

COPYRIGHT LEVIES AS AN ALTERNATIVE COMPENSATION METHOD FOR RECORDING ARTISTS AND TECHNOLOGICAL DEVELOPMENT

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ABSTRACT. The idea of alternative compensation methods for recording artists has gained increasing popularity as Internet copying has started to seriously threaten record sales. We start this article by looking at the general theory on alternatives to copyright royalties and show that recording artist income is in practise not dependent on record sales. Then we move forward and map the features of the current alternative proposals and construct yet another iteration of a levy-based compensation method. As an example, we analyze what our model would imply for Finland. In the end we reflect on the idea of a levy-based compensation method to the current predictions of technical advances in communication networks and note that the traditional copyright royalty model is seriously threatened by tremendous personal copying covering practically all the music ever created. We conclude this article by discussing what this will mean for the alternative compensation proposals and the music industry in general.

1. INTRODUCTION

The debate on digital music distribution has focused lately on three themes. First, *Internet copying* has become the number one foe of the music industry and the number one music source for consumers. As a consequence, countless studies have been made about the effects of the phenomenon (e.g. Liebowitz, 2004b, Peitz and Waelbroeck, 2004, Oberholzer and Strumpf, 2004). Second, *digital rights management* has been seen as the potential – and sometimes the only possible – answer for the “piracy problem” in the digital realm by the recording industry and legislators. Third, as an alternative to the “pay-per-view world” (Nimmer, 2000), *alternative methods to compensate recording artists* have been proposed by both academics (e.g. Fischer, 2004, Netanel, 2003) and cyber liberties organization (EFF, 2004). The basic idea behind these proposals is relatively simple: a compulsory licensing scheme (levy system) should be established for non-commercial uses including private Internet copying. These levies could be tied, for example, to the price of recording devices (computers) or Internet connections.

We will continue this discussion in this paper. We firstly describe alternative compensation methods for recording artists in general and then focus on levy-based proposals in detail. For practical reasons this paper studies only three groups inside the music industry: the artists, the record companies and the collecting societies. We readily agree that it would be interesting to use even narrower differentiation and include promoters, music managers, companies that make music instruments, recorders and players etc. but unfortunately this is not possible within the limitations for this paper.

2. MUSIC INDUSTRY VS. RECORDING INDUSTRY

One clarification should be noted before we go any further: we don't mean the *recording industry* when we speak about the *music industry*. We believe these terms should be kept separate for the reasons very eloquently described in "The Future of Music" (Kusek and Leonhard, 2005):

The Big-4 major label groups, Sony BMG, Universal Music Group, EMI, and Warner, are all suffering. But if one looks beyond CD sales, it is clear that, *overall*, the music market is vibrant and alive. More music has been enjoyed over the past last two or three years than ever before, by a factor of two or more.

In other words – the music industry is much larger than the record industry alone. For artists, record sales are not necessary that important. For example, a recent study by Connolly and Krueger (2005) found that:

Although the concert figures are somewhat inflated because artists do not tour every year (and our sample conditions on having toured), it is clear that concerts provide a larger source of income for performers than record sales or publishing royalties. Only four of the top 35 income-earners made more money from recordings than from live concerts, and much of the record revenue for these artists probably represented an advance on a new album, not on-going royalties from CD sales. For the top 35 artists as a whole, income from touring exceeded income from record sales by a ratio of 7.5 to 1 in 2002. Royalties from publishing music was slightly less than income from recordings.

Of course, at the same time it should be pointed out that the significance of the different income sources varies a lot among the different operators and even among the artists. The contractual structure of the music industry implies that most of the record sales income is directed to record labels. An illustrative example is the amount of money spend on CDs and concerts compared to the income ratio above:

In 2003 the total value of recording sales (including CDs, singles, LPs, etc.) in the U.S. was \$11.8 billion according to IFPI (2004), while the total value of concert ticket sales was \$2.1 billion according to our tabulations. Thus, from the consumers' perspective, recordings are a much larger market, but from the artists' perspective, concerts represent a much more important income source. (Connolly & Krueger)

This does not come as a surprise considering that the artists get typically about 50 cents to \$1 from a normally priced (\$15) CD after they have paid the total cost of record production and marketing to the record label (Connolly & Krueger). It is possible to make the argument that from the artists' point of view recordings are just one form of promotion for live performances. Even the biggest and most prominent bands have faced this problem:

