

File Sharing and its Impact on Business Models in Music

Joost Poort

(SEO Economic Research)

Paul Rutten

(Leiden University)

Berlin Open

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Authors of the study

TNO: Annelies Huygen (project leader)

Paul Rutten (and Leiden University)

Sanne Huveneers

Sander Limonard

SEO: Joost Poort

Jorna Leenheer

Kieja Janssen

IViR: Nico van Eijk

Natali Helberger

Abstract

This paper discusses the impact of file sharing on the business models in the music industry. The production of recorded music, as well as that of films and games, is characterized by relatively high fixed costs and low marginal costs. As a result of digitisation, the costs of reproduction and distribution of content have decreased dramatically, as well as the possibilities for copyright holders to control this process.

As a result, file sharing has become widespread and had unmistakably changed the business model in the music industry. It may very well do the same to the movie industry. That is not to say, however, that consumers are no longer willing to pay for experiencing music or films. A representative survey held in the Netherlands in 2008 has revealed that people who download music, films and games buy as many CDs and more DVDs and games as people who never download. Moreover, they visit more concerts and buy more merchandise.

The fact that file sharing gives free access to content is just one of various reasons to engage in this activity, while interactions between file sharing and buying can be both positive, and neutral or negative. Consequently, empirical research studying this relation is ambiguous.

These empirical findings can help to explain current changes in the music industry's business models: there is still a market for selling music by the record or by the track, but value creation is shifting towards the genuine and scarce input: the artist. Live concerts, merchandise and appearances on tv or in commercials have become more important and more lucrative, while paying for a track or CD has moved away from a necessary way to get hold of it, to a way to support an artist or to express involvement.

1 Introduction and problem statement

1.1 Introduction

Industries involved in creating, producing, commercializing and distributing content find themselves facing major change because of digitisation. These include the music and film sectors, and for over a decade now also the games sector. Digitisation is changing the face of the content industry, with new types of distribution emerging and the boundaries between the different industries blurring. New opportunities are arising while challenges to existing ways of operating require reinvention as digitisation enables consumers to access music, films and games in new ways. File sharing, the uploading and downloading of music, films and games, has become a reality – even if experience shows that online sharing often occurs without the explicit agreement of the right holders, who thus do not receive any payment. Companies producing content worry about the damage to revenues for which file sharing is said to be to blame.

The impact of file sharing on the content industry's various sectors and the industry at large has been the subject of great debate. Its detractors believe that file sharing is causing untold damage to the content industry and is even putting its economic viability at stake. They warn that this might diminish the range of culture on offer and reduce opportunities for nurturing talent, and that, with investment resources drying up, cultural production practices will, over time, no longer meet society's need for a wide variety of content. This scenario typically crops up in discussions on the impact of file sharing on the music industry, which frequently also suggest that the film and games industries are heading down the same route as soon as file sharing really takes hold there, too.

Others reject these arguments and feel that unlicensed digital distribution is the outcome of the content industry's failure to innovate and that the digital highway opens up new ways of leveraging content. They argue that by responding to online content sharing by consumers in an innovative way, market players could tap into new value-creating opportunities. Instead of flagging inevitable cultural or social damage, they see opportunities to achieve cultural, social and economic value by new means. To this end, the content industry should reinvent itself by capitalising on the value of content in different ways and at different times, directly through its end-users or indirectly through collaboration with other economic players, if need be outside the content industry itself. They believe content industry players should invest more time and resources in creating new business models to equip themselves for survival in the digital era.

This debate is not just about the content industry, it affects society as a whole. It is not merely the future of an industry that is at stake here, we are talking cultural diversity, opportunities for talented people to develop their creativity and turn it into content, and access to culture for the general public. And this being so, the debate borders on several government policy areas.

This issue is of particular interest to those involved in cultural policy-making, as the government is looking to promote the creation of and access to a wide range of high-quality cultural products. Likewise, it is relevant to the country's aim to develop a robust creative industry that is a key contributor to the economy, and thus also has a bearing on the government's policy to promote innovation and competitiveness in trade and industry. And, of course, the subject also involves the law, particularly in terms of intellectual property. Against this backdrop, the primary purpose of this paper is to identify the broader social, cultural and economic implications of file sharing for the music, film and games industries.

The main focus will be on the music industry which appears to have been effected most by file sharing.

File sharing is the catch-all term for uploading and downloading, and encompasses a range of technologies. File sharing logically breaks down into downloading and uploading, with the latter particularly relevant in terms of the law as any online offering of copyrighted content is not allowed under Dutch law without the prior consent of the right holder. By contrast, downloading copyrighted material is typically permitted, provided it is for the downloader's own use and meets certain requirements – regardless of whether the content comes from an 'illegal source'. Note that these rules do not apply to games, which are considered computer programs and are therefore governed by different laws.

To gauge the economic and cultural implications of file sharing, this study will review the scale and consequences of licensed and unlicensed downloading for the content industries as these currently exist. With the aid of an examination of the scale of, background to and motives for 'free' downloading and the supposed link to content buying, this study identifies the broader social implications of unlawful uploads of copyrighted content.

1.2 Research questions and methodology

This paper addresses the following questions:

- What are the key characteristics of and trends in the three industries – film, games and music - and their respective markets? To what extent are identified trends attributable to file sharing? What are the most important developments in the business models of the sectors of the entertainment industry investigated?
- What are people's key motives and considerations in file sharing? Are there any differences in file sharing between films, games and music? How much file sharing can be estimated to go on in the Netherlands? What are the possible implications of file sharing for consumer behaviour in other markets in which this content is sold?
- What are the most important welfare effects in the short and longer terms? How are these created and what, to date, have been the roles of the content industry, distribution network operators, the government and consumers? What are the expected effects on cultural diversity and the accessibility of culture?

The answers to the questions posed in this paper are based on a mix of research methods and tools. To find answers to some of our questions we have consulted the relevant literature at various stages of our research and drawn on a range of secondary – particularly statistical – sources. To investigate the background to, motives for and practice of file sharing, we have talked to active uploaders and downloaders and commissioned a survey of a representative group of 1500 internet users, conducted by research agency Synovate. In addition, we have sounded out representatives of the different industry sectors about the effects of file sharing within companies in the entertainment industry and about the new content leveraging opportunities that the digital era offers.

2 Developments in the entertainment industry

This section provides a brief overview of the specific nature of the entertainment industry, and recent developments therein. In particular, the impact of the digital era on the industry is highlighted. Key trends in the entertainment market are also taken on board, with a focus on the music industry as manifesting the most important and far-reaching changes.

2.1 *Experience goods and public goods*

The film, games and music industries generate the bulk of their revenues by marketing their products directly to consumers. We are talking here about the release of films on DVD, music on CD and games on consoles, and not so much about the generation of royalties. This is the market in culture, information and entertainment, whose products appeal to consumers primarily for their symbolism, representing a world and evoking an experience. Their value is in the experience that consumers can typically only rate after consumption – which is why these are also known as ‘experience goods’.

To an important degree, marketing and promotion in these industries involve managing expectations – by selectively releasing parts of the product, for instance, a phenomenon known as sampling. In fact, the music industry is known for sharing its products with potential customers by releasing them for radio broadcasts and by producing music videos to promote them on TV. Experience has shown that consumers will then want to own their own copies of the music and thus have access at self-chosen times and frequencies. In the film and gaming industries, by contrast, broadcasting the whole product through mass media is unusual, as this is not expected to generate turnover the way it does in the music business. Broadcasting films on television is a way of generating revenues for film producers and distributors in itself, and is certainly not aimed at promoting DVD sales, even if this is often its effect, e.g. television series whose DVD appeal lies in the fact that they have been previously broadcast. In this way, then, the music industry is significantly different from the film and games industries.

Although most entertainment industry products are in physical format – in the shape of DVDs, CDs and games – their value is primarily non-physical: it is in the experience, the story, the information. With all of these products essentially involving information, developments in information technology typically have major implications for the way in which the entertainment industry is able to operate or commercialise its products – the digital revolution being a case in point.

Another typical feature of these experience goods is that their consumption by one consumer does not happen at the expense of other consumers’ ability to use them. If someone buys and eats a loaf of bread, nobody else will be able to eat it, but this is not the case when someone watches a film on DVD or plays a computer game. Latter type of goods are called ‘non-rival’. If it is possible to prevent a person from accessing goods, these are excludable and called ‘club’ goods, whereas if their access is non-excludable they are known as ‘public’ goods. Because of their non-excludable and non-rival nature, public goods often depend on public finance.

Traditional examples of public goods include street lighting, defence and dikes. The traditional way to finance public goods had been from public means. Note however, that in modern societies there is a trend towards charging users for what have formerly been public goods, for instance by electronically charging users for road use. Another possible way to finance public goods is to introduce a cross subsidy. This is an obvious course of action when

the provision of a public good increases the demand for other products or services that are excludable. A classic example here would be a lighthouse paid for from port dues levied at a nearby port. At this juncture, it is hard to find examples from the entertainment industry that match this model. A future scenario might envisage free access to music recordings, financed by revenues from concerts, promotional merchandise and advertising contracts signed by the artists involved. Discussions about new models for the music industry, which will be discussed later, often anticipate such a future.

The physical formats carrying music, films and games are rival goods, but the information or files themselves are not. This is enabling consumers to share the music or films they own and make them accessible to others, in return gaining access to creative content that others have filed on their computers in digital format. Mutual advantage occurs, but the holder of the rights is kept out of the loop.

