

Unclassified

DSTI/ICCP/IE(2004)12/FINAL



Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development

14-Dec-2005

English - Or. English

**DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY**

Cancels & replaces the same document of 08 June 2005

Working Party on the Information Economy

Digital Broadband Content: Music

JT00195986

Document complet disponible sur OLIS dans son format d'origine
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FOREWORD

This report was presented to the Working Party on the Information Economy in December 2004 and was declassified by the Committee for Information, Computer and Communications Policy in March 2005.

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PREFACE

Digital content and digital delivery of content and information are becoming increasingly ubiquitous, driven by the expanding technological capabilities and performance of delivery platforms, the rapid uptake of broadband technologies and improved performance of hardware and software. Network convergence and widespread diffusion of high-speed broadband has shifted attention towards broadband content and applications that promise new business opportunities, growth and employment.

At its March 2003 meeting, the Information, Computer and Communications Policy Committee (ICCP) discussed interlinked broadband and digital content developments and policy issues. The Committee adopted two tracks for this work, agreeing to work: *i*) towards a Committee statement on promoting broadband development; and *ii*) to develop a work proposal on digital content. At its October 2003 meeting, it was agreed that the ICCP Committee should undertake more comprehensive analysis on digital broadband content, focusing on growth and value creation, drivers and barriers to growth, and changing market structures and emerging issues with development of new delivery platforms.

In February 2004, following preparation in the ICCP Committee, the OECD adopted the Recommendation of the Council on Broadband Development (see Box 1), setting out ten recommendations for OECD member countries when establishing or reviewing their broadband policies. These policy recommendations recognise the increased policy attention towards broadband content and applications. The ICCP Committee has been asked to monitor the development of broadband in the context of this Recommendation within three years of its adoption and regularly thereafter.

At its April 2004 meeting the ICCP Committee agreed to the work plan on digital broadband content, with this work being undertaken in the Working Party on the Information Economy (WPIE) in conjunction with the Working Party on Telecommunication and Information Services Policies (WPTISP). The WPIE is undertaking stocktaking studies of sectors where digital content is transforming value chains and business models. Initial sectors studied are: scientific publishing, music, online computer and video games and mobile content services. The studies are designed to further identify analytical, policy and measurement issues, and prepare the ground for more in-depth analysis of horizontal issues and challenges to broadband content development and applications. The WPIE held a Digital Broadband Content Panel in June 2004 and a Digital Broadband Content Workshop in December 2004.¹

Further policy analysis is being undertaken in the area of digital content. For more information see www.oecd.org/sti/digitalcontent.

Box 1. OECD recommendation of the Council on broadband development, 2004

The OECD Council recommends that, in establishing or reviewing their policies to assist the development of broadband markets, promote efficient and innovative supply arrangements and encourage effective use of broadband services, Member countries should implement:

- Effective competition and continued liberalisation in infrastructure, network services and applications in the face of convergence across different technological platforms that supply broadband services and maintain transparent, non-discriminatory market policies.
- Policies that encourage investment in new technological infrastructure, content and applications in order to ensure wide take-up.
- Technologically neutral policy and regulation among competing and developing technologies to encourage interoperability, innovation and expand choice, taking into consideration that convergence of platforms and services requires the reassessment and consistency of regulatory frameworks.
- Recognition of the primary role of the private sector in the expansion of coverage and the use of broadband, with complementary government initiatives that take care not to distort the market.
- A culture of security to enhance trust in the use of ICT by business and consumers, effective enforcement of privacy and consumer protection, and more generally, strengthened cross-border co-operation between all stakeholders to reach these goals.
- Both supply-based approaches to encourage infrastructure, content, and service provision and demand-based approaches, such as demand aggregation in sparsely populated areas, as a virtuous cycle to promote take-up and effective use of broadband services.
- Policies that promote access on fair terms and at competitive prices to all communities, irrespective of location, in order to realise the full benefits of broadband services.
- Assessment of the market-driven availability and diffusion of broadband services in order to determine whether government initiatives are appropriate and how they should be structured.
- Regulatory frameworks that balance the interests of suppliers and users, in areas such as the protection of intellectual property rights, and digital rights management without disadvantaging innovative e-business models.
- Encouragement of research and development in the field of ICT for the development of broadband and enhancement of its economic, social and cultural effectiveness.

The Council also instructs the Committee for Information, Computer and Communications Policy to monitor the development of broadband in the context of this Recommendation within three years of its adoption and regularly thereafter.

Source: OECD (2004), *Recommendation of the Council on Broadband Development*, C(2003)259/FINAL, www.oecd.org/dataoecd/31/38/29892925.pdf.

SUMMARY

Network convergence and widespread diffusion of high-speed broadband have shifted attention towards broadband content and applications that promise new business opportunities, growth and employment. Digital content and digital delivery of content and information are becoming increasingly ubiquitous, driven by the increasing technological capabilities and performance of delivery platforms, the rapid uptake of broadband technologies - with 2004 leading to a breakthrough of broadband penetration in OECD countries - innovative creation and use of content and improved performance of hardware and software.

In this context, digital music is attracting high attention with a large number of legitimate online music services becoming available in 2004. Access to broadband and technological developments have led to the rapid creation of online music services that change the way music is accessed and consumed. Overall the digitisation of music, changing ways of listening to music, the diversification of delivery platforms and sharing are likely to have increased the time listened to music, but the unauthorised downloading of copyrighted content over the Internet has raised considerable concerns. Music is thus an area in which the transformative impact of digital distribution is strong for both the supply side (artists and the music industry) and on the demand side (new music consumption styles, consumer choice and network users as content creators). The most important is to find an equilibrium between available legitimate and innovative uses of new technologies for online music and the necessary protection of associated intellectual property rights. Developments in online music also raise many challenges and issues that are likely to be relevant for other digital content sectors as well.

The study analyses the impacts of the availability of digital broadband content, and describe transformations in the music industry and impacts on artists and users. Part 1 of the study provides an historical analysis of the music industry in terms of market size and technological developments. Part 2 contrasts the traditional recording industry value chain and business models to the new online music services. Part 3 provides data and analysis on file-sharing and music. Part 4 provides an initial assessment of impacts on artists and users. Finally, part 5 concludes with an analysis of challenges and policy considerations.

Part 1 Music market industry: History, size and different music carriers

Music pervades every culture and level of society. In terms of revenues and export - music also constitutes a significant industry in OECD countries. In 2003, the value of global recorded music sales amounted to USD 32 billion with the OECD countries accounting for roughly 94 per cent of that market with United States, Japan and the United Kingdom being the largest markets and Norway and the United Kingdom the largest in terms of per capita spending.

Throughout the music industry history, new formats and new playing devices have brought opportunities and challenges. Often initial challenges to the music industry's business model have ultimately been replaced by opportunities leading to further growth. Unauthorised sharing of copyrighted works and new commercial digital delivery possibilities via broadband have thus far been a disruptive technology for the music industry. After a period of sustained growth, the music industry experienced a pronounced fall in overall revenues (by 20% from 1999 to 2003). This downturn was not uniform in all OECD countries. Whereas some OECD countries experienced large declines, *e.g.* the United States,

France, the Netherlands, Japan and Germany, other markets for recorded music like the United Kingdom experienced steady or growing sales. Apart from online piracy, there have been other changes in the market environment for music over the past ten years such as the increased number of entertainment sources which may explain changing music sales.

2004 has marked a turning point when a range of legitimate online music services became available in most OECD markets. Apple's iTunes is said to have changed the online music landscape by offering an easy-to-use online store with a broad song catalogue, a consistent, uniform, and cheap pay-per-download service. By the end of 2004, there were 230 sites offering over 1m tracks online in the United States and Europe. During 2004, over 200 million songs were downloaded from legitimate services, up from 20 million the previous year. In addition, some sites experimented with products for consumers based around streaming on demand, Internet radio and personalised services.

The outlook for the music market in 2005 is more positive due to rapidly increasing sales of digital music services, the rise of mobile music (*e.g.* ringtones) and the popularity of other new formats like music DVDs. Whereas the online music market is still very small as a share of total revenues (1-2%), it is characterised by a rapid entry of new players and a rapid increase of demand, and a fast growing supply of available tracks. In the medium-term, overall demand for music may be increased through digital distribution and other new forms of music consumption.

Digital music and other digital content are also drivers for the global technology markets, both to consumer electronics manufacturers and PC vendors. The increase in revenues for hardware of the PC and consumer electronics branch resulting from the availability of online music, authorized or not, is potentially bigger than the current revenues generated by paid music streaming or downloads. Finally, although established players like the record companies retain a key role, the potential impact of online music on artists and their discovery, on the whole industry business model and value chain and on users seems significant.

Through a combination of new technologies, new business relationships, and innovative service offers to consumers, the market is developing rapidly to realise the potential of online music. The challenge to business is to reduce online piracy and to develop models that are attractive to consumers, and provide existing and new participants in the value chain with a growing stream of revenue for the creation and legitimate distribution of original recordings.

Part 2. Industry structure: Transforming value chains and changing business models

The rise of online music has generated product and process innovation, the entry of new players and new opportunities for music consumption and revenues, involving different forms of disintermediation and the continued strong role of some traditional market participants (especially the record labels).

In the new digital model, artists, majors and publishers have so far retained their creative roles related to the development of sound recordings. Direct sales from artists to the consumer or career-building of an artist purely through the online medium are still rare. Nevertheless, the Internet allows for new forms of advertising and possibilities that lower the entry barriers for artistic creation and music distribution.

The creation of an online music store requires content creation and production, the digitisation of content, the clearing of rights, the settling of technological issues, including digital rights management systems (DRMs), the creation of online music storefronts, secure billing systems and delivery networks. Thus, the digital music value chain is different in aspects from the traditional one but certainly not less complex. Importantly, a whole new set of companies which were traditionally not involved in the distribution of music have entered the picture. This involves players that always had links to the content

industries (e.g. the consumer electronics industry) and which are now moving upstream. But it also engages new players that were traditionally not related to the distribution of music (e.g. ISPs, consumer brands). Furthermore, the new digital music value chain produces an array of new digital intermediaries (e.g. digital rights clearance, software, DRMs, online billing).

Depending on the nature of the players, very different motives drive their online music activity (see Table below) leading to new co-operation as the players try to integrate upwards or downwards along the value chain. In their move to becoming triple-play providers (voice, broadband and TV/content), network operators are, for example, moving into more value-added services like the provision of content and information.

Participants	Business incentives
Record labels	Generate revenues through digital sales while avoiding revenue losses from online piracy, cannibalisation of traditional revenue streams and “commoditisation” of music.
Artists	Generate revenue through digital sales while avoiding revenue losses due to online piracy. Establish own distribution platforms and use lower start-up costs to build a fan-base or to interact differently with labels and fans.
Hardware producers	Use interest in digital content to sell hardware with new functionality and interoperability.
White label services	Generate revenue by providing services to digital music stores.
Software producers	Establish player and DRM software as standard for content delivery.
ISPs	Use interest in digital content to attract customers to premium Internet and content services.
Content portals	Build Internet audience to attract traffic and advertising revenues.
Consumer brands (non-music)	Increase customer loyalty through e.g. music promotions.
Credit card providers	Generate revenues from fixed- and percentage-based transaction fees.

There have been efforts by value chain participants to integrate some of the different functions along the value chain (from the creation of content to the hardware devices used to listen to music; often with use of proprietary standards). Partnerships between the individual players or upstream/downstream moves are already taking place. Digital music and the rise of portable audio players are also redefining the boundaries between the traditionally somewhat separate PC, software, mobile handset, content and consumer electronics sector. The convergence of digital audio playing devices with mobile phones and the evolution of digital audio players into multi-media appliances are upcoming trends.

The new business models are mainly built around digital download, streaming subscription models and – more recently – portable subscriptions, with downloads still being the most popular option. In the case of downloads, the transition to a digital distribution model has the potential to provide record labels and artists as well as other parties involved (especially the identified digital intermediaries) with revenues. Online music providers still seem to struggle making profits at current prices, with demand growing from low levels and having to compete against unauthorised downloading. In the current, low-volume market, digital economies of scale have not yet been realised. Some of the fixed costs of labels to produce artists stay essentially the same as before. Moreover, the digital distribution of songs is far from costless. Transaction costs and the cost of payment mechanisms make up a large share of the revenue from digital music delivery. The economics of subscription services is less transparent but calculations show that the subscription business model, if it experiences more significant uptake by consumers, may provide for more recurrent and increased revenue streams. Song catalogue sizes vary between the different providers and

although some catalogues now have around 1 million tracks, can remain rather small. Incompatibilities between content and playing devices may hamper the potential for online music sales. But in some cases, proprietary standards can also have an advantage in terms of providing commercial incentives for new services.

Part 3. Music and Peer-to-Peer networks

The number of simultaneous users on all P2P networks reached almost 10 million in October 2004. The United States makes up more than 50% of all simultaneous file-sharing users, with Germany at around 10%, Canada and France at 8%.

In principle, file-sharing networks are an innovative technology that finds increasingly useful applications in new services and in authorised file-sharing. However, the use of P2P networks to exchange unauthorised copyright-protected content presents a significant challenge to the music industry and to the enforcement of intellectual property rights. There is currently a considerable volume of copyright infringement that is taking place among users of peer-to-peer networking software. This unfair competition puts pressure on legitimate online music and other content services and may have slowed commercial services that offer access to content online. Nevertheless, it is very difficult to establish a basis to prove a causal relationship between the size of the drop in music sales and the rise of file sharing. Sales of CDs, as well as the success of licensed on-line music services are likely to have been affected to some degree by a variety of other factors, for example physical piracy and CD burning, competition from other, newer entertainment products and faltering consumer spending in some markets.

If Internet-based piracy is effectively addressed, licensed file-sharing and new forms of “super-distribution” could be important growth factors. The challenge therefore becomes to make file-sharing a business model for the licensed delivery of copyrighted material. A number of attempts have been made to do this – including those of the record industry – but most P2P networks remain unlicensed by the right holders (including the more recent interest of the record industry to use the technology or file-sharing features for their commercial purposes)

Part 4. Online music, artists, and consumers

A field which deserves further study is the impact of new technologies on music artists, the diversity of available content and the impact on users (including artist-user relationships).

The few available surveys show that most musicians embrace the Internet as a creative workspace where they can collaborate and promote their work. For many artists the Internet has enabled a much more direct relationship with fans. But artists are divided about the impact of unauthorised file-sharing on the music business, with some saying that free music downloading online has helped their career, some being indifferent and others arguing that it has harmed it.

As the selection of music is so wide, record labels continue to play a major role in consumer discovery of music. Direct sales from artists to the consumer or career-building of an artist purely through the online medium thus remain rare. But the lack of more transformation in this area may also have been caused by slow migration to new forms of discovery and distribution.

This does not mean that the Internet does not directly affect the creative community and music sales. On the contrary, the Internet already provides new forms of advertising (like offering consumers the opportunity to listen on a trial basis) at lower cost, lower barriers to entry for artistic creation and lower costs of finding new talent that are bound to increase fast. Certainly the music discovery process is also changing with digital delivery altering the market conditions of artistic start-up. Some independent artists

are already achieving visibility and commercial viability from Internet marketing and distribution. New artists are able to introduce their music into the online market without going through traditional channels and having the costs of physical pressing and distribution (reduced start-up costs). As established distribution networks were a significant competitive advantage of the big record companies as compared to independent publishers, this may prove to impact positively on (smaller) independent labels which may be able to move more quickly in reaction to technological change. The Internet also provides opportunities to reduce search costs and market in a less costly, more targeted way. The costs of labels to find new talent could also be lowered. However, digital distribution is a complex and far from costless delivery channel which entails building a multitude of complex and new business relationships for existing market participants and new entrants.

Furthermore, digital technologies have persistent effects on consumption habits. Through digital music the user is experiencing another way of consuming content, one that may be more in line with desired ways of music consumption (*e.g.* personalised playlists) and which is now starting to be addressed by the market place. Finally, the impact of the online medium on users and cultural diversity through availability of online technologies opens up possibilities for new content created by network users. Apart from having ubiquitous access to music, network users may become participants in the whole chain of new content creation (*e.g.* authorised mixing of songs, non-professional artists distributing music), marketing and distribution, although the scale and long term impacts of this are currently unclear.

Part 5. Challenges and policy considerations

Whereas the marketplace creates new business models and is bringing forward many solutions to most of these challenges, it is the government's task to establish a non-discriminatory framework that provides the conditions for innovation, diffusion and competition. Ensuring artistic creation, maintaining effective copyright protection in the on-line environment and reducing illegal online piracy is a key priority. With the rise of proprietary standards, integration along the value chain, and other issues raised by this report, attention should also be paid to maintaining an environment where small and innovative players can compete. This should also be a guiding principle in related downstream areas of digital music distribution (*e.g.* DRM). Following the OECD Council Recommendation on Broadband Development (see Box 1), regulatory frameworks should balance the interests of suppliers and users, in areas such as the protection of intellectual property rights, and digital rights management, without disadvantaging innovative e-business models. New business models and forms of use are hard to predict in advance. Consequently, legal and other frameworks should be designed to encourage and not to pre-empt innovations.

Infrastructure, innovation and technology: A key requisite for the creation of efficient online music delivery is competitive and widespread access to broadband infrastructure. The delivery of online content also necessitates new technologies and an environment that facilitates the creation, acquisition, management and delivery of content. Secure payment systems are also needed. Moreover, a diversity of interoperable standards and hardware are likely to prove most beneficial to competition and efficient online content markets.

Value chain and business model issues: Co-operation and alliances between the content providers, broadband and technology providers and new business models play a critical role in developing new approaches for digital distribution. The need for dialogue among the key stakeholders and the potential role of government to host this dialogue is an ongoing issue.

Protection of intellectual property rights: The advent of digital technology and digital networks creates opportunities and challenges for digital content. Piracy may be an important impediment to the start-up and creation of legitimate services to distribute copyrighted content online and to sustaining an environment conducive to the creation of original works. The need for governments to take steps to address

Internet piracy is highlighted in the report. Protecting copyrights in the online environment may necessitate an adaptation of copyright laws and practices as countries implement the WIPO Internet Treaties. Some challenges related to intellectual property rights are identified in more detail in the study. These include maintaining a continuing balance between fostering technological development and the beneficial diffusion and use of digital technologies and maintaining meaningful and effective protection of intellectual property and users' rights.

Through their ability to create diverse access schemes to content, DRMs enable content offerings that may be more tailored to consumer demand and that may increase consumer choice and satisfaction, provided prices reflect the nature and the quality of services offered. However, there are also concerns over transparency, technological problems and comparatively restrictive terms of usage rights. In sum, the social and economic dimension of DRMs may necessitate further study.

Fostering adequate legal frameworks: The online distribution of digital content is a relatively new phenomenon and consequently legal frameworks for such transactions are being revisited. Issues such as electronic signatures, rights protection technologies (*e.g.* watermarking), secure payment systems, privacy protection and taxation have been voiced as key concerns of different market players and governments.

Plurality, diversity and government support for the music industry: New music distribution technologies as well as structural changes in the digital value chain might promote the volume and diversity of music genres and services. This is a subject that merits further study.

To conclude, it needs to be emphasised that the issues raised in this study – both the market transformations and the policy considerations – go beyond the sphere of the music industry or music consumption alone. Many of the challenges or policy considerations are of horizontal importance to other forms of digital entertainment and business content and need to be considered as such.

INTRODUCTION

In the context of broadband content, the digital distribution of music is attracting considerable attention. This interest is motivated by a breakthrough of broadband penetration and use in OECD countries in 2003/2004 and the increasing household demand for the downloading of music through PCs or mobile devices – including the demand for unauthorised file-sharing. The access to broadband is now leading to innovative creation, interaction and usages of content and stimulating the rise of new technologies in consumer electronics (*i.e.* portable audio and video players) and media carrier technology. At the same time, the unauthorised downloading of copyrighted content over the Internet has raised significant concerns.

In June 2004, the number of OECD broadband subscribers reached 100 million users.² While it took a relatively long time for PCs to diffuse to OECD households, access to the Internet has spread much more rapidly (OECD, 2004a). Depending on the available commercial offers of broadband content, moving from mere slow dial-up connections to broadband subscriptions seems an automatic next step for many Internet users. As a consequence, bandwidth restraints that prevent the downloading of content-rich files are increasingly disappearing. In certain OECD countries and - in particular - in their metropolitan areas download speeds of more than 2 - 5 MB, threshold values for speeds that eliminate most bottlenecks in the downloading of large files, assure easy streaming and downloading of broadband content. Internet users are thus increasingly moving to more content-rich applications such as spending more time downloading images, music and software (OECD, 2004a). One can speak of a mutually reinforcing relationship between broadband and available content. Studies for Europe, for example, show that 50% of broadband users moved to broadband to be able to download music (IDATE, 2003).³ Online music is popular because listening to music using the computer as an interface is a less drastic change for consumers than, for example, the reading of a newspaper on a screen (OECD, 2001a). Finally, a new dimension of commercial broadband use is materialising through the spread of mobile content.

The effects of broadband on music, which stimulate great interest, can be summarised in two key points.

First, unauthorised downloads over file-sharing networks that do not reward artists, record labels, or other creative contributors, are putting copyright protection and traditional sales channels to the test. As the music industry is the first entertainment industry to be confronted with unauthorised file-sharing, questions related to the efficient enforcement of intellectual property rights (including digital rights management) and other regulatory issues have been raised.

Second, the rapid rise of authorised online music stores and new online music players also provokes a lot of consideration. As compared to commercial online video-on-demand services, online music services can be considered a more mature online content market. In 2003 and 2004, the market for digital music on the Internet and mobile phones expanded rapidly, with the global recording industry collecting noteworthy revenues from these segments for the first time (IFPI, 2005). Digital distribution of recorded music is attracting new entrants and new intermediaries with new business models. The economic impact of these changes is not confined to artists or the content industries. A related positive economic effect on the software side (music player software, digital rights management software) and the hardware side (portable audio players, cell-phones or personal computers) has already taken place. The impact on the industrial landscape may actually be structural, with new entrants or converged industries seizing new opportunities.

Certainly, the creation of new industry players involved in digital content creation, content delivery, content distribution and content management has also been a noteworthy economic trend.

Music is an area in which the transformative impact of digital distribution is strong for both the supply side (artists and the music industry) and the demand side (new music lifestyles, users as content creators).⁴ This significant transformative impact of ICTs on the music sector was recognised early on in the OECD Electronic Business Impact Project (OECD, 2001a, b). Both in terms of the enforcement of intellectual property rights and commercial opportunities, the lessons drawn from the music industry are of great interest to other content industries (*i.e.* the movie industry). The most important matters with respect to the possibilities behind online music distribution is to find a good equilibrium of available legitimate and innovative uses of new technologies for online music and the necessary protection of associated intellectual property rights. Whereas the opportunities for online music and for artists are very considerable, digital technologies can - through online piracy - also represent a significant challenge to artistic creation.

Objective, scope and plan of study

The scope of the study is to analyse the impacts of the availability of digital broadband content, and describe transformations in the music industry and in music consumption. The study focuses particularly on transforming value chains, changing business models, impacts on both the supply and demand side. To conclude, a list of obstacles and potential policy issues is established.

The music recording industry includes activities that range from the selection, management, and production of artists to the manufacturing, marketing and distribution of recorded media in the physical form. This involves publishing, reproduction and distribution activities as depicted in Table 1 which provides the corresponding NACE and NAICS classifications.

Table 1. NACE and NAICS record production and publishing classifications

		NACE		NAICS 2002	
Publishing	22.14	Publishing of sound recordings	5122	Sound recording industries and radio services	
			51221	Record Production	
			51222	Integrated Record Production/Distribution	
			51223	Music Publishers	
			512240	Sound Recording Studios	
			51229	Other Sound Recording Industries	
Reproduction	22.31	Reproduction of sound recordings	33461	Reproduction of recorded media	
			33461	Manufacturing and Reproducing Magnetic and Optical Media	
			334612	Pre-recorded Compact Disc (except Software), Tape, and Record Reproducing	

This study focuses on the link between music and broadband content/applications and thus, mainly on the digital distribution chain and its impacts on the demand side. As music distribution is increasingly conducted in new forms and as digital music is intricately linked to changes on the hardware side, the study also analyses the entry of new intermediaries for content creation and publishing, content distribution (including, for example, the rising importance of Internet Service Providers) and the PC/consumer electronics industry (*i.e.* digital electronics goods). It also analyses effects on artists and consumers.

Clearly, digital technologies have also made great impacts on instruments (*e.g.* electronic guitars), the creation and the recording of music (*e.g.* digital sound studios). These changes are - however - less related to broadband and will not be at the centre of this study. Moreover, as the focus is on online delivery, the increasing phenomenon of online ordering of music for offline delivery in physical format (*e.g.* via

Amazon.com) is not treated either. Finally, analysis with respect to mobile content (incl. music) has been conducted in a separate study (OECD, 2004f) and will be treated selectively in this work.

The study is structured in five parts. Part 1 provides an analysis of the music market industry in terms of market size and technological developments. Part 2 contrasts the traditional recording industry value chain and business models with the new online music store developments. Part 3 provides data and analysis on file-sharing. Part 4 provides initial assessment of impacts on artists and users. Finally, part 5 concludes with some points on obstacles and policy considerations.

The study has benefited from data and comments on earlier drafts from the Business and Industry Advisory Committee to the OECD (BIAC), the International Federation of the Phonograms Industry (IFPI) and from various other industry players (Internet Service Providers, record companies, etc.) present during the OECD Broadband Panel (June 2004) and the OECD Broadband Workshop (December 2004). Very helpful inputs and comments have also been received from the World Intellectual Property Organization (WIPO), from the Berkman Center for Internet & Society (Harvard Law School), from the Samuelson Law, Technology & Public Policy Clinic (School of Law, University of California Berkeley), from the Information Society Project (Yale Law School), from Zohar Efroni (Max Planck Institute for Intellectual Property, Munich) and from the World Economic Forum (WEF).

MUSIC MARKET INDUSTRY: HISTORY, SIZE AND DIFFERENT MUSIC CARRIERS

Since its beginning, the music recording industry profited from very fast growth in global music sales with only a few setbacks. With a global music market of USD 32 billion in 2003, music is considered the most easily personalised and accessible form of entertainment which readily pervades virtually every culture and level of society and which is thus considered as “the most fundamental of entertainment business” (Vogel, 2004). Also, listening to music anytime and anywhere is a very established societal trend that does not yet exist for other entertainment forms like video or TV.

In terms of time spent on selected leisure activities, in 2000 9.1% (1970: 2.6%) of US consumer leisure time was spent on recorded music (not including concerts) and 30.6% on radio (Vogel, 2004). This contrasts to 46.1% on television, 4.3% on newspapers, and 0.3% on movie theatres. This increase in music consumption must be seen in the light of the fact that from 1970 to 2000, total leisure time has also increased significantly (up by 30% as measured as hours per person per year). The digitisation of music, changing music consumption habits, including the portability, the diversification of delivery platforms and the possibility to share songs have increased the total hours listened to music. Whereas the Internet seems to have a decreasing effect on TV and newspaper consumption, United States studies suggest that Internet users listen more to radio and to recorded music than non-Internet users (UCLA, 2003). Among all new Internet activities broadband has the greatest effect on downloading of music in terms of absolute time spent (OECD, 2004a). Broadband users in Japan, the US and France are shown to download music significantly more than narrowband users. Music and melodies are among the most popular wireless Internet contents in Korea (Korea Internet White Paper, 2004).

Role of new music carriers and the advent of digital technology

Many factors drive the revenues of the entertainment industries. *Demand factors*: available leisure time, demand for leisure, productivity increases and related increases in disposable household income, demographics and *Supply factors*: barriers to entry, the availability, development and marketing of new content, industry structures and segments (in particular distribution systems) and *Technology and new formats*.⁵

Throughout the music industry history, new formats and new playing devices brought opportunities and challenges. On top of other general economic conditions, available leisure time and other factors, the strong growth of the music industry has been influenced to a large degree by the rise and fall of different music sale formats (see Figure 1).

On the one hand, new formats – like CDs – and technologies were the main drivers of increased music sales revenues whereas others were never adopted widely (digital audio tapes). New music formats and playback technologies that provided greater acoustical quality and other consumer advantages have led the music industry out of temporary setbacks (in the late 70s and early 80s) into new growth phases.

On the other hand, the introduction of new technology was often disruptive to existing music markets, and well-established distribution mechanisms.⁶ A delicate balance exists between new technologies and the supply and use of new creative content. Conflicts among competing interest groups accompanied each step of new technological developments. Often new technologies and conflicts with the consumer electronics manufacturers have triggered legislation to specify technical requirements preventing or allowing serial

copying. Early resistance to certain technologies has – due to lucrative and initially unexpected business opportunities – often been replaced by an embracement of the particular technology. So far time and market forces have often led to market-driven or – if necessary – regulatory solutions in balancing interests of technology companies and copyright owners when new technologies have arisen. This balance of interest may yet have to be achieved with respect to the possibilities that arose with digital technologies.