... They also got screwed by record labels. “In the early days you got paid absolutely nothing,” recalls Jagger... By the mid-’60s the Stones had reportedly sold ten million singles, including “Satisfaction”, and five million albums, but the band was still living hand to mouth. “I’ll never forget the deals I did in the ’60s, which were just terrible,” says Jagger. ... “Because everyone would just steal every penny you’ve got.” (Serwer 2002)

Of course, this is not the whole picture. For example, more entrepreneurial artists with their own record labels have been able to reap higher returns from record sales. For example, The Rolling Stones learned from its mistakes and nowadays the band is also a highly sophisticated corporation itself:

To harness these businesses, to make them “interlock”, the Stones and Prince Rupert have set up a unique business structure, which looks roughly like this: At the top, not unlike at a blue-chip law firm, is a partnership consisting of the four core members of the group. . . Connected to the Stones partnership and Prince Rupert is a group of companies that include Promotour, Promopub, Promotone, and Musidor, each dedicated to a particular aspect of the business. (Serwer 2002)

As the ‘Stones’ corporate structure suggest, the artists also get income from additional sources such as licensing (radio, films) and merchandise.

3. ALTERNATIVE COMPENSATION METHODS IN THE MUSIC INDUSTRY

3.1. Copyright Royalties and Their Alternatives. There are numerous ways to receive compensation from copyrighted works. Maybe the most evident is to collect direct fees (royalties) for all restricted acts as defined in the copyright law such as copying and distribution. In the music industry, royalties are mainly collected from record sales (rights to copying and distribution) as well as airplay (right to public performance).

An alternative to privately priced copyright royalties is to use a government-controlled system when transaction costs are too high. The idea is to collect some kind of fees from all music consumers and then divide them according to some decided criteria. This is for example the model used for recording media and device levies for private copying in several European countries and Canada.

Alternative compensation systems based solely on collective fees/taxes are, however, easy to criticize. In fact, artists receive a substantial part of their compensation through market-based mechanisms where the role of copyright is not central. The most obvious is concerts. Also different product bundles and marketing deals are used.

In sum, the different compensation methods for artists can be summarized, for example, as in Table 1:

Source	Copyright	Artist income
Services (concerts etc.)	Not relevant	Private concert deal
Bundle (merchansising etc.)	Not relevant	Private marketing deal
Taxes (device levies etc.)	Private copying	Public levy or tax system
Airplay (radio, TV etc.)	Public performance	Private or blanket license
Products (records)	Copying and distribution	Private record company deal

Table 1: Different compensation methods

3.2. Proposed Levy Solutions. In the United States, levy alternatives have gained recently increasing popularity. Most of the proposals are quite identical.¹ For example Netanel (2003) and EFF (2004) would attach the levy to all kind of devices and services; Fisher (2004) considers income taxes as well but rejects them as too unpopular option. Netanel would take 4% from the revenues of device and service providers; EFF and Fisher prefer a fixed fee (approx. \$5 increase in the monthly broadband bill). In exchange for this payment, users would gain the right to share files legally. Fischer even proposes that also commercial public performances would be legal.

Levies would be then distributed to artists and the recording industry based on file popularity, which could be calculated through monitoring traffic on peer-to-peer services and sampling the users' listening habits. For example EFF explains:

The money collected would then be divided between artists and rights-holders based on the relative popularity of their music.

Figuring out what is popular can be accomplished through a mix of anonymously monitoring what people are sharing (something companies like Big Champagne and BayTSP are already doing) and recruiting volunteers to serve as the digital music equivalent of Nielsen families. Billions in television advertising dollars are divided up today using systems like this. In a digital environment, a mix of these approaches should strike the right balance between preserving privacy and accurately estimating popularity.

Netanel and Fischer have more detailed proposals, both supporting a model in which the Copyright Office (or more exactly a specific panel etc.) could give the ultimate decisions on how to distribute the collected levies. In the first phase, they should cover the losses the new system causes to the recording industry discounted by the savings coming from shrinking the physical retail channel.

Littman (2004) has made some additional suggestions to Netanel's and Fischer's proposals. First of all, she would give artists a possibility to opt-out from the system. As both Littman and Gratz (2004) rightly point out, opt-out would have relatively little meaning in real life but it could help to fulfill the requirements arising from the Berne Convention.