With entertainment industry products essentially being information and digitally transmittable, the emergence of this type of file sharing was only to be expected as soon as technology made it possible. In the days before the digital revolution, consumers shared music by lending out LPs to others to make analogue tape recordings. This type of file sharing *avant la lettre* was circumscribed by technology only, but that did not stop the music industry from campaigning against the phenomenon under the slogan ‘Home Taping is Killing Music’.¹ The advent and ongoing development of digital technology has sharply reduced technological limitations, although entertainment industry companies, drawing on that same technology, are re-introducing these in the shape of copying restrictions and digital rights management (DRM). Such measures would all appear to be attempts to keep control of the spread of goods and to thus continue to be able to market these as club goods. Meanwhile, some content providers have had a change of heart because of the heavy resistance they have run into from consumers, who feel restricted in their use of the music they have actually bought.

2.2 High fixed costs of production

Production in the entertainment industry is often a collective process marked by a far-reaching division of labour that frequently even transcends companies. The film industry is a good example, as it brings together people and companies for each production and disbands them after the project is completed – a real ‘project industry’. Games are similarly designed and produced by different companies at different locations around the world, turning out titles that the big global distributors will subsequently release on the console market through state-of-the-art digital networks that link locations and operations. Game production budgets are easily as large as those for major Hollywood movies. The music industry is not usually known for its massive scale and complex output, but even here production tends to involve large numbers of people and multiple companies.

The entertainment industry typically spends large amounts on production compared with low distribution costs. Also, production involves sunk costs that can only be recouped by leveraging recorded and released creative content, staging live performances – in the case of music – and marketing merchandise. If a music recording, film or game fails to catch on and the market for related live performances and merchandise does not materialise, these costs have to be written off in their entirety. This is different from most other industries, where fixed assets can usually be sold on to others and a proportion of spending thus recouped. Not

¹ For research into this phenomenon in the Netherlands, see SEO (1979) *Onderzoek naar het maken van geluidskopieën op banden en cassettes door particulieren*. (‘A study of audio copies on tapes and cassettes by private individuals.’) Amsterdam: SEO [commissioned by Stichting STEMRA and NVPI].

so for the entertainment industry: there is simply no market for a dud film or an unpopular game. The sunk costs are truly sunk.

By contrast, marginal costs – i.e. the costs per extra unit of production, which in this industry typically relate to distribution – are relatively low and have even got close to zero in this digital age. After all, the costs of digital distribution are very limited, particularly as compared with production costs. This is what makes large-scale operations so profitable for the media industry: once it has recouped its high initial sunk costs, profits can shoot up as marginal costs are very low indeed.

2.3 Piracy and file sharing

This combination of high fixed costs and low marginal costs, together with the fact that entertainment goods are so easy to distribute, make this sector highly sensitive to illegal commercial activity. Some hijack creative content without the consent of its right holders and sell copies in the market. These pirates, as they are sometimes called, make relatively quick money as the costs of distribution – i.e. the physical cost of copying data files or the cost of unlawful digital distribution – are very low indeed. They are also not burdened by high production costs, nor do they pay for any rights.

Meanwhile, piracy interferes with the right holders' lawful marketing of their products, causing them to incur losses. To a lesser or greater degree, all sectors covered in this report face such commercially motivated infringements of their rights.

The key features of entertainment products as described earlier have also made it relatively easy for the public at large to share digital music files, with the advent of P2P networks in the past decade – starting with Napster in 1999 – having played a pivotal role. These P2P networks differ from commercial piracy in a number of ways, as consumers downloading music – and, knowingly or unknowingly, making their own music libraries available to others – typically have other motives than commercial pirates who consciously infringe the rights of producers, artists and actors to line their own pockets. This is not to say that commercial considerations might not play a role in P2P networks, not necessarily because these networks are out to make money from music sharing as such but because they reach certain socio-demographic groups that might be attractive to advertisers. Obviously, there is a value to keeping these networks online, a motive that carried more weight in the early days of P2P networks, when Napster was sold to Bertelsmann. Later generations of P2P networks have been less driven by specific companies able to directly or indirectly generate revenues from the value of the network. Kazaa, for example, sold adware – through so-called pop-ups, for instance – that made it possible to collect information about users that was then sold on to others – Microsoft, Netflix and DirectTV among them. When users protested, Kazaa launched a paid ad-free service alongside its free ad-supported one.²

P2P practices might be damaging to the industries we are investigating in this report, although the precise extent of the damage is very difficult to ascertain without intimate knowledge of consumers' motives and considerations. After all, downloading music may be argued to be a kind of sampling, a way of getting to know a piece of music that is comparable to listening to the radio or going to record shops and listening there before deciding whether or not to buy. The analogue age's counter-argument that not every home-taped recording implied one less vinyl LP sold would also seem to hold for the digital era: not every downloaded track implies

² Vaccoar, V.L. & Cohn, D. Y. (2004) The evolution of business models and marketing strategies in the music industry. *International Journal on Media Management*, 6 (1&2), 46-58. p.48.

a loss of revenue for the music industry. The discussion of a consumer survey in the next section and the review of the international literature in section 4 delve deeper into the issues at stake.

To ensure that right holders enjoy the fruits of their labours, the law upholds copyright and related rights and right holders have a legal right to take action against the unlawful distribution of their work.

2.4 *Under pressure*

Today's still dominant business model of key players in the entertainment industry is predicated on leveraging access to creative content on a large scale. Content is typically created under the auspices of companies in the music, film and games industries, which pick up the tab for production costs and sell the products on the consumer markets in physical formats (e.g. music on CD, film on DVD, games for consoles), screen them in cinemas (film) or grant performing rights for special use. And, of course, content can now also be distributed and marketed online, and on a scale previously undreamed of via the traditional channels. However, if the industry loses control of its products, it is currently very vulnerable indeed, seeing club goods turn into public goods with the inherent problem of recouping costs.

As the entertainment industry is in the business of experience goods, it has a tough time predicting success: a large number of productions never break even and huge hits have to make up for flop-related losses. And those massive hits also have to prove that these companies can achieve financial performances that will please their shareholders. Both the music industry and, to a lesser degree, the film industry stress that file sharing hits them really hard. Rejecting the oft-heard argument that things cannot be all that bad as their top hits account for huge sales, these industries point out that they need the revenues from such mega-sales to invest in new and unproven productions, many of which will never be successful. In other words, if the froth goes out of major productions, film, games and music companies will no longer be able to offer their current wide range of products.

With the actual market for many Dutch entertainment industry products being by definition circumscribed, Dutch companies benefit a great deal less from economies of scale than their American counterparts. Add to this the high initial costs faced by national entertainment industries and we see a Dutch film industry that does not recoup its costs on the large majority of films. As a result, the industry fundamentally relies on public funding – as is the case in many other European countries – and film financing reflects a mixture of economic and cultural considerations. Music industry production budgets may not be as large, but here too the size of the national market is invariably a key budgetary consideration that warrants restraint. In the Dutch music business, recording companies typically have to make their own way in the market, while venues hosting bands that have yet to make it to the top tend to rely on government money.

The games industry is dominated by international repertoire. Entertainment games target worldwide markets and virtually none are made for specific countries or language areas. Games producers take an industry view of the national versus international issue, while governments try to get and keep them operating within their borders: games companies operate in growth markets and often provide a stimulus to a country's entertainment, and information industries. The games industry benefits indirectly from public funding, for

instance in terms of research and development,³ but this applies to industries outside entertainment as well.

The entertainment industry draws on information and communication technology to produce, market and distribute its products and services. And it is precisely because these products are in the information category – in the widest sense of the word – and are often distributed through information networks, that digital distribution's new features and possibilities have ushered in major changes, as we have noted. In fact, the games industry as we know it today is itself the brainchild of digital technology.

Ironically, with its possibilities for endless reproduction and distribution and consequent massive increase in scale, digital technology at the same time also facilitates copyright breaches – a phenomenon that has been described as the 'digital paradox'.⁴ The music industry initially proved very reluctant to use digital opportunities for this very reason, but that has not prevented the widespread unauthorised distribution of creative content. Some industry watchers claim that this caution in distributing music, films and games online has in fact promoted unlawful distribution – and still does. This very trend is forcing the various players to take a close look at their current business models and, when finding that digitisation is pushing them towards obsolescence, to develop new ones.

2.5 Digitisation and digital distribution

Of course, the entertainment industry has itself been one of the first beneficiaries of digital breakthroughs. The digitisation of physical formats ushered in a massive market, with consumers replacing some or all of their vinyl collections with CD recordings. The advent of the DVD was a major quality improvement in the film and video industries and proved a big boost to the video-buying market. The industry has benefited enormously from the digital formatting of films and other video material and it would seem that, even aside from the substitution effect, digital formats have themselves been a tremendous boon to turnover. With the launch of the Blu-ray Disc the market now offers an even higher-quality format, in keeping with the trend for quality improvements within existing models of film formats. At this juncture, it is unclear what part Blu-ray will play in the development of the film and video industry.

The introduction of digital formats has not fundamentally changed the value chains in the film and music industries; and, incidentally, neither have internet stores such as amazon.com or the Dutch online shop bol.com. Granted, there have been changes in the individual links of the creation, production, release, distribution and consumption chain, and the traditional shops are now also up against e-tailers, but at this stage of digitisation there is – as yet – no sign of entirely new links or the disappearance of players in the music industry value chain.

