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MP3: THE END OF COPYRIGHT AS WE KNOW IT ?

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ABSTRACT

New technology provides the music industry with ways to run its business more efficiently by distributing music over the Internet. But this technology is also posing a threat to the music industry, as music is infinitely copied amongst users. Copy protection systems will not provide a lasting solution because the protection scheme will eventually be by-passed. Copyright legislation can only try to keep up by differentiating between commercial and personal, non-commercial use of music.

KEY WORDS

Copyright, Internet, compression technology, MP3, music industry.

1. INTRODUCTION

The latest threat to the music industry is the increasing use and exchange of music in a computer file format. It is roughly eleven times smaller than a normal CD-song and therefore very easy to be copied and distributed. This format, called MPEG Audio Layer-3 or MP3 in short, has quickly become one of the most controversial Internet topics. According to the large record companies copyright infringement of music is happening on a large scale on the Internet. They are making enormous losses because of MP3 pirates, and the situation is completely getting out of hand. This sort of doomsday-thinking is typical behavior of a settled industry afraid to lose control in the long run. But fear for this apocalyptic scenario can also be the driving force behind finding alternative ways to look at copyrights or running a business. Companies and its processes can be streamlined by using new technology. Why not in the music industry? Distribution over the Internet, instead of through large warehouses, truckloads of CD's and big record stores, will certainly cut costs. Still, the same questions arise: How do we make money? How can our copyrights be protected?

These questions are especially of importance now that the enforcement of copyrights can no longer be linked to media such as CD's. Copy protection

systems can probably provide a solution, but not for the long term because users will eventually crack any protection and render the system useless. A new scheme can be introduced and the game of 'cat and mouse' can start all over again. Most of the music industry players have survived previous attacks from new media, but are still mainly orientated around the sale of CD's and will have to adjust their strategies to cope with the digital revolution. Advertising, merchandising and raising prices for concert tickets and concert broadcasting rights could be examples of such strategies. More questions remain. Can the revenues still reach 1997's 38 billion US Dollars? Are there any players that are no longer needed in the future? To find a true solution to these problems, one has to keep in mind that the technological developments are moving very rapidly. Therefore, all questions must be answered in a technology-independent manner to withstand the turbulent era of discussion about copyright law adjustments[1]. Technology that is too expensive for the masses now, or is still non-existent, may well be in their grasp tomorrow. MP3 must be seen as the problem of today, because there will definitely be new problems as new technology arises. The key question is how copyright can offer help in a world that is shaped by these developments and whether copyright laws need to be adjusted.

2. TECHNOLOGY

New technologies that make it possible to copy music have always been veiled in controversy. Whenever such possibilities were introduced, the large labels and the music-copyright organizations would immediately set up a defense, to try to stop the breakthrough of that invention. DAT (Digital Audio Tape), DCC (Digital Compact Cassette), MiniDisc and the CD-R (Compact Disc Recordable) are typical examples of a music industry's nightmare. Resistance to some of these systems proved effective: the DAT and DCC [2] did not get much grip on the market and the latter eventually gave up in 1996. DAT never became a real consumer product because the RIAA (Recording Industry Association of America) forced the producers of DAT-recorders to incorporate a Serial Copy Management System, which would prevent the possibility of making a second copy, on the basis of the Audio Home Recording Act (AHRA) of 1992.[3] The recordable compact disc has gained enormous support from many users in the last two years. As this medium can also be used for recording traditional computer data, video and pictures, the music industry was not the only one involved. The much more influential computer industry did not want any tax or fee on the media, just as there is no tax on computer hard disks, and won this political battle. The problems DAT and DCC encountered do not seem to exist for MP3, because it is strongly rooted in the Internet community, instead of a large multinational.

In 1992 the Moving Pictures Expert Group (MPEG) and the Fraunhofer Institute developed the MP3 algorithm which allows a compression of CD audio with a ratio of 11 to 1, while still maintaining CD quality sound.[4] This is accomplished by removing parts of the music that the human ear cannot perceive. Such a reduction in size allows a user to finally fit all the hits of The Beatles on one disc and is also very interesting for portable and car-audio equipment. Bars, studios and radio stations can also profit from this reduction in size. But the largest group consist of computer and Internet users that share compressed music over the Internet. All the software for making MP3 files at home is widely available on the Internet.

