high quality version (the original) sold at a higher price. Note, however, that from the point of view of some consumers, compressed files are not of lower but of higher quality simply because compression reduces file size and thus makes music more portable. This applies to consumers who listen to music predominantly on their MP3 player or other portable devices, on which compressed formats are desirable because of limited storage capacity and the loss in sound quality due to compression is not relevant for them. In this case, the two versions possess two characteristics: sound quality and file size. Thus the two versions might be effectively horizontally differentiated rather than vertically differentiated (some consumers are more interested in portability and others in quality on high-end systems). With that remark in mind, we still refer to low and high-quality versions mostly, abstracting from the aspect of portability issue.

Versioning creates two opposing economic forces. On the one hand, releasing a new version creates a market expansion effect, allowing low-valuation consumers to purchase the product. On the other hand, versioning creates a cannibalization effect, with some of the high-valuation consumers switching from the high-quality to the low-quality product. Ideally, both versions are distributed through two distribution channels that do not interfere. A producer who wants to exploit both versions should design the low-quality version in such a way that most consumers who choose to buy the low quality version would not buy anything if the high quality product was the only one available. At the other end of the quality spectrum, the high-quality version should be as attractive as possible to the high-valuation consumers.

A producer can use several strategies to differentiate both versions. First, a producer can increase or decrease the quality of the different versions. More specifically, a producer can modify the relative sound quality of the original compared to the digital DRM-protected version. Indeed, the low-quality version is typically available in a compressed format that makes the music experience less appealing on a high-end hi-fi system. Improving the sound quality of the high-quality version makes it even more attractive

compared to the low quality alternative.⁸ Also, the producer can offer complementary services (liner notes, bonus tracks, remixes, videos, luxury cases etc.) with the high-quality version to make it more valuable for high-valuation consumers. This means that bundling can be used as a price discrimination device. Mixed bundling can be further developed to give consumers the choice to buy compressed files only, or files on a physical medium (e.g. CD, SACD, or DVD), or both, taking into account the fact that the low-quality version has improved portability. Finally, the producer can design Digital Rights Management protection to restrict the use of the lower-quality digital version. As mentioned in the introduction, restrictions include a limit on the number of computers a consumer can store its files onto and on the number he or she can transfer files to a portable device or media such as a CDR.

As a second and additional possibility, a producer can delay the availability of a particular version. He can for instance delay the release of the low-quality digital version, so as to force impatient consumers (fans) to buy the high-quality version (say the CD album) instead of waiting for the low-quality version. A similar practice has been observed for printed books where a hard-cover version is printed early and a paper-back version some time later. Music fans can't wait for their favourite artist's new album to come out, and are ready to pay a high price premium to access the music as soon as possible. On the contrary, other consumers are more patient and are therefore ready to wait for the copy (of lower quality but also cheaper than the original) to come out. While that strategy may work in theory, it is hard to implement when there are illegal copies available on P2P networks. Indeed, in the movie industry, unauthorized copies of box office movies are being circulated on P2P networks well before their official release on DVD or even in theaters. In the case of recorded music, we would expect that after a CD is released, unauthorized copies in compressed format will soon be available on P2P networks. To compete against those copies, the compressed legal version would need to be launched early on. This suggests that an alternative strategy may be more successful: first releasing individual songs in compressed formats and releasing higher sound quality

⁸ Record companies have pushed (so far with little success) the development of the Super Audio format that offers surround sound experience that most high end system can reproduce.

(on a physical medium) later. To illustrate, Madonna ran an active campaign for the first release of her song “American life” on the internet (see Peitz and Waelbroeck, 2005, for details). In this example, some consumers may have bought the low-quality version (which was e-mailed to them) first and the high-quality version later, as part of an album. With the use of DRM, producers can use different distribution channels and collect consumer information on products that are distributed on a decentralized basis. DRM-based technologies then allow firms to better decide on their marketing and promotion strategies for upcoming releases. More specifically, collected information can be used for direct marketing (which is made possible if buyers leave their e-mail address).

Personalized and group pricing; targeted advertising

DRM can monitor the use of digital music files and gather statistics (for instance, on which products have been downloaded in the past) to provide information on the consumers’ willingness to pay for a particular album. Indeed, DRM offers producers the opportunity to practice perfect price discrimination by charging each consumer the maximal price he is willing to pay for the product. While personalized pricing is only a theoretical possibility in the traditional distribution system, it becomes possible and even relevant in online distribution. For DRM protected products the feasibility of personalized pricing is improved since resale is not possible. However, as Amazon.com found out after complaints from consumers' associations, consumers generally do not accept posted personalized prices because of fairness considerations. Therefore, there is currently a remote chance to witness the use of personalized prices. Group pricing is sometimes more acceptable and can in these cases be implemented by firms without too many drawbacks. Examples include student discounts and the likes that allow to divide consumers into different groups based on observable characteristics. Information gathered through DRM technologies then allows firms to decide whether particular group pricing strategies are likely to be profitable or not.