The strong growth of the music industry has been triggered by the rise and fall of different music sale formats. By the 1890s home phonographs began to appear.⁷ Long-playing records and first experiments with magnetic recording were first introduced in the early 1930s and juke-boxes provided new revenue streams. Radio was particularly popular as of the 1920s. But it was the post-war years that set off a period of innovation, standardisation and rapid growth. Major innovations were the introduction of the vinyl LP in 1948, the introduction of stereo in 1958 and the development of the audio compact cassette in 1963. As mentioned above, it was the introduction of long-playing vinyl records – coupled with the later introduction of hi-fi stereo – which set off a long wave of growth. But it was not only formats: The demand situation in the 1960s which coincided with the teenage cycle of the post-war baby boomers created the right economic environment for this growth (Vogel, 2004).

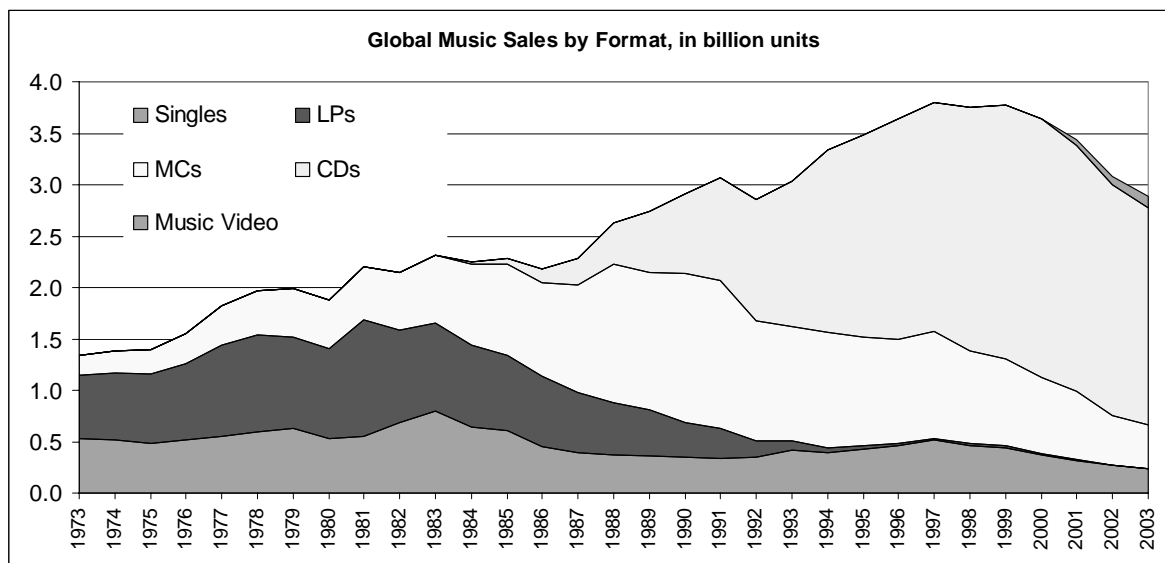
A further wave important to music industry growth was increased mobility of music. The portability of music began with the introduction of the Sony Walkman in 1979.

By the early 1980s the pre-recorded music market had settled into two main formats: vinyl records for the home and compact cassettes for portables and car stereos. The sale of LPs peaked in 1981 – the year before the advent of the compact disc – and has since been going down to almost quasi-insignificant sales units in 2003 (global sales of 7.3 million LPs, see Figure 1). Thus, towards the end of the 70s and after three decades of expansion, the music business experienced a stop in the growth of recorded music sales. This was also caused by an older population base with diminished music expenditures. Compact cassettes were most popular in 1990 then dropping thereafter, albeit staying much more important than LPs (global sales of 416 million compact cassettes in 2003). Cassettes which allowed home taping but also wholesale copying by pirates were one of the technological evolutions which caused the music industry concern.⁸

Advent of digital technology: Opportunity and challenge for the music industry

Initially, the advent of digital technology and ability to digitise sound in high-quality provided an extra boost to the growth of the music industry, leading to its peak of worldwide music sales in 1998 or – depending on which OECD country – in 1999 (see Figure 1). This is mainly linked to the advent of the CD in 1982 which until today became the dominant release format. The boost to music sales was very significant as the introduction of the more durable and high-fidelity CD format led many music consumers to replace their LPs with CDs, *i.e.* full substitution from one music format to another, leading to repeat purchase of the same music. It can be argued that this full substitution effect and corresponding sales increases created by CDs was an unusual one which will be difficult to imitate for new formats. Other newer formats, like digital audio tapes (DAT), DCC (Digital Compact Cassettes) and Sony's Mini Disc were not a commercial success. Often the lack of uptake of new formats has also been the result of differences among different groups of hardware and content companies, who have promoted incompatible formats. Due to the absence of significant take-up of new formats, CDs still account for the bulk of pre-recorded music sales (73% of unit sales in 2003), with cassettes accounting for a fair-sized minority (14.7% in 2003), and the once-dominant LP with a tiny niche market (0.3% in 2003). The emergence of music TV channels as of 1981 in the case of MTV is also claimed to have reversed the downturn in the 1980s of music (Vogel, 2004). The year 2001 saw the rapid rise of a new format: music video DVDs (digital video discs) that rapidly gained in share of total music sales (from 0% to 4% in three years time, see Figure 1).

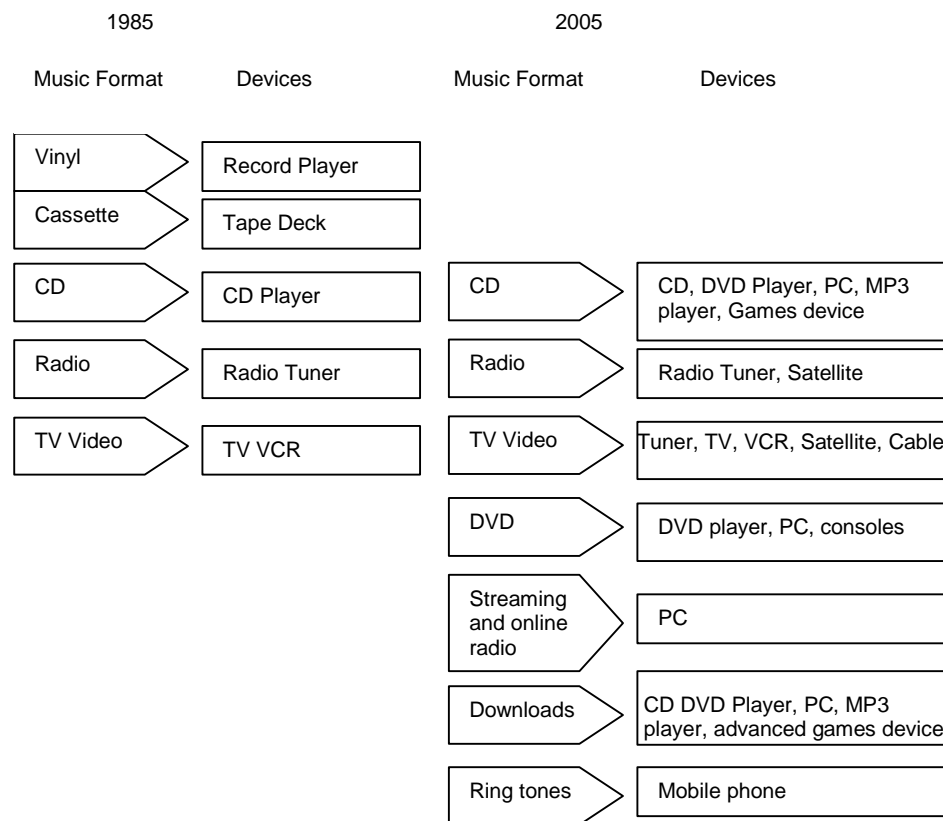
Figure 1. Global music sales by format, in billion units, 1973-2003



Source: OECD based on IFPI.

Although not a focus of this study, the online sales channel has also acted as a major source of e-commerce orders for physical music media carriers (electronic ordering with subsequent physical delivery). Frequently, e-commerce studies show that with books, flowers and travel, sales over sites like EBay and Amazon.com frequently include the purchase and physical delivery of music. According to new estimates from IFPI, online sales of physical CDs also continued an upward trend, with an increase in the United States from 3.4% to 5% (2002-2003) in total units and in the United Kingdom from 5.6% to 6.6% (2002-2003) of total units.

Altogether Figure 2 depicts that in the last two decades the release possibilities for music and the associated devices – and with them the commercial opportunities - have steadily increased. Particularly noteworthy are satellite and digital radio, online downloads and streaming, burning of CDs, streaming of music videos and mobile phone downloads (also includes music exploration, song recognition, and eventually music streaming on mobile devices).

Figure 2. Evolution of digital music formats from 1985 to 2005

Source: OECD derived from EMI Annual Report 2003. Live performances are not included.

However, apart from booming CD sales, the rise of digital technology and the Internet in particular has – at first and due to digital unauthorised downloading – proven to be more of a challenge than an opportunity to the music industry.

First, digital recording opened the door to master-quality copying (physical counterfeits) in large quantities. IFPI, for example, reports that total sales of pirated media were worth USD 4.6 billion in 2003 (*i.e.* pirate sales accounted for 15% of the legitimate music market) and that, in developing country markets such as Brazil, China and Mexico, the physical media piracy levels are over 50%. Copying of recorded music or recording of radio music had been possible since the availability of cassettes and associated players/recorders. However, the digital format – enabling the creation of perfect, identical copies on a large scale, either for private use or for organised music piracy – carried the problem of illegal music copies to a new and troublesome dimension. It is the simplicity of disseminating unauthorised master copies of music, video, etc. around the globe with a single mouse click and often ensuing physical manufacturing of pirated CDs and DVDs – and thus organised music piracy – which creates significant economic impacts and problems for the enforcement of intellectual property rights.

Second, the large popularity of unauthorised file-sharing has – until the arrival of the first successful commercial online music efforts in 2003 - been identified by the music industry as one of the main reasons for a drop in sales revenues due to music piracy starting in 1999 or 2000.⁹ Establishing a mono-causal link between unauthorised file-sharing and declining record industry revenues is difficult. However, unauthorised file-sharing over peer-to-peer (P2P) networks that do not remunerate artists, composers, or

producers, while potentially violating copyright laws, threaten the existing music business model. Following this logic, piracy breaks the supply and demand model for a record company as some users offer an infinite supply of music at zero cost over P2P networks. As stated by the music industry, this may have a significant repercussion on the number of artists in record companies' catalogues. Unauthorised file-sharing also deprives right holders of control of their works.

Initially there was a constant rise of unauthorised downloading over file-sharing networks. Legitimate music services have been slowed by the need to acquire rights and to work out how to use the potential of low-cost digital delivery while ensuring adequate revenue streams to develop new artists and protect the intellectual property of established ones (OECD, 2004b). Only recently – following legal actions by the music industry and the entry of new third players (*e.g.* Apple, OD2) – has there been some migration to licensed online music services. But despite their fast growth these are still relatively small as compared to the number of songs downloaded through unauthorised file-sharing.

Similarly, the accelerated convergence of consumer electronics and computer products, new music codecs (compression/decompression algorithm¹⁰) like MP3 (MPEG audio coding) which allow for compressing original sound data without losing sound quality, online music players, and new consumer electronics devices (mainly portable audio players) have facilitated the (sometimes unauthorised) reproduction, the accessibility and digital delivery of music

The market for recorded music and its evolution

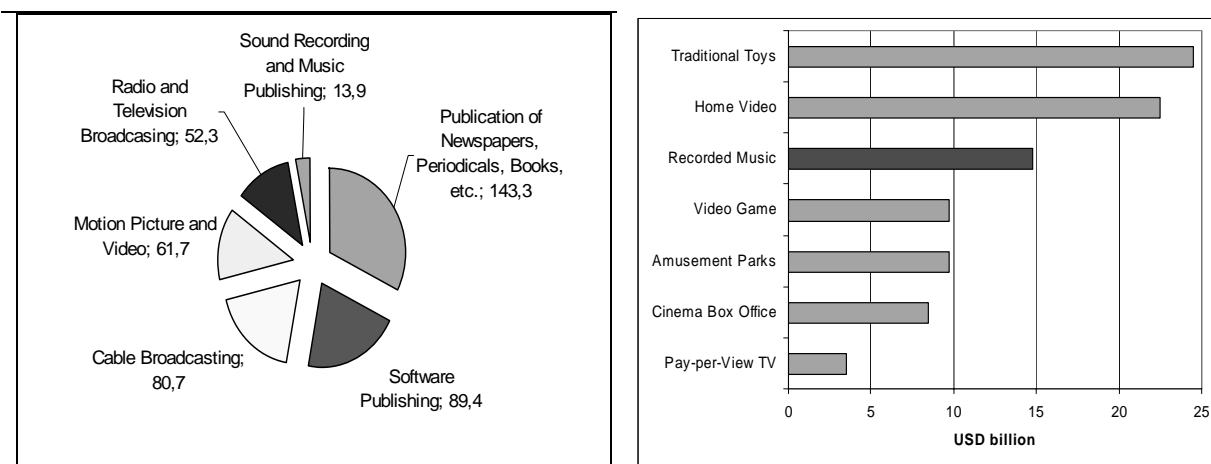
In terms of sales value the United States is by far the largest music market - absorbing almost 40% of global music sales - , followed by Japan (2nd in 2000; Japanese sales covered more than 83% of the total amount of sales in the Asian region¹¹), the United Kingdom (3rd), France (4th) and Germany (5th) - see Table 2 and Annex 3 Table 3 for breakdowns. Spending per capita is greatest in Norway (USD 56 per capita in 2003, roughly 4 CDs) followed by the United Kingdom (USD 54 per capita in 2003), Iceland, the United States, Japan and France whereas Korea, Poland, Turkey and the Slovak Republic purchase the least music per capita.

The left side of Figure 2 compares the share of the sound recording and publishing industry to other so-called core copyright industries for the US. The sound recording and music publishing part of the overall revenue flows make up USD 13.9 billion in 2002. Japan's content business also generates significant revenues, around USD 99.3 billion with music also making up for around 15% of total entertainment business revenues (broadcasting 33%, newspapers 22 %, movies 5% and game software 4%). The right side of Figure 2 on the US entertainment industry revenues between 2000 and 2003 places recorded music before cinema box office revenues, amusement parks and video games.

Table 2. Music retail sale ranking of OECD countries – value analysis in USD – standard retail figures (at variable exchange rates)

2003 Position	Country	USD Millions	% of World 2003		Record sales per capita, per 2003
1	USA	11 847.9	37.0%	Norway	USD 56
2	Japan	4 909.7	15.3%	UK	USD 54
3	UK	3 215.7	10.0%	Iceland	USD 53
4	France	2 114.7	6.6%	USA	USD 40
5	Germany	2 022.1	6.3%	Japan	USD 38
6	Canada	676.0	2.1%	France	USD 35
7	Australia	673.8	2.1%	Austria	USD 35
8	Italy	644.6	2.0%	Switzerland	USD 34
9	Spain	595.9	1.9%	Australia	USD 33
10	Netherlands	498.8	1.6%	Denmark	USD 33
11	Mexico	346.5	1.1%	Sweden	USD 33
14	Sweden	295.0	0.9%	Ireland	USD 32
15	Austria	282.1	0.9%	Netherlands	USD 31
16	Switzerland	256.3	0.8%	New Zealand	USD 27
17	Norway	255.7	0.8%	Finland	USD 27
18	Belgium	250.7	0.8%	Germany	USD 24
20	Denmark	176.9	0.6%	Belgium	USD 24
21	Korea	162.4	0.5%	Canada	USD 21
23	Portugal	148.8	0.5%	Portugal	USD 14
25	Turkey	142.5	0.4%	Spain	USD 14
26	Finland	140.7	0.4%	Italy	USD 11
29	Ireland	129.2	0.4%	Greece	USD 8
30	New Zealand	110.6	0.3%	Hungary	USD 6
32	Poland	90.7	0.3%	Czech Rep.	USD 4
33	Greece	86.2	0.3%	Mexico	USD 3
35	Hungary	65.4	0.2%	Korea	USD 3
41	Czech Rep.	40.6	0.1%	Poland	USD 2
51	Iceland	15.6	Under 0.1%	Turkey	USD 2
54	Slovak Rep.	9.0	Under 0.1%	Slovak Rep.	USD 2
	Total OECD	30 204.1			
	% of world sales		94%		

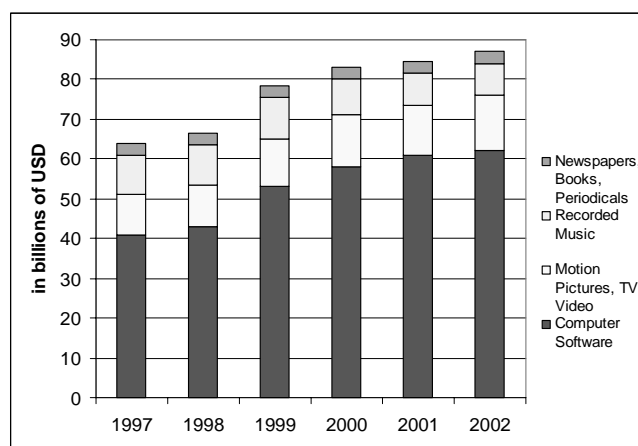
Source: OECD based on IFPI.

Figure 3. Distribution of gross revenues across core copyright industries in the United States, 2002, in billion USD (left) and US entertainment industry revenues, North America 2000-2003, in billion USD (right)

Source: US Census Bureau, 2002 Service Annual Survey and IDATE 2003 based on Salomon Smith Barney and NDP 2002. Left figure represents the United States while the right figure represents North America.

In countries like the United States (see Figure 3), copyright industries such as “Recorded music” also generate a substantial amount of export revenues (after computer software and motion pictures, TV, video).

Figure 4. Estimated comparative revenues generated by foreign sales/exports of recorded music in the United States, 1997-2002

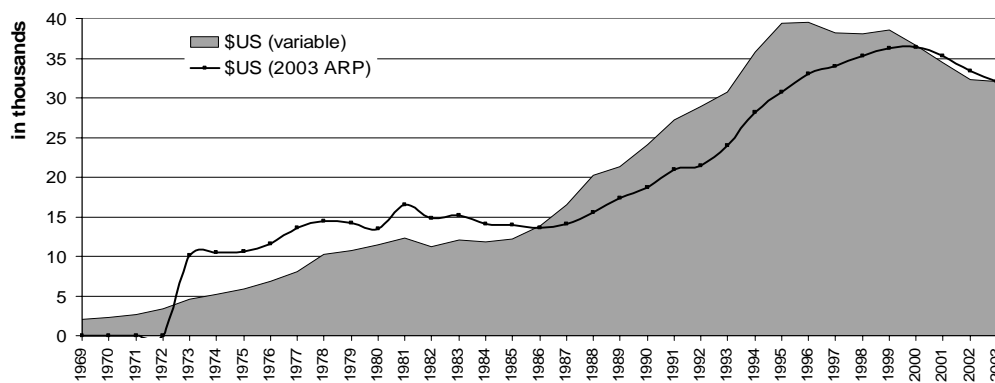


Source: Siwek (2004).

Important international trade flows or international mobility of artists and music are also reflected in data that contrasts domestic versus international repertoire in OECD countries (see Annex Table 7). Whereas some OECD countries have – in terms of % of market value – a strong domestic repertoire (*e.g.* in order of size, the United States, Turkey, Japan, France, Korea and Greece) others have less presence of domestic repertoire (Switzerland, New Zealand, Austria, Belgium, the Netherlands, etc.).

Available data on global music sales starts in 1969. In 2003, the value of global recorded music sales amounted to USD 32 billion (EUR 28.5 billion) with total unit sales (including music video) of 2.7 billion (see Figure 4) with the OECD countries accounting for roughly 94% of that market. Both with fixed 2003 prices or variable prices, global music sales increased at a very rapid path from 1969 to 1999 (from USD 2 billion in 1969 to USD 32 billion in 1999).¹² Declines of unit sales were experienced in the early 80s, in two years of the 90s (1992 and 1997) and from 2000 onwards (see Annex 3 Table 1 with year-on-year unit and volume growth). From 1969 onwards for the years for which music sales in total USD are available, many years suggest a value growth which is greater than the unit sales value. Especially since the mid-80s global sales in USD have grown faster than unit sales, implying price increases due to the migration to higher priced sound carriers.

Figure 5. Value of global music sales, in billion USD (ARP=average realised price)



Source: OECD based on IFPI. USD price values are calculated based on 2003 average realised price (ARP) by format.

Drop in music sales after 1999 which is not universally shared across all OECD markets

The size of music revenue drops have been linked to the causality between the rise of file-sharing over peer-to-peer networks and to the drop in CD sales. It is true that a great volume of copyright infringement is taking place over file-sharing networks. However, it is also likely that a combination of factors has led to the decrease of sales. Some of the factors driving the entertainment revenue industries that may have changed were mentioned earlier. Next to file-sharing the following factors have been advanced to explain the fall in music sales: physical music piracy (counterfeiting), economic factors that point to fall of GDP growth after 1999 in many countries, demographic factors that point to a fall in the number of high-spending teenagers in OECD countries, the absence of new music formats that like the CD lead to a new spurt of music revenues, increased competition for consumer attention from entertainment sources (like the Internet, movies, online computer games), and a drop in music releases (number of titles) with music labels concentrating even more on existing artist rosters rather than on the development of young artists (Ministère de la Culture, 2004) - although this development was in turn the consequence of decreased risk taking due to decreased revenue, price increases of CDs and, possibly, lack of innovation.

It is, however, apparent that the entry into digital technology has coincided with a pronounced fall in music industry revenues in many OECD countries and in the global sales value (units and volume). Effectively global music sales – in terms of units and total value sold – have been dropping from 1999 to 2003 (by roughly 20% from USD 38 588 billion to USD 32 036 billion).¹³ This has impacted sales volumes of popular music - usually top selling albums - particularly hard.

Except for the new music video / DVD revenue streams which have been increasing in terms of revenue, all music formats have lost in terms of units sold and in terms of total revenue. Given the naturally decreasing popularity of LPs and compact cassettes, it is the drop in CD sales which is most conspicuous. The single format (especially CD singles) has been the first to lose. After an initial decline after 1985 – and thus unrelated to file-sharing networks – the single picked up again in 1991 (due to the increase of Maxi-CDs), but, in line with other CD sales, dropped even more rapidly after, thus consumers purchasing full albums being responsible for the bulk of industry revenues. The single format dropped by nearly 50% from 1999 to 2003. The decline of singles has also been attributed to supply side factors leading to high single prices that favour the sale of albums which “bundle” several songs saving costs of production and distribution and increasing the sales value (on the bundling concept, see Shapiro and Varian, 1999). It has also been argued that for record labels, the financial impact of dropping single formats has been negligible because their main impact was promotional with very slim profit margins. Furthermore, the single had been in decline for some years (see Figure 1).

Looking at the CD market alone, the unit value of world CD sales dropped by nearly 20% from 2000 to 2003. The drop in sold CD units between 2001 and 2003 was greatest for the Netherlands (-26.5%, for singles -37%), Japan (-25.9%, for singles -17.5%), Germany (-23.3%, for singles -40.7%), the United States (-21.4%, for singles -45%), Mexico (-16.5%, for singles no change), Spain (-12.6%, for singles 115.4% growth) and Canada (-11.3%, for singles 66.7% growth).¹⁴ In countries like the US, the effect of falling unit value of sales on total music industry revenues seems, in 2000, to have been partly offset by price increases (see Box 2).

Box 2. First drops in US music sales in 2000

Detailed shipping records of the Record Industry Association of America (RIAA) show that sales declines started in 2000.¹⁵ From 1998 to 1999, manufacturers still saw a 3.2% net unit increase in audio and video products shipped to domestic markets, including increases in CD shipments and first records of fast-growing DVD sales. This rise in units shipped held true despite of increasing music list prices and competition from other entertainment industries.

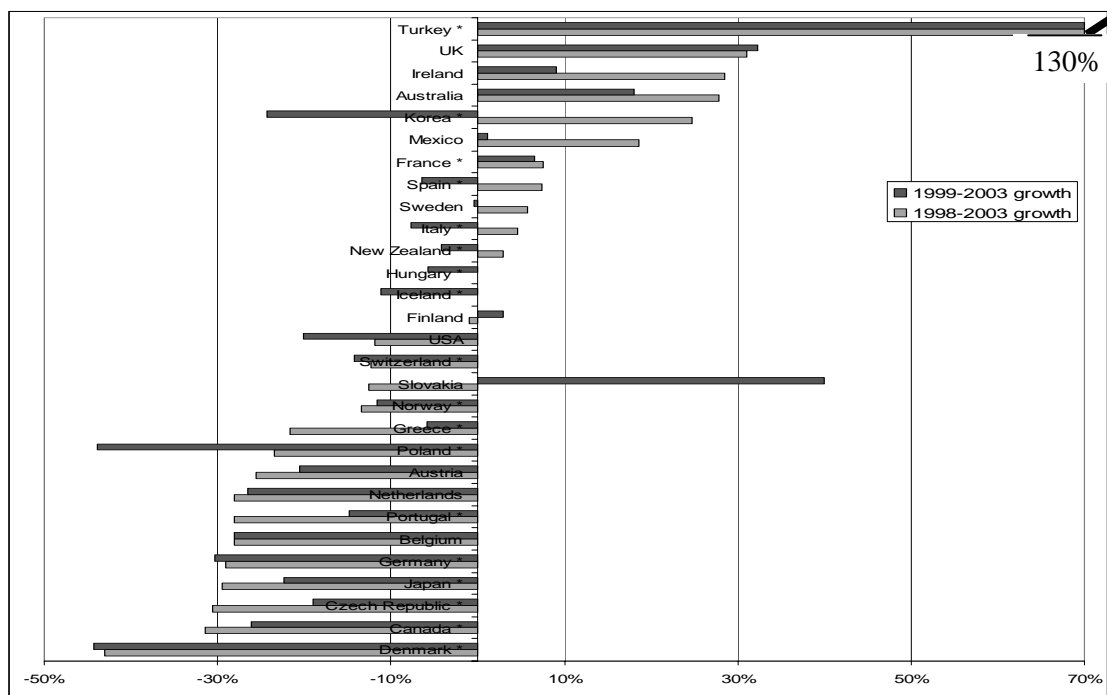
In 2000, the US music industry first recorded negative numbers with a sharp decline in the last six months of 2000, led by a significant decline in single shipments, modest growth in CD dollar value sold but drops in CD shipments, essentially driven by a very strong reduction in shipments of CD singles (implying a higher unit CD price). For the first time, this drop of single sales was linked to changed consumer purchasing habits influenced by the Internet. This drop in units shipped continued throughout 2001 and led to the first drop in dollar value of all music product shipments (from USD 14.3 billion in 2000 to USD 13.7 billion in 2001). Although the RIAA recognised the effect of the slowing economy in the wake of the terrorist attacks in the United States, it explicitly blamed online piracy and CD-burning for the unit and value sales decline.

As indicated by first shipment values for the first half of 2004 – shipment of CDs to retail outlets going up by 10% as compared to the previous, a renewed pickup may materialise in the US market.

Source: RIAA shipping records available on www.riaa.org.

The magnitude and sometimes also the direction of CD sales growth depend on the chosen time spans. Looking at somewhat longer time spans (see Figure 5 and Annex 3, Tables 2 and 3), one can see that between 1998 and 2003 the fall in sales was greatest for Denmark (-43%), Canada (-31%), the Czech Republic (-30%), Germany (-29%) and Japan (-26%). For some countries the net balance is subject to the year chosen because the peak of music sales varies from country to country (either in the late 90s or the beginning of the new century). Korea, Spain, the Slovak Republic, New Zealand saw a reverse of CD unit sales with an increase of total sales value in the time span 1998 to 2003 but a decrease of sales in the time span 1999 to 2003. Countries like France which experienced an increase in point-to-point growth from 1998/99 to 2003 according to IFPI figures, report a fall in CD sales starting in 2003.

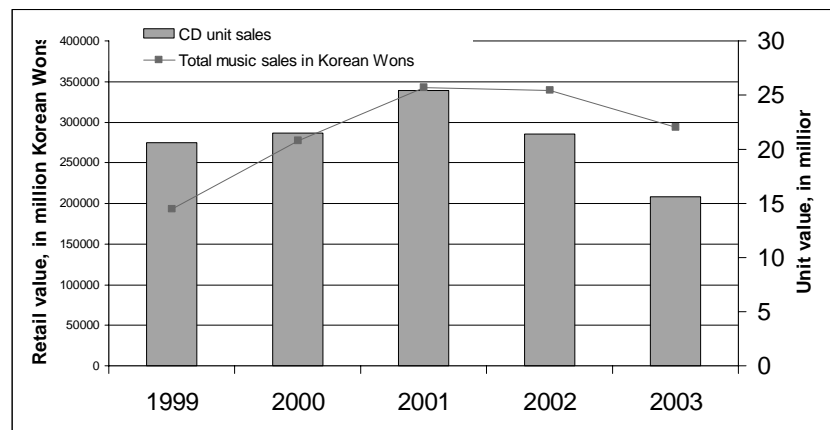
Figure 6. CD sales in units for OECD countries, 1998-2003 / 1999-2003 growth



Source: OECD based on IFPI. The bar graph for Turkey is cut at 70% although its value is close to 130% in both cases.