Somewhat radically, Littman would also pay the collected levies directly to the artists instead of the recording industry:

¹A summary of the proposal can be found, for example, in Gratz (2004). Also Ku (2002) has made a proposal in which file distribution on the Internet should not be covered by copyright at all.

We should build the statutory license around a payment mechanism designed to compensate creators and to bypass unnecessary intermediaries. That mechanism should have sufficient flexibility to allow current and new upstart intermediaries to devise useful value-added flavors of intermediation and collect dollars accordingly. The most straightforward route to accomplish that would be to assign the right to collect the proceeds of the license directly to the individual creators of music rather than their intermediaries, but without relieving them of any contractual obligations they may have assumed to pass some portion of their receipts to others.

The main differences between these proposals and the current levy systems (as used in e.g. several European countries and Canada) are that (1) they would give users the right to share and (2) they would substantially extend the basis (sources) of levies. The current levy systems are supposed to provide the copyright holders only fair compensation from private copying by users and not give any positive rights to copy and share. Further, levies are attached solely to recording media such as blank CDs and MP3-players.

3.3. Critique Suggests Yet Another Hack to the Proposals. The recording industry has not been supportive of the levy proposals. Their main arguments stem from the belief that intellectual property is similar to real property and the property owners should have total control on how the works are going to be used. For the recording industry, the future of online music is iTunes et al. with essentially identical “value chain” compared to traditional CDs. The same can be described in copyright terminology: the record companies are not going to give up their exclusive right to distribute the works of “their” artists. Thus, the proposals are rather ambitious in assuming that the negotiations between the technology and recording industries – and the government, for that matter – would be simple and transparent.

There has been also some academic critique regarding the proposal by e.g. Liebowitz (2004a). His strongest argument seems to focus on the difficulties measuring the correct level of the taxes/levies. However, some of Liebowitz’s other worries seem to be slightly misguided when he considers and junks “the suggestion that has most often been made is to use data on MP3 downloads as a basis for rewarding creators.” As we noted, Fischer, Netanel and EFF have added user sampling etc. in their proposals to avoid such bias. We do, however, agree with Liebowitz that the traffic in peer-to-peer networks is more or less meaningless as a measurement of the popularity of music. It should be fair to assume that most of people download certain files only once and thus any model, which would give any significant weight to peer-to-peer traffic, would be biased towards new music.

In any case, we would correct the levy proposals slightly. We would collect a fixed fee of approximately \$5 from broadband connections and give users the right to share. The fees should cover the losses from CD sales to the extent required to produce and market the music. We would not, however, distribute the levies based on the possibly immeasurable file popularity but instead on users’ subjective opinions. Users should be able to vote where their money goes. Although a given user might download 200 Rolling Stones songs and just 1 song from a new emerging artist in a given month, he might value that 1 song more than those 200

songs he has heard a thousand times before. The final distribution between the recording company and the artist would be their private deal but we follow here Litman's example and distribute the money first to the artist. In short, our voting system would avoid the biases of the measurements, integrate users better within the system, and give emerging artists better possibilities to enter the music markets. As a secondary measure for those users, who don't want to vote, there could be anonymous sampling.

4. CASE: ALTERNATIVE COMPENSATION METHODS IN FINLAND

In this section we will first give an overview of the Finnish situation i.e. what kind of regulation is relevant there, what is the overlook of the Finnish music business and how the Finnish government is subsidizing the sector. Then we proceed to apply the modified alternative compensation method to the system.

4.1. Current Levy System in Finland. Finnish copyright law is to a large extent a product of Scandinavian co-operation. The Swedish, Finnish, Norwegian and Danish civil servants meet regularly and try to keep the law proposals as similar as possible. Still, it should be noted that the international treaties from WIPO and the EU directives mostly dictate the content of the Finnish law. However, certain substantial matters remain in the scope of the decision power of the state. The most relevant areas considering this article are the regulations about copyright societies and levies. Scandinavian countries opted-in for a levy system already in the 1980s before the EU had any common copyright policy. They have been able to develop the system and extend the basis of the levies over the years.

Levies are currently regulated by the Chapter 2a of the Finnish Copyright Law. The content will be slightly changed in a forthcoming update² so we are just going to give a quick overview now. The most relevant article is:

Art. 26a. (442/1984) Where an audio or video tape, or any other device on which a sound or image can be recorded and which is suitable for the copying for private use of a work broadcast by radio or television or a work on an audio or video recording, is produced or imported into the country for distribution to the public, the manufacturer or the importer shall pay a levy proportional to the playing time of the device which shall be used to compensate the authors of the said works and for the collective benefit of authors. The compensation shall be paid out to the entitled authors through an organization representing a large number of Finnish authors in a certain field.