This state of affairs is perhaps even more evident when it comes to online distribution. The digitisation of information and communication networks has facilitated electronic distribution of first music and later also video. Despite the tremendous potential of this development, the entertainment industry has been very slow to respond, with fear of the unlawful distribution of

3 The €10m government-subsidised Game Research for Training and Entertainment (GATE) programme is designed to put the Netherlands on the map as a leading international research player in entertainment and serious games. And national governments in different countries – e.g. Canada, France – are trying to attract games companies by offering tax breaks as part of their incentive programmes for the creative industries.

4 Rutten, P. & van Bockxmeer, H. (2003) *Cultuurpolitiek, auteursrecht en digitalisering*. ('Cultural politics, copyright and digitisation') Delft: TNO Strategy, Technology and Policy.

digitised products being the rather questionable hold-up. The industry has long held on to a specific way of thinking and operating and has thus offered little room for the necessary radical innovations, with the music business not fast enough on its feet to move with the new situation. And time is also running out for the film and video industry.

Skilful consumers mastering information and communication technology have combined with the development of network capacity to increasingly squeeze the entertainment industry's traditional business model. Digital consumers, wise to technological possibilities and new applications in the digital arena, are now making demands of products and services – demands that the entertainment industry, stuck in its traditional practices, has failed to meet sufficiently over the past few years. With the aid of ICT and innovative entrepreneurs who refuse to be held back by current intellectual property laws in their concepts and services design, consumers have had a taste of attractive products and services, which the entertainment industry has been slow or failed to develop. Established entertainment industry players have proved singularly unable to meet these consumers' needs, as Vaccaro and Cohn describe in their assessment of the music industry:

*Traditional firms have been accused of lacking the cultural capital to make a successful transition to a new business model in the information age, and it has been suggested that the record labels need to change their interaction from lawsuits to a marketing and promotional orientation.*⁵

The message is clear: the music industry should focus more on consumer wishes as to how music should be offered instead of seeking refuge in any established business fortress. Aside from the lawsuits that Vaccaro and Cohn mention, the entertainment industry has also tried to restrict consumer access to paid-for applications via digital rights management (DRM). However, the drawbacks of DRM have proved so many and so negative that operators are increasingly choosing to ignore this route altogether. For one thing, DRM-protected CDs often did not work on computers, restricting consumers in their freedom to play their music where they want and when they want. At the end of the day, it would seem that the music industry has done itself a grave disservice by its caution in offering music online and by bringing to bear the heavy guns of the law and DRM: file sharing has spread while turnover and profits in the record industry have declined.

1999 proved a watershed year for the content industry, particularly in music. It was the year that Napster set up business and the phenomenon of P2P networks become popular. Napster enabled consumers to share music via the internet and brought extensive music libraries within their reach, with right holders missing out. It would be possible to describe the history of P2P services and practices as a legal cat-and-mouse game involving the content industry, its interest groups, P2P designers, consumers, the law, and law- and rule-making government as the main players.

The current state of play is one of still extensive traffic in copyright-protected information shared via P2P networks. This mainly involves music files, but the signs are that film and video files are gaining ground, which is made possible by these networks' increasing capacity. The music industry is now offering a growing supply of licensed downloads, the market for which is also expanding but in hardly any country can it make up for the ongoing decline in CD sales. Note that attempts by major record companies to jointly develop the market for

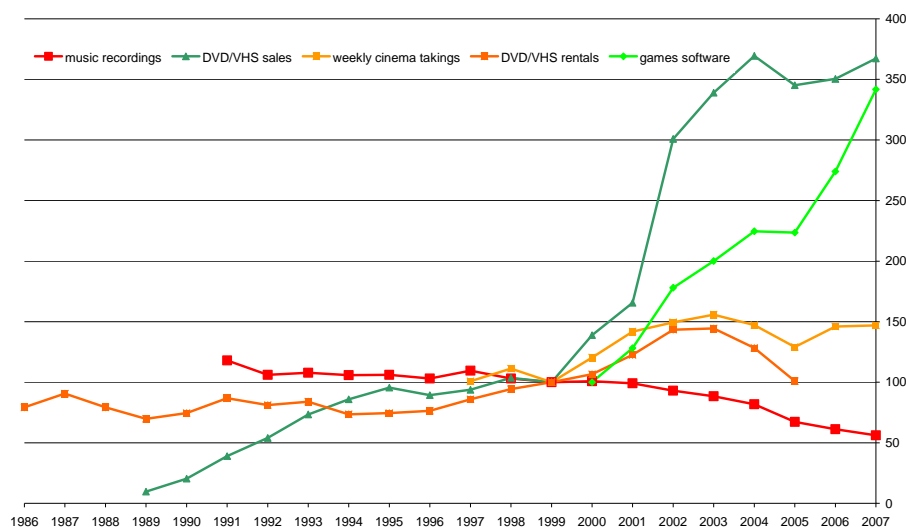
⁵ Vaccaro & Cohn (2004), p. 56.

paid-for downloads through an integrated service have failed. Investments by several major music industry players in joint music services such as MusicNet and PressPlay have not been the hoped-for success nor brought the desired market positions. An OECD report notes that concerted efforts were dogged by difficulties in clearing rights and arguments about the nature, conditions and set-up of a joint platform in the face of a burgeoning P2P trade providing ‘free’ access to their music libraries. It also points out the lack of user-friendliness of the music industry’s digital offering in the shape of complicated user interfaces and high up-front costs imposed by monthly subscription fees. But one of the most decisive factors, the OECD believes, was the lack of comprehensive and integrated music catalogues that consumers could buy from a single supplier, plus the fact that consumers were unable to get all the music they wanted. In 2005 the OECD counted over 200 licensed online offerings in OECD countries.⁶ The market for licensed digital downloads was finally tapped in 2004 by Apple, serving consumers with its smart mobile iPod devices. Through its iTunes, Apple has since grown into the world’s main online music seller, with a clear offering and pricing structure.

2.6 Market developments

Drawing on a range of data sources, we have collated the developments in the various market segments in the media industry in the Netherlands so as to facilitate comparison. The data involve music recordings (on CD and as licensed downloads), DVD sales, DVD rentals, cinema turnover based on average weekly takings and games software. For the sake of comparison, we have indexed turnover for each of these industries, with 1999 as the baseline (turnover in 1999 = 100). 1999 is not just the title of the memorable Prince song, but also saw Napster go online and sow the seeds of file sharing.

Figure 1 Turnover in market segments of the film and video, music and games industries (1986-2007, indexed, 1999 = 100)



Please note that 2003 interruptions in music recording and DVD measurements have been repaired on the basis of annual growth figures provided. Cinema visit index figures are based on weekly takings to correct for extra weeks in 2000 and 2006. Figures for games software: 2000 = 100, as there were no figures available for 1999 and before.

⁶ OECD (2005) *Digital Broadband Content: Music*. Paris: OECD, p. 46.

As the chart clearly shows, films on DVD and games software are the big growth markets. The cinema market has been stable for a fair number of years, barring a minor dip in 2005. By contrast, the markets for DVD rentals and music recordings are fading, with the latter the biggest loser. The turnover and sales data in the music industry show that market growth in licensed downloads has failed to make up for the downslide in the physical format market. This is not to say that file sharing is wholly to blame for the music industry's shrinking market: there is a real possibility that the industry's offering has become less tempting in recent years in the face of the numerous leisure spending alternatives – another possible explanation for the music business losing ground.

There are a number of reasons why the music industry has been the first to feel the pinch of the advent and rise of digital networks. For one thing, digital music uses relatively little bandwidth and even the first generation of networks had enough capacity to bring music to consumers' homes within an acceptable time frame. In terms of sound quality, downloaded music proved an acceptable substitute for CD-recorded music, and consumers were able to copy their music from physical format or directly from the internet onto a digital mobile player that was smaller, easier and more multifunctional than the portable CD player. Meanwhile, massive numbers of consumers put their CD collections online by participating in P2P networks such as Napster and later Kazaa, gaining access to a vast range of recordings in return for their own uploads – and all circumventing the established music industry.

The film industry could benefit from the music industry's cautionary tale. Instead, much like the music business in the early years of file sharing, it has spent the past few years honing its strategy of lawsuits and DRM. While sharing of filmed content would seem to have been on a swift upward trend, experiments with licensed film downloads remain few and far between. Lulled, perhaps, by the ongoing rise in DVD sales and cinema visits, the film industry is studying reinvention of its business model less assiduously than the music industry is now forced to do.

2.7 New business models – a short review

Many a review of the future of the entertainment industry advocates investment in new business models. However, there is no unequivocal definition of what a business model is, let alone any consensus on the road the entertainment industry should travel to find its new model.

Discussions and contributions on new business models in the entertainment industry – which, incidentally, focus almost exclusively on the music industry – tend to have different emphases. Some zoom in on the *method of delivery and payment* for products and services, e.g. selling CDs, games or DVDs online or offering content as downloads for consumers to pay for. Others focus on the potential implications of digitisation in the *value chain*, and in particular on players that add too little value and are likely to fall victim to disintermediation, the most obvious threat being e-commerce cutting out the middle man that is the music shop, or record companies becoming obsolete as artists reach their audiences directly. Still others prefer a much more integrated approach and look at real-life existing models, or, more sweepingly, no longer link business models to industries or specific value chains, but to networks of companies that jointly market products or services in relatively loose configurations. An example would be an alliance of a music producer with a soft drinks maker offering downloadable music on the latter's site to help promote sales of the drink. In this scenario, players normally operating in different industries create joint value by collaborating outside the box of traditional value chains. Digital networks and their potential uses across different

sectors offer a range of possibilities for new connections through value networks that would typically be temporary, unlike familiar business models, unexpected and mostly innovative. The whole concept of the business model would give way to the value network, offering significantly less rigid relationships than those in the value chain of a fully fledged industry or specific company.