There are indirect ways to exploit information gathered by DRM technologies to implement group pricing. Targeted advertising consists in sending different offers to

particular groups of consumers: a consumer with a high interest in an artist will be offered a promotional price for that artist that is higher than the promotional price offered to another consumer with a weaker interest in the same artist. Similarly, instead of offering discounts to certain groups the producer can offer special bundles.

Test trials

While most new CDs are sold at similar prices, some become hits, others flops. On the whole, only few albums become profitable. Thus, in the traditional business model an important part of the profits made on hits needs to compensate losses made on other albums. Chuck Philips states that only 1 out of 10 acts ever makes a profit (source see above). The risky nature of the current music business model was confirmed in Hilary Rosen's statement in the Napster case:

Statistically, this is a very risky business. Typically, less than 15% of all sound recordings released by major record companies will even make back their costs. Far fewer return profit. Here are some revealing facts to demonstrate what I'm talking about. There were 38,857 albums released last year; 7,000 from the majors and 31, 857 from independents. Out of the total releases, only 233 sold over 250,000 units. Only 437 sold over 100,000 units. That's 1% of the time for the total recording industry that an album even returns any significant sales, much less profit. Fortunately, when it hits, it can hit big. That's what goes to fund the next round of investments to develop and nurture new artists.

This small success rate is due to the nature of a mass-media market in which exposure to the public is scarce and firms maximize audience by selecting a number of potential one-size-fits-all superstar artists. New DRM technologies that can track the success of a song or artist on file-sharing networks are valuable marketing tools to select new albums with the highest commercial potential.

It is interesting to note that some record labels' executives have already looked at music download data to assess how well an act is doing. Maverick Records used download data to promote Story of the Year's "Until the Day I die" song that was a top 20 downloaded

song selling at half a million copies. Similar strategies have been reported to be used by Warner Bros. to promote the song “Headstrong” from the band Trapt (see Dawn Chmielewski, “Music Labels Use File-Sharing Data to Boost Sales”, Mercury News, March 31, 2004).

Instead of using data from the distribution of illegal copies, established artists may seek to distribute their own demo-versions for free. Such a decision would allow a more efficient information gathering process because consumers may be asked for their e-mail address or other relevant user data that can be used for the marketing and promotion of other products, including live concerts and merchandizing.

Alternative remuneration schemes

DRM-based technologies enable producers to provide links to web pages and promotional content. This may lead to the implementation of indirect remuneration schemes, in the spirit of broadcasting radio, commercial television, or internet sites financed by advertising. Consumers receive DRM-protected digital files for free (or at a discount) and are aware of bundled advertisement. Artists, record companies and infomediaries are then paid by the advertisers. This business model is attractive for consumers who do not have a high disutility of viewing ads. DRM-based technologies make it possible in principle to fine-tune ads to those consumers who are most likely to be interested in particular songs or albums. This means that consumers receiving a particular ad may not suffer a high disutility in contrast to, say, commercial TV ads in which advertising for many products has a harder time reaching the right audience.

Hence, advertisers can use DRM-based technologies to select targeted consumer groups who are willing to pay for their favorite music. Moreover, co-branding where an established artist promotes a particular brand (perhaps only to a particular group of consumers) appears to be a promising strategy.

Conclusion

To conclude, DRM should not just be considered as tool to protect against piracy, but rather as a key to open to the market to new artists and to improve musical offerings to internet users. The development of digital distribution technologies (digital products and information about these products) can also open the market to info-mediaries who promote and recommend new products to consumers and producers. For instance, some file-sharing networks already function as a two-sided platform where record companies can reach a large potential audience and better select new acts. Such music info-mediaries could collect detailed user information, which would allow them to make targeted offers to users in turn. As a result, they could become more efficient at spotting new trends and potential stars. Also, the promotion of acts could be partly ensured by the music sites themselves. This means that music sites would take over some of the functions that belonged to the labels so far. Although the death of big labels appears very unlikely, it is an open question whether internet music sites will reduce their role in selecting music, allowing consumers to make their own decisions, independent from marketing strategies that used to push some artists and neglect others, whose music was hardly, if at all, available to the public.

Who among the different players in the music industry will benefit from this dramatic change, is an open question. The answer will in particular depend on the business models which will be chosen. This paper has outlined some aspects as to how the industry can adjust to the new deal and embrace music as a digital product with a focus on DRM. In particular, we presented several arguments as to how artists and producers could use of DRM-based technologies.

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