Any person who offers for resale a device as defined in the foregoing paragraph sold to him by a manufacturer or importer shall, at the request of the organization referred to in Article 26b, show that the levy has been paid on the device. If it has not, it shall be payable by the reseller, who shall however be entitled to seek repayment from the manufacturer or the importer.

The Ministry of Education shall set the amount of the levy every year after negotiating with the organizations representing

²This is one of the most heavily contested parts of the proposal, which implies that it may change up to the end of the process.

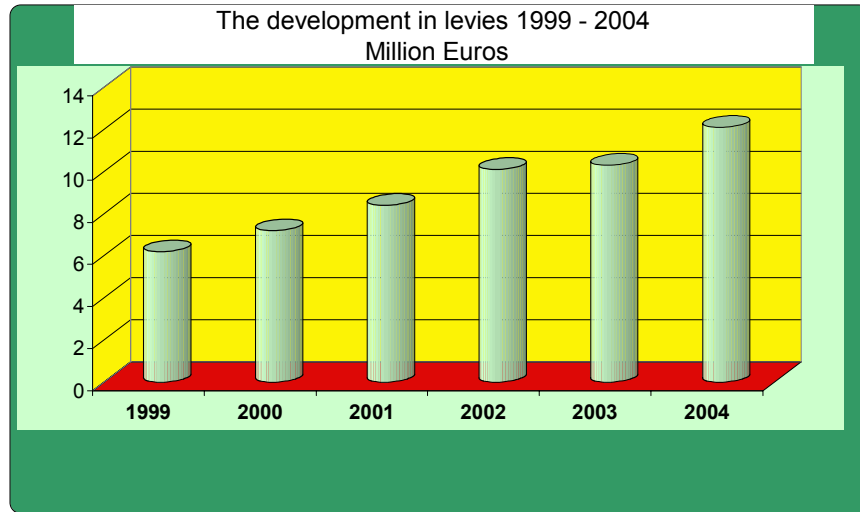


FIGURE 1. Source: The Association of Electronics Wholesalers, Finland

manufacturers and importers, and with the authors' organizations, referred to in the first paragraph above. The levy shall be set at an amount that can be regarded as representing fair compensation for the making of copies of works for private use.

The law therefore gives considerable power to the civil servants³ in Ministry of Education to determinate the level and sources of the levy. The Ministry is using a yearly phone survey, which is prepared together with the copyright societies and consumer electronics associations, to asset the level of private copying in different platforms.⁴ The survey measures only how much material is stored in different platforms. It does not try to determine what kind of effects private copying causes to the markets.

The amount of collected money has been rising steadily over the last few years (Figure 1.). The main reason for this is the popularity of CDR-format. Current prices are described in the Table 2.

Media	Euro cents/minute	Maximum price
VHS	0.76	not available
CDR	0.25	not available
Recording DVDs	0.085 (music)+0.125 (video)	not available
Digital audio recorder	0.50	15€
Digital video recorder	0.76	15€

Table 2: 2005 levies for different medium. Source: Ministry of Education

³It should be pointed out that none of the civil servants do not consult economists and there are no justifications given to any particular level of the levies

⁴As far as the authors of this paper know, the survey data has never been compared to the empirical observations on the real copying habits of consumers. Therefore, one might question the reliability of the answers, especially considering that there is a strong incentive to give false information to skew the results.

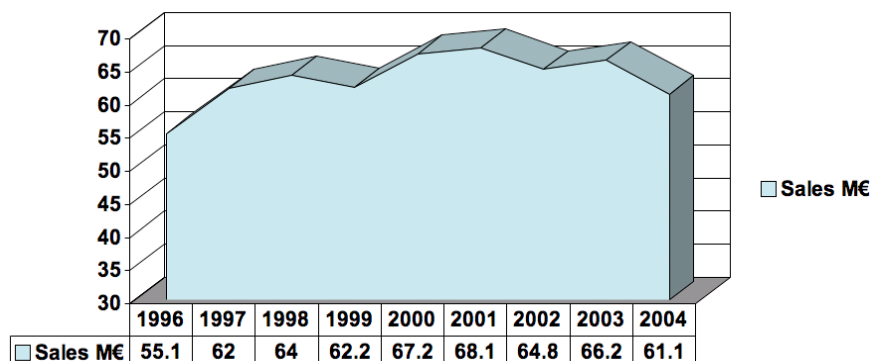


FIGURE 2. Record wholesale trade in Finland 96-04. Source: IFPI Finland

The Ministry of Education also decides the distribution of the collected money between different collecting societies (including societies for other purposes than music) and “general purpose”. Table 3. shows the distribution for the year 2003.