The OECD report identifies four new online music business models that emphasise distribution and transaction of products and services and not so much the structure of the industry.⁷

- *Digital download (à la carte)*: music is sold directly per download (iTunes), is stored on the users' own devices and becomes their property.
- *Streaming subscriptions*: instead of paying per download, users pay a fixed monthly fee to stream an unlimited number of music files, but will not get to own them.
- *Portable subscriptions*: users can download large collections of music for a fixed monthly fee, with ownership cancelled if they stop paying their subscriptions.
- *Streaming radio*: listeners pay a monthly subscription fee for access to online radio.

Premkumar⁸ prefers 'digital distribution strategies' to business models and identifies no less than six actors in the value chain, with strategy variation mainly reflecting the degree to which one or more actors become redundant to the chain because they add insufficient value: disintermediation – a concept central to virtually all reviews of the impact of digital trends on business models:

- *Record company-retailer-customer*: the traditional chain remains in place. Customers go to their local music shops to make their own CD compilations on-site.
- *Record company-customer*: record companies sell digital files directly to customers and cut out retailers.
- *Record company-intermediary-customer*: record companies sell their digital files through online intermediaries, who work with many if not all providers of online music. Currently the dominant online model, this is a direct digital transposition of the traditional bricks-and-mortar shopping concept.
- *Artist-customer*: artists sell their own music to customers online, disintermediating record company and shop.
- *Artist-intermediary-customer*: artists sell their music to consumers through online retailers, cutting out the record companies.
- *Audio-on-demand*: customers pay a fixed amount to receive customised playlists from a service provider.

In his analysis of the added value of the various agents in the music business's digital value chain, Frost⁹ concludes that the record companies have had their day. Advocating an overhaul of the music business, he finds that the value that this actor claims does not match the value it adds. He feels that cutting out the record companies offers the benefits of lowering prices to consumers and increasing revenues to artists. He also sees such lower prices as the key instrument to fight online piracy, and estimates that a bundle of songs such as the number currently sold on CDs should be priced at around \$3.

In their study of the evolution of business models and marketing strategies in the music industry, Vaccaro and Cohn define a business model as the way companies build and use their

⁷ OECD (2005) *Digital Broadband Content: Music*, p. 49

⁸ Premkumar, G.Prem (2003) Alternate distribution strategies for digital music. *Communications of the ACM*, 46 (9), pp. 89-95.

⁹ Frost, R.L. (2007) Rearchitecting the music business: Mitigating music piracy by cutting out the record companies. *First Monday*, 12 (8).

resources to offer more value for money to their customers than their rivals and thus make money.¹⁰ Three existing models come in for close scrutiny:

- *Traditional business models* based on mass production and distribution of physical formats.
- *Revolutionary models* based on unauthorised P2P file sharing, enabled by software-providing companies and allowing consumers to share music without any payment to their right holders.
- *New business models* under which consumers pay to download music from authorised providers.

Vaccaro and Cohn predict that the models that will survive are those that are able to deliver sufficient scale to turn the slim profit margins on individual downloads into solid earnings, particularly if they manage to combine this with add-on products and services such as hardware, subscriptions to online music magazines or concert tickets. Implicitly, the authors are saying that the new business model in its current set-up might not be fully viable on its own – a supposition corroborated by the fact that iTunes was at least partially designed to be a driver of iPod sales.

In response to this analysis, Frost would probably say that the record companies' takings in the existing download models are too high and that this is why they will never be a runaway success. Record companies in his perception simply take too much for what they deliver, and he feels disintermediation of the record companies is therefore inevitable. Whether or not record companies are indeed appropriating too big a cut from existing music downloads is a subject that merits further study.

The striking thing about this – admittedly limited – review of academic research into the subject of potential new business models in the music industry is the rather narrow view the research takes. All the talk of new models aside, most analyses hardly venture beyond the commercialisation of music recordings, with many of them also focusing mainly on the sale of these recordings, for example through music and video streaming subscriptions to consumers. None of this addresses the observation made in Section 2.1 that music in the MP3 format is non-excludable and non-rival. To all intents and purposes, it meets the definition of a public good and there is therefore an inherent difficulty in recouping its cost. As long as file sharing remains a fact of life, its licensed counterpart will have to compete with 'free' in terms of price and ease of use.

An altogether different route, virtually ignored in the analyses we have briefly reviewed, would be to focus on alternative sources of revenue that do still guarantee excludability. One obvious choice would be to link recordings to live concerts, ringtones, merchandise and other types of income-generating activities for authors, artists, publishers and producers. Music could be brought into audiovisual productions – from commercials to music games for consoles – or be coupled to completely different types of product, ranging from cars and soft drinks to energy and clothes, with these products' marketing budgets paying for a chunk or all of the music recording costs. The analyses make no mention of even more radical innovations such as Sellaband's business model, which enables consumers to invest in the recording of a band or artist whose demo they can listen to online. If investments of what Sellaband calls 'believers' reach the \$50,000 threshold, the artist is given a chance to record an album. Investors become shareholders and recording rights belong to Sellaband.

An innovation that *has* taken the music industry by storm is what is known as the 360- degree contract, under which bands and artists sign over to a record company or investor a share in

¹⁰ Vaccaro & Cohn, p. 47.

everything directly or indirectly related to their recordings, from merchandise and live performances to downloads and sponsorship revenues. The introduction of these contracts is a clear recognition of the link between the various sources of income from the different markets – think of the lighthouse paid for by port duties as an obvious analogy here. After all, in one way or another all this turnover is generated by music. Some artists sign 360-degree contracts with record companies and others with concert promoters, the most prominent among them being Live Nation. All this goes to show that business model innovation in the music industry is often more complex and wide-ranging than mere marketing and distribution of downloads.

Focusing on new business models, Jacobs's 2007 book on the cultural side of innovation identifies a typical combination of product, process and transaction innovation.¹¹ He draws on Margetta,¹² who argues that business models really break down into two separate parts, one involving everything to do with the making of something, i.e. design, purchase of resources or commodities, and production, with the second part comprising all the activities involved in selling something: finding and reaching consumers, selling, distributing or offering a service. Jacobs pinpoints product and process innovation at the first stage and transaction innovation at the second stage of the model.

If we combine Jacobs's approach with the concept of value networks that Ballon¹³ among others has introduced into the discussion of business models, a broad playing field emerges that may well include just the new models the music industry is looking for. The value network context, for instance, makes sense of the alliance between Universal Music and mobile operator Vodafone for music access via mobile phones. Ballon suggests that 'value' and 'control' take centre stage in research into and development of new models in the value network context, which would make for a better understanding of business model innovation in the music industry, and, at the end of the day, the wider entertainment industry also. What is more, these are precisely the terms within which the industry will have to operate if it is to stay in business.

¹¹ Jacobs, D. (2007) *Adding values. The cultural side of innovation*. Arnhem: Artez Press, pp.50-51.

¹² Margetta, J. (2002) *What Management is*. New York: Free Press, quoted in Jacobs (2007).

¹³ Ballon, P. (2007) Business Modelling Revisited: The Configuration of Control and Value. *The Journal of Policy, Regulation and Strategy for Telecommunications, Information and Media*, 9 (5) pp. 6-19.

3 File sharing: a Dutch survey

To gain a better grasp of consumers' file-sharing activity and its impact on the media industries, a representative survey of a sample of the Dutch population was conducted. The purpose of the survey was to find answers to the following questions: What are people's key motives and considerations in file sharing? Are there any differences in file sharing between films, games and music? How much file sharing can be estimated to go on in the Netherlands? What are the possible implications of file sharing for consumer behaviour in other markets in which this content is sold?

A questionnaire was first tested on a number of consumers. Following adjustments, research agency Synovate put the questionnaire to their online panel between 2 and 8 April. A total 1,464 respondents completed questions about music (98% of the sample), 1405 about films (94%) and 778 about games (53%). The sample is broadly representative of the Dutch internet population aged 15 upwards in terms of its socio-demographic characteristics and internet usage – with minor deviations. One such deviation was a slight overrepresentation of heavy internet users, prompting a weighting of the survey outcomes to arrive at a representative picture. Another point worth noting is that the Dutch internet population does not precisely coincide with the Dutch population because not everyone in the country has internet access. This paper will sometimes extrapolate survey findings to the entire Dutch population, expressly noting this in the relevant instances and, if applicable, discussing the validity of any such observations.

A key challenge in designing any questionnaire is that respondents may tend to give answers that they see as socially desirable. We have attempted to prevent social desirability bias in various ways, one being that the questionnaire's introduction emphasises both the anonymity of the information at all times and the fact that it is the government that commissioned the study. Nor was the survey introduced to be about file sharing or online piracy: the questions were said to be feeding into research into how consumers feel about films, music and games.