Today the boundaries of the exploitation of the Internet lie in the limitations of its bandwidth[5]. The resulting speeds are not high enough to download a piece of music at an acceptable pace. Considering developments such as ISDN[6], cable-modems, ADSL[7] and satellite connections, it will not be long before affordable fast Internet connections are widely available. Bandwidth availability will also become less of a problem. Especially the competition between the cable- and telephone-companies will push both parties to develop and market their systems more swiftly[8]. Another limitation is the storage and computing capacity of computers. Over the last years it has been shown that Moore's Law is still correct. This cofounder of the Intel Corporation once stated that microchip capacity, and thus power, is doubled every year, or at least every 18 months.[9] The same applies to the increase of storage space on computers. A few years ago the large hard disks of today were unaffordable, especially for consumers. This is another good example of why one should look at the music industry's problems in a technologically independent manner.

The development of MP3 is not linked to any large electronics companies but only to Internet users and researchers. They are not connected with the music labels and organizations like i.e. Sony is. Therefore, they do not feel any obligation towards the music industry to refrain from making possibly harmful equipment. This is exactly where the power of MP3 lies: the chance to develop this technique bottom-up, free from ties to the record companies, but backed by many Internet users. Even though the bottom-up approach will be the main difference with previous attempts to introduce a revolutionary music device, this freedom is not enough for MP3 to flourish. Consumer friendly recording and portable playing devices are needed to give it the necessary boost into the mass media market. In 1998 the first steps for creating such devices have been made. Portable MP3 players as small as a deck of cards have been made by Samsung Electronics[10] and by Diamond Multimedia[11], maker of graphics and audio PC-cards.

3. REVOLUTION

The technology, discussed in the previous chapter, theoretically allows an artist to distribute music directly to the consumer without the use of middlemen. Most likely, however, the artist will need a distributor to take care of the promotional and technological aspects of such a distribution model. Digital distribution will turn out to be a great way to cut costs in the logistics of record companies. Another typical cost of selling CD's is storage-cost. Warehouses will shrink to the size of a computer server with many hard disks. This type of warehousing will result in some extra benefits. 'Out-of-stock' will become an extinct term in the music industry. A third advantage of the digital warehouse is the possibility to add extra material to the downloadable album, such as video clips and additional information.

All the parties involved in the music industry agree that, eventually, most of the music will be delivered over the Internet. As pointed out in chapter 2, the copying of digital information and music is constantly becoming easier. Music has always been manageable because of the analogue format it was linked to. But digital music is inherently unmanageable. How can a copying protection scheme be introduced that still makes the music audible and, more importantly, foolproof? To cut things short: this is not possible. When Internet technology is at the heart of the digital distribution system, another computer-related issue pops up. To make sure that computers have a longer shelf life than a carton of milk, hard- and software are made user-serviceable to allow upgrades. This also allows the user to find the copy protection scheme and eventually bypass it. The music industry will have to continuously introduce new protection methods, as the code will ultimately be broken. The never-ending game of cat and mouse is the result. Another aspect is the cost of investment involved. First a standard of protection must be agreed upon on a worldwide basis, then it must be tested, implemented and serviced. When a new code is introduced, these steps must be repeated all over again. But, supposing that a foolproof system is finally developed, how will this stop the copying? As long as CD's, which have to remain unprotected to work with older CD players, are available, there will be ways to get unprotected music onto the Internet and into the world.

Nevertheless, many designs have been made to make things more difficult for the copier. The first basic copy-protection system is the hardware or software based copy-lock. Especially digital machines, like DAT and MiniDisc, have such Serial Copy Management Systems based on the American AHRA. Other techniques are watermarking, the distinction between various user privileges and encryption. Watermarking of music, is not a real protection system. It is only used to identify and trace illegal copies on the Internet. Computer networks are often outfitted with many protection schemes, amongst which passwords are used widely. Considering the fact that people listen to music to relax, instead of

remembering a password or think about how often they have played a song, this will not be much of a success. Any user-unfriendly 'pay per listen' system will be rejected by the consumers. Encryption and access codes are also ways to provide a certain level of protection. Still, the main flaw in any protection system is the fact that music must be audible. This means that, at one point or the other, the audio will have to loose its protection. Just like code-protected software, the music can be copied after this moment or other users can simply be given the code. The legal matters of breaking those codes will be discussed in the next chapter.