For Collecting Societies	Amount (€)
Kopioisto (Photocopies)	2,011,000
Gramex (Record companies and performing artists)	1,725,000
Teosto (Composers, artists)	1,603,000
Tuotos (Producers)	295,000
For General Purpose	
AVEK (Audiovisual culture)	1,855,000
ESEK (Music performers)	1,126,000
LUSEK (Composers)	636,000
Finnish Copyright Society (Discussion forum)	129,000
Antipiracy.fi (Copyright education & litigation)	105,000
Center for Literacy	101,000
WISEK (Visual arts)	29,000
Blind people’s union	6,000

Table 3. The distribution of Levies. Source: www.hyvitysmaksu.fi

4.2. **Finnish Music Industry.** The Finnish music industry has had relatively few problems during the last few years considering the more substantial loss of markets in certain other countries like USA (c.f. Figure 2.). Record sales are currently approximately 120 million euros per year at retail and the value of the record companies’ wholesale trade was 61.1 million euros in 2004 and 69.2 million euros in 2003. So far in 2005, sales of national artists are up 5% and foreign down 10% compared to last year.

The different shares of the actors are illustrated in Figure 3

Additionally, the Finnish collecting societies accumulated 15.6 million euros (Gramex) and 49.9 million euros (Teosto) out of which they distributed to their members 12,2 million euros and 43.7 million euros respectively. In addition, ESEK distributed 1.6 million euros to different music related projects (e.g. 2007 CD-productions etc.)

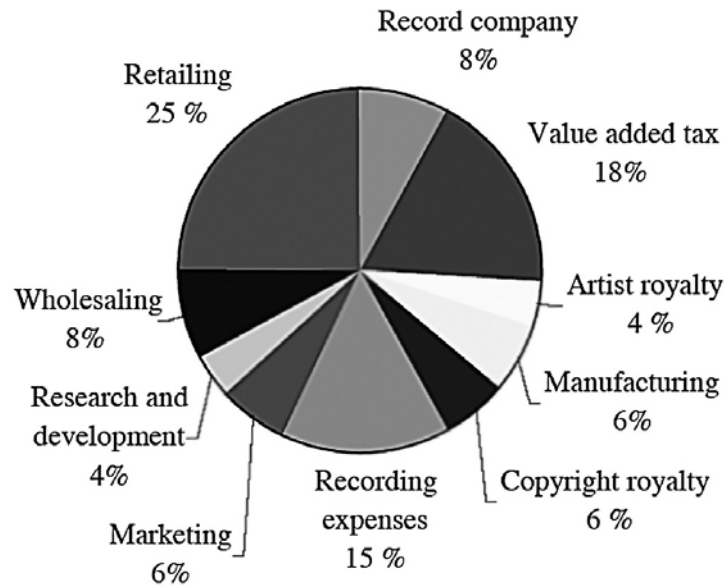


FIGURE 3. Components of a Domestic CD (source: IFPI, Finland).

Unfortunately, there is no new data on how much money was made in concerts. This amount must be very significant:

According to the aforementioned estimation by F&L Management Service Ltd. (1998), the revenues from live music performances in Finland were about US\$140 million in 1997. However, that study defines the live music business extremely narrowly. For instance, it excludes the value of the music activities that are mainly supported through public subsidies, such as operas and orchestras. In 1998, *Muusikko* magazine rated the turnover of live music performances to be about US\$340 million. This estimation covers the music sector more extensively including also, for example, publicly supported activities and church music. (Power 2003)

In conclusion, record sales are important mainly for music companies. The economic activity around collecting societies is more important for the majority of artists and the salaries from performances are even more important.⁵

4.3. Proposed New Levy Model. As described in section 3, our basic assumption is that the alternative should be able to compensate the total loss of CD-sales to artists and also include expenses needed to produce and market the CD. Therefore the required amount of money is relatively easy to calculate from the record statistics from the IFPI Finland.