3.1 Key findings

File sharers

Free downloading or file sharing is a very common phenomenon across virtually all socio-demographic groups of the Dutch population. Forty-four per cent of those with internet access – i.e. the Dutch internet population over the age of 15 – admit to file sharing on one or more occasions in the previous 12 months, which works out at around 4.7 million people. Most Dutch file sharers download music (40% of those who have internet access), followed at some distance by films (13%) and games (9%). Extrapolated to the Dutch population over the age of 15 we are talking an estimated:

- 4.3 million music sharers
- 1.4 million film sharers
- 1.0 million game sharers

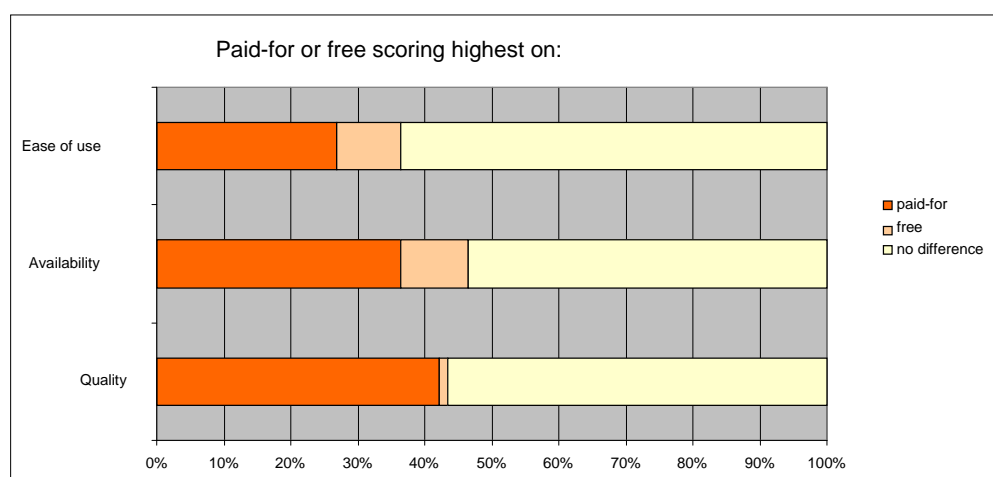
The young are particularly keen file sharers, with the 15-24 year age bracket strongly over-represented. Over 60% of them download music, around 20% films and games. File sharers are also relatively often male, particularly when it comes to films (74%) and games (61%) – a difference that is not explained by differences in film and game consumption. Regional differences are negligible and differences in education levels tend to be age-related, implying that respondents have not yet finished their studies.

A notable finding is that a large number of file sharers are unable to say what method or technology they use for downloading, e.g. P2P, Usenet, newsgroups, FTP address. Women and the over-35s often have no idea of the methods they themselves are using. Eighteen per cent of music sharers sometimes download promotional site offerings, while all users of promotional sites were found to download from other – unlawful – sources.

Most file sharers said they only engaged in downloading and did not upload. This would seem improbable as most P2P programs upload automatically. It seems quite likely that many file sharers are simply unaware that they are uploading. A mere one in twenty file sharers admits to adding new uploads themselves, e.g. recently bought music, films or games.

The Dutch do much less paid-for downloading than they file share. Strikingly, the percentage of the population who have paid to download at some point in the past is significantly higher than the number of paying downloaders over the past 12 months. It would seem that paid-for downloads have not been attractive enough for people to keep doing it. As Figure 2 shows, most consumers see no difference between paying or not paying for downloads in terms of ease of use (57%), availability (54%) or quality (60%). Those who do see a difference rate paying for downloads as the better option.

Figure 2 Perceptions of paid-for vs free downloading (N=1500)



File sharing vs buying behaviour

Buyers still outnumber file sharers by a wide margin. This is true for music, films and games, with 84% of the Dutch population over the age of 15 having bought – or paid to download – a CD, DVD or game in the past year. In fact, buying and file sharing often go hand in hand.

Music sharers are no less or more likely to be buyers of music than other people: 68% of downloaders also purchase music. And file sharers who buy music do not buy any more or less of it than non-file sharers, although they buy more merchandise and go to concerts significantly more often.

As for films, file sharers turn out to buy DVDs no less or more often than anyone else: 61% of film sharers also buy DVDs. But *if* they buy, they buy significantly more DVDs than non-file sharers. On average, file sharers and non-file sharers go to the cinema equally often.

Game sharers also buy games, and significantly more frequently too: 67% of file sharers are buyers as well. And if they buy, they buy significantly more games than non-file sharers. These results are summarized in Table 1 below.

Table 1 Differences in purchasing behaviour between file sharers and non-file sharers

	Music	Films	Games
Buyers in the past 12 months: Yes/No	No difference	No difference	File sharers buy more often (61% vs 57%)
If a buyer in previous 12 months: number	No difference	File sharers buy more (12.0 vs 8.0 films)	File sharers buy more (4.2 vs 2.7 games)
Related products	File sharers typically visit concerts more often and buy more merchandise	No difference in cinema visits	No difference in buying merchandise
Total	No differences in buying music, but file sharers typically visit concerts more often and buy more merchandise	File sharers buy more DVDs	File sharers buy more games

Among file sharers, 63% of music downloaders might yet buy the music they first got for free online (See Table 2). Their main reasons for buying are loving the music – a key motive for over 80% – or wishing to support the artist (over 50%). Owning the CD sleeve and booklet are mentioned by a third of eventual buyers, as well as the higher quality of the CD. Forty-eight per cent of film sharers will buy a previously downloaded film at a later date, citing such reasons as liking it a lot or wanting the extra features the DVD offers. Between 50% and 60% say they download to discover new genres and directors/actors. Game sharers also report sometimes buying a previously downloaded game at a later date, or at least 63% of them do. Their main reasons include thinking it a really good game. Wanting to own the original box and game were also frequently mentioned.

Table 2 File sharers buying content after having previously downloaded (frequency and percentage)

Frequency (Number of times a year)	Music sharers	Film sharers	Game sharers
0	37%	52%	37%
1-2 times	30%	28%	39%
3-6 times	21%	10%	21%
6-12 times	7%	8%	2%
> 12 times	5%	2%	1%
Total	100%	100%	100%

The fact that file sharing and buying are not mutually exclusive (and can even occur for the same title) is an interesting finding, but does not resolve all cause-and-effect issues: after all, aficionados of music, games or films will typically buy more, get into related products more but also download more. And so this finding does not give the definitive answer to what consumers would do if file sharing did not exist or became impossible.

When asked point blank, the majority of consumers say they would *not* change their purchasing habits. Respondents claiming they would buy more and those saying they would buy less are roughly balanced, even if a slightly larger group feel they would buy *less music and fewer DVDs*, while the sale of *games* and visits to the *cinema* would go *up* according to the response of a slightly larger group. One possible explanation could be that discovering new music, films and games is a key driving force behind file sharing, as is meeting demand driven by lack of purchasing power.

Willingness to pay

The survey asked file sharers what they would consider a reasonable price for a CD, film or game they would really like to own. Please note that this is more than what they would be willing to pay on average for the products they are downloading and that this provides a better indication of the turnover producers might be missing out on due to file sharing. Figure 3 reveals what percentage of file sharers consider particular prices to be reasonable. Three-quarters of music sharers are willing to pay at least €8 for a CD (see also Table 4). The average 'reasonable price' for music is higher than for DVDs €5.

Figure 3 What music sharers find a reasonable price for a much-wanted CD

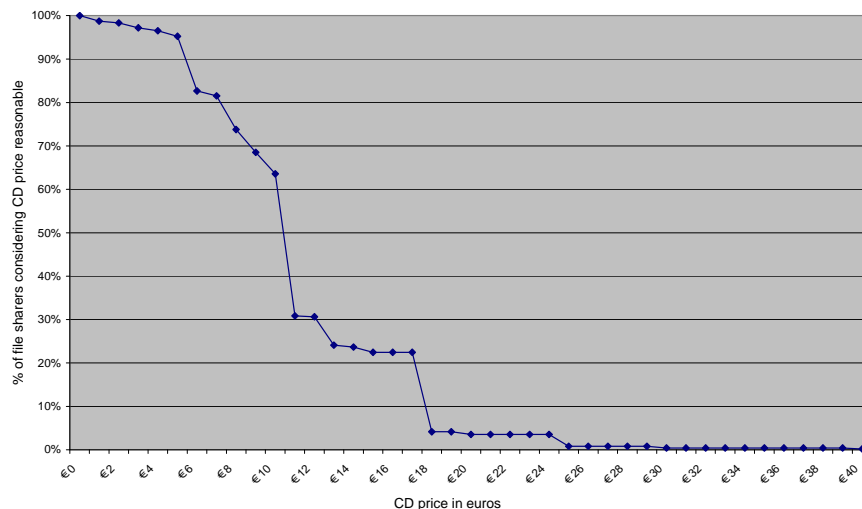


Table 4 Reasonable price according to file sharers

	Music	Films	Games
75 percentile	€8	€5	€7
Median	€9	€9	€19
Top quartile	€12	€11	€24

If willingness to pay is defined by the highest average price mentioned, however, CDs prove the most appreciated and DVDs the least, a rather remarkable outcome in view of the current pricing structure in the market. If we look at the outcomes as presented in Table 4, another picture emerges: prices for CDs are fairly consistent and the differences between the top

quartile and the 75 percentile relatively small – a result of little price differentiation in the market. Films are a rather different story, and the gap is extreme for games. These various perceptions would seem to reflect market differentiation as it currently exists. The games market breaks down into two categories – PC games and console games – that are known for their wide range in prices. This explains the large differences in the games category.