The futility of the copy-protection systems leads to the conclusion that distribution of music amongst consumers must be permitted. However, this freedom does not always refer to 'not-paying', but to the freedom to distribute music for personal, non-commercial uses. When consumers are the main source of income, how can the industry still make money? The first alternatives, that are not even new ways, are merchandising and live performances. Even if an artist is a non-performing composer, income can still be secured because the performer is using the copyrighted material for a commercial purpose. The performer will have to share the profits with the composer. Also, according to the American Society of Composers, Authors and Publishers (ASCAP) and Broadcast Music Inc. (BMI)[12], their members earn most of their money from performance royalties, not record sales. The third option that will become increasingly important will be the live broadcast of the concert on television (or radio). The broadcaster is not free of obligations towards the copyright holders, because it will most likely be used for a commercial purpose. Another place where advertising could play a crucial role, is the Internet site of the label or of the artists themselves. And finally, even though music will be mainly made available through the Internet, CD's will still be popular for a certain time.

4. THE COPYRIGHT DISCUSSION

The United States White Paper[13] and the European Commission Green Paper[14] aim at making digital proof copyright laws. Both want to accomplish this by the use of technological protection and law-adjustments. One of those adjustments is the inclusion of the temporary copy made on the user's computer as a relevant copyright issue. Any normal use would need prior permission. An explicit right of normal use, included in both papers, must resolve this unworkable situation. The combination of these two make the situation unnecessarily complicated and lead to no real change at all. The European Software Directive[15], Database Directive[16] and the proposal for a new directive related to the Internet[17] also include normal use under the definition of copying. These developments at the highest level of international politics must also be seen as troublesome, because the enormous haste of the parties involved. This may lead to unbalanced

decisions that slow down new technology while it is still developing. By trying to slow down the development of the Internet, the music industry will only deprive itself of new opportunities.

Many lawyers do see the threat of the Internet and computer related technology, but few also provide a solution that could really work. Even fewer write about the great opportunities that are generated by the information revolution. This is exactly where the problem lies. The Internet is much more than a place of potential copyright infringement. It is also a place of human interaction and a market place where businesses can be created. Therefore an inter-disciplinary assessment of the situation is needed. Most legal writers are inclined to look at the copyright-on-the-Internet situation from a viewpoint that mainly focuses on the status quo. Dommering writes that copyrights are being washed away through the electronic sieve[18] of the Internet, and that copyright is entering a time of crisis. But what is the real crisis? When many changes are taking place in society, thoughts on copyright will have to change as well. According to Van Jole, a Dutch Internet reporter, every revolution has its victims and now it is the turn of the music industry.[19] Visser claims that consumer interests are too often overlooked.[20] One thing that must not be forgotten though, is the fact that consumers in a digital market will have more choice and can profit from the growing competition. They might just come out as the real winners of the digital revolution, no matter what laws are made.

If law reforms would be necessary, most writers advise to take the time before actually changing any law. More time is needed to re-assess copyright law and the fair-use doctrine according to Samuelson, Hugenholtz[21], Barlow and Myers[22]. When it comes to copy-protection systems, many show great confidence in the ability of technology to overcome the problems induced by technology. “The answer to the machine is in the machine”, says Clark[23]. Also Samuelson[24], Hugenholtz and Smits[25] show a lot of faith in technology as a protective shield. Visser, once again, is much more realistic and points out the ease of circumventing the protection system. Hugenholtz also thinks that the Internet will be ‘locked’, and that users will have to pay for all the information.