A deep downturn affecting the whole music market was also experienced by the Korean music industry, with a strong fall of totals units and value of sales in 2002 and 2003 (-19.2% in 2002 and -30.2% of total music sales based on local currency value). The Korean music recording market (see Figure 7), which was estimated at KRW 410.4 billion in 2000, nearly halved in just three years to less than KRW 190 billion in 2003. The local music recording market stood at some KRW 286.1 billion in 2002 and KRW 373.3 billion in 2001 and even the most popular releases struggled to top the 100 000 sales volume (break-even point for some Korean recording companies) in 2003.¹⁶ This fall with a very significant impact on the number of Korean music retail businesses,¹⁷ took place despite the popularity of Korean pop culture in the Asian region.

Figure 7. Korean CD unit sales and total music sales in KRW, 1999-2003



Source: IFPI.

But CD sales did not fall in each OECD country. The fall in the global sales volume has been largely affected by large drops in big markets like the United States, Japan and Germany. Several OECD countries actually recorded increases in CD sales volume from 2001 to 2003 raising the question of differences with other music markets: France (+1.5%), Australia (+1%) and United Kingdom (+0.9%). In the time span 1998-2003, the following OECD countries saw their CD sales increase: Turkey (+126%), United Kingdom (+31%), Ireland (+29%), Australia (+28%), Mexico (+19%), etc.

In the case of Australia, CD sales dipped in 2002 but were again higher in 2003 than in 2001. Falls in total music sale value in 2002 (-5.9% value change in local currency) and in 2000 (-5.2% value change in local currency) were nearly offset by growth in total sales in 2002 and 2003. For 2003, the Australian Record Industry Association released sales figures showing an increase of nearly 8% driven mainly by an increase in album sales and an increase in music DVDs; sales of cassettes continuing their long-term fall.¹⁸ Interestingly, while the sales volumes were up were up 8%, the dollar value of those sales increased by 2%, implying a fall of unit prices as a result of discounting prices for new CDs last year. In 2003, the Australian Record Industry Association only deplored the continued decline in sales of CD singles.

In the case of the United Kingdom, CD sales have steadily increased and not suffered any setbacks. The overall UK music market has experienced a fall of total revenues in 2002 but retail value in local currency is higher today than in 1999 and almost constant between 2001 and 2003. Total music sales for the second quarter of 2004 are reported to have improved 4% over the previous year according to the British Phonographic Industry, with album sales showing a 3.7% jump (including a rebound in physical singles sales) and strong sales continuing in 2004. A more interested consumer base, stronger music from record labels (notably the independent labels) and lower broadband penetration have been mentioned as reasons for the continued strong performance of the British music market.

As mentioned earlier, as of 2000 there is some potential for falling CD sales to be compensated by increased sales of DVD formats which are on the rise.

Music industry reactions: Lawsuits, public education, first commercial online music offerings and CD price cuts

The reactions of the music industry to the fall in sales attributed to the rise of unauthorised file-sharing have been manifold.

The recording industry initiated significant public information campaigns on the issue of online music.¹⁹ According to the record industry, the campaign against unauthorised music file-swapping has significantly increased public awareness of the illegality of particular types of file-swapping. File-sharing has also raised many claims of introducing levies on digital audio players and recorders (MP3 or other players). The recording industry has also employed anti-piracy measures and initiated legal action against infringing companies (notably P2P sites) and individuals (end users) (see part 3 and Annex 2). The recording industry highlighted that unauthorised file-sharing is a poor experience (partially as a consequence of fake tracks and viruses circulating on P2P networks). But rights holders and anti-piracy companies are also said to have contributed to the number of fake tracks through “spoofing” (meaning the practice of putting fake tracks on the Internet).²⁰

At the same time, the number of legal online music sites has grown rapidly as record companies increasingly licensed their catalogue for legitimate distribution online. The number of players that are not music labels themselves in this new business is remarkable. Record companies have now made large parts of their repertoire available online to third-party players. New sales windows include pay-per-track and subscription services. Partnerships for online music agreements between universities and the industry are developing. “Walled gardens” for file-sharing or similar sharing arrangements are considered by the music industry (OECD, 2004b). Apart from online music stores that catch most media attention, Internet streaming services offer genre-based, commercial-free programming. Webcasting (streaming of audio on the Internet) as involved in music subscription services and Internet streaming is said to be one of the biggest growth areas for music online.²¹ Mobile online music – phone ringtones or MP3 downloads on mobile phones – are well-established in Japan and Korea (OECD, 2004b) and enjoy increasing popularity in other OECD countries (for more information on mobile content services see OECD, 2004f).²²

The music industry and retailers have also attempted significant CD price cuts to drive customers back to purchasing music. In 2003, the average price charged for albums declined (PwC, 2004). In September 2003, Universal Music Group, for instance, cut its suggested US CD retail price to USD 12.98 from earlier prices ranging from USD 16.98 to 18.98.²³ Sony Music followed suite in the beginning of 2004 and dropped prices by 25% for four dozen titles. The average retail price for CD albums fell nearly 4% to USD 13.29 in the first quarter of 2004, vs. USD 13.79 last year, according to NPD Group’s MusicWatch PriceLab. However, the influence that record companies have on retail prices is said by IFPI to be limited. It is asserted that efforts by companies such as Universal to reduce prices have not fully succeeded – as not all retailers passed on the reduction to consumers.

However, this fall in prices was not shared universally across OECD countries. Moreover, part of the price decline has also come about through a change in music distribution. The entry of non-specialised retailers in the music business that use music CD sales as loss leader to attract customers to large retail outlets (migration of music sales from music to mass retailers) has contributed to this fall in prices.

2003 continued fall in music sales but first signs of recovery

The music market figures for 2003 – which do not include online music sales which are still very small in dollar value – do not yet reflect this change in situation. There are however some good signs in terms of reversal of declining sales which have been attributed to various factors like the economic pickup in many OECD countries, a reduction of piracy through increased music industry lawsuits and efficient consumer awareness campaigns, etc. For lack of estimates from most music industry associations, the reversal of music sale declines induced by online music stores is — not yet incorporated in the IFPI data but can be expected to add to this trend. These are the first signs that a new balance between emerging technologies (and involved players) and music industry sales is beginning to occur.

According to IFPI, global music sales fell by 7.6% in 2003 with some positive signs for 2004 because drops were slowed by a stronger second half in the US market, combined with resilient sales in the United Kingdom.²⁴ The music industry continued to attribute the fourth consecutive year of falling music sales to the combined effects of digital and physical piracy and competition from other entertainment products. The decline affected virtually all major markets, with Western Europe showing particularly sharp falls compared to recent years. Sales in Germany were down 19% in 2003 and down by more than 30% in value since 1999. Denmark, France, Sweden, Belgium, Greece, Ireland, Portugal and Switzerland also experienced important digit declines. Germany now ranks fifth in the global music rankings (down from fourth). For the first time there is no Latin American market among the top 10, with sales in Mexico falling. In the case of France, CD, singles and total music sales were increasing up until 2002, followed by a weak fourth quarter in 2002 and a consecutive fall in total sales in 2003 (-14.4% value change in local currency and -11.5% volume change despite growth of video music sales leading the latter to have just below EUR 100 million revenues the same as the singles market), taking the sales figures back to the revenues of 1997.²⁵

Positive signs include more robust album sales in the United States - thanks partly to a strong end-of-year release schedule - and a global rise in music DVD sales.²⁶ As hinted at above, Australia (up 5.9% in value) and the United Kingdom (up marginally by 0.1%) experienced growth in music sales in 2003. Total production of recorded music in Japan also rose from 2002 (101% vs. previous year) while the value declined (95% vs. previous year), making this the fifth consecutive year for which the production of audio recordings declined, albeit with signs of recovery in the fourth quarter of 2003, forecasting a full-fledged recovery in 2004 (RIAJ, 2004).

Moreover, the advent of new music formats proves to be generating new cash flows for the music industry. Overall music video sales in 2003 were worth USD 2 billion, with DVD music video valued at USD 1.8 billion. According to IFPI, the music video sector, as a whole, rose by 46.6% and DVD sales were particularly strong, seeing a global 67% increase. Spurred by DVD's popularity, the music video share of overall music sales has doubled over three years, now representing 6.3% of the total. DVD music video now accounts for 5.7% of global retail revenue compared to 3.1% in 2002. In the top ten markets for DVD, growth increases ranged from 39% in Japan (the world's biggest DVD market with music DVDs now exceeding JPY 50 billion in value in 2003 up 50% from the previous year according to RIAJ, 2004) to 294% in Italy with Germany, France (with a video music market representing 8% of total audio sales in 2003, for eight CDs one DVD is bought), Netherlands, Australia, Canada and United Kingdom all seeing around or over 100% growth.

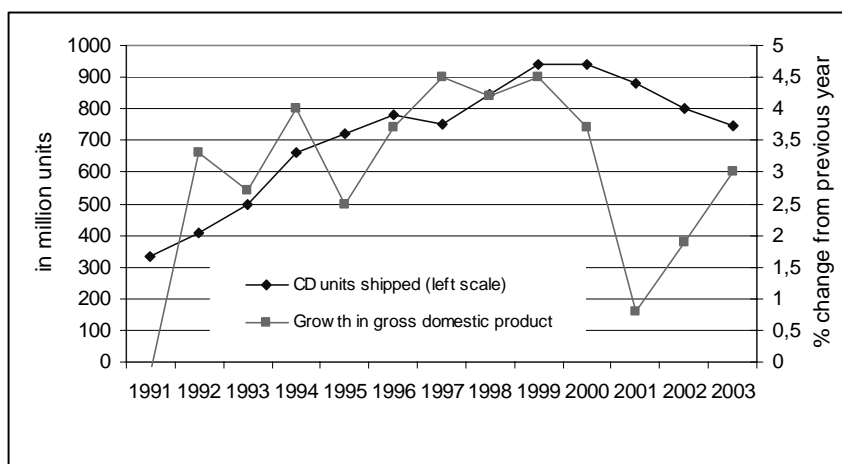
Music video unit sales rose from 15 million in 20 million in 2003, fuelled by sales of music which rose to 17.5 million in 2003 from 10.7 million in 2002 and from only 3.3 million in 2000. Music video unit sales are projected to increase in 2008 from 20 million in 2003, giving an annual growth rate of 3.7%. Total unit sales will increase at 2% rising to 882 million in 2008.

2004 as a year of turnaround of the music industry?

2004 may effectively have marked the year when the majority of declining OECD music markets experienced a turnaround in music sales (IFPI, 2004c, 2005, PwC, 2004 and most recent SoundScan figures). Improved economic conditions, slower growth in piracy and the emergence of authorised digital distribution services are factors expected to contribute to the recovery, with projected spending increases on recorded music, a near doubling of the music video market and digital distribution becoming a factor in 2004 (PwC, 2004). This recovery process may also have been sustained by the drop in CD prices. Global sales of recorded music – audio and music video – grew by 1.7% in units and fell 1.3% in value in the first half of 2004, compared to the same period in 2003. According to IFPI, the figures reflect a slowing of the rate of decline in music sales with the best first-half year result achieved since 2000. Audio sales fell by 2.7% in value, while the music video sector grew by 20.2% driven by DVD music video, which increased by 26.6%.

The US – the first music market to decline – leads the recovery with the value of shipments as recorded by the RIAA of all music at the midpoint of 2004 climbing by 4% compared to the previous year and the industry shipping 10% more CDs to retail outlets than last year.²⁷ After declining for four consecutive years, the number of CDs shipped in the United States from record companies to retail distribution channels rose 5.3% in 2004 – a 2.7% increase in value, compared to the previous year.²⁸ Demand for recorded music fluctuates with sensitivity to general economic trends and consumer spending seems to peak at or just after a peak of economic activity and to through a few months after the overall economy does (Vogel, 2004). In fact, the recovery coincides with improvements of the general economic conditions that has – after a sharp and prolonged fall of GDP growth coinciding with the slowdown of the music market – picked up again in 2002 (see Figure 8). Still, the size and prolongedness of the fall do not seem to be consistent with historical music industry trends. It must also be mentioned that this recovery does not yet make up for the years of decline. When compared to year-end numbers five years ago, the RIAA calculates that the number of overall units shipped to retail in 2004 is down 21%.²⁹

Figure 8. US GDP growth versus CD units shipped in the US, 1991-2003



Source: OECD based on RIAA shipment figures and OECD GDP growth figures for the US.

The RIAA figures for the United States show that top-selling albums – often the most widely available on file-trading networks – are still selling relatively fewer units than at the peak of 2001. The top 50 albums shipped 16.7% fewer copies than in 2001, and the top 100 albums shipped 19.7% less than in that top year. This may be because it is these albums that are being most heavily downloaded from unauthorised P2P networks, particularly during the critical first two weeks after a new release, when sales

have traditionally been highest but have now been severely reduced as a result of unauthorised downloading (see Enders Analysis, 2003 on the fact that P2P networks are focussed on top hits).³⁰

When it comes to other countries, Canada, Germany and Japan are showing reductions in their rate of declining music sales. However, markets in, for example, Spain, Italy³¹ and the Netherlands are still weak and steep drops are experienced in Austria, Portugal, and Sweden.

To the contrary, more recent reversals have hit sales in France and – to some minor extent – Australia in the first trimester of 2004. Raising suspicions that some music markets may feel the effect of file-sharing with some delay, France has been marked by a rapid decline of 20% of total audio unit sales from the previous year, meaning a decrease of audio sales by one third since 2002. In the case of Australia, record industry sales also a slight decline in CD sales in 2004 (-4% by volume).³² According to some sources, however, the decline in the overall audio album market can be attributed to a slower moving back catalogue, largely a result of the growing DVD format and retail space being allocated to both music and movie DVDs.³³ The Australian record industry association has identified the continuing effect of competing entertainment products and the illegal downloading of music for this minor fall. The British record industry has experienced a continuing increase in sales (+4.5% increase in volume over 2003 figures).³⁴

Overall the outlook seems positive. The reverse in music market experienced by most OECD countries is forecasted to lead to a stabilization of the world music market in 2005 and a renewed expansion in 2006 with a market to reach nearly USD 34 billion in 2008 (PwC, 2004). In the recovery process, the US is expected to grow fastest – from strongest declines in value terms. Merrill Lynch also expects a 0.4 % increase in 2005 and compound annual growth of 3.4 % over the next 10 years.³⁵ As shown below, the rise of online music sales, ring tones and deals related to mobile phone deals (record labels with, e.g. Vodafone and O2) is said to be a major contributor to this music sale recovery. In the medium-term, there may be a good chance for seeing the overall demand for music (and potential outlets) and the corresponding sales figures increased through possibilities of digital distribution and associated new playing devices.

Rise of the online music market³⁶

While the first download offers were available from 2001 (MusicNet and Pressplay were launched in December 2001), it was 2003 which saw the breakthrough for online music stores in the United States. In this year music labels gave permission to distribute substantial amounts of products online according to licence terms and in return for royalty payments (PwC, 2004). Record companies are now reported to have made large parts of their repertoire available online (Universal Music has digitized 600 000 songs while most majors have at least 500 000 songs). Apple's iTunes is said to have changed the online music landscape by offering an easy-to-use online store with a broad song catalogue, a consistent, uniform, and cheap pay-per-download scheme.³⁷ In Europe, the breakthrough was achieved in late 2003 and the first quarter of 2004 with the rise of Napster in the United Kingdom, Apple in selected European countries and a significantly earlier roll out of OD2 (*i.e.* from 2001) – a new digital music intermediary – supplying more than 50 European music portals.

However – except for a first effort of the RIAA concerning the US market in October 2004 - no official industry figures exist concerning the global online music market. Although fast growth of digital music distribution is evidenced by the above facts, precise data about the size of the market and the shares of the major players is very difficult to obtain. This may change in 2005 when IFPI intends to include information on online sales for the first time.

Commercial online music possibilities come in four different configurations, illustrated later in greater detail. One dimension is concerned with the way music is accessed: either *streaming* or *downloading*. The other dimension has to do with the business model behind the service: either *subscription* or “*A la carte*”-*services* providing the consumer with the ability to purchase individual songs. It is the “*A la carte*” and download combination which is currently driving a come-back of music sales in the single format. Although there is already a modest subscription market, it is clearly the “*A la Carte*”-models like the Apple i-Tunes store which currently dominate online music sales. This has been explained by lack of experience of music users and a desire to actually download and thus “own” purchased music. When downloading single tracks from the Web, consumers chose to download only one track from an album 85% of the time.³⁸ The popularity of individual song downloads may thus contribute to reviving the single format.

Some figures and estimates exist on the number of players and revenues that help to scope the online music market. Currently, the online music market is still very small in total revenues – as compared to total music revenue – but characterized by a rapid entry of many new players and rapid increase of demand. Although, as compared to the ongoing use of downloads via file-sharing sites, the number of commercial music downloads is still very small, industry analysts agree that – together with music DVDs – it may represent the principal driver of growth in the recorded music industry (IFPI, 2004b, PwC 2004). This trend is buttressed by the fact that users increasingly get accustomed to online music purchases and that their awareness of the legal problems associated with file-sharing increases.

Some figures exist that pertain to the number of legal online music sites. The latter are reported to have increased from 20 in mid-2003 to over 200 (of which more than 30 in the United States, more than 100 in Europe, and several in Korean, Japan, and Australia).³⁹ The number of players – notably from the non-music sector – getting involved in online distribution is increasing every day, with players like Microsoft, Cola-Cola, Wal-Mart and different Internet Service Providers (ISPs) entering the arena. The recent acquisition of MusicMatch by Yahoo – an online retailer and software firm – for USD 160 million sheds light on the dynamic state entry and exit taking place in this market.⁴⁰ This rapid surge in players has led many industry commentators to predict increased competition, larger marketing budgets, consolidation and the exiting of a large number of players in the next months and years to come (PwC, 2004).

In November 2003, 3.2 million Americans visited Napster.com, which was re-launched as a paid online music service in late October, while Apple’s iTunes, an on line music store, drew 2.7 million visitors in November 2003.⁴¹ Frequently cited figures to demonstrate the size of the music market also include the number of songs sold over popular online music stores, with Apple announcing the sale of 250 million songs in January 2005,⁴² Puretracks in Canada reaching 1 million downloads in February 2004, and OD2 selling more than 1 million downloads through its retail partners in Europe during the first quarter of 2004. According to reports by SoundScan, there were 140.9 million legal downloads in the first half of 2004, compared to only 19 million for the last half of 2003.⁴³

In terms of value, today music downloads estimates vary but are put at around USD 310 million for 2004 (*The Economist*, 2004a) and thus roughly 1% of the global music market retail value.⁴⁴ EMI sees digital music as “a meaningful revenue stream”, with sales increasing to more than GBP 15 million.⁴⁵ Most sources agree that online music sales will grow fast - with some seeing four-fold growth in 2004.⁴⁶ Already today the mobile ringtones market accounts for USD 3.5 billion, roughly one tenth of the size of the recorded music business (OECD, 2004f, *The Economist*, 2004b).

Estimates that diverge generally see a 1-2% market today rising to a 5-10% market until 2008 (see some estimates in Table 3). In the US, digital music purchases account for about 2% of the total market, using recent data supplied by Nielson/Netratings. The 1-2% estimate is similar to the ratio of total online retail vs. offline retail sales for all other industries which are – currently - also found to be making up only

for a few but increasing percentage points (OECD, 2004a). The latter figure, however, pertains to both digital and physical goods. The natural share of music retailed online can reasonably be expected to increase much faster and to greater levels – as percentage of total sales – than physical goods. But a very reasonable prediction is that these forms of music consumption will continue to exist alongside new technologies, mirroring transitions to other media like video.

Table 3. Compilations of estimates

Source of estimate	Size of estimate
Jupiter Research (2004 a,b,c)	Online music purchases increased in 2003, up to 5% from 3.4% in 2002, while digital downloads increased to 1.3% of the market in 2003, up from 0.5% in 2002. In 2009 European music fans will buy EUR 836 million (USD 1.45 billion) worth of music in the form of digital downloads and subscriptions to Internet radio services.
Forrester Research (2004a) and <i>The Economist</i> (2004a)	In 2004 digital music distribution is valued at USD 310 million. For Europe digital music distribution is estimated to be USD 1.6 billion by 2007 and more than EUR 3.5 billion by 2009 (30 % of the overall European market).
PwC (2004)	Global digital music distribution increased from USD 13 million in 2002 to USD 71 million in 2003 and is expected to be USD 2.2 billion by 2008 (16% of total music sales). In the US, digital music sales increased from USD 13 million in 2002 to USD 71 million in 2003 and are projected to rise to USD 2.2 billion by 2008.

Source: OECD compilation of industry sources.

Forecasting the evolution of digital music sales proves difficult. According to some estimates, digital distribution will become a meaningful segment of the market in 2007 and will grow until 2008, representing 9% of overall spending (PwC, 2004). Forrester Research is forecasting that digital music sales in Europe will experience significant growth rates over the next three years, reaching approximately USD 1.6 billion by 2007 (Forrester Research, 2004a) which would represent roughly 5% of spending, assuming a stagnant overall global music market with USD 32 billion in 2007 as in 2003. Jupiter Research predicts that in five years consumers will buy EUR 836 million (USD 1.45 billion) worth of music in the form of digital downloads and subscriptions to Internet radio services until 2009, then accounting for roughly 8% of Europe's music market without taking into account mobile phone ring tones.⁴⁷ Another source puts the music sales on the Internet for 2010 at 15.2% of the total compared with 5.8% in 2004⁴⁸ while consultancies put the figures much higher, with some consultancies seeing 30% of the overall European market being online by 2009. But in sum, all estimates predict a high year-on-year increase of the online music sales, albeit starting from low levels.

Expectations on whether digital music will supplant CD sales diverge. Whereas some consultancies judge the online music format to be a niche market in the years to come, others see digital music distribution overtaking CD sales. Proponents of a radical shift argue that the switch from LPs to CDs was almost made overnight (Krasilovsky, Shemel and Gross, 2003).

But these are only projections and the significance of digital music depends greatly on reductions in the level of unauthorised music sharing, and the evolution of online music offers (*i.e.*, elimination of principal obstacles like the lack of adequate micro-payment systems and reliable, robust digital rights management systems – see OECD (2004e) – and responses to interoperability problems) and consumer take-up. According to IFPI, growth in legitimate enterprise may also greatly depend on technological advances to protect against unauthorised access to, or use of, recorded materials, and the related ability to prevent the circumvention of such technological measures when they are employed. As demonstrated later, a move to certain online music subscription models has the potential for to have a very significant positive impact on record industry revenues, maybe even supplanting the traditional CD.

It will also be noted later that - despite these initially moderate revenues to online music stores – large potential revenues also accrue to third parties (*i.e.* ripple effect on portable device manufacturers, set-up of digital intermediaries, credit card firms, etc.) through online music, which are not incorporated in these estimates. Finally, the impact of online music on artists and their discovery, on the whole industry business model and value chain and on users (new music consumption habits and interaction) is far from being captured by these assessments. When assessing the future, experts see citizens interacting with content and information, making them active participants in the whole chain of content creation, marketing and distribution (Krasilovsky, Shemel and Gross, 2003).

As due to music licence but also many other issues nearly all online music stores are national in scope (*i.e.* non-national IP addresses being denied access), the markets across OECD countries still differ widely. The fact that business-to-consumer e-commerce remains mostly national in scope is not particular to the online music business.⁴⁹ In the next sections, some snapshots are provided for different OECD markets.

North America online music market

US-based services are reported to have achieved downloads of 19.2 million in the second half of 2003 and in October 2004 the RIAA's figures reporting online sales for the first time, have recorded sales of nearly 59 million digital singles during the first six months of 2004.⁵⁰ Digital music service subscriber growth is reported to be fast, albeit with a still very small user base (EMI Annual Report 2003 quoting 35 000 million users in March 2003 for one US-based subscription service).

Some of the milestones of the North American online music market were:

- MusicMatch as the first online music store with a broad catalogue, before Apple iTunes.
- The opening of Apple iTunes Music in April 2003 for Mac users which started to provide services to PC users as well as of the fourth quarter of 2003.
- Roxio Inc. acquired Pressplay and Napster in re-launching Napster as a legitimate online music store in October 2003.
- Subscription services becoming more popular with Rhapsody from RealNetworks in May 2003, and with Roxio offering unlimited streaming services.
- Microsoft officially launching its site market in October 2004.
- The RIAA announcing the expansion of its Gold and Platinum programme to digital downloads.
- Universities and legitimate services starting to offer legal online music options to students.
- Retailers like BuyMusic Inc. and Wal-Mart starting online music stores.
- PepsiCo Inc. or McDonalds making promotions with free downloads of music tracks.
- Apple announcing in January 2005 that more than 250 million songs have been purchased from the iTunes Music Store.

Estimates of the US online music market are shown in Table 4. As a percentage of total music sales, digital spending is forecast to increase from 1.4% in 2004 to nearly 16% in 2008.

Table 4. US online market forecasts

Category		2004	2005	2006	2007	2008
Singles	Average Price (USD)	0.99	0.99	1.1	1.15	1.2

	Dollar Sales (USD Millions)	69	124	330	690	690
Albums	Average Price (USD)	9.99	9.99	10.1	10.15	10.2
	Dollar Sales (USD Millions)	30	80	202	355	612
Subscriptions	Subscribers (Millions)	0.6	1.2	2.5	4	5
	Monthly Fee (USD)	9.95	9.95	10.15	10.2	10.25
Total Digital Spending	(USD Millions)	171	347	837	1 535	2 187
	As percentage of total music sales	1.4%	2.8%	6.6%	11.5%	15.6%

Source: PwC figures and additional OECD calculations.

In Canada, the online music market was initiated somewhat later than in the United States, with agreement in October 2003 of the Canadian Musical Reproduction Agency and the Canadian Recording Industry Association to issue licenses to Internet music distributors (agreement on standard terms and conditions).⁵¹ Napster, MusicNet and Puretracks (a Canadian-owned service) were the first services to sign framework agreements with the associations. Apple announced an online music store iTunes coming to Canada in November 2004. According to PwC (2004), total digital spending is expected to grow from USD 3 million in 2004 (0.4% of total music sales) to USD 102 million in 2008 (14% of total music sales).

European online music market

Some estimates of annual sales of recorded music in Europe were USD 11 billion in 2003, with the digital download and subscription market segments growing very quickly.⁵² Other figures document the number of registered users and available / downloaded tracks (for Europe: 450 000 registered online music users by the end of 2003 with 275 000 tracks available and 300 000 downloads as a monthly average (see OECD, 2004b, presentation of IDATE). IFPI (2004a) reports that the number of tracks available rose from 220 000 to 300 000 (up more than 30%) in the last three months. The number of digital online music stores in Europe has risen substantially in 2004. In the United Kingdom, licensed digital downloads are reported to have crossed the 2 million mark for 2004. Licensed download levels have rapidly increased to a rate of 500 000 tracks per month, up from 100 000 tracks per month prior to June. By the end of the year French music firms are aiming to have 600 000 authorised tracks online as compared to 300 000 in July of 2004. In Europe, a critical mass of legitimate online services is taking hold in Europe, but consumer awareness is lower than in the United States.

Some of the milestones of the EU market⁵³ were:

- Opening of many online music stores motored by OD2, one of the biggest European digital music intermediaries which provides mostly traditional retailers with online music stores.
- Opening of European Apple online music stores in selected countries (United Kingdom, France, Germany) while the opening of further stores is being complicated by country-by-country licensing processes.
- In the United Kingdom, Virgin, HMV, Fopp, Music Zone and the major supermarkets all recently announced increasing music store numbers, while in Europe, brands like German retailer Mediamarkt and French chains FNAC and Carrefour are offering music services online.
- Opening of Napster in the United Kingdom in May 2004 and expected launch in Germany at the end of 2005.

- Sony Connect signing a series of deals with independent record labels in the United Kingdom, Germany and France and opening in June 2004.
- Launch of an Official UK Download Chart in September 2004.
- In November 2004 Microsoft spread its MSN Music Store into Sweden, Denmark, Norway, Finland, Spain, the Netherlands and Austria.

Australia and New Zealand online music market

Australia and New Zealand have a very limited number of online music stores (potentially reflecting the limited size of their market). Big online music stores like Apple iTunes, Microsoft's online store, or Napster have not targeted these markets. In Australia, one of the most prominent home-grown stores is Ninemsn that sells music from the big five record labels through an arrangement with OD2. Other music stores of significant size are BigPondMusic, Chaos Music, JB HiFi, Mulemusic, Sanity.com and Ozmusicweed. HMV Australia – a music retailer – has also entered the online music market. In early May 2005, however, an Australian iTunes seemed imminent.⁵⁴

Japan online music market

Japan has also seen the rise of online music stores, although – like in other Asian countries – the focus is mostly on downloads to mobile phones and the number of online offerings is smaller than in the United States or the European Union. Despite of most portable audio players originating from Japan, online music stores in the second largest OECD market for recorded music have been slower to take off. Reasons mentioned have been the lower rate of unauthorised file-sharing in Japan and high prices for online music in Japan.⁵⁵ Japan's CD rental shops which rent out music for a small fee are often used by customers to make copies of CDs for private use which might sometimes be a cheap alternative. More importantly, cell phones rather than PCs seem to be the main access point for online music.