⁵It would be interesting to investigate the relationship between the income from CD-sales, radio plays and concert performances i.e. how the causality works. Unfortunately, that is outside of scope of this paper.

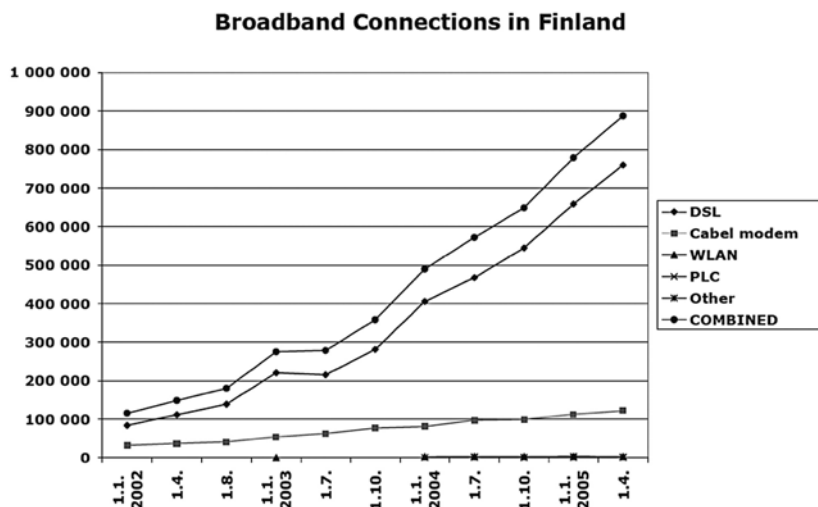


FIGURE 4. Broadband Connections in Finland

In practice this amount is 31% of the retail price i.e. it includes marketing (6%), artist royalty (4%), recording expenses (15%) and copyright royalty (6%). Considering that the retail market was 120 million euros in 2003 (last year with data available), the required amount to collect would be in that case 37.2 million euros. The size of record market has since shrunk but since that may be due to effects of sharing, we don't discount it here.

As is shown in Figure 4, the amount of broadband connection is rapidly rising in Finland⁶ – it will reach one million before the end of this year. Therefore, it is easy to calculate that 5 euros per month would mean 60 million euros per year in new fees.⁷ This is the same amount of money as the record companies are collecting in total wholesale trade right now so there is considerable surplus. Therefore, this amount of money would easily compensate also possible losses in radio licensing fees etc.

However, there are certain legal problems i.e. the international treaties that restrict Finland. It would be possible to make an argument that at least TRIPS Article 13 would most likely forbid the proposed system because current normal exploitation of works would be meaningless. The EU copyright directive could also present a problem since its exhaustive list of exceptions does not explicitly include anything which could apply to the proposed systems. As noted above, the rights holders would also use all means available to oppose the system because it would mean the loss of control of markets.

⁶On a totally unrelated note, one can't help paying attention to the fact that even if the number of the broadband users has risen significantly during the last few years, CD-sales have remained relatively constant.

⁷We assume here that 5€ would not change the number of broadband users within the margin of error. It is never the less possible that this assumption is wrong. We are basically pointing out here that 5 euros from the current user base would be enough for compensation.

Treaty	Relevant section
TRIPS	Article 13 – Limitations and Exceptions. Members shall confine limitations or exceptions to exclusive rights to certain special cases which do not conflict with a normal exploitation of the work and do not unreasonably prejudice the legitimate interests of the right holder.
Berne	Article 13 (1) Each country of the Union may impose for itself reservations and conditions on the exclusive right granted to the author of a musical work and to the author of any words, the recording of which together with the musical work has already been authorized by the latter, to authorize the sound recording of that musical work, together with such words, if any; but all such reservations and conditions shall apply only in the countries which have imposed them and shall not, in any circumstances, be prejudicial to the rights of these authors to obtain equitable remuneration which, in the absence of agreement, shall be fixed by competent authority.
Infosoc- Directive	(32) This Directive provides for an exhaustive enumeration of exceptions and limitations to the reproduction right and the right of communication to the public. Some exceptions or limitations only apply to the reproduction right, where appropriate. This list takes due account of the different legal traditions in Member States, while, at the same time, aiming to ensure a functioning internal market. Member States should arrive at a coherent application of these exceptions and limitations, which will be assessed when reviewing implementing legislation in the future.