Motives and perceived effects

File-sharing sites are more than an alternative to buying. For one thing, file sharing offers an easy way to sample new genres, bands/artists, actors and games (Table 5). Many consumers download music, films or games that they would never have bought because of unfamiliarity. Such sampling does not detract from physical format sales and might in fact create extra demand if consumers decide they wish to own music, a film or game after sampling it. In cases such as these, file sharing websites might in fact increase the diversity of supply – or at the very least the perceived supply or the diversity of the supply these consumers have access to. Also, file-sharing sites have a social function for over 10% of file sharers, a unique feature of this channel that is not shared by physical formats – nor by websites where one pays for downloads.

Table 5 Functions of file-sharing sites: percentages of file sharers listing function

	Music	Film	Games
Discovering new genres	69%	61%	67%
Discovering new bands, artists, actors, games	69%	56%	85%
Making social contacts	13%	13%	14%

Respondents feel that the possibility of free downloading has a *positive effect on the accessibility* and diversity of music, films and games. File sharers, in particular, rate the positive effect highly. File sharers and non-file sharers alike agree that free downloading is *negative for music artists, actors and game designers as well as record companies and film and game producers*. The effect on the *quality* of supply is *neutral*, especially according to file sharers.

4 Effects on industry turnover and welfare

This section places the findings of the consumer survey in a broader perspective by comparing them with other research conducted in the Netherlands and elsewhere. It also presents estimates of the total number of files downloaded from unauthorised sources every year and critically discussed the international scientific literature about the impact of file sharing on the purchase of music, films and games, focusing primarily on recent studies (mainly 2006 and 2007) conducted independently of any direct stakeholders and whose publication was subject to editorial peer review.

4.1 Downloaders and downloads

Downloading from unauthorised sources is a widespread and growing global phenomenon. The number of people in the Netherlands who download music, films or games without paying is relatively large because of the high broadband penetration in the country, yet well in line with British and American figures. Across the board internationally, music downloading is by far the most common form of file sharing, followed at some distance by films and games.

Whereas estimates of the volume of unauthorised download traffic vary strongly, it is clear that it accounts for many billions of files per year worldwide and makes up a substantial share of international internet traffic. Based on a compilation of various sources, estimates for the Dutch market have been put at 1.5-2 billion music downloads per year, or 7.5 downloads for each track sold in the Netherlands. Note, however, that these are highly tentative calculations based on several – at times contradictory – sources.

4.2 How file sharing relates to sales

The literature describes various mechanisms through which file sharing results in an increase or, conversely, a decrease in digital media sales, or has no impact on sales whatsoever. These mechanisms are summarized in Table 6. The most prominent positive effect is the sampling effect: consumers are introduced to new music and this creates new demand. When downloading serves consumers whose demand is driven by a lack of purchasing power, the effect on sales is neutral. File sharing has a negative impact on buying when it replaces paid-for consumption. The specific characteristics of music, films and games explain both the relationship between file sharing and buying and why download volumes differ greatly between these genres.

The findings of empirical studies into the causal or other relationships between downloading and buying music vary widely, ranging from positive to neutral to negative. The studies are methodologically complex and some criticism can be raised about many of them. All in all, files sharing seems to have only a moderate effect on physical audio format sales. This is in line with the observed global downturn in sales. That said, there does not appear to be a direct relationship between the decline in sales and file sharing. The state of play in the film industry has been less researched to date, but available findings unanimously suggest a negative relationship. In the games industry download volumes are low and the implications unknown.

Due to the empirical subtlety of the relationship between file sharing and sales and the diverse underlying mechanisms, it is very difficult to determine the relationship on a title by title basis. Measuring the possible harmful effect of a specific uploader's content is even more difficult, if not downright impossible.

Table 6 Possible effects of file sharing on the purchase of CDs, films, games and related products

Positive	1. File sharing introduces consumers to music, films and games (and to artists and genres), thus creating demand. This is known as the sampling effect (Shapiro and Varian 1999; Liebowitz 2006)
+	2. File sharing allows consumers to pool their demand, resulting in increased demand. ¹⁴
	3. File sharing enhances willingness to pay and demand for concerts and related products (complementary demand).
	4. File sharing enhances the popularity of products, boosting demand driven by a lack of purchasing power (network effect). ¹⁵
Neutral	5. File sharing meets the demand of consumers who are not, or not sufficiently willing to pay and subsequently are not served by the manufacturer.
=	6. File sharing meets a demand for products that are not offered by manufacturers (e.g. film files for iPods).
Negative	7. File sharing substitutes for the purchase of music, DVDs or games or cinema visits (substitution).
-	8. File sharing results in the deferred purchase of music, DVDs or games, at a lower price than the price at launch.
	9. Sampling results in sales displacement as a result of fewer bad buys. ¹⁶

4.3 Static analysis of welfare effects of downloading music

One clear conclusion that can be drawn from the deliberations above is that every file downloaded does not result in one less CD, DVD or game sold. The degree of substitution is difficult to determine and controversial, yet we can state with certainty that there is *no* one-on-one correlation between file sharing and sales.

Below we seek to describe the economic scope of file sharing and its short-term effects. The analytical framework used is a welfare-theoretical approach. Rob and Waldfogel (2006) used a similar approach to calculate the welfare gains and losses for the music industry based on the relationship found between downloading and purchasing music.

The premises of this approach are illustrated in the stylised Figure 4, where the diagonal line represents the demand (D) for CDs in relation to price. In a situation where there is no file-sharing activity, a Q_0 number of CDs will be sold at price P_{cd} , resulting in a turnover of $P_{cd} \times Q_0$ (the lightly shaded rectangle 'TURNOVER'). Given the high fixed costs and the low marginal costs that are so characteristic of the entertainment industry, in this particular case the gains for the producer – the producer surplus – roughly equal turnover.¹⁷ Consumers may also benefit in that some would have been prepared to pay a higher price for a CD than they actually paid. Taken together, these amounts constitute the consumer surplus, represented by the darkly shaded triangle (CS1) in the graph. The creation of welfare in the economy is defined as the consumer surplus plus the producer surplus.¹⁸

14 This applies in particular to the exchange of media with friends rather than to the anonymous exchange through P2P networks.

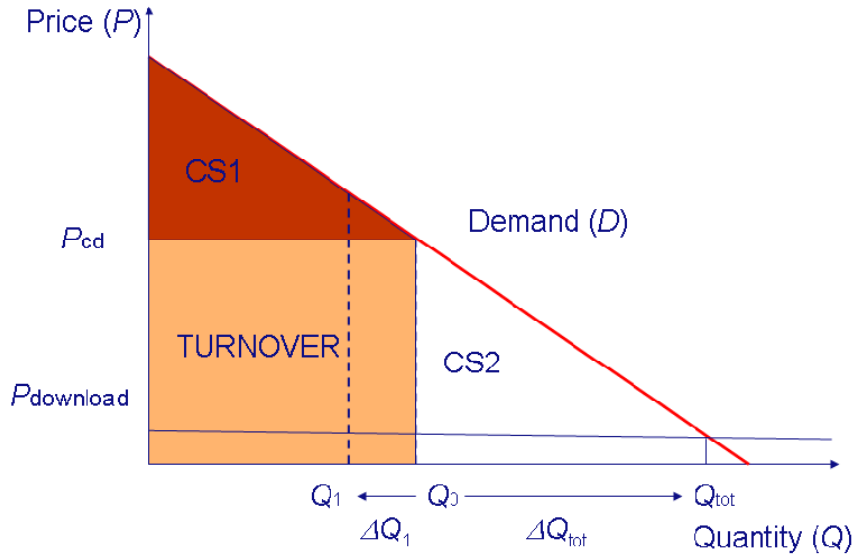
15 This applies in particular to the use of software for which network effects are clear. A (modest) network effect may also be found for lifestyle products such as music, films and games. Unauthorised use can also, under certain circumstances, have a positive effect on profits and investments without network effects as it can weaken competition between products. See: Jain, S. (2008). "Digital Piracy: A Competitive Analysis." *Marketing Science*: 1-17.

16 Rob and Waldfogel show that on average people's appreciation of music is lower after it has been bought or downloaded than prior to the purchase. See: Rob, R. and J. Waldfogel (2006). "Piracy on the high C's: Music downloading, sales displacement, and social welfare in a sample of college students." *Journal of Law and Economics* **XLIX** (April 2006): 29-62.

17 To be more precise: the marginal costs are low, but the fixed recording costs (or costs of developing a game) have already been incurred and are 'sunk'. In order to determine the absolute producer surplus, the fixed costs need to be subtracted from total revenues. The current approach suffices for an estimation of relative differences.

18 In some policy areas, such as the supervision of mergers, the producer surplus is not included, assuming that companies are able to look after themselves and that government's primary responsibility is towards consumers/ citizens.

Figure 4 Media demand and wealth effects of file sharing



Now assume that consumers have the opportunity of downloading the product. The horizontal line P_{download} represents the costs (in terms of effort and time) of file sharing. Far more consumers (Q_{tot}) are interested in the CD at this lower price and consumption of the CD increases by ΔQ_{tot} because consumers who initially were not prepared to pay the higher price now buy the product (Table 6, effect 5). At the same time, however, some of the consumers who used to buy the CD may now download the music, resulting in a reduction in demand for the CD by ΔQ_1 (substitution: Table 6, effect 7). In this stylised example this would amount to a total of $\Delta Q_1 + \Delta Q_{\text{tot}}$ consumers downloading the CD, resulting in turn in lost revenues for producers (in this case this is equated with a lower producer surplus) of $\Delta Q_1 \times P_{\text{cd}}$. This wealth is not lost but goes directly into the pockets of consumers who choose to download rather than to buy, thus creating additional consumer surplus. Even more consumer surplus is created and represented in the graph as the triangle between demand D , the initial vertical line Q_0 and the download costs P_{download} . This is a new surplus compared with the initial situation and constitutes welfare gains to society.