First licensed online music offers in Japan have been scheduled since 1999 through Sony's music subsidiary and first agreements on a set of security guidelines for selling music over the Internet.⁵⁶ Today around ten companies are involved in Japan's online music distribution.⁵⁷

The first companies to sell music online in Japan were foreign firms.⁵⁸ EMI began offering music titles to various music-delivery sites. Following EMI, other foreign-capitalized record companies and IT companies, including Excite Japan Co, NTT Communications Corp, Listen Japan Inc, and recently Microsoft⁵⁹ entered the business while Apple Music store is still absent from Japan.⁶⁰ Other examples of online music stores are Listen and the OCN music store. Many Japanese record companies like Avex Group Holdings or Sony Music are operating electronic music delivery services for downloading music through a portal site called Label Gate, starting in 2000. But Label Gate is only a gateway to the online distribution services of its member record labels. These labels thus directly sell music over their own Web page. But Label Gate still sells comparatively few songs when compared to Apple (130 000 songs per months as opposed to – on average – 6.5 million songs for the US Apple I-Tunes store⁶¹). The site also has a small catalogue, compared to Apple.

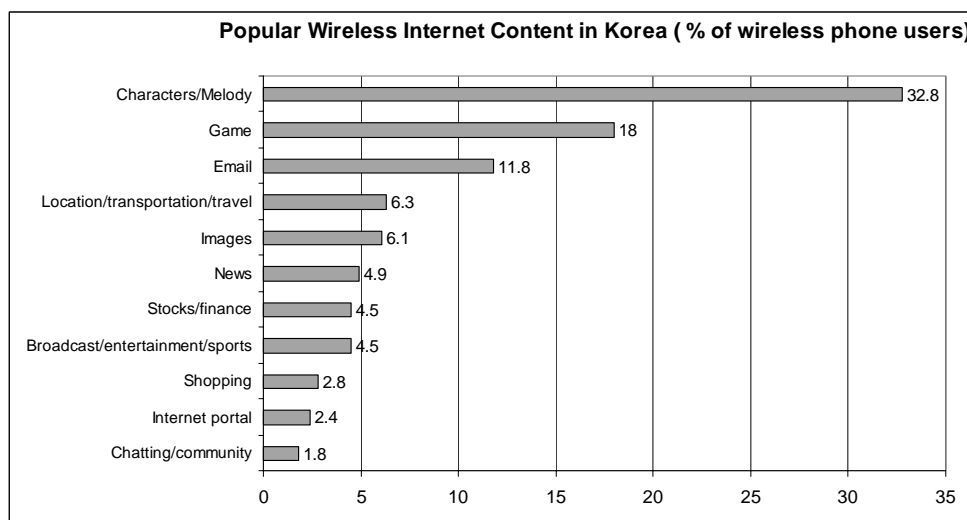
Mobile music definitely plays a larger role.⁶² The market state of ring tones in 2002 will be USD 0.9 billion that would be about 6 000 times that of 1999 when the service was started (OECD, 2004b). While initial services to offer downloads of music directly to mobile phones have not been successful due to high prices and limited cellular bandwidth, new services for 3G mobile phones like the ones from NTT DoCoMo prove more successful⁶³ Small music snippets and ringtones have been highly successful from the start.⁶⁴ Recently, KDDI, the second largest mobile operator in Japan, expanded its

music snippets service to the download of entire tunes. The service is called “Chaku-uta full” and achieved more than one million downloads in about seven weeks after its launch in November 2004.

Korea online music market

For Korea, official figures have been released by the Korean Ministry for Information and Communication (MIC Internet report, 2004). Total sales for the digital music industry grew to KRW 185 billion in 2003, which is a 37.6% increase from the previous year. Online music shops like Ilikepop.com, clickbox.co.kr or mylisten.com have contributed to rising online music sales. Neowiz, an online community and game portal provider, said that it will seek a new business model for online music services.⁶⁵ It is stressed in the report of the Korean Ministry of Information and Communications that the digital music market is made mostly of wireless content (ring tones) constituting roughly 30% of its sales, making the online music store sales to other platforms worth roughly KRW 56 in 2004. Characters and Melody are in fact the most popular wireless Internet content (see Figure 9).

Figure 9. Popular wireless Internet content in Korea, 2003



Source: MIC, Korean Internet Information Center, 2003.

This fast growth of online music to mobile phones in the form of ring tones is buttressed by the Music Industry Association of Korea confirming that the sales of music for mobile phones alone have already outpaced traditional CD sales since 2002.⁶⁶ In fact, Korea sales of physical legitimate product have been declining precipitously during this period. As mobile phone service operators are facing market saturation, the Korean mobile phone content market is forecast to be KRW 6.6 trillion in 2008 (28.2% annually for the next five years).⁶⁷ This is helped by the introduction of high-speed mobile phone services based on a technology called CDMA2000 EV-DO, a standard before the introduction of third-generation (3G) mobile phones. The Korean wireless broadband standard (WiBro) and recent developments on high-speed mobile audio and video content via satellite also furthers mobile access to content.

However, Korean manufacturers are rapidly developing next generation mobile media devices and legal music services in seeing the furthering of music services that are accessible from mobile and fixed platforms. SK Telekom just launched a flat-rate music downloading service for KRW 5 000 (USD 4.50) a month, with access from a mobile and fixed-line network.

INDUSTRY STRUCTURE: TRANSFORMING VALUE CHAINS AND CHANGING BUSINESS MODELS

This section analyses how the traditional music industry value and business model is changing in the context of the commercial broadband delivery of music. An initial analysis of the traditional value chain and business models sets the stage for the analysis of the transformations implied by online music distribution.

Traditional record industry value chain, business models and players

The standard music industry value chain is depicted in Figure 10.

Figure 10. Traditional physical value chain



Source: adapted from OECD (2001a).

It contains the following sequential elements that involve various players.

- **Content creation (including publishing):** The Artist & Repertoire (A&R) department of record labels seeks out new promising artists and signs them into long-term exclusive contracts. A&R entails the identification of new talent, signing artists, developing repertoire, overseeing production and creating artist images. Composers enter into a contract relationship with a music publisher, who, in return for a percentage of the author rights revenues, tries to optimise the exploitation of the composer's work. Alternatively, composers can form their own publishing companies, thus retaining complete control of their own copyrights.
- **Production (recording):** The recording and production of CDs. The labels finance production and often provide advance payment for signed bands at this stage.
- **Manufacturing:** Some companies have their own production plant, while others outsource manufacturing. The big four record labels – EMI, Warner Music, Universal Music, and Sony BMG – leverage global CD pressing facilities to accomplish economies of scale.
- **Sales and marketing (publicity):** The labels have well-established relationships with music stores and media channels like the press, radio and TV stations. Since consumers do not often purchase music with which they are unfamiliar, airtime on the radio and other means of exposure for a particular artist or band are important. Promotion is thus essential to everybody in the music business and everybody ranging from performers to large labels works closely with radio programmers.⁶⁸
- **Distribution:** The majors often have a global network of branch offices that can handle sales, distribution, and marketing. Independent companies have to licence local distributors.

- **Wholesale:** Distribution companies usually work towards large retailers.
- **Retailers:** Retailers purchase the album from wholesalers when the music is required. Retail outlets come in many shapes and sizes. Mega-retail outlets like Best Buy and Wal-Mart represent price leaders, often charging less than invoice for a CD and buying in huge volumes. In the middle are stores like HMV, offering higher prices that are above invoice. Independent record stores also exist, with sub-distributors often handling the smaller accounts. Shelf space and positioning are critical to success in a physical-only distribution scheme.

Apart from distribution and wholesale, the content creation, production, manufacturing and the publicity are often taken on by the music majors and collaborations of independent record labels and distribution networks. The importance of collective management organisations (CMOs) in the value-creation process is addressed at a later stage.

Major record labels

Major labels have historically marketed the largest artists, able to power major careers with global operation to reach a wider audience, with greater access to marketing capital and distribution outlets. Still, well-known artists often began their careers with independent labels.

In terms of market value, the record industry business is dominated by the four music labels / majors that integrate the function of music producers and distributors (including access to international distribution networks), and have excellent access to international distribution networks (including TV and Radio) and talent / music catalogues. This consolidation process took place after the 1960s. The four music labels are Warner Music (sold by Time Warner to a financial consortium in 2004), Universal Music Group (a division of the French media group Vivendi Universal SA), EMI Recorded Music (a division of United Kingdom-based EMI Group), Sony / BMG Entertainment (a merged entity of the original division of German media conglomerate, Bertelsmann AG and Sony Music Entertainment, a division of Japanese Sony). Currently, Universal Music Group is the world's largest music company. A critical supplier of music is the music publisher, which manages the rights of underlying song compositions. Most major labels have "sister" publishing houses, though artists usually sign separate deals with both labels and publishers, and often sign with a non-affiliated publisher. Major publishing houses include EMI Music Publishing, Warner-Chappell Music, and Sony/ATV Music Publishing, though thousands of other publishers exist.

The number of big music labels was reduced from four to five in July 2004 with the 50-50 joint venture of BMG and Sony.⁶⁹ The European Commission and the FTC cleared the merger which is now appealed by IMPALA – the trade association representing independent and small record companies – for fear of stifling competition (and in anticipation of a possible, future merger between Warner Music and EMI).⁷⁰ Due to competition concerns, EMI has twice failed to merge with Warner Music over the past four years. As shown above, most record labels are units of media conglomerates that – after numerous mergers and acquisitions during the late 90s – have recently been in financial difficulties and now emerge from restructuring.

Figure 10 shows the distribution of market shares for OECD country regions (see Annex 3 Table 6 for detailed country-specific figures). In some regions and individual OECD countries the four majors control market shares of more than 80% (with – from most to least concentrated – Ireland, Denmark, France, Australia, the United States, the Czech Republic, New Zealand, Canada, United Kingdom and Belgium all having a less than 20% share of independent record labels).

Figure 11. 2003 Total global & regional market shares of music majors

	Sony and BMG	EMI	Universal	Warner	Total Big Four	Indies
Canada and US	27.6%	10.5%	27.9%	15.8%	79%	18.2%
Europe	24.6%	17.3%	25.6%	13.0%	79%	19.4%
Asia (excluding Japan)	20.1%	14.4%	15.3%	12.2%	61%	37.9%
Japan	19.9%	10.4%	13%	5.1%	34%	51.6%
Australia and New Zealand	28.6%	18.4%	20.3%	15.1%	81%	17.5%
WORLD 2003	25.1%	13.4%	23.5%	12.7%	73%	25.3%
WORLD 2002	24.7%	12.2%	25.4%	11.8%	72%	27.1%

Source: OECD based on IFPI. The Sony/BMG column combines the two pre-merger market shares. Europe: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Norway, Netherlands, Poland, Portugal, Spain, Sweden, Switzerland and the UK. Asia: Hong Kong China, Indonesia, Malaysia, Philippines, Singapore, Korea, Chinese Taipei and Thailand.

These major global record companies have developed a large degree of influence over the major physical distribution chains between the artist and consumer and thus essentially vertical leverage (OECD, 2001a), with noteworthy impact on the promotional value chain and influence on product positioning and pricing. Independent record companies often have to rely on these international distribution networks. Like some bigger independent record companies, the major record companies and major music publishers own a large back catalogue of music and the music publishing business.

The effect of high cost bases, the decline in sales since 1999 and restructuring of entertainment companies that own the music majors has not gone unnoticed for the music majors. Shrinking profit margins in the last several years have led to a focus on core-competencies like artist selection and marketing savvy. Cost-cuttings, layoffs, consolidation and shrinking budgets for development of new acts, cuts in artist rosters have been the result.⁷¹ In particular, according to news reports the five music majors have consolidated further and will cut costs by an estimated USD 1.3 bn. with the Sony Music BMG merger targeting annual savings of about USD 350 million, mainly by shedding more than 2 000 jobs or 25% of the combined workforce.⁷² Warner Music Group announced 1 000 job cuts in March 2004, representing 20% of its workforce. As of the last quarter of 2003, there are indications that the industry's low sales levels may be bottoming out. In June 2004, for instance, Universal Music reported positive sales growth for the first time since 2001.⁷³ But in line with rising digital sales and new formats like DVD towards the end of 2004, the profit reports for the first half year of the largest music groups (EMI, Vivendi Universal) showed a turnaround.

Much has been written on the effects of the fact that music recording and distribution is concentrated with a very small number of majors. At the same time, the number of smaller record companies has decreased. It has been noted that the big record companies have made significant investments in the distribution infrastructure to support the manufacture, distribution, and retailing of music, making them hesitant to venture into new distribution models and cannibalising their existing distribution networks.⁷⁴

Independent record labels

The remainder of the record industry business is formed by independent record companies who sometimes also have their own distribution networks. These independent labels have often proven to be catalysts for new music styles (Vogel, 2004). Smaller labels often specialise in niche categories that are not easily tracked by larger companies. The big record companies have also relied on smaller independent labels to identify and build new artists, either by using artists originally signed by independent labels or through the acquisition of independent labels (*The Economist*, 2004b). Despite the moderate market share

that hovers around 25% of global recorded music sales, the number of independent record labels is very significant, with Laing (1996) estimating the number of record companies in the EU at about 3 000.

Although great in number, only rather few independent record companies have large revenues or employment numbers. In France, for instance, around 6 out of 50 independent record labels have revenues of above EUR 15 million and more than 100 employees (*Ministère de la Culture*, 2004), several hundred record firms have a revenue of less than EUR 0.5 million and less than ten employees. One of the many advantages of large record companies as compared to small independent record companies is the access to large sums of capital to build a large catalogue and promote younger artists and the access to large distribution and promotional networks.

Despite greater business flexibility and proximity to the artists, small labels find it even harder to sustain their business model. Distribution of independent labels is often taken on by the larger labels.⁷⁵ However, independent publishers face many barriers because of lacking distribution networks, inability to invest in large catalogues and consequent inability to diversify risks, though sometimes helped by cooperation with major record companies and use of their distribution resources.

It will particularly important to see how independent record companies, and the smaller ones in particular, fare with new digital distribution possibilities which offer them new ways of distribution without having to establish physical distribution networks. As established and sophisticated distribution networks were a significant competitive advantage of the big majors as compared to independent publishers, this may prove to impact positively on independent labels, although they may again have to distribute to big players like Apple iTunes in the online world. Independent companies may also have some advantage over large record labels as they can react more quickly to technological change and because the necessary rights negotiations to offer music online may be less cumbersome for them. But the problem remains, that establishing a series of partnerships (*e.g.* having ones songs available on the leading online music services) with all the existing online music providers is, as shown later, complex. Larger recording industry players may still be better equipped to establish those business relationships.

Traditional record industry business model

The contractual relationship of the artist with the record company is usually exclusive for some period of time or number of records as specified in the contract. Record companies translate artistic productions into consumer products while investing in artists to develop and market their works.⁷⁶ This usually necessitates a large upfront cash investment to the artist and in marketing the artist's work. A record company is doing extremely well if *one in ten* of the artists invested in is profitable. After production, recording, promotion and distribution costs, most artists never sell enough to recover these costs. This model is thus based on identifying a select number of stars who release a large number of copies. Record companies fund new artists from profits, new releases and catalogue sales. Artists need to achieve a certain number of copies sold to break even (Korea, for example: break-even point at 100 000 copies of a singer's new release). The activity is not far from an investment conducted by a venture capitalist / R&D department which hopes that one out of ten investments will make sufficient profit to pay for the cash outlay on other investments.

The traditional recording industry revenue is drawn from recordings whereas the revenues from concerts, T-shirt sales, etc. usually accrue to the artists themselves. Once popular music has been discovered, the music industry bundles music in a variety of ways so that it is possible to sell the same consumer the same song multiple times (greatest hits album, movie soundtrack). As opposed to the movie industry, the recording labels have traditionally not made money from concerts, rentals, co-promotions, merchandising, trading those revenues for a more favourable cut of album sales.

In times of rising revenues from live touring, merchandise, sponsorship, etc. and dropping sales of CDs the music industry has thus increasingly found their share in the total music revenues shrinking (*The Economist*, 2004b). Meanwhile, labels have begun to seek control of new revenues. Executives have realised that labels retain little downstream revenues for areas like merchandising even though the label makes much of the initial investment in the artist. In October 2002, EMI signed a GBP 80 million (USD 147 million) deal with artist Robbie Williams, in which EMI will retain a much larger percentage over areas like touring, merchandising, and publishing.⁷⁷ Whether or not that will become a larger trend is unclear, though continued downward pressure on major label profits could force changes in contracts. In the context of falling CD sales, the negative effect of this changing record label strategy on the artists' revenues is currently unclear and has to be revisited in the context of digital music sales as well which may change artists' revenues. Alternatively, if the functions provided by record labels can be provided at lower cost by other entities or the artist himself, one can also envisage a scenario in which there will be less need for the record sales that sustained the labels. Instead, artists might – even more than already today – rely mainly on ancillary products and services to cover their own costs and the now-lower costs of music production and distribution and provide profits. Some artists already view people trading their works freely to be vital to driving these revenue streams.⁷⁸

As part of large multinational companies, record companies are also increasingly under financial pressures, feeling the need to perform well in the short-term and generating enough revenue to pay for the large fixed costs for their large employee base (*Ministère de la Culture* 2004). The last years have also seen the rise of marketing schemes like increased number of compilations and tele-reality shows that lead to new popular artists (American Idol, Star Académie). On the one hand, sources claim that the market downturn has led majors to re-focus on developing artists with long term potential.⁷⁹ It has also been argued that tele-reality shows, etc. are symbolic of an exaggerated focus on short-term gains. This phenomenon is not shared among all majors. Sony/BMG, for instance, is said to plan to re-invest some of the cost saving of the merger in artist development.⁸⁰ Others however, are reported – under pressure to produce return on investment - to cut artist roster further (EMI is reported to cut roster by more than 20% and Warner Music by 25%). The effects of these A&R strategies on the diversity of music and the discovery of new talents that are popular for many years, once the breakthrough is achieved, will be of interest.

It will also be of interest to see how record labels adapt their business model if online music sales produce a broader taste of the audience and thus less concentration of music sales on individual artists (Liu, 2003). Hitherto traditional distribution channels may have favoured artists with a large audience (*i.e.* stars) and disadvantage marginal artists (niche performers) who find it hard to be distributed in the market (Zhang, 2002a,b). According to the *New York Times*, the more recent RIAA figures, which show less top-selling albums, imply a change in music consumption with sales going from heavily marketed superstars to lesser-known musicians because users can sample albums through file-sharing networks, while diversity in music genres and services is being promoted (Zhang, 2002a,b).

Pricing of music

Pricing so-called “information goods” like music CDs that have the characteristics of high fixed costs but very small marginal costs of reproduction remains an issue debated in economic literature (Shapiro & Varian, 1998). Although the marginal costs of additional copies is almost zero, CDs carry a much higher price to recoup the high fixed costs of production (especially publicity, A&R and payments to artistic contributors) and to cross-subsidise artists that do not recoup costs.

Data on CD prices in OECD countries is (in line with competition law in many OECD countries) not provided by the record industry associations. Between different OECD countries and depending on the form of purchase (*i.e.* online ordering, non-specialised retailer, mom & pop shop), the prices for identical

CDs vary significantly. Price differences are also due to diverse sales taxes / value-added taxes applied in different OECD countries. Whereas in some countries taxes on sound recordings are rather low (Japan: 5%, Mexico: 15%, Australia: 10%, US: 2-9% with sales tax varying by State, Canada: 7%, EU: 7.6%), taxes can be substantially higher in other OECD countries leading the music industry to call for a reduction of these tax rates (France: 19.6%, Sweden 25%).

Paralleling the logic of “pricing” and “versioning” of information goods in the literature, the music industry has increasingly resorted to the “bundling” of music pieces on albums or CDs, leaving the consumer with an interest in only a handful of songs with the purchase of around 12 tracks per CD.⁸¹

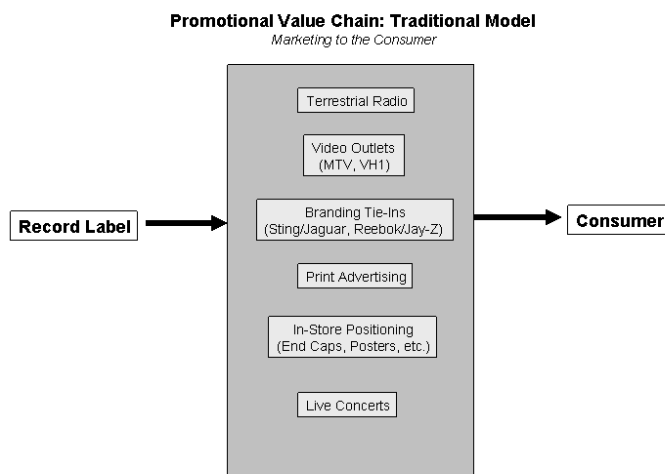
The business model of selling online albums does not seem practicable for online music distribution where customers sample and have a preference for downloading single songs. However, the subsequent impact on the sales of physical album CDs, and longer-term impact on the structure of record deals and how future commercial music is released, are unknown. New online channels certainly add flexibility for consumers who now have a greater choice of music to buy from and can select songs from albums. As artists will continue to record and release coherent collections of songs (many artists object to allowing separate sale of album tracks) and as some customers like the album format, it seems unlikely that the industry will stop making and selling albums, but likely that the market will become a mixed economy of both single tracks and albums, in digital and physical form.

Finding detailed data on the distribution of revenues from CD sales is not straightforward as record industry associations do not collect specific costs that make up the price of a CD.⁸² It is clear however, that in times of decreasing costs of CD manufacturing and shipping, marketing and promotion of a particular music piece make up for the greatest cost of music production. This focus on promotion and marketing has increased over time, as a reaction to the increased quantity of music works and media outlets to diffuse those. It includes video clips, public relations, tour support, marketing campaigns, and promotion to get the songs played on the radio, still crucial elements to get the artists known by consumers (see Box 2 on the promotional value chain). The search for great artists and the right songs with A&R specialists is costly as well. The costs for recording studio fees, studio musicians, sound engineers, producers and others also must be recovered by the cost of the CD. Finally, artists receive royalties on each recording, which vary according to their contract, and the songwriter gets royalties too.

The question will be in what way this promotional value chain of the offline retail model might be changed through online advertisement and digital distribution possibilities. Also, the discovery process of artists and thus the work of A&R-departments may be impacted through the use of P2P networks, online music offerings, and artists' Web sites.

Box 3. The promotional value chain

A consumer rarely purchases music without knowing something about the artist first. Other forms of media play a much larger role in inducing purchases, including radio, music videos, live concert performances, in-store product positioning, print advertising, and live concerts.



Source: OECD and Digital Music News Consulting.

Radio distribution. Major labels all have well-developed radio promotion staffs. Radio “spins” usually result in increased physical purchases, driving interested consumers to retail outlets. Radio remains the most important medium in 2004 despite digital distribution outlets.

Video distribution. The advent of audio-visual music videos altered the music industry in the 1980s (e.g. MTV). Now, MTV and other video channels have grown to be important “hit-makers”.

Touring (physical appearance). While labels often finance “tour support” in the initial stages of a career, subsequent concert revenues are usually not captured by standard record label contracts.

CD-single Up until several years ago, CD-single sales actually created sales momentum for albums, with chart positioning an important factor in countdown shows and radio playlists.

Digital distribution has significantly altered the landscape, opening the Internet as a promotional vehicle.

Very few studies have attempted to look at the distribution of revenues of a CD sale more in detail. Table 5 compiles available results. It is important to note that percentages can vary depending on the label, production process, the artist (fairly established or highly successful?) and his/her contract with label and publisher, retailer, marketing emphasis and budget allocation, and country. Many of the functions (including manufacturing, distribution, etc.) are performed by the record labels themselves. Studio producers only derive a small share of revenues. Record labels (around 30-40% depending on functions that are performed in-house) and distribution and retail (around 30-40%) get the greatest share of revenues with the artists getting around 10 % or less of CD sales revenue (USD 0.5 to USD 2 for a USD 16.98 CD according to SoundScan, 2001 and Merrill Lynch, 2002).

Table 5. Distribution of revenues of a CD sale

	Laing (1996) Europe	IDC (2000) USA	Soundscan (2001) USA ¹	OD2 (2004) Europe	Reuters (2004) France	Rolling Stone Magazine (2004)
Composer and Publisher	9%	8%				5.1%
Artist / Royalty Rate	10%	8%	7%	6% ²	5.6%	10% (+ 1.1% to musicians' union)
Other rights ³					15.3%	
Studio producer	2%		9%		2.4%	
Record company	24%	39%	39 ³	26%		28,8 (of which 10,6% profit)
Manufacturer	8%				8.8%	5%
Promotion & advertising		15%	9%	9%	12.9%	15%
General costs					17.7%	
Design & packaging						included in manufacturing
Miscellaneous (shipping, etc.)			9%			
Distributor	20%	15%	31%	27%	17.7%	5.6%
Retailer	27%	15%		12%		29.3 % (of which 5% profit)
VAT				20%	20%	
Total %	100%	100%	104%	100%	101%	99%

¹ Percentages are based on the mean of dollar value spreads for individual revenue figures. The percentage values are thus indicative and rounded and do not sum to 100%.

² Publishing copyrights.

³ *Redevance d'artistes*.

Note: Prices and categories vary. The percentages are not strictly comparable as different category splits have been used in the individual studies.

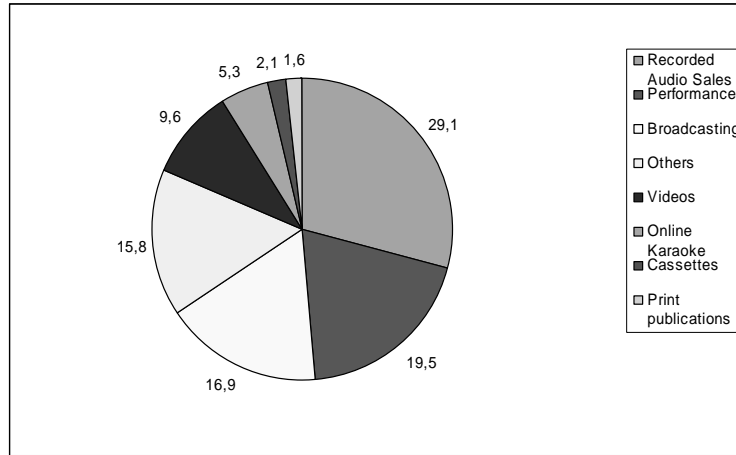
Recording artists sign an exclusive contract with a record company and get paid on a royalty basis.⁸³ Royalties are negotiable. Relatively new artists seldom succeed in negotiating high royalty rates. The record companies usually have the strongest position in these negotiations. However, in some cases, the product of some artists is in great enough demand that they can negotiate with more than one company, which gives them more control over their contract. Often recording artists negotiate an advance on royalties when they sign the contract. If their album starts selling, the investment made by the company will be recouped from the artists' royalties. Costs incurred for the debut album, which have not been recouped from sales, will be transferred to the eventual earnings from future albums.

The royalty rate going to artists can be much higher than 10 % or less, depending on the contracts and the seniority of the artist. Once an artist reaches a high status, he/she is in a position to maintain control over several lucrative revenue streams, enabling him/her to retain a larger percentage of revenues from concert receipts, Internet-based sales, CD-based sales, and merchandising. But the artist's royalty rates is frequently reduced due to so-called packaging deductions, promotional albums, advances from the labels. These low revenue figures for artists are frequently used to point to the low leverage of artists in the current music industry value chain. The music industry points to large promotional efforts necessary to build consumer awareness for certain artists to justify this large share of revenues. The high percentage going to distribution and retailing are often taken to depict the kind of savings that can be made through digital music distribution, assuming that digital distribution is almost free, a somewhat misleading impression which is revisited later.

Revenue generation for artists and record labels does not stop with publication: the artist generates revenues beyond record sales. For the publishing sector, as illustrated with an example from Japan in Figure 12, music copyright revenues for composers flow from many different sources, notably

performance, broadcast rights, etc. Royalties are collected on already published songs in the form of returns for further recordings, live performance, radio, films and advertisement.

Figure 12. Music copyright royalties in Japan, 2002 (Royalties collected by JASRAC)

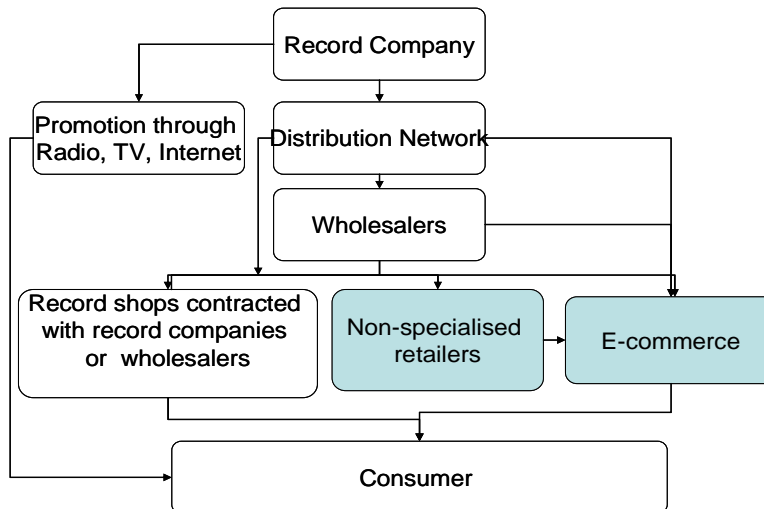


Source: RIAJ (2004). Collected by Japanese Society for Rights and Authors, Composers and Publishers.