Protecting copyrighted material by technological means is ultimately, as was pointed out before, a futile task. Because of the vulnerability of technological protection, another lobby followed, aiming at legal protection of the technological protection. However, when legal protection does not work in the first place, it is unrealistic to expect that it will work now. Hugenholtz seems to share the opinion that this is going too far. He does not recommend any legislator to implement such third generation protection schemes, because the purpose of copyright is to make information accessible, not inaccessible. Quaedvlieg, however, in his review of Hugenholtz’ arguments, points out that,

although this may be true, preventing the distribution of pirate decoders is still an important goal.[26]

The WIPO Treaty article 11 already prohibits the circumvention of protection systems. In a proposal for a new copyright directive, the European Commission wants to go even further by prohibiting the production and distribution of equipment that can accomplish the circumvention.[27] Computer programs that are useful for many tasks probably have the ability to help break the protection scheme in the music. However, those programs can also perform tasks that are allowed, and can therefore not be banned. A hammer can be used legally and illegally also, but that is still no reason to outlaw all carpentry tools. Another point that is of importance here, is the fact that computers must always remain user serviceable to allow upgrading of hardware or software. Therefore, if any kind of third generation protection would be employed, it would have to be full of clauses that balance the various interests. But such a complex system would lead to an unworkable situation, and eventually to the failure of such legislation.

Supposing that all 'cracking' tools are to be prohibited, how are these rules going to be enforced? When computers are used in a domestic environment, control can only be regained by giving the enforcement agencies more power, such as search warrants and the right to break into computers, and thus limiting privacy rights. When these privacy matters become too much of a constitutional debate, one could also look for a more simple system to find compensation for the copies made at home. The easiest way to achieve such a system is by imposing a tax on recording machines, recording media or both. The main problem is the fact that these media were originally designed to record computer data, not music. In the U.S., recordable CD's and computer hard disks cannot be taxed, as current U.S. legislation excludes tax on computer equipment (AHRA, Art. S.1001, sub 4). Whether new legislation is possible depends on the outcome of the 'battle-of-the-lobbies' between the music and computer industry. The latter only sees taxation as an enormous burden on the development of computer technology. Secondly the arbitrary percentage of such a tax will also cover storage space that contains computer data, and not audio. Taxing the data sent over the Internet is even more far-fetched because this will turn the entire Internet community against both industries. The tax that is levied on blank cassette tapes is an implicit recognition of the fact that copying at home has become unmanageable. Today, with digital reproduction, this situation is getting even more out of hand. Therefore, changing the personal use system back into a fully enforced copyright would be a very illogical step to take.

Realizing the futility of technological protection, the only copyright law adjustment that will be needed is the broadening of the personal use clause. Instead of the introduction of an explicit right to use digital material, it would be

preferable to make a distinction between personal, non-commercial use and commercial use.

5. THE MUSIC INDUSTRY

The new players in the music industry are mostly small companies, but with a very large backing by the research- and Internet-community. Having been set up in the Internet era, these new companies are aware of the possibilities and difficulties of the Internet as a medium for music distribution. They do not have the long experience the music leaders have, but they are playing pioneer roles for the future of the industry. San Diego based MP3.com sells cheap CD's of which the artists receive a 50% share without running any investment risk or becoming a "hostage to their record label".[28] Liquid Audio and Real Audio are the two major players in the field of streaming audio. This is a technique that plays the music as it is being transferred from the Internet to the user. Both companies support protection schemes such as watermarking and different user privileges such as one-time or 30-day playback.

The Dutch music copyright organization Buma/Stemra was one of the first to develop a temporary licensing system for music on the Internet.[29] The English Performing Rights Society (PRS), its English equivalent, has a similar system and has also experimented with music distribution over the Internet.[30] They have no illusions whatsoever about the force of the Internet, and have compared it with "standing in front of a large express train waving your hands."[31] The RIAA has been very busy last year with tracing and closing unlicensed music on the Internet. The International Federation of the Phonographic Industry (IFPI)[32] represents record producers and distributors by promoting new legislation and fighting piracy. Just like Buma, PRS and the RIAA, it shows much faith in technological protection of copyright. But "the technology fueling this debate is moving far too quickly," according to a spokesman of the British Phonographic Industry, the English sub-organization of the IFPI.[33] Even if the personal, non-commercial use of music is fully allowed under a copyright exception, these organizations will continue to play an important role in the future. As described above, the commercial use of music will be an important source of income and therefore collective licensing bodies will remain useful to control the copyrights.