Table 4. The relevant sections of the International treaties pertaining copyright.

5. THE IMPACT OF TECHNOLOGICAL DEVELOPMENT

In this section we take a look how sustainable our proposed solution really is. We are concerned that most of the current discussion does not take into account the inevitable technological development. As we will show, that is a grave mistake especially considering that any changes to copyright system take a long time due to the international harmonization process.⁸

5.1. Moore and Music. Traditionally the biggest transformative force has been the development in semiconductors. Moore’s Law⁹ should hold up at least for few

⁸For example, WIPO’s Copyright Treaty – a process that has been going on now more than ten years and still major parts of the world have not ratified it.

⁹Typically described as “The number of transistors per square inch on integrated circuits had doubled every 18th months since the integrated circuit was invented”.

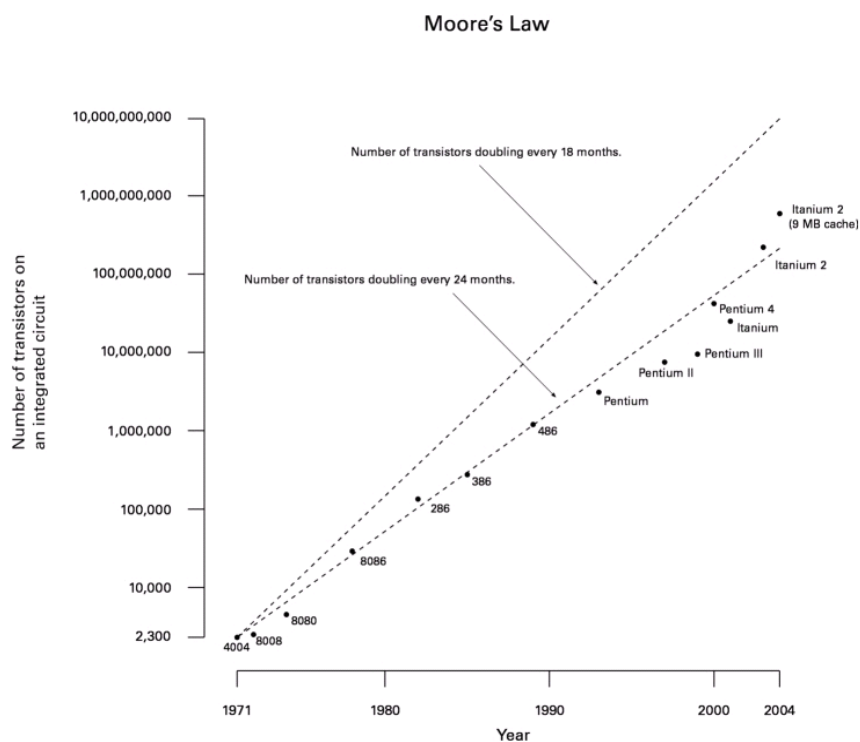


FIGURE 5. Moore's Law (source: Wikipedia).

generations for computer processors and for memory chips. However, this is not so relevant anymore for music as current capacity exceeds all normal needs for required processing.

Single-chip MP3-player solutions have been in the market for a while and their price is following the normal trend, i.e. diminishing quickly. This will help making their usage ubiquitous, which causes some interesting questions (should a microwave with an MP3-player have a levy?) but it will not really revolutionize the industry.¹⁰

5.2. Storage. The really disruptive force is the development in storage capacity. Since the introduction of the disk drive, the density of information has expanded from miniscule 2,000 bits to 100 billion bits (gigabits) per square inch. That represents a 50-million-fold increase (Walter, 2005).

The smallest hard drives available for desktop computers are currently 40 GB and it is not uncommon to have several hundred gigabytes of storage capacity at

¹⁰There is still a theoretical maximum for processing capacity. Krauss & Starkmann (2004) conclude that: "Our estimate for the total information processing capability of any system in our Universe implies an ultimate limit on the processing capability of any system in the future, independent of its physical manifestation and implies that Moore's Law cannot continue unabated for more than 600 years for any technological civilization."

home as the price of one gigabyte of storage capacity has gone well below one dollar. The biggest portable hard drives are now breaking the one terabyte barrier.

Not only is capacity going up. At the same time the size of drives is decreasing. Current i-pods are using 1.8 inch drives but one inch drives are already in market and 0.7 inch drives are coming soon.