Traditional distribution: wholesale and retail

The above analysis has shown that the traditional distribution and retailing of music can make up for between 30 to 40 % or more of the cost of a CD. While the standard distribution models have been explained above, it is notable that – even without digital music – the distribution channels of recorded music have already changed considerably, notably through mass merchants who use music as a loss leader and Internet sales (see Figure 13). These changes are said to have had significant influence on the recent decline of CD prices with the weight of new forms of distribution counterbalancing the clout of music majors. It has also been argued that the increased reliance on sales over mass merchants, which concentrate on top hits to keep inventory low and are reluctant to carry unproven new “acts” has – at the expense of specialised retailers that carried a wide range of music – decreased the variety of available music, thus decreasing the attractiveness of music supply to niche markets usually featuring customers with significant purchasing power (see, e.g. Department of Canadian Heritage, 2004).⁸⁴

Figure 13. New distribution arrangements before digital distribution



Source: OECD (shadings indicate new retail channels that rise in importance).

To a great extent, distribution of recorded music worked through specialised retailers (large retailers like HMV but also small record shops). One new trend is increasing distribution over non-specialised, mass-market retailers (IFPI, 2004b). In France, for instance, 55.2% (in units) and 50.7% (in value) of recorded music is now distributed via large supermarkets (Géant Casino, etc.).⁸⁵ The United States, for example, has a similarly high penetration of mass merchants. Mega-retail outlets like Best Buy and Wal-Mart represent price leaders, often charging less than invoice for a CD and buying in very large volumes. In the United Kingdom, the supermarkets' share of the market increased from 8.9% in 1999 to 21.9% in 2003 (IFPI, 2004b), 55% of sales being carried out by mass retailers who extract lower wholesale prices from suppliers and thus cut into profits of record companies are the norm in many OECD countries (PwC, 2004). Initially, the move of record labels to supermarkets was an effort to by-pass specialised retailing (OECD, 2001a). Today, however, the growing clout among retailers is said to reduce concerns about potential undue exercise of market power on the part of major labels, a point taken into consideration by the EC and US competition authorities' in the analysis of the Sony BMG merger.⁸⁶ As large outlets also increasingly carry higher-margin DVDs and video – displacing shelf-space for music (*The Economist*, 2004b) – record companies are under pressure. The price decline of CDs may also be due to these stronger downstream retailers, along with large-volume discount deals between record companies and retailers.

Before digital music distribution, the other clear trend in the retail sector is sales of physical audio records over the Internet (online ordering, physical delivery). As mentioned in the introduction to this paper and analysed more in detail in other OECD publications (OECD, 2004a) the purchase of music delivered offline is a major e-commerce driver. According to IFPI (2004b), Internet sales – the sale of physical products via online stores – has increased in Germany from 1% in 1999 to 12% in 2003. The prospect of direct delivery to customers, or the competition provided by e-retailers, may threaten established relationships between record companies and retailers (OECD, 2001a).

Both trends, the rise of larger non-specialised music distributors and the Internet – and falling record sales since 1999 – have led to the decline of specialised music retail and specialised record shops – so-called mom & pop shops – (see IFPI, 2004b, see RIAJ, 2004 for figures on Japan and footnote for Korea⁸⁷). Earlier these mom & pop shops had an important function as they allowed customers to sample music and receive advice; a function now being taken over by some online music services.

New online music industry value chain, business models and players

The proliferation of broadband connectivity to the average PC user has been a disruptive technology for the traditional music value chain and its business model, generating product and process innovation, the entry of new players and new opportunities for music consumption and revenues.⁸⁸

High-speed connections have allowed consumers to download music rapidly, and bypass traditional methods for enjoying music (including through unauthorised file-sharing). These new types of music consumption take different forms, involving different forms of disintermediation and traditional or new players. Importantly, a whole new set of players which were traditionally not involved in the distribution of music have entered the picture. This includes players that always had links to the music and other content industries (consumer electronic industry that provided the playback technologies, retail industry involved in selling the physical CDs) and which are now moving upstream to be more closely involved in the digital distribution of music. But it also includes new players that were traditionally not related to the creation and distribution of music (*e.g.* ISPs, consumer brands like Coca Cola, Web portals). Furthermore, the new digital music value chain involves a new set of players essential to the online distribution of music (*i.e.* digital rights clearance, software, DRM technologies, online billing). The latter service providers who aggregate, digitize, manage, retrieve, host and secure content, are a new phenomenon with much growth potential incited by new broadband content developments.

Depending on the nature of the players, very different motives drive their online music activity leading to new co-operation as the players try to integrate upwards or downwards along the value chain. In this set-up, the role of music and the way profits are generated with the sale of music have to be re-examined.

Earlier online music record industry initiatives and reasons for their failure

A frequently asked question is why the music industry has not embraced Internet technology earlier on. Observers have posed the question whether a faster implementation of new business models could have limited the rise of unauthorised file-sharing, pointing out that the recording industry was slow to react to the new technology (UK Film Council, 2004, Krasilovsky, Shemel and Gross, 2003). This hesitancy has certainly been influenced by the rise of online piracy which deterred content industries from putting content online. Moreover, the difficulty of concerted efforts between the music majors but also the dominance by the music majors of the physical distribution system and the promotional value chain, which have significantly delayed a move to digital distribution, have also played a role. Adversity to cannibalising physical retail sales, which only started seriously to decline after 2000 and later for many OECD countries, may also have played a significant role (UK Film Council, 2004). But the difficulty in clearing rights and in pioneering new business models in the face of already burgeoning illegal “free” downloads also played a major role.

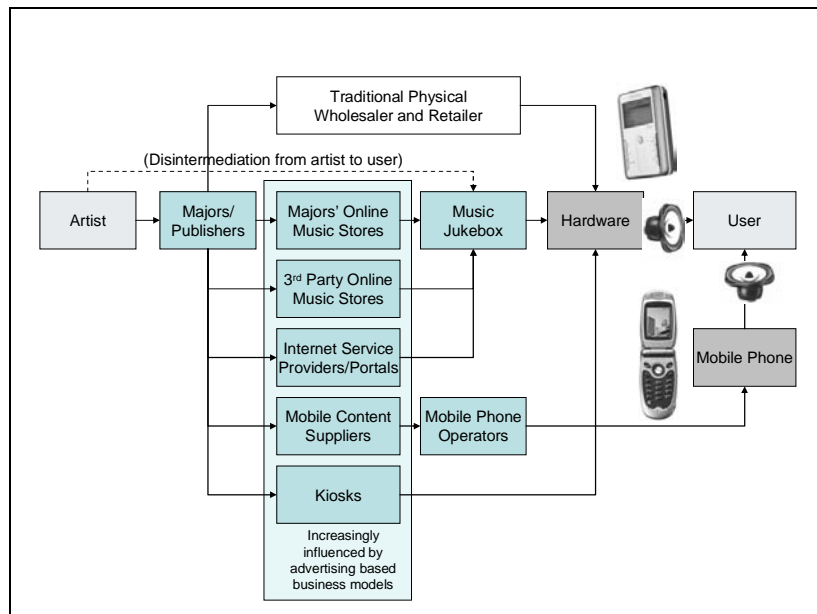
But the music industry comprehended before 2003 that online music distribution was an objective worth pursuing. Recent moves of Apple i-Tunes and others were in fact not the first online music trials. In 2001, record companies created MusicNet and PressPlay with significant financial investments. The setting up of these online music ventures was a very complicated business due to the need for co-ordination and required rights clearance along with the difficulties for the major record companies to agree on and implement a joint platform with common sets of terms and conditions. These first efforts did not encounter significant commercial success. This failure can be partly blamed on the early hour of the undertaking. With broadband quasi non-existent in many OECD countries, slow access speeds and the emergence of unauthorised file-sharing did not provide a favourable environment. However, the lack of user friendliness and the lack of a commercially viable business model to compete with free downloads have also been evoked. Complicated user interfaces, the limited size of song catalogues (despite the involvement of the major record labels), comparatively high up-front costs imposed by monthly subscription fees, and underdeveloped DRM schemes were problems associated with MusicNet’s and PressPlay’s perceived lack of success.⁸⁹ The lack of comprehensive and integrated music catalogues which was a result of the industry structure has certainly been one of the more decisive factors.

It took several more years for various online music offerings to come into existence: MusicNet and PressPlay were sold to Roxio, which changed its name to Napster, having purchased rights in the brand from the first popular file-sharing network. But today – with Apple iTunes, Wal-Mart and Napster leading in terms of market share – there are more than 200 licensed online offerings in OECD countries. The transition to digital technology has created several new ways for labels and artists to distribute their music.

New music outlets from artists to users

While traditional, CD-based distribution models involve relatively few players, digital music distribution introduces a larger mix of providers and stakeholders (see Figure 14). The following shows the new outlets that labels have access to in this new environment. Figure 14 also depicts the most important possible disintermediation or re-intermediation possibilities. Many of these online distribution models are increasingly influenced by advertisements. Some additional ventures have started to exploit P2P technology on a licensed basis.

Figure 14. New online music distribution



In the new digital model, artists, majors and publishers have so far retained their creative roles related to the development of sound recordings. A&R – although increasingly done through the Internet – is also essentially still very much in the hands of record labels. But physical “brick-and-mortar” retailers are no longer the last link to the consumer, with pre-recorded CDs replaced by digital downloads and streams. Music is now licensed to different sets of online music stores or mobile content providers and is then distributed further in digital format to the consumer. The range of new retail interfaces available to the consumer is considerable: online music stores of the majors, third party online music stores (*i.e.* Apple, Napster), ISPs and content portals, mobile content suppliers, and even physical kiosks (machines set up in places like Starbucks that permit music downloading by customers). One additional distribution form made possible by the Internet also includes the direct sale of music from the artist to consumers (disintermediation from artist to user).

In all of these cases where music is sold on line, the traditional physical wholesale and retail structures lose their importance. Given that it is the lack of a distribution network which often prevented independent record companies (in particular the very small ones) from selling their music directly, the online medium may also enable these smaller independent publishers to retain part of the distribution chain to the music consumer (possibly also while bundling the catalogues of a number of labels together in specialised online music stores). A new variation of music distribution involves direct transport to mobile devices like cell phones. In most of these cases, the music is accessible to the user over 1) a certain music player (music jukebox) which is essentially a specific software programme and then 2) the necessary hardware to play the music (PC, portable device, mobile handset). Furthermore, a new trend is the shift to increasingly advertisement-based models.

Despite the large number of new music offerings, some of the above possibilities are more or less present in the current product range. Contrary to some expectations, few successful commercial sites have been established by musicians themselves to sell their music directly. Direct sales from artists to the consumer or career-building of an artist purely through the online medium thus remain rare. As outlined later, this does not mean that the Internet does not directly affect artists and music sales. In fact, the Internet provides new forms of advertising and possibilities that lower the entry barriers for artistic creation. In the same vein, the model of music majors selling directly to consumers over proprietary music platforms is not a widely spread option; except in the case of Japan (see earlier sections on LabelGate) and

some efforts of Universal Music to offer digital distribution possibilities to independent labels. Music majors prefer to licence their content to third parties to generate additional revenues from online distribution.

It is the variety and diverse origin of third party providers which is impressive. Firms selling hardware (Apple, Dell, etc.), ISPs, software and DRM providers (Microsoft, Real Networks), consumer brands (Coca-Cola), physical retailers (Wal-Mart, HMV, FNAC), and even credit card companies (American Express) are increasingly active in the music business. Due to the revenue opportunities from online music, the business motivation of the different players and the amount of revenues actually drawn from online music sales varies greatly. Many of these third parties are supported by white-label music services like OD2 that provide most music online store functionalities to be sourced in by players like Karstadt (German retailer), TDC (Denmark), MTV, etc. The medium-term effect of increasingly advertisement-based models on the supply of music and artists merits further consideration.

New online music business models

The following shows the new possibilities that users have to access music over broadband. The two most important models are illustrated in Table 6.

Digital download: Perhaps the most well-known method for purchasing music online is the digital download.⁹⁰ Also known as the “à la carte”-download, it is the method that is used by the market leading iTunes service to sell music. In this process music is copied to the user’s hard drive against payment, allowing the user to subsequently listen to it without being connected to the Internet.

In this model the consumer acquires the music permanently (full sale) but downloaded tracks usually come with some restrictions on usage (discussed later).

Streaming subscriptions models: Subscription models allow access to a larger collection of tracks for a monthly fee. These services allow visitors to hear music in real time, without downloading the file to the consumer’s local hard drive. The consumer does not take ownership of the streamed songs. There are several advantages to this model, including the ability to scan and explore collections. One first-mover in the subscription space is RealNetworks’ Rhapsody. For a USD 9.95 fee, consumers can access as many tracks within the collection as desired. But overall, current adoption of subscription models remains low, with many customers more interested in owning rather than renting.

Table 6. Comparison of downloads and subscription models for a particular online music service

Downloads	Subscription
<ul style="list-style-type: none"> - No monthly fee. Users pay a per-song charge to download music. Once the music is downloaded, the user owns it and it never “expires”. - User does not have to be connected to the Internet to access purchased music once downloaded. - Users can usually only download on a set number of computers (designed to prevent widespread sharing). - Purchased music can be burned to CD or transferred to supported portable devices a limited number of times. Specific playlists can only be burned a set number of times to prevent bootlegs. 	<ul style="list-style-type: none"> - Subscribers “rent” music. They pay a monthly fee to stream an unlimited number of music files. Once subscription ends, access to music ends. - Streamed music resides on the server for access when the subscriber signs in. - Subscriber must be connected to the Internet whenever they want to access streaming music service. There is no limit to the number of computers the service can be accessed on. - Streamed music can be burned to CD for an additional fee, but not transferred to portable devices. - For the emerging “portable subscription offering” all of the above applies but also includes access on a portable device.

Source: Compiled from Web sites of online music services.

Portable subscription downloads: While subscription models offer large catalogues of music for on-demand consumption, the lack of portability has been a major concern for new customers (apart from the fact that customers may want to own music). Now, new technology (Microsoft Janus DRM) allows the portable access of subscriptions. Napster is one of the first to use such a system. For USD 14.95 a month, consumers can enjoy large collections of music away from the PC, with tracks stored in the portable device itself. Ownership of the music is cancelled if the consumer does not pay his/her monthly subscription (*i.e.* a form of music “rental”).

Streaming radio: Another variation on the music subscription model comes in the form of online radio. In this model, consumers are allowed access to a wide range of genre-specific radio streams in exchange for a monthly subscription fee. Several major music stores offer streaming radio as part of larger music subscription packages.

As will be discussed in the section on file-sharing and music, file-sharing features or collaborations between the music industry and file-sharing networks are on the rise. This file-sharing is different from previous P2P networks, as it only takes place between paying subscribers or with paid songs, as it usually involves limited sampling (rather than taking ownership of the songs), and because the technology is – through DRM systems and centralised control – rather different from the original P2P technology. As discussed later, business models that leverage P2P technology to distribute and sell through consumer-to-consumer interaction have existed without major label support for some time.

Online prices and usage rights

Much has been said about varying offers of different online shops and the resulting difficulty for users to find certain songs on their preferred online music store.

Song catalogue sizes vary largely between the different providers. Many songs are available with some but not with other music service providers. This has resulted in initially small but now growing but still diverse music catalogues (Table 7) that – in terms of breadth and number of songs – cannot yet match unauthorised files on peer-to-peer networks or in physical retail (*i.e.* lack of specialised genres that may deter uptake of audiophiles and some difficulty of the independent sector to channel songs into online music services⁹¹). Some right holders (*e.g.* The Beatles) still refuse digital licensing. Music stores like Wal-Mart do not tie in music from independent labels but mainly host mainstream music. This holds true despite the fact that “limited shelf-space” usually leading to a concentration on mainstream artists and neglect of less well-known ones, is not as compelling in the online medium (hosting is cheaper than storing offline, but it is not free). Finally, due to licensing restrictions many online music services (especially subscription services) are only available in the United States.

Table 7. Size of music catalogue of online music services (October 2004)

Music Provider	Number of songs on catalogue
www.connect.com (US)	500 000 (Germany 350 000)
www.apple.com/itunes (US)	Around 1 000 000
www.napster.ca (Canada)	300 000 (USA 750 000)
www.walmart.com (US)	400 000
Labelgate (Japan)	100 000
www.belgacom.net (Belgium)	350 000
Microsoft (US)	Around 1 000 000
www.mtv.co.uk (UK)	350 000
Rhapsody	700 000

Note: The number of songs on the various sites increases steadily. In January 2005 many online music stores had around one million songs.

Prices for the downloading of songs and for subscriptions vary according to country and music service. The current price point for the downloading of one song is USD 0.99 and USD 9.99 per album in the United States, with slightly higher costs in Europe, EUR 0.99 to EUR 1.39, and Canada CAD 1.19. Other sources confirm that current industry licensing practices and billing expenses produce costs of goods sold of USD 0.82 to USD 1.17 on one-off sales (Jupiter Research, 2004b). At the root is an issue of whether the price is causing the soft demand that the industry is seeing, especially since the industry is competing with free unauthorised offers. In the United States, Real Networks is one group that has experimented with lower download costs, USD 0.49, attracting a great number of downloads but making considerable losses.

Apart from these increasingly popular, country-specific price points, prices for the same songs or albums differ between music service providers. Prices are also different from online retail prices. Independent comparative research (Fetscherin and Vlietstra, 2004) shows that a music download from a US music provider costs 70 cents, granting the user only the right of unlimited playing. A music download costs 15 cents more if the right to burn is given to the consumer. Furthermore, the right to move the music song to a portable player is valued at 24 cents on average per download.⁹² Fetscherin and Vlietstra (2004) also show that the geographical location served is a significant determinant of the download price (with music providers who supply European consumers on average more expensive than their American counterparts).⁹³ The label source also plays a significant role in determining the download price (with songs from certain labels consistently being more expensive than those from others).

A full price comparison between offline and online music retail prices between international providers is difficult to undertake. As has been mentioned before, retail prices for traditional CDs are not provided by the music industry associations. Moreover, in online and in offline music stores prices for identical CDs vary significantly within and between countries. Nevertheless, Table 8 makes an effort to show some price comparisons for popular songs for younger age groups that have been compiled through extracting Internet retail prices for physical CDs over Amazon.de (Germany)/Amazon.com (US) and various online music stores in North America and Europe (shaded).

Table 8. Price comparison of online shops (Benchmark: physical CD over Internet retail), Oct. 2004

	USHER		NINA SKY	
	Burn	Confessions	Move Ya Body	Nina Sky
Music Provider	One song	Album	One song	Album
www.amazon.de	EUR 5.99	EUR 15.99	EUR 6.99	EUR 16.49
www.amazon.com	n.a.	USD 13.49	n.a.	USD 13.98
www.connect.com	EUR 1.39	n.a.	n.a.	n.a.
www.apple.com/itunes	USD 0.99	USD 9.99	USD 0.99	USD 9.99
www.napster.ca	CAD 1.19	CAD 9.95	n.a.	n.a.
www.real.com/musicstore	USD 0.99	USD 13.36	USD 0.99	USD 9.99
www.walmart.com	USD 0.88	USD 12.32	USD 0.88	USD 9.44
www.aol.de	EUR 1.49	n.a.	EUR 1.19	n.a.
www.belgacom.net	EUR 1.99	EUR 12.49	n.a.	n.a.
www.fnac.com	EUR 0.99	EUR 9.99	n.a.	n.a.
www.mtv.co.uk	GBP 0.99	GBP 7.99	GBP 0.99	GBP 7.99
www.rossoalice.it	EUR 0.99	EUR 12.87	n.a.	n.a.

	ANASTASIA		MAROON 5		BRITNEY SPEARS	
	Sick and Tired	Anastasia 2004	This Love	Songs about Jane	Everytime	In the Zone
Music Provider	One Song	Album	One song	Album	One song	Album
www.amazon.de	EUR 5.99	EUR 13.99	EUR 5.99	EUR 14.99	EUR 6.99	EUR 15.99
www.amazon.com	n.a.	USD 24.99	n.a.	USD 13.49	n.a.	USD 13.99
www.connect.com	EUR 1.39	EUR 12.99	EUR 1.39	EUR 12.99	EUR 1.39	EUR 12.99
www.apple.com/itunes	n.a.	n.a.	USD 0.99	USD 9.99	USD 0.99	USD 9.99
www.napster.ca	n.a.	n.a.	CAD 1.19	CAD 9.95	CAD 1.19	CAD 9.95
www.real.com/musicstore	n.a.	n.a.	USD 0.99	USD9.99	USD 0.99	USD10.98
www.walmart.com	n.a.	n.a.	USD 0.88	USD 9.44	USD 0.88	USD8.80
www.aol.de	EUR 1.19	n.a.	EUR 1.49	EUR 12.99	EUR 1.49	n.a.
www.belgacom.net	EUR 1.99	n.a.	EUR 1.39	EUR 12.49	EUR 1.39	EUR 12.49
www.fnac.com	EUR 0.99	EUR 9.99	n.a.	n.a.	EUR 0.99	EUR 9.99
www.mtv.co.uk	GBP 0.99	GBP 7.99	GBP 0.99	n.a.	n.a	GBP 7.99
www.rossoalice.it	EUR 1.39	EUR 6.68	EUR 0.99	EUR 11.88	EUR 0.99	EUR 12.87

Source: OECD based on online offers from various service providers (September 2004).

Before elaborating on the results, it can be said that price comparisons of the sort are highly complicated by the fact that consumers often have to register online (often with e-mail address) / set up an account and have to download clients from the online music store to be able to extract price information or download songs. Often the registration is free, but does require a debit or credit card that can be authorised – not charged - for a specific amount (*i.e.* USD 20) of credit.⁹⁴ Increasingly, access to the services of online music providers are also provided through software platforms like the Windows Media Player. In fact, this bundling of music services into music jukeboxes is part of alliances between online music providers and software providers. The advantage is that users do not need to download proprietary software for different online music services when comparing online music offers. Online music services that are not bundled into these players face a competitive disadvantage.

The Internet does not necessarily bring about easy accessibility or full price transparency. The search also revealed that many of the songs were not available on the different researched music platforms (Table 8) focuses on the providers that mostly offered the songs in question). Finally, the exercise also demonstrated the advantages of platforms like Apple I-Tunes (99 cents per track, USD 9.99 per album guarantee) that – independently of the artist or the chosen track – consistently charge a particular price for a song and for an album. In other cases, prices vary to a great extent.

Despite of the limitations of the data due to international comparisons and the small sample size, Table 9 hints at a number of interesting, tentative points.

First, at first sight the comparison of the prices of CDs ordered over the Internet but delivered online and the online download seem to suggest some moderate cost savings for the consumer through online music distribution. In the case of individual tracks, songs delivered online are always cheaper than through physical retailing as the desired song is not bundled onto a Maxi-CD. Whereas the purchase of two or three songs through the acquisition of a Maxi-CD could cost as much as EUR 6.99 / EUR 9.99, the online purchase can amount to only EUR 1.19 / EUR 0.99. In terms of price, unbundling of music tracks thus works to the advantage of the music consumer. However, there may be “cultural costs of unbundling”, and the consequent loss of meaningful societal access to an artist’s less “commercial” offerings, which remain largely undiscussed in most accounts. A move to more advertisement-based models and the impact of this move on customer prices and artists’ revenues is also a largely open question.

The purchase of albums also seems somewhat cheaper with online music distribution than through the purchase of physical CDs. This holds true despite the fact that the online retailer used in this example is usually cheaper than traditional music stores. But compared to the CD purchase where the user does not have to make downloads and where she/he gets the lyrics and a designed CD box, this price decrease may – in the end – not seem very significant. More importantly, the purchased music has limited usage rights attached to it, further justifying lower prices. Lower prices for limited access to music would certainly make economic sense, and may be appealing to the end user who does not want a lifetime copy of the content.

Second, the comparison shows that – like offline – prices for individual tracks and for albums diverge between online music providers. Songs can be as cheap as USD 0.49 under a recent, temporary offer of Real Networks or USD 0.99 through the price leader Wal-Mart and go up to over USD 1. Prices for identical albums also diverge significantly. The Internet does not lead to price equalisation with respect to music offerings. These findings are identical with more detailed, large-scale research on book prices on the Internet which showed that – rather than bringing about uniformity of price due to transparency – prices for books on the Internet vary even more significantly than in the offline context (Brynjolfsson, Smith and Hu, 2003). In fact, rights-related issues maintain geographical frontiers on the Internet, significantly reducing the scope for cross-border competition. Even within the EU prices for the same songs vary greatly depending on the chosen location, prompting the UK Office of Fair Trading to forward a complaint to the European Commission concerning the differing cost of iTunes Music Store downloads in different EU countries.⁹⁵ Nevertheless, it can be said that music producers have increasingly reached cross-border licensing arrangements, and publishers have worked to develop a means to licence across borders.

As implied before, Table 8 does not hint at one additional level of complexity. Usage rights often vary depending on the music service provider or – within the same online music store – depending on the artist or track-specific licence agreement reached with the right holders. In principle, the diversity of possible usage options means that consumers may benefit from a wide range of possible price points, whereas they were limited to a single usage option (permanent listening from one disc) at a single price in the physical world. However, not all music stores offer clear and consistent usage rights throughout their catalogue. Moreover, incompatibilities between content, software and playing devices seem more of a burden than a welcome feature from the consumer's perspective. Since demand is likely to be related to secure interoperability there exist incentives for industry to take steps in that direction.⁹⁶

Number of PCs from which the downloaded tracks can be accessed: Often songs can only be downloaded and listened to from the PC with which the user has registered (and not on a second or third computer) or on up to three PCs. In case of hardware failures of this particular computer or an upgrade – depending on the music service – in some cases users will not be able to download the purchased song again with a different computer. In some cases, the user can “de-authorise” a computer to carry songs forward to a new computer. Once the track is downloaded to PC, it can usually be listened to an endless number of times. Often only the primary computer can transfer songs to portable devices or burn them to CDs.

Copying on portable devices: Downloaded songs can often be transferred to portable devices. Usually the number of copies which can be made is limited through DRM technologies. When this limit is reached (sometimes three but often more copies) the song can no longer be downloaded to further devices or copied. For transfer to be possible, the portable device needs to be compatible with the format and DRM technology employed by the online music service (*i.e.* with Open MG/Magic Gate in the case of Sony Connect). Many music service providers clarify that they are not guaranteeing the compatibility of their online music services with the consumer's device. For instance, the Apple iPod will not play Wal-Mart Music. Playing songs from certain music providers on certain portable devices involves many additional steps that users will find unattractive (burn songs to a disc, “rip” them to the MP3 format, then move

them to the device) and that may be a violation of the agreed contract terms or copyright. Some platforms have different usage rights depending on the track.⁹⁷

Burning of CDs: Usually, downloaded songs can be burned to a CD-R (recordable compact disc) or CD-RW (rewritable compact disc) a limited number of times (SonyConnect: three or more times; RealPlayer: unlimited number of times). However, CD players then need to be compatible with the format and software of the music provider. Again, many music service providers clarify that they are not guaranteeing the compatibility of their online music services with the consumer's device. In fact, the usage of many online music providers requires Windows Media Player to be installed. In addition, the compatibility of certain jukeboxes with songs from other online music services is not guaranteed.

As can be seen from the above discussion, the possible use of purchased digital music is often different – and at times more limited than in the physical format. Moreover, incompatible audio and DRM formats, player incompatibilities, etc. often diminish the usage possibilities of the consumer further. It has been criticised that “[a]s consumers once had to repurchase tracks when new formats were introduced, they now (under the DRM restrictions) have to repurchase tracks as they upgrade their computers and portable players” (Park Associates, 2003). Product design is usually agreed between content owners and music services and then put into action using DRM. In this process, artists retain a large degree of influence (*e.g.* not wanting to sell individual songs). The negotiating power of very popular music services also plays a major role in the negotiations with right holders. If usage restrictions are organised in a transparent and consumer-friendly way, and potentially lead to price decreases in cases of restricted rights (*i.e.* increased price discrimination), these may be good from a consumer point of view.

The lack of compatibility and the rise of different codecs and DRM formats are also partly due to the refusal of online music services to licence their technologies to third players. In fact, the music industry may be in favour of easy access to downloads and may dislike the idea of diverging standards.⁹⁸ But indirectly, the record industry may have spurred this standards debate because of their refusal to support the widely shared (but unprotected) MP3 standard. Frustration with the lack of compatibilities has already led firms like the French online music unit of Virgin to file a complaint against Apple Computer, alleging unfair competition over Apple's refusal to licence the FairPlay security technology necessary to make songs purchased from Virgin Mega and other retailers play on Apple's popular iPod player.⁹⁹ The French Competition Council has since rejected Virgin's appeal. But a number of firms have called on Apple to open up its digital rights technology so that other digital music services can securely transfer files onto Apple's iPod player. FairPlay does not let the iPod work with any other kind of copy-protected formats. Attempts by Real Networks, which released software called Harmony that temporarily worked around FairPlay and allowed songs purchased from Real to play on the iPod, have been blocked by Apple and may be attacked in court.¹⁰⁰

From a business standpoint, the proprietary-standard approach may make initial sense and has been put into practise in many other industries. Once a consumer is comfortable with a music service, it is very difficult to switch to another service because the tracks simply would not work with other players and services (“lock-in”). The question is really if limited usage rights (especially the freedom to play content on various devices) will be attractive to the user.