MCA's (Universal) VP of strategic marketing Lisa Lewis said, "We are not in the business of digital download or digital distribution. We're in the business of selling CD's and cassettes and vinyl and whatever else consumers can find at retail."[34] This view might be typical of most of the large labels, and fails to grasp that the core business is selling data, not media. EMI's Capitol Records has used Liquid Audio for the promotion of Duran Duran's single 'Electric

Barbarella', but this turned out to be a fiasco as the retailers revolted and the piracy discussion got more attention than the $0.99 single itself.[35] Sony Music and Warner Bros. Music are both backing the IBM Madison Project.[36] This project is to integrate secure payment with the management of rights. This system was designed for the software and print industry, but was abandoned when it met with enormous resistance by the Internet users. Even though Sony supports this system, they know that not a single system can be foolproof.[37]

When artists sign with a record company or a licensing company, they usually lose all the rights to their musical creations and can no longer decide how it will be used and exploited. Groups, such as The Beastie Boys and Public Enemy, have started their own record label and can decide for themselves how their material is used. Both groups use the Internet to distribute songs and look forward to a digital revolution.

Just like most companies in the music industry, the retailers will also have to change their way of doing business. Many claim that the moment the large labels start using digital distribution, the retailers will get very upset and will even restrict shop space.[38] CD sales will still continue because there are 550 million CD players in the world.[39] As long as there are players, CD's will be sold. But perhaps retailers can also make new technology work for them by setting up small record stores with a fast network connection to the music-server of the record company.

Philips, one of the co-developers of the MPEG standard[40], has marketed its consumer CD-recorder in 1998 after having announced the sale of Polygram. This does not seem like much of a coincidence. The electronics giant is rapidly re-focussing on its core-business and not trying to placate the music industry as much as it did before. Webcasting, or Internet radio, allows the user to not only hear the music, but also to see the information about the artist, the album and links to online CD stores. Jim Griffin, former Director of Technology for Geffen Records, is seen as one of the leading advisers for digital music distribution. As chairman of OneHouse, a consulting firm that specializes in e-commerce and intellectual property, he is judging both the new and older players. Even though he admires Michael Robertson's work, he thinks that artists must realize that MP3.com's program can never be enough to find true success, because many resources are needed.[41] Only the larger labels can offer such resources and are therefore forced to treat artists more or less like an investment.

6. CONCLUSION

New technology is unstoppable. The Internet and other computer related developments are going to be at the heart of the information age economy, and the music industry will have to face that fact. The future will allow the music industry to dramatically reduce its distribution costs, but will also force the industry to look for new ways of making money. Copy protection systems should not be part of that future. Besides the fact that these systems will need enormous investments, they cannot prevent copying in the long run. Therefore music must be freed from copyright claims for personal, non-commercial use.

The future role of the music business will be, just like the software industry, more about offering a service. Such a service could consist of personal selections made for consumers, and offering various services to music professionals, such as artists, concert organizers and TV stations.

The copyright lawyers and organizations do not have to worry about losing their jobs either. Copyright will not disappear, at least in the commercial sphere, because it is still a very good way to secure income for artists and the industry around them. Nevertheless, some organizations tend to display short term thinking, such as immediately looking for new laws and protection systems. This behavior will not allow them to assess the situation in a technology-independent manner, which is needed to find a solution that can withstand new developments. In spite of the enormous amount of legislative work and writing that has been done recently, there have not been any real changes. The right to use copyrighted material after it has been bought is self-evident and the only legal change that must be made is a division between commercial and personal, non-commercial use of music.

Notes:

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3 Bill Machrone, Recording industry lives behind the power curve, *PC Week Online*, Oct. 26, 1998. www.pcweek.com.

4 Fraunhofer: www.iis.fhg.de.

5 Bandwidth is the maximum data capacity of a communications line.

6 Integrated Services Digital Network.

7 Asymmetric Digital Subscriber Line: a fast connection over the existing copper telephone cables.

8 Peter McGrath and Arlyn Tobias Gajilan, Fast Lane on the Infobahn, *Newsweek*, Nov. 23, 1998. (www.newsweek.com); Andrew W. Davis, Cable Modems: A High-Bandwidth Solution to Internet Access, *Business Communications Review*. (www.bcr.com).

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