In summary, we saw that in this stylised static analysis substitution resulted in a redistribution of welfare (producer surplus becoming consumer surplus) without a net effect. Meeting demand that is not driven by purchasing power creates welfare gains for society. The positive impact of file sharing on sales, mainly attributable to sampling, results in a lower degree of substitution.¹⁹ If the sampling effect or other positive effects were to dominate, demand would even increase on balance and both the consumer and the producer surplus would rise.

The above effects can be quantified with the aid of:

- the number of downloads of music, films and games ($\Delta Q_1 + \Delta Q_{\text{tot}}$)
- the number of file sharers who would buy music if downloading were not possible (ΔQ_1)
- file sharers' (average) valuations or willingness to pay

Above we emphasized the diversity and controversiality of the estimated effects. Figures for the number of downloads per day showed considerable variation and consumers themselves

¹⁹ In Rob and Waldfogel's calculation, the transfer amounted to \$25 per student in the period 1999-2003. The welfare gains for society stood at \$70 per student, almost three times the transfer.

found it hard to reliably quantify the amount of material they had downloaded. Based on the available material, we put the number of music downloads in the Netherlands ($\Delta Q_1 + \Delta Q_{\text{tot}}$) at *1.5-2 billion per year*. The market value for all these downloads amounts to the same volume in euros. Note, however, that this may not be equated with lost revenues.

The next step is to determine the extent of substitution. Based on the number of downloads given above, a substitution ratio of 20%, as used by Rob and Waldfogel, would seem unrealistically high as this would imply that 300-400 million fewer tracks are sold as a result of file sharing, which is equivalent to one-and-a-half to twice the downturn in sales reported for the Dutch music industry since 1999. Taking Peitz and Waelbroeck's (2004) estimate as an upper limit, namely that a 20% decline in total sales may be attributed to file sharing, which is still relatively high, this would result in lost revenues of at most €100 million in the Netherlands. This in turn is equivalent to a *substitution ratio of at most 5-7%*, or one track less sold for every 15 to 20 downloads.

The third step is to determine the value of downloads that do not result in substitution, known as the additional consumer surplus. We have pointed out that every file downloaded may not be assumed to lead to one less track sold; similarly, it would not be correct to assume that the value of free downloads – the additional consumer surplus – equals the retail value of the downloads. This is expressed in the stylised Figure 4: in addition to substitution, the real rise in demand as a result of file sharing may be attributed to demand that is driven by a lack of purchasing power. As shown in the graph, the welfare gains would be more or less equal to half the retail value of the downloads. Rob and Waldfogel (2006) found that on average, students' valuation of downloaded music was one-third to half lower than that for purchased music.

The additional consumer surplus can be estimated using data about file sharers' willingness to pay. These data were collected in the consumer survey and were depicted in Figure 3. The area under the curve in Figure 3 is equal to the weighted average 'reasonable price' given by the file sharers, namely €10.67 for a CD. Multiplying this reasonable price by the 69% of respondents who said they would 'probably' or 'most probably' buy the CD for this price, puts the average actual willingness to pay for a much-wanted downloaded CD at €7.36. This is 40% lower than the average price of a CD sold in 2007 (€12.31) and is well in line with the 33-50% lower valuation found by Rob and Waldfogel and the estimate of half the price that can be derived from Figure 4.²⁰

Figure 3 also shows that about one quarter of file sharers felt that a price that was higher than the average retail price of €12.31 would still be reasonable. Again, adjusting this for the likelihood that consumers will actually buy the CD for that price, means that roughly 17% of all file sharers would be willing to buy the CD for the retail price if downloading were not possible. This percentage is slightly lower than the 20% found by Rob and Waldfogel, but much higher than the 5-7% derived from the estimates made by Peitz and Waelbroeck. An important difference, however, is that this substitution ratio does not relate to all downloads, but to highly valued downloads only.²¹

In order to calculate the additional consumer surplus, one cannot simply multiply the willingness to pay for *highly valued music* by the total download volume of 1.5 to 2 billion

²⁰ Figure 6.5 also shows at which price maximum turnover from downloading would be achieved - namely €10. Demand drops steeply at higher prices (such as the current average of €12.31).

²¹ Note also that this is only one side of the coin – namely substitution. A positive contribution of the sampling effect could explain why actual impact on turnover is lower.

tracks a year. Much-wanted downloads tend to be the downloads that file sharers keep. Young consumers keep the equivalent of an average of 8-16 months of downloaded material on their computers or players. Based on this calculation, the consumer surplus represented by file sharers' built-up download collections amounts to about 60% of the retail value. English research shows that the music collections of young people under the age of 25 equals about 1000 MP3s, suggesting an additional consumer surplus of around €600. For the 25-plus age bracket, the average download collection totalled 200 MP3s per person, which is equivalent to a surplus of around €120. Downloaded music files for all music sharers taken together represent a value of €1-1.5 billion.

This value has been built up over a period of several years, in some cases even from as early as the launch of Napster in 1999. The *consumer surplus* created by music sharing in the Netherlands would then amount to an estimated minimum of €200 million per year. Based on the above assumptions, this is a conservative estimate (collections have been estimated to have been built up over a long period of time, namely an average of 5 to 8 years, and the surplus for deleted downloads has been set at zero). At most half this amount is generated at the expense of the producer surplus and therefore constitutes a transfer of welfare. The remainder constitutes welfare gains.

Needless to say, these calculations are necessarily based on assumptions and contain many uncertainties. Many of the underlying data are not precisely known. That said, it is clear that the direction and magnitude of the amounts calculated are plausible. An annual surplus of €200 million for 1.5 to 2 billion downloaded tracks gives an average value of 10-13 cents per track, about one-eighth to one-tenth of the cost of tracks (€0.99) on iTunes and other sites.

The consumer survey referred to earlier showed that not all music genres are equally popular among file sharers. Whereas classical music is downloaded relatively infrequently, file sharing of genres such as soul/urban, experimental, rock, dance and pop is all the more frequent. This is in line with the fact that the younger age brackets are fervent file sharers.²² Sales of these popular youth genres are therefore likely to be more heavily impacted by file sharing. That said, a one-on-one relationship has not been found. The consumer survey revealed that experimental and avant-garde music are frequently downloaded even though few respondents actually stated a preference for these genres. In this light it is worth taking a closer look at Blackburn's findings, which showed that while popular music artists are negatively impacted by file sharing, lesser known artists benefit. In principle, this development favourably affects the diversity of supply, yet a decline in income from popular artists can put pressure on investments in talent development.

Contrary to Zentner's (2006) observation that international repertoire is more popular among young, frequent file sharers, and that national repertoire, which tends to be more readily appreciated by older generations, suffers less from file sharing, there is no evidence for the Netherlands showing that Dutch music is downloaded any less, or more, than other music genres. Conversely, according to figures provided by the Dutch association for producers and importers of image and sound carriers (NVPI), the market share of classical CD sales has dropped from a stable 10% up until 2002, to 5% in 2005.

These examples underline once again that the relationship between the drop in CD sales and file sharing is an ambiguous one: the frequency of downloading does not always correspond

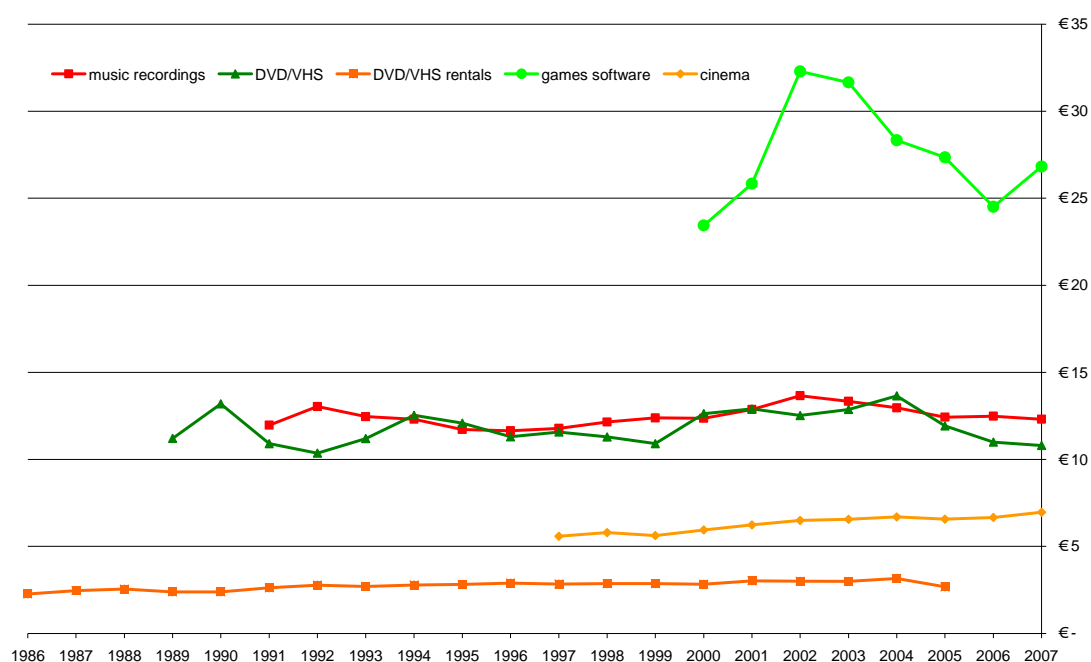
²² Note that according to the NVPI, the market share of classical CD sales has dropped from a stable 10% up until 2002, to 5% in 2005. This underlines once again that the relationship between the drop in CD sales and file sharing is an ambiguous one.

to the popularity of a particular music genre, and the shift in sales figures and market shares of different genres cannot be directly related to download frequency.