*Comparing Revenue Streams: Physical vs. digital business models***Downloads**

As this analysis shows, with a classic USD 0.99 per song or USD 9.99 per album approach, the online music providers are not making large margins if they are making profits at all. Large scale profits are not currently a reality without either massive volume or a structural change in the cost structure (for example, change in the wholesale master recording cost from major labels). While groups like the IFPI note that there is little wholesale cost flexibility on master recordings, others see a very difficult pricing proposition for both consumers and digital retailers. Stand-alone music services face a challenging business situation and for many the question is how sustainable their business model will be.¹⁰¹

The mix of players changes drastically between the physical CD and digital download. Two entities that remain consistent are the label and artist. Table 9 shows examples of percentages taken by both in each scenario. It shows that delivering a track online provides either a very thin margin or it even leads to net losses (in the high cost scenario below). It seems as if few operators of online music stores are able to generate profits from songs sold at current prices, with either wholesale prices being too high or sales prices for songs (EUR 0.99) being too low to generate revenue from the sales of music. As opposed to arguments that had foreseen a zeroing of retail and distribution costs through the Internet, digital distribution of songs is far from costless and – in the case of substitution from physical CDs to online purchases – it needs to generate enough revenue for labels to cover the large fixed costs (like A&R and promotion). iTunes is said to make only a maximum profit of USD 0.11 per download, some USD 0.04, and some even lose up to USD 0.19 per download (surely also due to massive marketing costs of iTunes promotion). Transaction costs, and particularly the cost of payment mechanisms, eat up a large share of the revenue from digital delivery of music. Many fixed costs (copyright fees, fixed costs of labels) are not reduced by digital delivery. Profits depend on the kind of transaction, sales volume and contract agreement with the labels.

Table 9. A-la-carte pricing structures possible cost ranges on a USD 0.99 track download

		Range	
Provider	Delivers	High cost	Low cost
Record Labels / Artist	Master Recording	USD 0.67	USD 0.40
Credit Card / Financial Institution	Payment Processing	USD 0.30	USD 0.10
Publisher	Mechanical Download	USD 0.12	USD 0.10
Operating & Marketing Costs	Infrastructure, Advertising	USD 0.25	USD 0.10
		USD 1.34	USD 0.70
Net Profit / (Loss)		Loss-USD 0.35	USD 0.29

Sources: NARIP (National Association of Recording Industry Professionals), Yankee Group, ACME Payment Systems, Steve Gordon, Digital Music News. As the industry is only emerging and as contracts vary widely these figures must be treated with care and merit further consideration.

Other factors play a role and are reduced with higher volume, including marketing costs and operating costs (track delivery, server costs, and other infrastructure). It is mainly the content owners and new digital intermediaries (DRM, etc.) that generate direct revenues from the sale of online music. In the current, low-volume market snapshot, digital economies of scale have not yet been realised at current price points of USD 0.99 or EUR 0.99, making cost advantages irrelevant.

The transition to a digital distribution model seems to provide record labels (and potentially, through their contracts with record label, artists) with a greater percentage of the overall revenue paid by the consumer. As presented in the previous breakdown of traditional CD percentage breakdowns, labels often secure around 40% of the total CD price (figures from SoundScan and IDC in Table 5). According to

estimates in the above table, that compares to higher percentages in the digital download model. Record companies are estimated to take between 50%-65% of this value (depending on the repertoire), in cases like France the wholesale price (around EUR 0.80) seems to make up for more than 80% of the sales price (e.g. EUR 0.99). Out of this, labels will pay for artist royalties of 12-18% of retail, cost of digitisation and marketing and artists & repertoire costs. While digital music stores often face losses or very marginal profits from digital download sales, labels retain a constant per-download percentage (although producer margins vary too as costs and negotiated rates vary widely). Although this means that record company profits might be higher per digital track, they could be lower overall if, for example, only 5 digital tracks are sold as opposed to the 12 tracks on a full album. The current CD album economics means that record companies can make profits from bundling 'singles' in with album tracks, making albums profitable at between 10 and 16 songs per disc. Record companies have been unable to make reasonable margins on CD singles but clearly need to do so on digital singles in an environment where consumers' purchasing patterns gradually migrate from album buying to singles buying.¹⁰² Regardless, the industry is being forced to adapt to new consumer buying habits, with bundled singles no longer an enticing purchase. While paid downloads are clearly gaining traction in 2004, it is unclear whether or not the USD 0.99 price model will generate substantial direct revenues for online music providers.

Credit card transaction fees, for example, are also a large cost factor to online music providers. Fees can often climb to more than 25% of the total USD 0.99 download fee. While manufacturing, retail and distribution costs are significantly reduced or even zeroed, large costs arise for payment gateways / credit card payments (see Box 3). In this respect, network operators may have solutions to offer that could be helpful when they partner with content providers.

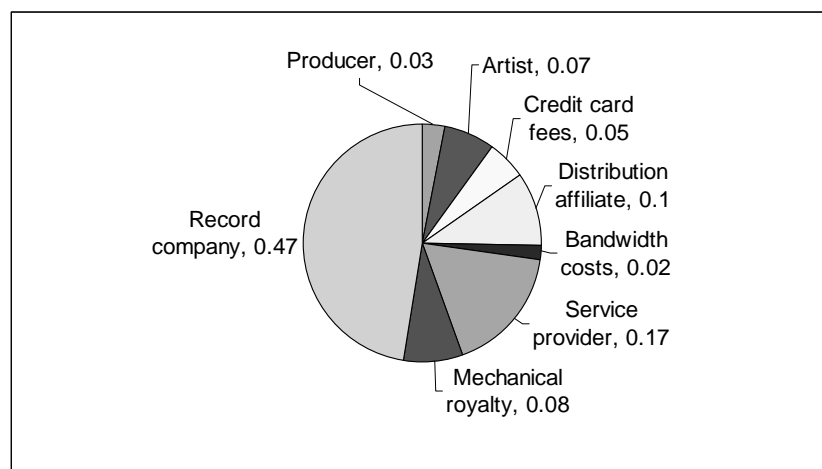
Box 4. High credit card costs for online music and alternative payment possibilities through network and mobile operators

Most services accept Visa, MasterCard, Amex and Discover credit cards. All of these cards charge both a percentage and flat fee per download, which can create a major percentage of the USD 0.99 download charge. Specifically, the interchange fees between the merchant and card issuing bank can vary between 1.75% and 5.0% depending on sales volume. On top of that, merchants are required to pay another USD 0.25 per transaction for "verification fees" on all Internet orders. Fees are a bit lower if the purchase is made using debit cards.

To alleviate the costs, many services have developed means to spread out high fees. I-Tunes, for example, attempts to aggregate individual download sales before sending the charge to the card issuer for payment. Napster could soon start aggregating downloaded tracks into monthly statements to reduce its costs. Yahoo is also likely to bundle download costs into its existing premium service billing. And Wal-Mart already accepts its in-house store credit card for payment, bypassing Visa and MasterCard. Other payment possibilities exist. Bundling payments with ISPs is one attractive option, with several providers like AOL already using this method. Other experiments (pre-paid cards) continue by paid music stores to eliminate credit card fees.

Network operators may have solutions to offer that could be helpful when they partner with content providers. Since the network provider already has a relationship with the consumer, and a means for billing, it may be convenient for the consumer, and reduce costs for the content provider, for the music to be paid for through the network operator's system. This is already happening through some existing portals and some mobile operators are moving to turn their phones into payment devices. This is an example of opportunities for network operators, ISPs, and content owners to work together to create new business models.

The revenue split depicted in Table 9 has been confirmed by data presented during the OECD Broadband Content Panel in June 2004 and by earlier research (see Figure 15 below).

Figure 15. Revenue model for US digital downloads (2004)

Source: OECD based on Department of Canadian Heritage (2004). FAD Research Inc, March 2004, with data from Billboard. As the industry is only emerging and as contracts vary widely these figures must be treated with care and merit further consideration.

From the perspective of the artist, record industry contracts of newer artists show that the percentages between off- and online distribution does not vary much (around 10% for artists), although the percentage given to particular artists does vary widely and the industry has had to re-negotiate older contracts with established artists to deal with on line rights. The following percentages in Table 10 mirror values found in contracts relating to digital downloads, in which an artist receives about USD 0.10 per USD 0.99 download, a similar percentage when calculated next to a USD 0.65 wholesale cost. One significant difference however is that users do not necessarily buy the artist's album anymore but just a few, favoured selected tracks which would also affect artist earnings.¹⁰³ Moreover, these sample percentages are hard to verify and may not apply to all artists.

Table 10. Top level percentage breakdowns, labels & artists

	CD	Digital Download
Artist Contract Percentage	9%	10%
Artist Per Unit Receipt	USD 1.63	USD 0.10
Label Wholesale Cost	63%	68%
Label Per Unit Receipt	USD 11.36	USD 0.67

*Sample percentage based on figures from Warner Music Group. Artist contracts vary.

Actual royalty percentage is 12-18%, though deductions reduce the actual percentage significantly as shown above. Comparing CD and digital download figures can be problematic in the current market snapshot, with digital downloads accounting for less than 2% of total revenues. Future growth will make the comparison more meaningful.

Source: Warner Music Group, percentages vary across different label groups.

Another difficult question is just how many digital downloads need to be sold to equal existing CD revenues. CD sales in the United States for the period 1/1/2004 – 10/08/2004 have been estimated to have generated around USD 6 billion by Nielsen/Netratings. At USD 0.99 this involves around 6 billion one-track downloads, as compared to around 100 million in the same period. The conclusion is that for artists, labels, and others to receive comparable revenue streams from digital distribution, download revenue will have to grow by a factor of around 60. Just how much money the industry could make if wholesale costs of master recording were lowered – increasing demand depending on price elasticity – is another unanswered question. As we are in the very early stages of online music development these calculations are only illustrative. Little is known about direct CD substitution from downloading.

Subscription services

Although not taken up in Table 8, prices and usage rights on subscription services vary widely as well. Currently, USD 9.99 per month seems to be a convergence point, with some online stores recently announcing price increases to USD 12.99. Burning songs to CDs usually costs an additional fee (in the Rhapsody example, it is USD 0.79 per track). Users also have the possibility to subscribe to Internet “radio” alone without subscribing to the streaming possibilities of individual songs (Rhapsody: USD 4.95/month for 60 “radio” stations).

The economics of US subscription services that charge around USD 10 per month is less transparent than in the case of the download model. In recent analysis, the subscription business model and its details has also received less attention as current consumer attention seems to be on per-track downloading. Companies still cling to price per unit economic models and the fact that music is not owned and cannot be transferred to portable devices in subscription schemes has deterred many users. This may change with the rise of the portable download possibility (*e.g.* Napster-to-go). From the perspective of the music labels and stand-alone music service providers, subscription models— with sufficiently high subscriber numbers that bring in regular revenue flows – may potentially be the more attractive business model (see also Jupiter Research, 2004b and various interventions at Midem 2005 on this point). Meanwhile, two leading subscription services have a respectable number of total users: Napster 270 000 and RealNetworks 700 000 (with some of the latter subscription services showing greater profitability than some download services).

More research is needed to explain the revenue breakdown resulting from the USD 9.99 subscription fees. At this stage it is not clear how labels and subsequently artists are paid through these monthly fees. No figures on this point are available from industry sources. In particular the link between actual music consumption of specific tracks and according remuneration of labels/artists is of interest. Possibilities are *i)* a one-off lump-sum paid to labels for access to the digital music repertoire without detailed accounting of actual music use but depending on the number of tracks downloaded or *ii)* a form of sampling of most popular tracks and according per unit remuneration. In both cases, revenues to artists also seem more difficult to elaborate on. According to some industry sources, the DRM software associated with subscription services has the ability to collect usage data from albums and songs downloaded via subscription services (even when subscription songs are downloaded on portable devices). This usage data is later communicated (*i.e.* when the portable player is hooked back to the online music service) to the music provider and subsequently to the right holders to arrange for just remuneration.

Independently from these questions, simple calculations show that subscriptions could better replace existing traditional revenue streams than individual downloads. Table 2 shows that depending on age brackets many users purchase very few CDs per year. In the case of Norway (the highest per capita consumer of music) this amounted to USD 56 per year (ca. USD 5 per month) whereas this amounted to USD 2 in the Slovak Republic (USD 0.14 per month). As these figures include the whole population that significantly underestimate per capita spending of groups that actually purchase music.

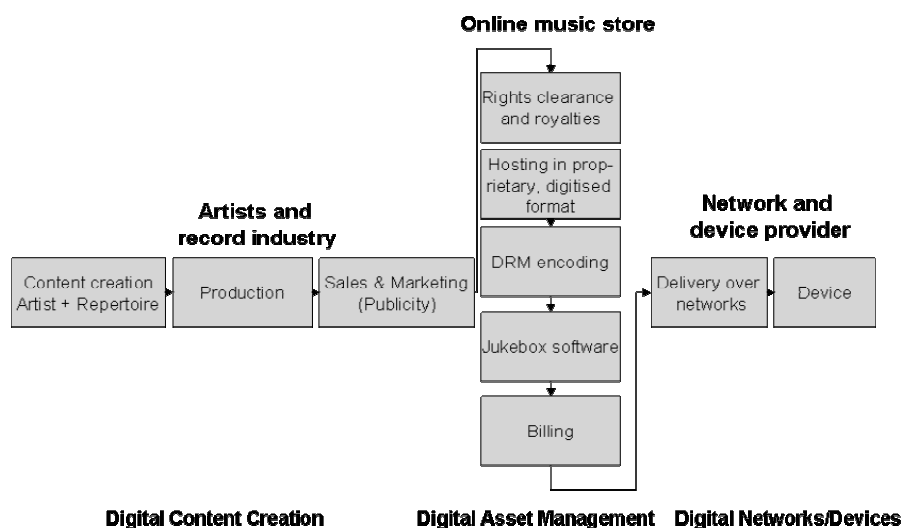
Nevertheless, these figures are helpful to show the potential behind subscription models via back-of-the-envelope calculations. At portable subscription download prices of USD 14.95 per month, the yearly revenue contribution of one single subscriber equals around USD 180. By comparison, France has roughly USD 2 billion in revenues from record sales. At above prices, this amounts to somewhat more than 11 million subscriptions. To compare, at the end of 2004 there will be around 6 million broadband subscribers in France, roughly half of the needed music subscribers.¹⁰⁴ It is likely that these music subscriptions would be bundled into some broadband access + content package (music, movies, and games). Having a recurring, monthly revenue contribution from a reliable cast of customers is what has propelled other industries like cable TV and broadband ISPs. The subscription scheme may also be a very attractive and more economic option for households with a number of teenage children with very fast-

changing music tastes. Currently, however, record industry sources doubt whether such a large number of people will be ready to sign up to recurrent subscription fees. At the moment, subscription services have experienced only very limited roll-out in only a few countries (*e.g.* United Kingdom and United States).

Digital music value chain

The digital music value chain is different in aspects from the traditional one. This has to do with the type of new players involved and the business process necessary for setting up a digital music store, though many of the players – especially upstream in the area of content creation and development – correspond at least in function and role with players in the offline environment. Figure 16 depicts the essential functions involved in setting up an online music store: digital content creation, digital asset management and digital networks/devices. The creation of an online store requires the content creation and production, the digitisation of content, the clearing of rights, technological issues, rights management systems, secure billing systems and delivery networks (adapted from IFPI, 2004a and OECD, 2004b). Many of the online business store functions are taken on by white-label music services that support big music stores for brands like Coca Cola. Components in the digital delivery of music include major and independent labels, artists, third party digital technology providers, DRM (digital rights management) solutions, and portable or other audio device manufacturers (including the PC industry).

Figure 16. Online distribution value chain



Content creation, production, sales and marketing: In the digital value chain the role of artists, on the one hand, and, to some extent, the role of music labels and publishers, remain intact. While many new distribution possibilities exist with digital technology, most music is still generated from labels. That could change in the future, with independent artists and even consumers creating their own music for others to consume. But in 2004-2005, most consumers make their music choices based on what is being promoted by major labels. The promotion of record labels through the traditional promotional chain and through new media remains important for the creation of successful artists. Unsigned artists can easily place their music on the Internet for distribution and exposure, but without major marketing or promotion they often go unnoticed. Without authorised content from the established record industry, digital stores would have very little market traction. Recognising the competition from unauthorised file-sharing and the commercial possibilities behind online music, major labels and artists are increasingly moving to licence content. The music publisher also remains a critical supplier of music because the composer's publisher manages the

rights of underlying song compositions. Without the right holder's consent, it would be illegal to stream or sell digital music tracks online. Manufacturing and offline distribution networks lose in importance.

Next to track catalogues, online music stores have to undertake or source in the following functions (following the new value chain in Figure 15):

Rights clearances and royalties: Rights clearances are an important aspect in preparing for digital consumption.¹⁰⁵ More recent major label artist contracts allow the digital sale of songs, but negotiations with the labels and publishers themselves for use of master recordings must be completed. The large range of rights from different parties and uncertainty as to what rights are implicated during online distribution, complicates this process.

Licensing overall can thus be a time consuming process, albeit a necessary one that is of critical importance to ensure that the people and firms who create music are paid for their work and investment. It is vital that existing intellectual property rights are respected by new distribution channels. Individual licenses with the record company must be negotiated – with licenses tailored to the exact usage (business model, territory, duration) – and there is no compulsory licence or statutory rate. So, to use a specific song, a master recording licence must be secured by the digital music store, which may require advances on royalties to labels for a large catalogue. But rights for the underlying composition, often controlled by the publisher or a collective management organisation (CMO) representing composers and publishers, is also required. In the case of a digital download, a mechanical licence is required to cover the duplication and sale of a specific composition. Despite this extra requirement, securing publishing rights involves a different process from getting rights in a sound recording, with licences available directly from the record company and collective licensing structures in place in most countries for publishing rights. Some countries including the United States have “statutory licensing” rules for the reproduction rights of music publishers, which means that the author or publisher of a specific song cannot deny a licence to reproduce a song for certain purposes. The making available and/or transmission rights involved in on line distribution may need to be cleared separately; these rights are not subject to statutory licensing schemes, but in the case of authors and/or publishers may be subject to collective licensing from CMOs in a number of different countries.

Only artist contracts drafted within the last several years have specific language related to the sale of digital track download or subscription-based streams. Even though older contracts do not address digital distribution directly, record labels have – at times – retained control over the format in older contracts through open-ended language. Specifically, labels reserve the right to “distribute or manufacture records in any field of use, by any method and by any means or format now or hereafter known”. In some cases, however, the labels need to renegotiate contracts with their artists before they can enter into deals with online music services. For example, German law does not support a blanket transfer of rights. Sometimes, however, the terms – and in particular the share going to artists – have been renegotiated. In some OECD countries, legal insecurity exists as regards the remuneration of diverse right holders when works are made available online after they are already being commercialised on physical records. Essentially, the dispute is whether right holders and thus also artists should perceive revenues specific to the fact that their works are now also made available online. In some cases, online distributors are asked to pay specific remuneration to authors whereas in other cases no specific remuneration is paid. This heterogeneity and legal uncertainty for distributors may slow online music services. Finally, it must be noted that a successful licensing process conducted by an early player like OD2 or iTunes benefits all followers, as labels clear for digital download and then serve all cleared tracks to retailers. Today it is already much easier to clear rights for new online music ventures (although rights negotiations between music publishers and retailers still prove difficult). This is also caused by new licenses created by collecting societies in certain OECD countries which simplify securing rights for online environments.

As digital technologies evolve and protected content is increasingly distributed on the Internet and used in new ways, the challenge has become even greater for individual creators to manage and control use of their creations, and make a living from exploiting their rights.¹⁰⁶ The digital environment offers the possibility for more efficient collective management of ever-increasing and diversifying uses of creative content. At the same time, evolving digital rights management (DRM) tools are providing individual rights holders with the means to manage some of their rights themselves. In this environment, business models used by artists and the music industry are rapidly changing, with an inevitable impact on the CMOs that have until now formed an integral part of the value chain for music delivery.

Hosting in proprietary, digitized format: From the master recording, tracks must first be converted into a digital format. That process is known as “encoding” and serves several purposes. The first is to reduce the overall size of the file. The choice of a specific format, known as a “codec” is also an important consideration, with several proprietary versions but no established standard on the market. The most common ones include: Advanced Audio Coding AAC (Apple), Windows Media Audio (Microsoft), ATRAC3 (Sony), Liquid and Real Audio (RealNetworks). The MP3 (MPEG Audio Layer-3) format used on file-sharing networks is – due to lack of effective DRM solutions – currently not in use with online music ventures.

Delivering a comprehensive online music experience requires robust hosting and aggregation infrastructure. Leading digital music stores have more than 1 million tracks in their catalogues, with each music file a few MB in size and transmission delays to be avoided. Distributed networks are needed to ensure that buffering is kept to a minimum, with co-location networks meeting the needs of a geographically separated audience. Also, a digital music store infrastructure must also be able to continually accept new song additions.¹⁰⁷ Adding to the list of challenges is that consumers like to buy music in different ways (sampling, downloading and streaming).

DRM encoding: To define usage rights according to the business model in question and protect works online, various digital rights management systems (DRM) are embedded. DRM does three key things (Schrock, 2004). First, it encrypts content to keep it unavailable from unauthorised users. Second, it provides a licence system for controlling who can access the content, what can be done with it under specific circumstances. Third, it authenticates the identity of the user, a required step for accessing the different usage rights awarded by the licence. With DRM such licences can be transferred with the content on portable or other devices. Again these systems are often proprietary and no established standard exists. Four key providers are currently on the market: Windows Media DRM (Microsoft), Fairplay (Apple), OpenMagicGate (Sony), Helix (Real Networks). Whereas players like Microsoft licence their DRM technology to third providers, Apple does not, making the DRM technology a significant part of their business model.

Moreover, the emergence of different codecs and DRM technologies has led to an unfortunate side effect discussed in greater detail earlier and in the policy section, namely *incompatibility*.

Jukebox: Once tracks are obtained through a digital music store, consumers want to organise and play tracks. Most current generation stores are dedicated applications, with jukebox players part of the offering. For consumers that are interested in portability, a jukebox application also provides easy transfer to a portable device and CD-burning software.

Online music stores: Next to the download possibilities, online music stores have various characteristics that differentiate them from one another and from traditional retail channels. The depth of the catalogue is certainly one of the most important traits. Other key features of online music stores are simplicity of use, customisation and personalisation, efficient searches on album and artists, transparent

and uniform prices and usage rules (see later parts on this), good burn speed of the jukebox software. As mentioned earlier radio services are often offered on top of subscription services.

Importantly, players have thought about moving beyond simply delivering offline content in the online medium, wondering what value-added services (additionality) and interactivity between content and users can be offered through the online medium. As compared to traditional offline retail channels, value-added services like biographical information on artists,¹⁰⁸ links to artists' official Web sites, etc. are very appreciated by users. Even more importantly, *community features* have been introduced that often resemble functionalities offered on P2P networks (see discussion in part 3 on the music industry adopting sharing functions or co-operating with P2P functions). This involves the ability to create playlists that others can listen to and to access other users' playlists. Some services offer to receive pre-made playlists or even a daily personalized playlist based on the music the user listens to. Some sharing of music has been made possible on various music services. This involves other users being able to sample your playlist (30 seconds) or even to listen to playlists a certain number of times.

Billing and payments: No matter what kind of business model has been chosen, online music stores need to bill consumers for their music purchases. For most services this involves accepting Visa, MasterCard, Amex and Discover credit cards causing significant cost pressures as these services take substantial fees for the involved micro payments. When credit cards are accepted stores still need to have a secure payment infrastructure.

Digital delivery over a network operator: After the transaction is concluded, the last part of the value chain is necessarily delivery to the consumer who then streams or saves the music on his PC to rip it on a physical CD, or play it on the home stereo or transfer it to a portable audio device.

New value chain and relationship to new business models

The positions occupied by the above players in the value chain very much depend on the nature of the player and their business model. Interestingly, the sale of music is for most of the market leaders only a means to another end. This also has to do with the very low margins made on selling music online that result from low per-track prices, song licence fees by labels and high transaction costs (credit card fees). The different players have very different attitudes and motivations to be in the online music business (see Table 11). These are critical to understand the industry dynamics and must be seen in the context of previous sections explaining the small margins made on the online sale of music itself.

Table 11. Different business incentives of online music service providers

Participants	Business incentives
Record labels	Generate revenues through digital sales while avoiding revenue losses from online piracy, cannibalisation of traditional revenue streams and "commoditisation" of music.
Artists	Generate revenue through digital sales while avoiding revenue losses due to online piracy. Establish own distribution platforms and use lower start-up costs to build a fan-base or to interact differently with labels and fans.
Hardware producers	Use interest in digital content to sell hardware with new functionality and interoperability.
White label services	Generate revenue by providing services to digital music stores.
Software producers	Establish player and DRM software as standard for content delivery.
ISPs	Use interest in digital content to attract customers to premium Internet and content services.
Content portals	Build Internet audience to attract traffic and advertising revenues.
Consumer brands (non-music)	Increase customer loyalty through e.g. music promotions.
Credit card providers	Generate revenues from fixed- and percentage-based transaction fees.

But there have been efforts by players to integrate some of the different functions along the value chain (from the creation of content to the hardware devices used to listen to music; often with use of proprietary standards). Partnerships between the individual players or upstream/downstream moves are already taking place.

Figure 17 illustrates what parts of the chain are occupied by some important players which will be discussed throughout the text. Some have managed to occupy large parts of the value chain with a general tendency for vertical integration of the chain or partnerships along the chain. In the case of Sony and Apple, close to perfect vertical integration has been reached. Apple does not own a catalogue but encodes in proprietary AAC format, uses proprietary FairPlay DRM technology, has its own music store (iTunes) and its own hardware devices (i-Pod). Sony owns content, has the ATRAC3 music codec, the SonicStage jukebox software, the Sony Open Magic Gate DRM system and its range of Sony Network Walkmen and other portable devices.

Stores like Microsoft and Real Networks also occupy central software parts of the value chain. Microsoft offers the WMA codec, the Windows Media Player as jukebox, the Windows Media DRM, the MSN music store and has alliances with device manufacturers. For other online music providers, the final e-commerce environment is often a result of a large number of alliances, especially in the industry's developmental stage. These players continue to require technology providers or white label music services to operate their online music store. This includes examples like Wal-Mart which basically only acts as a standard retailer while sourcing in everything from music content, over online music store technology and using the codec and DRM standards on the market.

All in all, the strategy of online music stores is built around proprietary audio codecs and DRM technologies which tie customers to their service and certain playing devices.

“Stand-alone” music providers

While most paid music sites are part of a larger business model, a few seek to earn revenues directly from sales of digital downloads and subscription services. The most well-known example of this is Napster, though previous examples include Rhapsody and MusicMatch. Napster licences content from the labels, operates its own storefront and hosting solution, but uses the Microsoft WMA codecs and Microsoft DRM technology. Increasingly, stand-alone music services have made arrangements with PC makers or distributors to have their service preloaded on PCs (Napster 2.0 preloaded on certain PCs). As opposed to other players, these pure-play online music providers derive their profits from the narrow margins generated by online music sales. With the digital download business not yet a revenue-maker, the future of stand-alone offerings is currently difficult.¹⁰⁹ As with earlier Internet pioneers, however, such as on-line sales of physical goods, it may take time to see which business models really work.

White label services

White label music services handle the major aspects related to a digital music store while staying in the background of the consumer experience. These services involve the capturing, storage, retrieval and organisation of content, asset and rights management, DRM technology, usage reporting, digital music royalty settlements, providing music metadata, and other services. Other brands use the relationships to position their brands with consumers, while the third-party supplier receives a revenue share for handling the back-end. This allows the entrance of many new players. Two major “white label” suppliers are currently leading: Loudeye/OD2 and MusicNet. Loudeye recently sought to gain dominance in the sector, with the purchase of European competitor OD2. Both have a large list of clients, including the following: *Loudeye/OD2*: Amazon, AT&T Wireless, Barnes & Noble, Gibson Audio, House of Blues (HOB.com), Touchstand (kiosks), MyCokeMusic.com and *MusicNet*: AOL.

Figure 17. Digital music value chain, selected players and vertical integration along the digital value chain

Digital Music Value Chain											
	CONTENT		SOFTWARE / CONTENT MANAGEMENT				DRM	STORE	BILLING	DELIVERY	HARDWARE
	Music Rights / Publisher	Rights clearance and royalties	Proprietary format	Hosting / Aggregation	Jukebox software						
Sony			ATRAC3		SonicStage jukebox	Sony Open Magic Gate	Connect Store			Network provider	Portable audio players
Apple			Apple AAC		iTunes	FairPlay	iTunes				Sony Network Walkman Apple iPod
Microsoft			WMA		Windows Media Player 10	Windows Media DRM	MSN Music Store				Proprietary players from third parties
RealNetworks			RealAudio Codec & WMA		RealPlayer / Rhapsody	RealNetworks' Helix format					Compatible with third party devices
Napster			Uses WMA		Jukebox 9.0	Uses Windows DRM					
White Label Services OD2			WMA		(as needed by client)	Uses Microsoft DRM	(as needed by client)				
Wal-Mart			Uses WMA		Windows Media Player 10	Microsoft DRM	Web-based store / WMP10				
AOL			Uses WMA or AAC		iTunes-Powered / MusicNet Powered	For iTunes: FairPlay / For MusicNet: Microsoft DRM	Supplied by: iTunes, MusicNet				

Note: Shading indicates that the player is active with a proprietary solution in the field.