A relatively similar development is taking place in optical discs.¹¹ The current standard CD holds at most 800 megabytes of information. DVD's capacity is already ten-fold i.e. 8.5 GB on one side. The next generation of discs (Blue Ray / HD DVD) have again almost ten-fold capacity (50 GB for dual layered Blue Ray discs). This means that a single Blue Ray-disc will be able to store 70 CDs of uncompressed music or 1000 CDs of music in MP3-format. More advanced models are also being developed already, holding 100-200 GBs of data.

Storage capacity	N ^o of CDs	N ^o of MP3s
1 GB	1.4	200 (1000 minutes)
10 GB	14	2,000 (166 hours)
100 GB	140	20,000 (69 days)
1 TB	1,400	200,000 (690 days)
5 TB	7,000	10,000,000 (9.51 years)

Table 5. How music fits to different storages

5.3. Wireless Connection Speed. Another very significant factor is the capacity of wireless data connections. Currently typical wireless systems use speeds up to 50 Mbit/sec. However, much faster speeds have been reached. For example Siemens has announced that they have developed wireless technology capable of speeds up to 1 Gbit/sec (1000 megabits per second). At that speed, a device could transfer 200 MP3-songs per second. This means that a person could transfer during a five-minute bus trip a staggering 60,000 songs!

The next wave of wireless devices may also use so called mesh-technology, which means that devices are able to form ad-hoc networks to connect to other devices that are out of their reach. Operators would no longer be necessary, at least in urban environments and consequently there would no longer be one centralized point through which the traffic has to pass.

5.4. Some considerations. After we combine all these technical developments, it is easy to envision a world, in which consumers carry small devices with hundreds of gigabytes storage capacity loaded with music. The music in these devices is being constantly shared with the people in their proximity with very high connection speeds. As a consequence, the risk of getting caught for file sharing approaches zero since it would require constant monitoring of airwaves in all public (and non-public) places.¹²

If the price of music stays at the same level as it is today¹³ (roughly 1€/song), the total market value of illegally shared music rises very quickly to staggering numbers. The earlier example of sharing 60,000 songs during a bus trip would

¹¹It should be noted that development is more constrained due the need for more standardization in this area compared to hard drives.

¹²This is legal at the moment in most European countries.

¹³We readily admit that this is unlikely. However, it is the position held by the music industry. The following calculations are purely theoretical as very few people would be ready to invest 60,000 euros or more on music.

mean 60,000 euros benefit for the downloader. If we further assume that the risk of being caught is 0.01% then the punishment would have to be 600,000,000 euros to be effective.

The situation is even more extreme if we consider copying five a terabyte portable hard drive at a friend's home. The risk should be even smaller – let's assume 0.001% – and the value of copied songs would be 10,000,000 euros. Thus the punishment would have to be at least 100 billion euros to have an effect on a risk neutral consumer. Since these kinds of astronomical sanctions are not realistic, we can no longer believe in traditional enforcement methods. Also levies are out of the question for the devices because, for example, a 10 million euros hard drive levy would not really be feasible.

6. CONCLUSIONS

To summarize, our model would produce more than enough money to sustain the music business. It should be noted once more that CD-sales form only a minor part of all the money in the industry so whatever happens to CD-sales will not be crucial to the music business at large. With our levy proposal, the recording industry structure would, however, most likely change considerably as the artists would no longer need record companies to get into the channel and also because the money that is collected would be much more transparent.

Unfortunately, there are two reasons why the situation is not likely to be sustainable. The first is technological. In the near future almost all households will have broadband connections and most of them will have more than one since wireless broadband is becoming more and more popular. Thus, counting on connections becomes troublesome. Further, if direct peer-to-peer sharing (not through the Internet) becomes more popular then levies on Internet connections are out of question. Redirecting the fees to hard drives and mobile terminals would also be difficult since in the long term both will be extremely cheap and ubiquitous. This means that the levy should, in practice, be a flat governmental tax, which are not popular even in Scandinavia.¹⁴

The second reason why the situation is not sustainable is legal. As we noted, international copyright treaties would most likely forbid the proposed system because current normal exploitation of works would become meaningless. Finally, the rights holders would likely also use all means available to oppose the system because it would mean the loss of control of markets.

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¹⁴A possible counter argument here is that the national broadcast organizations are doing exactly the same (at least in Scandinavia) and there is relatively little rebellion against it.

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