4.4 Price trends

Figure 5 shows price trends for an average CD, DVD, game or cinema visit. As discussed, turnover from sales of music recordings has plummeted. As average nominal prices have remained more or less stable, average prices have dropped in real terms. By comparison, prices of purchased and rented DVDs/VHSs have also remained virtually stable over the years. The price of cinema tickets has risen in line with general inflation (which averaged 2.2% per year). The average price of games has fluctuated strongly over time, presumably in part as a result of the large price difference between PC games and console games.

Figure 5 Nominal price trends in market segments of the entertainment industry



Combining Figure 1 and Figure 5 would reveal that turnover of the three segments taken together (cinemas, DVD/VHS rentals and sales) has risen from around €306 million in 1999 to €571 million in 2005 (even reaching €642 million in 2004). No figures are available for DVD rentals for the years after 2005, but the upturn in cinema takings and DVD sales following the dip in 2005 is expected to have positively impacted DVD rentals as well.

5 Conclusions and policy recommendations

The degree to which the decline in music sales may be attributed to file sharing is under discussion, as was emphasized in section 4. Overall static welfare effects of file sharing, however, are highly positive due to the fact that most file sharing is no substitute for buying music and hence creates additional welfare. Only an estimated 1 in 20 downloaded tracks leads to a track less sold. The question remains how file sharing and digitisation effect the music industry in the long term. Are the welfare effects still positive from a dynamic perspective? And how do business models in music respond?

Section 2 dealt at length with developments relating to new business models in the entertainment industry. It presented a number of explanations for the fact that the music industry was the first to suffer the effects of the rise and workings of file sharing. Whereas the music industry long failed to respond to the changing needs of consumers, file sharing has succeeded in meeting these needs. Online and mobile music sales are showing impressive growth, yet have so far failed to make good the losses suffered by the record industry. The consumer survey also showed that many consumers who have on occasion downloaded from paid-for sites have stopped doing so, suggesting that the initial content offered did not meet their expectations. A disappointed customer is not likely to come back.

As music is steadily acquiring the characteristics of a public good, the industry is now focusing on other sources of income that derive value from music's broad accessibility. Live concerts constitute an ever-growing source of income. In line with this, the industry is increasingly focusing on sponsorship contracts, 360-degree contracts and merchandising.

Ticket prices for live concerts have shot up in recent years. This development – and its acceptance by consumers – should be seen in conjunction with the growing commoditisation of music just like the acceptance of port dues is enhanced by the neighbouring lighthouse. Conversely, the interviews with active file sharers showed that the sharp increase in the price of live concerts is being used by consumers to justify their file sharing activities. This development seems to be irreversible, or at least difficult to reverse.

At the same time we see that artists, in particular beginning artists, are gaining access to new, accessible channels to market their wares, such as MySpace and YouTube. New market concepts such as Sellaband are also successfully responding to the democratisation of talent development. More commercially, concepts such as *Idols* manage to combine a successful tv-programme with talent development and promotion, reducing the commercial risks of the resulting recording on the way.

For established artists, marketing and income-generating models are being developed where income is generated not so much directly by music recordings, but increasingly by live concerts, merchandising and sponsorship. Determining the extent to which these sources of income make good the losses in the market for physical audio formats is difficult on the basis of the information publicly available. That said, the new models still cater for music recordings, but show that in the future the industry is not likely to be able to survive profitably on music recordings alone.

In addition to the growing importance of live concerts, sponsorship and merchandising, recent developments in the area of value creation include such initiatives as alliances between the mobile phone and music industries. At the same time we see that file sharing impacts the rest

of the economy through spin-off revenues. The current demand and willingness to pay for fast broadband connections, for example, is most probably generated by file sharing. In economic terms, consumers pass on part of the surplus they derive from file sharing in the form of increased demand and a greater willingness to pay for fast internet connections. In view of this, it is clear why Internet Service Providers (ISPs) are inclined to play a backbench role when it comes to combating file sharing. Rather than being each other's natural enemies, ISPs and copyright holders could equally well become each other's allies if they succeed in clinching innovative deals, such as jointly offering internet connections in combination with flat-fee access to content.

Recommendation 1: An urgent need for innovative business models in music

The music industry is suffering from a decline in sales. It is therefore tempting to point the blame at file sharing as the main or sole cause. Yet the challenge is to capitalise on the dynamics of the digital age by responding to the new reality created by users and by reinventing business models. The survey held among Dutch internet users has shown that file sharing is here to stay and that people who download are at the same time important customers of the music industry. The point of no return has been reached and it is highly unlikely that the industry will be able to turn the tide. What is more, there is no guarantee that a situation will ever arise in which a majority of digital downloads will come from an authorised source. Whatever the future brings, the time that will pass between now and a 'clean' future is too long for the industry to sit back and wait, without making an effort to innovate. And so the music business will have to work actively towards innovation on all fronts. New models worth developing, for example, are those that seek to achieve commercial diversification or that match supply and enduser needs more closely.

The advance of 360-degree contracts is a step towards greater diversification of sources of income and underlines the clear connection that exists between various revenue sources in different music markets. Innovation in the music business should step outside the box of the traditional value chain and venture into a host of other markets related to the entertainment industry and beyond, for example through the creation of value networks. It should not be restricted to new distribution or marketing channels – forging new alliances and combines for newly developed products and services seems to be the only way to successfully tackle the implications of file sharing for the industry, at least for the time being. A strategy that focuses solely on law suits and DRM is not the best response, in particular as it remains to be seen whether a fully authorised, paid-for downloading market would generate sufficient revenues to revive the music industry. Even in a hypothetical future without file sharing, a hybrid business model would appear to be the only solution.

It is up to government, as part of its cultural policy and its policy to strengthen the country's innovative power and competitive edge, to consider identifying the promotion of innovation in the music industry – in combination perhaps with the film industry – as a key priority. The industries studied here are now necessarily in a phase of transition, given the nature of the business and its products, which could pave the way for similar processes in other domains of the economy.

Subsequently, the government should monitor developments with respect to new business models: Will the delivery of official downloads be the most appropriate response to declining sales, or are more radical changes needed? Will the industry sufficiently be able to reinvent itself? This study has also shown that information about certain major sectors of the industries researched here, such as the live music sector, is in short supply. It is often claimed that live

concerts are growing at the expense of CD sales, but much remains uncertain about the magnitude of the assumed growth and the degree to which it could make good the loss in CD sales. The industries concerned and the Dutch government would do well to gain a better insight into this issue through systematic data collection, in particular if government intends to keep close tabs on the development of file sharing.

Recommendation 2: Don't 'criminalise' individual end users - educate them

File sharing and P2P networks have become generally accepted practices and important drivers for innovation. Moreover, file sharers turn out to be very important if not the most important costumers of the music industry. It would therefore be ill advisable to criminalise file sharing by end users on the grounds that the content is from an illegal source or because of the uploading aspects of P2P traffic. Experience outside the Netherlands has shown that the effect of enforcement tends to be temporary and may in fact have adverse effects, in that it alienates the industry from its customers. Enforcement can be undertaken either by the industry itself (civil actions, rules of liability), or by public enforcement authorities (criminal enforcement). Recent policies at not only national but also European level are in favour of civil enforcement by the industry itself, in which case the various interests of the industry as a whole and of individual end users should be carefully weighed.

That said, the provision of information and education is still vital, if only because research has shown that there is still much uncertainty among both users and suppliers about what is – and is not – permitted. We also saw that many consumers are ill-informed about the techniques used and unaware of the fact that they are often downloading and uploading at the same time. A better awareness of what is and is not lawful is also important in relation to the acceptance of new business models. There is a role to play here for government – and for the industry itself.

Recommendation 3: Enforcement against commercial copyright infringement

The law provides right holders with a range of enforcement measures, in particular with respect to unauthorised uploading on a commercial and large scale – preferably in line with, or after new business models have been developed, thus creating real alternatives. In the case of civil enforcement against large-scale uploaders, right holders and other parties in the distribution chain could join forces. This should not, however, be undertaken at the expense of the basic principles of justice such as proportionality, legal certainty and the protection of fundamental rights and procedural justice. Criminal enforcement should serve only as an ultimate remedy – which is in keeping with current government policy in the Netherlands.

An additional problem for enforcement is that it is very difficult to establish a direct relationship between file sharing and purchasing behaviour, as was illustrated in section 4. This implies that it is virtually impossible to measure the damage caused by the uploading activities of individuals. Effects of individual uploads on the sales of individual albums, films and games, generally range from negative, via neutral to positive. And taking revenues from live concerts and sponsor deals into account, the 'damage' from file sharing becomes even more elusive, particularly with respect to isolated titles or peers. This conclusion has important consequences regarding the proportionality and viability of both civil and criminal enforcement.