BitPass also offers solutions that include payment processing, access control, content delivery, account management, customer service transactions, and promotions management for the delivery of content. Most recently, Canada-based Puretracks expanded into the US market. Puretracks has a more diversified model, also positioned as a stand-alone offering in the recently updated Windows Media Player 10 Digital Media Mall.

Similarly as for stand-alone music providers, “white label” suppliers currently face losses. Most recently, Loudeye released its third quarter earnings in November 2004. Revenues continued to climb up to USD 5.1 million for the latest quarter, compared to USD 2.8m for the last quarter of 2003 but net losses continued. Liquid Audio also reported a net loss of USD 388 000 for the quarter ending 31 June 2004.¹¹⁰ However, players like OD2 (now part of Loudeye) who are essentially new aggregators in the distribution of online music are reporting quarter-on-quarter increases in digital music sales (transactional volume for partner sites growing between 20% and 30% per month¹¹¹), maybe hinting at the fact that this digital content management industry takes time to establish itself.

Software companies

Other companies use digital music offerings to power different revenue streams. For software companies, selling low-margin digital downloads and subscription offerings helps to encourage widespread software usage and increase the importance of specific audio and video formats. Two of the largest software companies, Microsoft and Real Networks, are integrated in Figure 16. More light is shed on Microsoft in the following.

Microsoft started selling digital downloads as part of its MSN Music Store in October 2004. In addition to a US release, the store also exists in 17 other countries, including France, Germany, and the United Kingdom, Sweden, Denmark, Norway, Finland, Spain, The Netherlands, Austria, and Switzerland (with Japan soon to come). This may be the greatest geographic coverage of a music service so far.

Microsoft served several business goals by launching the MSN Music Store. First, the store helped to increase the importance of the Windows Media Player 10 jukebox which includes the Windows Media digital rights management (DRM). Secondly, all tracks within the store are encoded using the Microsoft proprietary WMA codec, helping to further expand the format’s usage. Thirdly, music helps leverage and increase the large number of Internet audience on their MSN Network service (Microsoft Internet portal). Fourthly, the move was an important component of Microsoft’s plans to enter the digital living room-business, expected to be a major growth area over the next few years. The MSN Music Store is available both as a Web-based experience and as part of the Windows Media Player 10. It is an integral component of the Windows XP Media Center Edition 2005. Attracting users to the jukebox is critical to be a notable player in the digital delivery of music, but also allows Microsoft opportunities to control new media revenue streams (Video-on-Demand or Pay-Per-View Movies, live DRM to host concerts, sports events). Formats are another important consideration. Several companies are competing to be the *de facto* format for audio playback. All downloads in the MSN Music Store are sold using the WMA codec, and cannot be transferred to an iPod.

To help encourage greater usage of the Windows Media Player 10 jukebox, Microsoft has created a “Digital Media Mall”, with a host of other digital music services aggregated into one application. Those players include Napster, Puretracks, Wal-Mart, Virgin, and CinemaNow (for movies). Alliances with portable hardware companies are also ongoing. With the previously mentioned “Plays for Sure” system, users are expected to gravitate to the Windows Media Player 10. Creative’s Zen Portable Media Center, as well as several other upcoming PMCs, are running a version of Windows CE that plays music, images, and video. The new Microsoft DRM system called Janus will allow music-service subscribers to listen to rented music on portable devices.

Regulatory agencies in both the United States and the European Union have recently urged Microsoft to de-bundle the Windows Media Player 10 from its overall operating system. Deliberations on this issue continue in the European Union. The European Commission and other governments also continue to be vigilant with respect to transactions in the market for digital rights management (DRM) solutions and how this could strengthen dominant positions.¹¹²

Physical retailers

Physical, or “brick and mortar”, retailers, have had a difficult transition into digital distribution. The advent of P2P networks is widely viewed as causing a major slump in the retail sector, and paid alternatives threaten in-store traffic.¹¹³

There are several major categories of physical retailers, each with different business approaches to digital music. Several physical retailers have developed significant sites online, including Virgin, Wal-Mart, and HMV. Although Virgin does sell physical CDs online through a co-branded partnership with Amazon.com, it recently created a digital music store through its Virgin Digital brand. That store will help to increase the visibility of the Virgin brand in music, with music fans making a greater percentage of their physical CD purchases through Virgin Megastores. Wal-Mart also created a major online store, selling digital downloads for USD 0.88 each.

Consumer brands

Music, both online and offline, remains a powerful brand builder for advertisers. Fans often develop very strong bonds with their favourite artists, and major brands can leverage this to increase market awareness. Some of these major brands chose to work with a third party, or white label service like Loudeye/OD2 or MusicNet. Several major brands have taken this route, including Coca-Cola, McDonald’s, etc. Coca-Cola has partnered with Loudeye/OD2 to create a customised storefront for customers in the United Kingdom. Again, Coke realised early on that digital music sales would only have a negligible impact on its bottom line, with the main win coming from increased branding and customer affinity.

ISPs and content portals

Telecommunication, Internet Service Providers (ISPs) and Web portals are also seriously involved in trying to secure a role in content delivery. In fact, digital music and other content distribution has contributed to blurring the boundaries between content providers, broadcasters and telecommunication service providers.

Network operators no longer rely solely on faster access to drive higher subscriptions and profitability. In this changing environment, network operators wonder how to generate revenue to support investment in next-generation networks and how to replace loss of traditional business (essentially fixed-line voice traffic). Telecommunication service providers must thus develop skills beyond the building and running of vast networks. Another essential question is what applications/content can put greater speeds to use. In their move to becoming triple-play providers (voice, broadband and TV/content), network operators are moving into more value-added services like the provision of content and information services. In competition with other broadband providers, licenced content offerings of this kind are expected to drive subscriber numbers in the next years.

Next to the constant upgrading of network speeds, this quest for content revenues includes the development of Web portals that source content from various content providers for subscribed broadband users. As telecommunication service providers move up the value ladder their goal is to retain end-customer ownership through the provision of content of others rather than having third party providers earn

revenues from their broadband customers. Premium broadband packages which depending on the chosen service propose fee-based or included (“all you can eat”) content services are being developed. Operators have the advantage that they can bill consumers directly over the monthly ISP bill.

Network operators also have to position themselves or form relationships around new value chain services. Few of these roles are managed by a single player any longer (joint activity of content provider, network operators, intermediaries, etc.). ISPs have for many years been entering into a series of commercial relationships with content aggregators and content owners to offer authorised content. ISPs and Web portals have one significant advantage over many other players in the online music business: a large Internet audience.¹¹⁴ The ISP as the intermediary distribution platforms benefits financially along with the content owner when their customers take advantage of rich, high speed content selections offered at reasonable prices. As ISPs will be a distributor, but usually not a producer or owner of content, success will depend on entering into partnership with content firms and sharing in some way in the resulting revenue (*i.e.* ISPs rely on the input from the content industries). For this reason, ISPs have the same interest in finding a revenue-producing business model for the distribution of music and other content. These new co-operation possibilities may – in the medium-term – reduce the lack of interaction and some of the current hostilities between the content industry and network operators.

Partnerships between telecom providers and the entertainment industry are British Telecoms partnership with Microsoft’s X-box live (online games) and France Telecom’s partnership with broadcasters to provide TV channels online. Another example is the Broadband Plus content package of ntl – the UK’s largest broadband service provider – which provides customers with easy access to a wide range of Web-based content.¹¹⁵ This tendency for ISPs to venture into providing content to their subscribers is particularly noteworthy in the field of music. This holds true as a sufficient number of online music intermediaries that provide rights clearance, hosting and delivery of content, the billing infrastructure, etc. already exist in the music context. ISPs thus source music services from third parties (digital music intermediaries like Vitaminic or OD2) without necessarily getting involved in the negotiation process for rights clearance, etc.

The ISP music offers vary, much in line with offers from independent online music stores: pay-per-track services, on the one hand, and subscription services (including “downloads of all the music you want”), on the other. Radio services like Radio@AOL and music TV like MTV are also being offered. Examples of music deals of network operators are:

- ntl Incorporated, the UK’s largest provider of broadband services signed a broadband partnership with Napster UK. For Napster, this deal offers the opportunity to make its subscription service available to more than 1 million broadband subscribers.¹¹⁶
- Verizon Online DSL with MSN premium lets customers listen to their favourite albums and tracks and radio stations and gives preferred access to Rhapsody.
- In France, Wanadoo relies on On Demand Distribution to provide 2 000 music credits for EUR 14 a month to its subscribers. To stream one track, costs 1 credit. Downloads cost 99 credits per title.

Content portals have also used paid download and subscription music services to power other revenue drivers (mainly advertisement). The Korean Web portal industry, for instance, has posted record earnings growth in 2003 as leading companies diversified their revenue sources by charging for previously free content services and expanding their mobile content offerings (MIC, 2004). Two of the largest competitors in content portals are AOL Music and Yahoo Launch, though many others exist.

Credit card firms

As mentioned before, online content purchases generate important credit card fees. It has been predicted that the global micro-payment market will soon be worth several billion US dollars, with, for example, TowerGroup predicting that the total market for digital micro-payments will stand at USD 11.5 billion, with Internet micropayments accounting for USD 6.7 billion (see also OECD, 2004e). This has attracted many new market entrants, including BitPass, Peppercoin, Firstgate, PaymentOne, bcgi, Qpass and E-Gold.

Some credit card companies have now decided to enter the online music market themselves to spur this growth market and build customer loyalty. American Express (Amex) recently teamed with MSN to offer cardholders free downloads for every ten purchased with an American Express card¹¹⁷. Amex has not built its own store, opting instead for a co-branded environment within MSN. Other credit card companies have also entered the space, with Citibank recently offering free Napster downloads to Mastercard holders.

Hardware manufacturers

With hardware firms currently most active in the online music business (*i.e.* Apple), online music has a profound effect on the PC and consumer electronics branch. The digital entertainment market is currently considered to be a high growth market, with the electronics industry seeing a growing global market for digital consumer appliances and a comeback in the last two years. Digital music and other digital content is a driver for the global technology markets, both to consumer electronics manufacturers and PC vendors (including chip vendors). In fact, the increase in revenues of the PC and consumer electronics branch resulting from online music sales is potentially much bigger than the current revenues generated by paid music streaming or downloads. Many hardware manufacturers like Dell, Sony, or Apple are generating online music offerings (*i.e.* hardware-Integrated Services) to sell more of their music players. Next to portable audio players a set of complementary product innovations (headsets, portable loudspeakers, etc.) and possibly also converged products (including video players) is on the rise.

Digital music and the rise of portable audio players is also redefining the boundaries between the traditionally somewhat separate PC, software, mobile handset, content and consumer electronics sector which are now competing head-on for the sales of portable audio devices. As the digital music value chain becomes more integrated, interdependency between the individual players or an upstream move of device manufactures is occurring (co-operation between device manufacturers and music service or with software provider).

MP3 player sales driving growth in consumer electronics

An analysis of revenue and sales figures shows that the portable audio player market is experiencing fast growth. Great consumer acceptance, falling prices (in particular for flash memory), rising capacities and more diverse offers with multiple storage capacities through increased competition, the availability of music from unauthorised and authorised sources, low installed bases of flash and hard-drive players and increasingly also legitimate Internet sites and the integration of improved audio support functions into digital devices (including DVD players and gaming devices) are cited as reasons for this trend.¹¹⁸ The increase in importance of systems compatible with various digital rights management systems proves also to be a driver of new hardware sales.

In the year 2003 compressed audio players broke through into the mainstream consumer electronics market, taking the lead from mature markets like the portable CD player.

- According to the Consumer Electronic Association (CEA), MP3 players are driving a larger boom in consumer electronics.¹¹⁹ The portable MP3 player category has in terms of unit sales more than doubled in 2004 to over 6.9 million units and dollar sales nearly tripled in revenue to USD 1.2 billion, compared to figures from 2003. The category is forecasted to continue to grow in 2005 in a declining audio consumer electronic market (falling CD player market, see Table 12). Jupiter Research and the CEA also see upward growth, pointing to an installed base of just 7% for both flash and hard-drive players in the US.¹²⁰ The estimated installed base is lower in Europe (3% in July 2003 according to IDATE, 2003) and thus the potential for fast growth is even greater outside the United States.

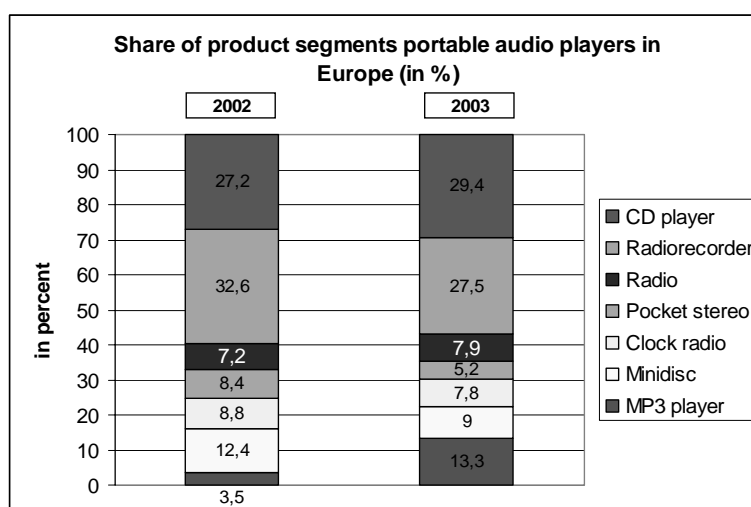
Table 12. Dollar sales of CD and MP3 players, in USD million

	MP3 players (sales to dealers)	CD Players (factory sales)
2000	80	5 002
2001	100	4 802
2002	205	3 626
2003	424	3 150
2004estimate	934	2 704
2005forecast	1 010	2 704

Source: Consumer Electronic Association (2004).

- GFK research (see Figure 18) for Europe confirms the changing composition of portable audio players towards MP3 players that in 2003 made up 13.3% of all portable audio technologies, rising sharply from 2002 (3.5%) and driving growth of the portable audio market which amounted in total to 5.6% (decline in 2002 in absence of MP3 player growth by 4.1%) making this a EUR 2 488 million market with the United Kingdom (24.8%), Germany (20.8), France (16.9), and Italy (8.1%) leading the market.

Figure 18. Share of portable audio players in Europe, as percentage of total audio equipment, 2002/03



Source: GFK European Market for Consumer Electronics 2003.

- According to the Korea Institute of Industrial Economics and Trade (KIET), the domestic MP3 player market has grown more than ten- fold from KRW 40 billion in 1999 to KRW 416.4 billion in 2002.

But hardware manufacturers will not be shielded from competitive pressures which are likely to have an affect on their revenue streams through significant price declines for digital consumer electronics.

Hardware characteristics

The number of players on offer has with the increased players in production steadily been on the increase. Major product characteristics are design, sound quality, battery life and most importantly, storage capacity (measured in Gigabytes – GB – or in the number of downloadable songs). The ability to create playlists and to organise music libraries according to various characteristics also matters. Radio, voice recorders, etc. are extras. In the context of ongoing competition in the marketplace for leading formats (WMA, etc.) and DRM technologies (*e.g.* Janus), the choice of player also often has an influence on where the consumer can buy digital music. The operating system and software installed on a portable device are called firmware. Some players have upgradeable firmware; meaning that their operating systems can be updated to, for example, support future audio codecs. Essentially one can differentiate between hard-drive-, micro hard drive- and flash-based players.¹²¹

As mentioned before certain music players only work with certain music stores and media formats (Windows Media, etc.), a circumstance linked to the vertical integration of the music delivery chain explained in earlier sections. Certain downloaded music files (*i.e.* WMAs) – depending on music service provider – are still incompatible with some portable devices. By providing some examples, Table 13 shows that many players (left column) only work with certain music stores, adding to the “jungle” of formats and players that currently surrounds the online music market. Essentially, this competition for standards opposes Microsoft and Apple. In online music stores, the MP3 format has gradually been replaced by proprietary formats from Microsoft, Apple and Sony. Some players that are particularly geared to the WMA format still often do not play protected WMA files. Manufacturers actually need to secure licence deals with Microsoft to play protected files.

Table 13. Player and music store (codec) compatibility

Player	Music Providers				
	Apple I-Tunes	Napster	Real	Buy Music	Audible MusicMatch
Apple iPod Mini	X		X		X
Samsung Napster YP-910GS		X	X	X	X
iRiver iFP-390T			X		
Rio Karma		X		X	X
Creative Zen Xtra			X	X	X
Rio Cali		X	X	X	X
Dell Digital Jukebox DJ		X	X	X	X

Source: Van Buskirk (2004).

Every generation of new players brings innovations and complementary products¹²² making portable audio players increasingly devices for organising and storing other contents as well or for enjoying one’s digitised music library everywhere making the player the unique music source (even for the living room, etc.).

Most recently, some firms have aimed at Wi-Fi enabled audio players equipped with third-generation cellular technology or with wireless technology (*i.e.* IEEE 802.20), an innovation which is of great interest to cellular carriers. A company called SoniqCast has already released a Wi-Fi-enabled device that can

download music without a computer. Eliminating the PC from the process of having access to digital music and allowing access from the home or office Wi-Fi network or via public Wi-Fi hot spots may significantly increase demand. Although many opportunities exist, these devices can also potentially lead to a new type of computer-free file-sharing which could create further copyright protection problems. Similarly as in the case of mobile devices, however, protection systems against unauthorised file-sharing may be easier to implement on such devices than on the Internet.

Manufacturer base growing and diversifying

With increasing demand, the production of portable audio devices has attracted many players to the market originally dominated by a small number of players.

Increasingly the boundaries between the traditionally somewhat separate PC, software, content and consumer electronics sector are harder to draw. PC manufacturers that previously stayed aloof from the manufacturing of consumer devices are now new competitors.¹²³ This first collision of two very great markets is expected to have significant impacts. To avoid commoditisation, this is leading CE manufacturers to search for more value-added services as well (Parks Associates, 2004). One form of increased services is the rise of more network-capable CE products.

Moreover, as the digital music value chain becomes more integrated interdependency between the individual players or an upstream move of device manufactures is occurring. As PC manufacturers, like Dell, start building portable audio players and software manufacturers like Microsoft start building software, standards and entering into partnerships with device manufacturers, relationships and competitive environments are being redefined. The ongoing competition among formats offered in digital music stores also has repercussions on device manufacturers. The latter are increasingly wondering about the correct balance between striving for interoperability and harmonised standards and supporting proprietary standards only with their devices (Park Associates 2004). Compatibility with most music stores can be a competitive advantage. However, this may make it harder to enter into deals with content, DRM or online music providers. This has resulted in some tensions that have regularly occurred between content providers and the consumer electronics branch. Whereas online music or music format providers are offering proprietary standards, standardisation and interoperability are felt as being important to CE manufacturers. This greater competition and integration has also made it more important to CE manufacturers to tie content to their platforms. In some cases, content is owned by companies that also own device manufacturers. These firms can mutually leverage content and hardware sales.

Manufacturer origin

The manufacturing, branding and sales of portable audio players has seen many business collaborations. This starts on the manufacturing side, with most players relying on many different technology providers. This starts mostly with the production of hard drives for playing devices that usually come from third-party manufacturers, with for example Toshiba manufacturing the iPod hard drives while Hitachi manufactures the drives for the mini iPod. Hitachi, Fujitsu and Toshiba dominate the market for 2½-inch hard disc drives. Demand for flash memory chips and this sort of hard drives used also in mobile phones and DVD recorders is extremely strong and driving significant growth in electronics companies, notably in Japan (integrated electronics makers Hitachi, NEC, Toshiba, Fujitsu and Mitsubishi)¹²⁴, Korea (Sharp, Samsung, etc.) and Chinese Taipei where the surge in demand for electronics is considered the biggest boom since the 1970s. After losing market share in the flash-based player market, the Korean industry is again increasingly active in the latter and hard-drive based portable players.

One also sees collaborations of mobile hardware companies like Motorola - with extensive battery expertise – teaming up with Rio to build hard-drive and flash players. PC manufacturers are also entering

the field with strategic alliances like the one between Hewlett Packard and Apple, which allows the former to sell an HP-branded iPod and which guarantees the pre-installation of iTunes digital music management software on HP's consumer PCs and notebooks and access to the iTunes music store.

But the alliances of hardware manufacturers do not stop on the manufacturing side. Portable audio player firms like Rio have expanded partnerships with download services to expand market share. Marketing initiatives like the bundling of portable audio players with a particular music service subscription are also common. Often players are also integrated with certain music software or compatible with certain DRM technologies.

Currently the digital music player with a hard drive market is said to be dominated by Apple's iPod line which was originally only compatible with Macintosh and only later with Windows models (see Box 4). Other important industry players competing with Apple are depicted in Table 14, with most firms with commercial success being established in Korea and the United States. Often these manufacturers are specialized in computer audio equipment. Creative Technology comes from the declining computer sound card business to move into this new digital entertainment market, with sales for the fourth quarter in 2003 to be up 35% year-over-year to USD 201.8 million and expected sales to continue with a 25 to 30% year-over-year growth.¹²⁵

Table 14. Digital music player manufacturers (in alphabetical order)

Company	Origin
Apple	USA but partnering with Japanese firms like Toshiba
Archos	France
Cowon	Korea
Creative Technology	Singapore
i-River	Korea
Philips	The Netherlands
Rio	USA
Samsung Electronics	Korea

Source: Company annual reports and press releases.

Box 5. Case study on Apple

Apple is credited with being the first company to achieve meaningful sales of digital music downloads online. Apple created an online digital music store (iTunes Music Store) and a music hardware solution (iPod), see Figure 16. On top of this Apple uses a proprietary codec AAC and a proprietary DRM technology which it does not licence to third providers. The iTunes Music Store has been successful, though the store produces little revenue. Apple primarily uses the application to encourage sales of iPod devices. The iPod currently controls over half of the total portable music player market, with the NPD Group reporting a US market share of greater than 90% in the high-capacity, HDD (hard disk drive) category. Apple suggest having a US market share of 58%, and total unit sales of 4 million worldwide. The significant increase in net sales of peripherals and other hardware is claimed to have risen by USD 281 million or 129% during the first quarter of 2004 compared to the same quarter in 2003.¹²⁶ This increase is due primarily to the significant year-over-year increase in iPod net sales of USD 175 million or 216%.¹²⁷ The fourth quarter of 2004 saw the sales of 2 016 000 iPods during the quarter, representing a 500% increase in sales over the previous year.¹²⁸

Other portable music player manufacturers are also hoping to use online digital music stores to power hardware sales. Most of these manufacturers do not have digital music stores on the market. But the recently created Microsoft Windows Media Player 10 now offers a way for these companies to benefit from online music sales, with Microsoft seeking to establish a network of compatible devices.¹²⁹

Outlook of models: Trend towards converged products?

Two trends seem to dominate the next steps with respect to more converged digital media players: *i)* the convergence of digital audio playing devices with mobile phones / PDAs / etc. and *ii)* the evolution of digital audio players into more multi-media appliances.

The convergence of digital audio playing devices with mobile phones

As opposed to predictions that see the need for converged products, digital audio players have established themselves independently from other electronic devices and to replace the original Walkman or portable radios. An essential reason for this creation of independent devices is the need for portability (carry-on functionality while jogging, etc.) which is not provided by devices like the laptop. However, convergence with a single carry-on device, the mobile phone, is deemed technically feasible and acceptable to consumers. Other devices that offer audio codec as a secondary feature are smart handheld devices and handheld gaming consoles. Whether consumers will replace dedicated media players with converged devices such as mobile phones, personal digital assistants (PDAs), or combined camera/media players is an unanswered question. Consumers may only be willing to carry up to 2-3 devices and prefer to keep their mobile phone separate. This also has to do with the limited battery life of portable devices.

Currently, connection speeds, memory, processing power, battery limitations, and screen size make it very difficult for the portable phone to replace digital audio players or other content devices (see OECD, 2004e). Apart from OECD countries like Japan and Korea, mobile phones are not yet major tools for downloading content (apart from small files like ringtones, daily horoscopes). Concerted research and innovation efforts by different industry players (manufacturers, content providers, etc.) is however ongoing to remedy this situation. Improving audio compression technology now allows ever greater music files to be downloaded onto phones as currently a phone cannot hold many songs.

But in the case of digital music, this is bound to change soon. Motorola recently joined forces with Apple to place iTunes in select 2005 phones and so did Nokia with LoudEye and Microsoft with Qualcomm. LoudEye, Microsoft, and AT&T have also recently concluded that they will be delivering a mobile music download service. The AT&T mMode service will allow consumers to browse, discover and download music with their handheld devices. Some handset manufacturers see the mobile phone integrating audio player devices and mobile phones and have already proposed some models (Motorola MPx220, Nokia 3300).¹³⁰ Some manufacturers are planning cell phones with real hard drives (up to 1.5GB). Battery problems are likely to be resolved by fuel cell technologies as early as late 2005. But at current prices, downloading of music to mobile phones remains somewhat out of reach (OECD, 2004f), and is likely to change only if wireless connectivity is as cheap and fast as DSL Internet access. Expanding 3G networks may satisfactorily address this problem.

The evolution of digital audio players into more multi-media appliances

The fast development of digital music players and increased competition in the market is leading to renewed product innovations that aim to make the portable devices multi-media centers. The downturn of 2004 has seen many announcements of converged multi-media players that incorporate video, photo, and music playback capabilities (*e.g.* Creative Technology Zen portable digital-video player).

Surveys however show that consumers may not be as comfortable with mobile video or gaming as with music.¹³¹

MUSIC AND PEER-TO-PEER NETWORKS

Peer-to-peer technologies are defined as a communication structure in which individuals interact directly, without necessarily going through a centralised system or hierarchy. Users can share information, make files available, contribute to shared projects or transfer files (OECD, 2002; Minar and Hedlund, 2001).

File-sharing software is a new and innovative technology. Depending on the type of use of the technology, file-sharing software finds increasingly useful applications in new communication services (voice over the Internet services like Skype, on-demand streaming audio/video or other media push services like Redswosh or other distributed networking infrastructure), to transfer data to branches and share proprietary information in service industries (like the Linux company Lindows which offers software via P2P networks¹³²), to deliver sales presentations and multimedia content, to share information in academia and between different government agencies (OECD, 2004a).¹³³

However, with the advent of the Internet and these file-sharing networks has brought with it the possibilities of unauthorised file-sharing of music and other digital content in large quantities by certain users. Important concerns have been raised by the use of P2P networks for the exchange of copyrighted content without the consent of the relevant rights owners. This phenomenon first affected the music industry, but now increasingly affects other categories of content as well (see Figure 19). Piracy is an important impediment to the creation and strengthening of legitimate services to distribute copyrighted content on line and to sustaining an environment conducive to the creation of original materials. The challenge to business is to find ways to control digital piracy, while developing new revenues from digital distribution. This interest of the music companies seems to be increasingly shared by different players in the value chain, including network operators and ISPs that seek to obtain revenue from the digital distribution of music.

Unauthorised file-sharing also presents a challenge as copyright owners have experienced infringement of their rights through the unlicensed distribution of their works. This challenge must be seen in the context of the OECD Broadband Recommendation which calls for regulatory frameworks that balance the interests of suppliers and users, in areas such as the protection of intellectual property rights and digital rights management, without disadvantaging innovative business models and without eliminating the legitimate uses of underlying technology. It is important that ways are found to harness the technological capacity of innovations so that incentives for the creation and distribution of original works are maintained and enhanced.

The rapid rise of file-sharing

OECD analysis and other work have consistently demonstrated the benefits that information technologies and broadband can bring to consumers, the economy, and society (OECD, 2003, 2004a, 2004g). This entails increased digital delivery in many business sectors (*e.g.* business and health services) and opportunities with wider societal repercussions like e-learning, making available public sector information, etc. Increased investment in broadband networks and uptake of broadband by consumers is associated with all of these legal and constructive uses, and it is important that the growth of broadband continues.

Nonetheless, the Internet and broadband access have also been used by some to conduct unauthorised file-sharing of music and other digital content. In the past, systems for sharing files and information between computers were limited. The picture changed radically before the rise of broadband in 2001, when Napster – the first file-sharing service that facilitated the mass copying and dissemination of music files – had a daily average of 1.57 million simultaneous users and 60 million daily users worldwide. In mid-2001 Napster was closed down following a court decision confirming Napster’s liability for the copyright infringements occurring on its networks.

Subsequently, imitators such as Audiogalaxy, Morpheus, Gnutella, KaZaA and more recently BitTorrent, eDonkey and Warez P2P have become widely used. Most current P2P applications are not 100% P2P, but hybrid versions that make some use of central servers. Unlike Napster, for example, Gnutella does not have a central directory server; users connect directly to other nodes within the immediate vicinity and request a file (for an explanation of centralised vs. decentralised P2P systems see OECD, 2004a and Feder, 2004). P2P sites have rapidly increased in popularity because they are very easy to navigate, have strong search capabilities, and increasingly allow for the (free) downloading of play-lists or whole albums – often without authorisation or payment to the right holder. Often, filesharing technology has been used for illegal dissemination of copyrighted material. The use of P2P networks is often free while the operators of P2P networks often yield income from advertising. Premium versions have also been released which enable file-sharing against a set fee but without included adware. Some P2P networks are thus drawing new users by offering them the ability to download copyrighted material for free. The result is unfair competition to legitimate businesses that have costs in the actual production and distribution of music. The risks of viruses and spyware (and associated privacy concerns through so-called “P2P harvesting”) while using certain P2P networks may be relevant. P2P sites have been criticised for lack of full disclosure of third-party applications bundled with certain P2P software. A trend could also be the rise of encrypted services, aimed at defeating the monitoring of unauthorised file-sharing.

However, on the legitimate side, P2P networks and new services which are currently being used and developed also allow the sharing of music and other files on an authorised basis. This is a particularly efficient, attractive and non-infringing use of P2P technology. While advertising revenues are also likely to contribute, authorised business models may include services that offer encrypted songs against micro-payment. In online music business models that are now developing, advertising revenues could – similarly as in the case of some P2P networks – also be way of supporting authorised file-sharing sites or commercial online music ventures.

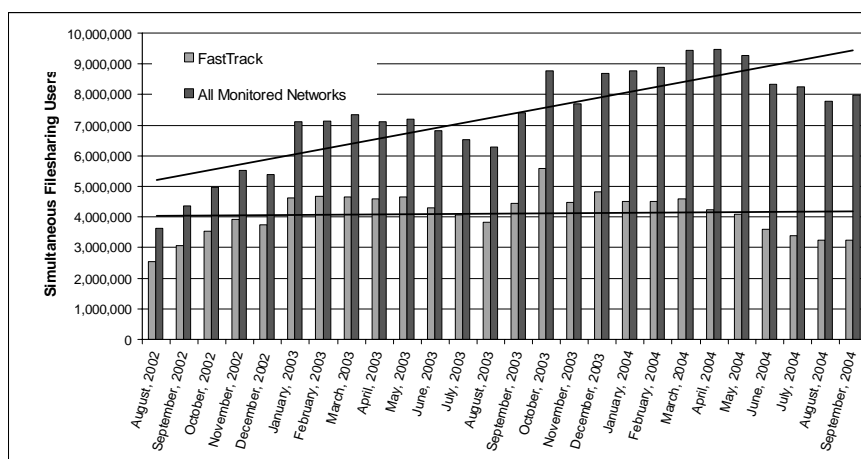
Currently, figures on the total number of distinct users of file-sharing sites are technically impossible to provide.¹³⁴ There is no reliable count of the number of clients downloaded and there is no real “registration” of these software tools. Also, the same user will download the file-sharing client many times, as new versions are released, so it is easy to double-count, or triple-count, etc.

Nevertheless, various national estimates show that around one third of Internet users in OECD countries have downloaded files from P2P networks. A survey by Pew (2003) conducted between March and May of 2003 found that 29% of Internet users have downloaded music files to their computer. This figure is broadly consistent with national statistics of OECD countries that are the best proxies for P2P downloading. A study for France has shown that 30% of Internet users (from age 12) have downloaded music or other files over P2P networks (CREDOC, 2003). Other OECD countries report figures on music downloading rather than on the use of P2P networks. Nevertheless, due to the absence of commercial services in those years, they can be taken as a good approximation of P2P activity. In Finland, for example, the number of Internet users aged 10-30 who have downloaded an MP3 file to their PC¹³⁵ rose from 33% in 1999 to 46% in 2002 (Statistics Finland, 2003). In Canada, 24.3% of all households (up from 7.8% in 1999) obtain and save music over the Internet (Statistics Canada, 2003). In Japan, in 2002, 17.9% of broadband users (6.2% of narrowband users) downloaded music (MPHPT, 2003). Files most commonly

shared by P2P users are MP3 files, music files encoded using MP3 technology and .kpl files (KaZaA play list files).¹³⁶

Some IFPI estimates exist on the number of files available at any one time, depicting a level of around 500 million in June 2002 and 800 million in June 2004 (down from roughly 1 100 million in April 2003). Figures on the number of simultaneous users (*i.e.* users who are jointly connected at any given moment rather than total users who are far more numerous) are also available through BigChampagne. As Figure 19 shows, global P2P use of the popular fast-track networks (*e.g.* KaZaA) increased by roughly 2.3 million simultaneous users on FastTrack file-sharing networks from August 2002 to April 2004. A peak of more than 5.4 million simultaneous users was reached in October 2003 but the number has since dropped back to around 3.2 million. With the exception of the Fasttrack networks, all of the other popular P2P networks measured are on the rise when considering seasonal effects and doing a month-by-month comparison. This data does not perfectly account for Korean and Japanese users who often use other file-sharing programmes. In Japan, for example, other file-sharing programmes like Winny a programme which allows users to trade files without revealing their Internet Protocol address has an estimated user group of 250 000. In Korea, Soribada (more than 6 million users of a population of 48 million since 2000) is – next to KaZaA and other international file-sharing services like Donkeyhote and Pruna – a very popular programme.

Figure 19. Growth in global FastTrack and other P2P networks, simultaneous audience, August 2002-September 2004



* The black lines are the trend line for “all monitored networks (FastTrack plus other networks)” and for FastTrack networks alone.

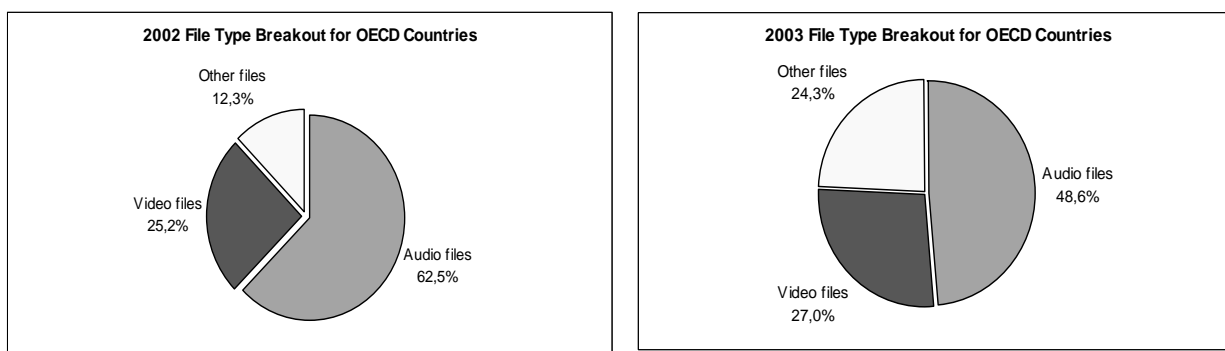
Source: OECD, based on BigChampagne data.

It has been shown elsewhere that the United States makes up more than 50% of all simultaneous file-sharing users, with Germany at around 10%, Canada and France at 8%. Weighted by population, however, Canada has the greatest file-sharing population closely followed by the United States and then France and Germany. Canada and European countries were also experiencing further catch-up to the United States in 2003 (Annex 3, Tables 4 and 5 show the ranking and change in the P2P user base). The evolution of country-specific shares in P2P use from 2002 to 2003 (not weighted by population) indicates that French, German, Japanese and Italian shares have grown fastest, while those of the United States, Belgium and the United Kingdom are decreasing. The strong growth rates in European countries, for instance, may be explained by the fact that P2P has become popular later than in countries like the United States and that the US content industries were first to initiate actions against file-sharing sites and users.

Nature of files traded

Some interesting points can be made concerning the type of files shared. Napster only allowed users to share music files. Today, however, video and other files (*i.e.* software) make up more than 35% of total files offered over file-sharing networks. Indeed, the share of video and software files traded increased significantly between 2002 and 2003, while the share of audio files decreased from 62.5% to 48.6% (Figure 20). This trend of an increasing share of video files being traded is confirmed by data for the first two quarters of 2004 (with 27.4% being video files traded).

Figure 20. Breakdown of file-sharing for OECD countries, 2002 and 2003



Note: Other files include software, documents, images and other files not included in the video and audio categories. The numbers indicate the files uploaded on P2P networks. Owing to the close correlation of uploaded and downloaded files, the figures are representative for downloaded files.

Source: OECD based on BigChampagne data.

The proportion of copying and dissemination of video and software files on P2P networks is highest in Germany, Italy and New Zealand and lowest in Japan, Portugal and the Czech Republic (OECD, 2004a). Other studies indicate that video content is more popular in Europe than in other OECD countries. This is partly due to the fact that the P2P technology most used in Europe (eDonkey) is particularly useful for sharing large files (600 MB or more), whereas most US users rely on FastTrack, which works better for sharing smaller files (3-7 MB) (Sandvine, 2003).

Music sales and file-sharing

It is very difficult to establish a basis to prove a causal relationship between the size of the drop in music sales (*i.e.* the size of the downloading-induced sales displacement) and the rise of file sharing (see *Conseil d'Analyse Economique*, 2004).

This has to do with the multitude of factors that potentially influence music industry sales which make it hard to isolate the effect of unauthorised file-sharing alone. Many factors influence demand and supply factors determining music industry sales (Vogel 2004). The music industry itself has stressed that the impact of file-sharing is not directly quantifiable and has pointed to other additional factors impacting on music sales, like industry performance (repertoire, marketing, promotion and distribution), commercial piracy, competition from other sectors and economy and consumer spending on entertainment. Similar or other factors raised are: increased physical CD piracy, product pricing, growing competition from other forms of entertainment such as video games and DVDs, and a reduction in music variety stemming from the large consolidation in radio.¹³⁷ In the case of France, it has been argued recently that the increased role of large retailers in the sales of music has (through the focus on a very limited range of hit products now also available over peer-to-peer networks and from paid online music services¹³⁸) contributed to a decline of music sales. In any case, music downloading of file-sharers does not lead all of them to substitute away

from purchases in a one-to-one fashion. Consequently, it is challenging to establish the “cost of illegal file-sharing”.

This difficulty is reflected in the results of and the significant methodological criticisms directed towards related studies (small response rates or poor design of surveys, model specification of empirical work, etc.). There are some studies demonstrating the negative impact of unauthorised file-sharing on music sales while there are others demonstrating the opposite or a neutral result.¹³⁹ Some argue that users substitute downloads for legal purchases, thus reducing sales while others state that file-sharing allows users to browse unknown music before purchase. Most studies confirm that – depending on users – both trends usually operate at the same time, (unauthorised file-sharing increasing purchases through some users and decreasing them for others).

If Internet-based piracy is effectively addressed, licenced file-sharing and new forms of (super) distribution could offer new sources of revenue with sharing a part of new music lifestyles (*Conseil d'Analyse Economique*, 2004).

Consumer surveys

A number of consumer surveys that pose questions about music buying and downloading behaviour have yielded mixed results, although – in some cases – converging to the hypothesis of a definite but limited negative impact of filesharing on music sales in 2003 and 2004.

Some earlier research by consultancies found that unauthorised downloading was not hurting record sales. Forrester Research have claimed that it was the economy and not downloading which reduced sales, stating that frequent downloaders were also frequent buyers of CDs (Forrester 2002). Jupiter media research or panel studies by Ipsos-Reid's TEMPO also published research based on 2001 surveys that consumers who share files increased their spending on music (see also Forrester Research 2002 and Jupiter Media Metrix, 2002 who also find neutral or positive effects).

Some of these consultancies have now often reversed their predictions. Often their surveys show that those engaging in unauthorised downloading spend less on music (for example, Gfk for IFPI Germany, showing that spending on music by German consumers who downloaded or burned music fell by 14%). Other factors contributing to fewer purchases were less money or lack of time. According to other surveys conducted in the United States, among a total of 2 225 music consumers between the ages of 12 and 54, 23% of those surveyed said that they did not buy more music in 2001 because they downloaded or copied most of their music for free.¹⁴⁰ More recent figures from 2004 for Europe show that more than one in three (36%) music downloaders say they buy fewer CDs because they can download music for free (Forrester, 2004a). For Canada, it has been found that 28% of consumers who spent less on music in the previous 12 months said downloading, file-sharing and burning were the main reasons for reduced buying. 52% of music consumers surveyed who did not download had purchased music in the past month, against only 35% of active file sharers.¹⁴¹ A survey for Australia also showed that among file sharers 30% bought less music as a direct consequence of downloading whereas 18% claimed to buy more (-12% net momentum).¹⁴² IFPI also points out that the age group where the largest sales declines have occurred is the same as the demographic doing the most music downloading. Still, these same studies sometimes conclude that, for example, 10% of surveyed persons are buying more after file-sharing and in 60% of all cases downloading music helps consumers to decide if they want to buy the physical CD (Forrester, 2004b, seeing the use of downloads as physical purchase decision-maker).

Empirical studies

A number of empirical studies by academics that test for causal effects between file-sharing and music sales also exist. They are also plagued by the problem that it is difficult to obtain suitable data on purchase and download volumes for the same individuals (rather than relying on survey questions).

Some of these studies support the view that file-sharing reduces music industry sales. Zentner (2004) finds that among groups of peer-to-peer users, file-sharing reduces the probability of buying music by an average of 30%. Separating music downloaders with and without broadband Internet connections reveals a high reduction of purchases for downloaders with broadband connections. It has been estimated that file-sharing reduced album sales between 2000 and 2003 by as much as 30% (Liebowitz, 2004¹⁴³).

Some empirical studies provide mixed results. Rob and Waldvogel (2004), for example, find that one-to-one substitution of unauthorised downloads for purchased songs is not likely, even among consumer cohorts most likely to download (sample consists of Penn University undergraduates). They conclude that downloading reduced recent purchases by undergraduate students in the sample by about 10% during 2003 while noting that this is a conservative estimate but that per capita consumer welfare may actually rise through unauthorised downloading.

Other empirical studies came to different conclusions supporting theoretical papers that make the point that file-sharing need not reduce seller revenue (see Bakos, Brynjolffson, and Lichtman, 1999; and Varian, 2000). Oberholzer and Strumpf (2004a,b) found – through comparing spikes in downloading to sales – that downloads have an effect on sales which is statistically indistinguishable from zero. The estimates are inconsistent with claims that file-sharing can explain the decline in music sales during the study period. According to the authors, heavy P2P users are likely to be individuals who would not have bought the album even in the absence of file-sharing.

Most studies remain contested for their methodology and conclusions. For instance, the more dynamic effects on the supply of music – which may be affected through file-sharing – are not analysed by these studies.

Actions of the music industry against file-sharing

Legal actions are described in more detail in the Annex 2. Essentially three types of legal actions have been engaged by the music industry: *i*) against file-sharing platforms, *ii*) against Internet service providers (to reveal users' identities or to pay damages for the infringement or block illegal sites), *iii*) against individual P2P users.

Commercial uses of file-sharing in the music industry¹⁴⁴

It has been mentioned earlier that the P2P technology when used in an authorised manner offers many welcome opportunities to businesses, governments and consumers (OECD, 2004a). File-sharing features where users are actually authorised to share files are starting to be recognised as attractive feature in legitimate music content offerings. These services involve distinct value chains, possibly producing cost savings and changing industry roles. These services leverage consumers as distributors of licensed content. In so doing, they can reduce hosting and distribution costs and build on the promotional capacity of sharing. Possibilities to listen to different songs before purchase can potentially lead to more sales and could potentially benefit the production and sale of a broader range of music. These services vary in the degree to which they allow sharing and provide centralized functions and services.

For some time, Weedshare and Altnet have licensed content from numerous independents¹⁴⁵ but have had difficulties licensing from the majors.¹⁴⁶ Weedshare merely provides the DRM and billing capacities to enable consumer-to-consumer distribution ('superdistribution').¹⁴⁷ Weedshare does not provide the sharing environment or host files. Rights holders can use Weedshare to distribute their content through any means, whether in a Web site¹⁴⁸ or simply by placing files in a P2P shared folder. Likewise, consumers can redistribute licensed content through any distribution mechanism and receive a cut of the revenues from downstream sales. By doing so, Weedshare encourages its users to share and create community-building features. Similarly, Altnet provides a superdistribution service in which sharers receive prizes for distribution, though files can only be distributed through the FastTrack P2P network.¹⁴⁹ In its original incarnation, a service called Wippit placed consumers in a centralised environment to maintain its own "closed" P2P network in which only licensed content could be shared.¹⁵⁰ Either rights holders or Wippit had to seed this content in the network initially. Purchased content could only be shared within the Wippit network. Later, Wippit shifted away from a P2P model¹⁵¹ and started to offer a legal file-sharing platform in Europe on which users can – for a fee of EUR 6.50 per month – download songs that often come from smaller labels that licensed the music.

In an effort to make their services more attractive and to compete in the crowded online music store environment, some music services have also started to incorporate some limited file-sharing features ("walled gardens", "shared playlists", or "P2P Web-radio services"¹⁵²).¹⁵³ The record industry in the United States seems further down the road in identifying an intrinsic need to co-operate with P2P networks under certain circumstances. Licensed forms of file-sharing are now a key interest of some players.

Co-operation between P2P networks and the record industry is, however, not equivalent to P2P networks because they essentially allow for the sharing between paying subscribers or – unlike the legitimate P2P networks mentioned above - for limited hearing of songs paid by third persons ("copy-protected P2P engines"). Often these features are also more a form of sampling (rather than sharing) which do not build on actual file-sharing technologies. Mercora¹⁵⁴, Musicmatch and iMesh (a former unlicensed P2P service) offer subscribers the ability to stream (no downloading or burning) songs that have been purchased by other customers of the particular music service. These are the first formal co-operations between record labels and established P2P network providers (*e.g.* Universal Music and Sony BMG working with SnoCap). SnoCap is said to have approached the music industry for some time, to commercialise their P2P user base with attractive commercial offers. Other services incorporate more moderate file-sharing features, like sharing favourite playlists with peers who can be used to see and listen to samples of the songs. Similar trends can be seen in the mobile arena. NewBay Software produces Foneshare which uses P2P technology to allow users to trade files between devices. Foneshare users will be able to post files to share over the Internet allowing mobile carriers to bundle such services into monthly bills, although this does not resolve how right holders would be paid. Mobile carriers are technologically in a better position to avoid unauthorised content availability, reassuring right holders. This remains to be demonstrated in practise as in countries like Korea a large percentage of piracy seems to come from mobile phones but solutions are actively sought with agreements incorporating DRM platforms phones (see OECD, 2004f on mobile content).

Authorised peer-to-peer networks have also been recognised as a new discovery and marketing tool by some record companies. Larger companies find interest in monitoring the top P2P downloads to identify new music trends using services such as BigChampagne as windows to consumer demand. Reports from smaller record labels confirm that they use peer-to-peer networks to popularise music. They put songs from new artists on P2P networks for free sampling and find that people then often buy the album later. Other joint efforts by some record labels and artists to use P2P networks as marketing tool include sites like Vitaminic (www.vitaminic.co.uk), where bands propose their music for free online to gain publicity. According to the RIAA, this kind of "promotion" may be most useful for artists who do not financially rely upon the sale of recorded music.

ONLINE MUSIC, ARTISTS, AND CONSUMERS

A field which deserves further study is the impact of new technologies and online business models on music artists, the diversity of available content and the impact on users (including artist-user relationships and users as content creators). The next sections outline some tentative observations that address this field of interest at a very early stage of online music developments. Clearly more time and studies of governments and third parties are needed to fully understand the medium- to long-term implications on music, the artists and users.

The Internet, artists and the diversity of content

Little is still known about the impact of the Internet, online music services and file-sharing on artists and the artistic production of music.

Available surveys which include musicians at different levels of professional involvement and may thus not be representative or projectable to the entire population of musicians and songwriters demonstrate that musicians “embraced the Internet as creative and inspiration-enhancing workspace where they can communicate, collaborate and promote their work” (Pew, 2004¹⁵⁵). In these surveys, artists suggest that the Internet has enabled a much more direct relationship with fans. While the impact of P2P piracy of music can have an impact on performers that parallels its impact on record labels these surveys suggest that artists are divided about the impact of unauthorised file-sharing on the music business (see Table 15).

Table 15. Pew Internet surveys: Artists’ opinions on the impact of file-sharing on music sales

	Agree
File-sharing services are <i>not bad</i> for artists because they help promote and distribute an artist's work	35%
File-sharing services are <i>bad</i> for artists because they allow people to copy an artist's work without permission or payment	23%

Source: PEW (2004). It must be noted that these studies that consider the artists’ attitudes aggregate do not distinguish between musicians who earn a significant part of their income from the sale of recorded music, and other individuals.

Bearing in mind the composition of the survey participants discussed above, more of these artists say free music downloading online has helped them rather than hurt them (PEW 2004). When asked what impact free downloading on the Internet has had on them as musicians, 37% say free downloading has not really made a difference, 35% say it has helped and 8% say it has both helped and hurt. Artists become successful through exposure and P2P networks may constitute such exposure for unknown artists who do not have recourse to the traditional promotional value chain. When these artists begin to rely on the sale of recorded music, their attitude towards unauthorised file-sharing may be different. Only 5% say free downloading has exclusively hurt their career (*i.e.* potentially the small share of artists that derives large revenues from music sales but whose titles are most traded on P2P networks). Artists become successful through exposure and P2P networks may constitute such exposure for unknown artists who do not have recourse to the traditional promotional value chain. Only 28% of all artists consider file-sharing to be a major threat to creative industries and 30% of paid artists say this. 83% of those in the survey say they provide free samples or previews of their music online. 45% of paid online artists report using the Internet to promote their art (providing free samples of art and scheduling of performances / promotional events

over the Internet is also popular). Still, 64% of all artists and 67% of paid artists think that the copyright owner should have complete control over the use of a work.

Lower barrier to entry for artistic creation and lower costs of finding new talent

At the height of the Internet boom in the late 90s, new digital distribution channels seemed to have limitless possibilities. The role of the record label came into question, as consumers would now be able to discover and purchase music directly from the source. The Internet would theoretically reduce the role of a host of intermediaries between the artist and the consumer, including not just record labels but also retailers, radio stations, and outlets like MTV.

Five years later, the reality of the situation is different. Record labels continue to play a major role in consumer discovery of music. The fate of undiscovered artists and their commercial success (whether online or offline) is still very much in the hands of the record labels. There exist thousands of new groups, with a selection so wide and deep it is impossible for most consumers to find the right music. As stated before, direct sales from artists to the consumer or career-building of an artist purely through the online medium thus remain rare. So far, only musicians like Prince and David Bowie are known to have established significant direct-to-consumer online stores. Interestingly, these are rarely young and un-established artists but ones that have already reached a star-status through the traditional promotional activity of the record labels and often have rights to act outside of previously established record industry contracts.

In that light, experiments like mp3.com were not very successful. The site, which gained fame in the late 90s, allowed an unlimited number of artists to upload songs and related materials. But very few artists developed substantial careers based on this approach, as consumers continued to take cues from radio and outlets like MTV. Even on peer-to-peer networks, an incredibly high percentage of artists traded were already well-established offline. In cases where artists have gained traction through online promotion via P2P networks, currently still a rather rare phenomenon, they are usually signed by record labels.

This does not mean that the Internet does not directly affect artists and music sales. The Internet already provides new forms of advertising and possibilities that lower barriers to entry for artistic creation that are bound to increase fast.

To start with, it is argued that disintermediation of steps in the physical value chain can benefit creators by bringing more independence and by creating new possibilities for distribution of their music (Landegren and Piu, 2003). Some independent artists are already achieving visibility and sometimes commercial viability from Internet marketing and distribution (including promotion over P2P networks), a development suggesting that digital technologies may enable many artists to pursue a business model in which they are not reliant on record labels to finance the production, to carry the financial risk, and to reach consumers and achieve sustainable sales. New artists are able to introduce their music into the market of traded files without facing the high costs and difficult entry associated with physical distribution in the traditional music industry structure. At the same time, evolving digital rights management (DRM) tools are providing individual rights holders with the means to manage some of their rights themselves, with the potential for greater artistic independence and control. The Internet provides musicians, for example, with direct marketing opportunities to reach fans around the world through low-cost distribution technologies.¹⁵⁶ As the study notes, the major labels have in fact taken advantage of this low barrier to entry by signing some of these artists once they have demonstrated a sufficient fan base and bypassing the higher risks of signing new talent without such a testing ground. Independent labels may also have some advantage over large record labels as they can move more quickly in reaction to quick technological change.

The changing cost structure can also reshape the artist-label relationship. For instance, Universal has recently launched an online-only label focused on artists with small, established audiences. Artists receive higher royalties than in traditional contracts but must pay for production themselves.¹⁵⁷ The artists of online music label Magnatune are also responsible for production costs but split sales 50-50 with the label and sign non-exclusive distribution agreements. Along with selling songs and merchandise through its Web site, Magnatune facilitates placing artists in stores like iTunes. The average musician received USD 1 500 per year and the most popular received USD 6 000.¹⁵⁸ For the niche artists and genres on which Magnatune focuses, those relatively small sums may still be significant. Other online labels – who contract artists to sell online only – have sprung up (*e.g.* Vital, Pias, digital) but remain in the minority (Spellman, 2002). INgrooves, for instance, has illustrated the possibilities of digital distribution while somewhat levelling the playing field between the majors and independent music. Then, some artists can rely mainly on ancillary products and services, like tours and merchandise, to cover their own costs and the then lower costs of music production and distribution. The Internet and digital technologies may decrease costs such that more artists can achieve sustainable returns without mass popularity and outside the traditional industry structure. Prolific artists with lots of extra material may be able to use online sales channels as an alternative or complementary source of revenue.

A related point is that the music discovery process and related digital advertising are also changing.¹⁵⁹

Previously, the record industry backed a limited number of artists, promoted these releases heavily, and tried to create a large enough proportion of mass-market hits to cover the costs of other releases. Digital delivery may change these market conditions. The start-up costs for each release may be lower. Indeed as successfully demonstrated by Amazon large back catalogues are drivers for large revenues. Online sites can cheaply host a practically infinite number of works. And as the iTunes Music Store and Rhapsody report that almost all of their content has – from the albeit reduced number of songs on catalogue – been purchased or streamed at least once, there seems to be a broader demand (*i.e.* counteracting the trend of selling a handful of albums in large retail stores).¹⁶⁰

The Internet also provides opportunities to reduce search costs and market in a less costly, more targeted way (*i.e.* cheaper to segment demand and reach all segments). While online distribution and advertisement could replace large A&R and independent promoter costs, the costs of finding new talent and screening such talent for market viability could maybe be lowered (screening can take place by measuring Number of Downloads, analysing rankings on sites like Garage Band, etc.). In fact, even unauthorised peer-to-peer networks have also been recognised as new trend discovery and marketing tools by record companies. Larger companies find interest in monitoring the top P2P downloads to identify new music trends and artists. Reports from smaller record labels confirm that they actually use peer-to-peer networks to popularise music. The increased availability of data on consumer preferences created by online distribution (including P2P networks) may be remarkable.

Also, digital delivery offers much greater opportunities for demonstration of a much wider variety of products (through, *e.g.* opportunities for consumers to listen on a trial basis), at lower cost, and in a way that matches the product to the consumer in a much more targeted manner. Nevertheless, it must be noted that online advertisement and reputation-building of individual artists are an expensive and difficult business.

Business models for the digital environment should provide sufficient protection, while making content available under certain conditions. Since as noted above consumers tend to buy music with which they are familiar, making music available on a trial basis may increase revenues from on line sales overall. Some venture online music distribution services and underlying artists are also financed through generating third-party advertising revenue.

While the Internet certainly offers very interesting opportunities, there may also be downsides of online music distribution for artists and the supply of diverse music. Advertisement-based and other new online business model trends (*e.g.* new ways of discovery, new ways of advertising artists, etc.) and their medium- to long-term impact on artists and the supply of music need further consideration.

Digital music, users and consumption habits¹⁶¹

The change precipitated by digital technologies and an evolution of consumer consumption habits will continue to be persistent and have profound implications for the future of media.

Consumers as users of music content

To begin with, through digital music the user is experiencing another way of consuming content, one that may be more in line with desired music consumption habits. In addition to the music itself, users have shown a keen interest in value added services (*i.e.* chat, tour schedules, lyrics) and context around the very content they are downloading (such as news about bands, chart data, etc.). To be successful, online distribution models will likely need to provide a rich and compelling environment around their content to engage, inform, and retain their customers. Digital music downloads and associated hardware (phone or mobile music player) are fitting answers to the increased need for ease of access and portability that users value, with, for example, new experiments in portable subscription technologies giving consumers access to large song collections without carrying numerous CDs.

In the case of many users, traditional album formats have been abandoned in favour of custom burnt CDs or personalized playlists of digital singles, enriched by online chat groups, streamed events, and community features. That means greater choice and flexibility, with consumers able to enjoy music on their terms (*i.e.* no need to pay full albums when only a few songs are desired). Seemingly, various forms of P2P services and online music stores are able to sustain a greater breadth of music types, thus potentially better satisfying consumer demand and niche markets. Moreover, control on the way consumers find and buy music is slowly gravitating away from traditional to new patterns, maybe leading to more music genres and a lesser focus on a few music stars. However, there may be a “cultural cost of unbundling”, and the consequent loss of meaningful societal access to an artist’s less “commercial” offerings, which remain largely unmentioned in most accounts. It also needs to be retained that consumers have yet to embrace paid music outlets *en masse*.

New content created by network users

The impact of the online medium on network users (*i.e.* interactivity and participation) and cultural diversity through availability of online technologies opens up possibilities for new content created by network users.¹⁶² This is a growing but understudied potential which is only starting and which – independently from music – applies to the Internet in general. Apart from having ubiquitous access to music, users may become important participants in the whole chain of content creation, marketing and distribution. In the context of file-sharing networks that allow the sharing of own or authorised files, users (*e.g.* amateur artists) can create their own music and share it with others. This kind of exchange is unique to the distributed nature of file-sharing environments as distinct from other online music distribution or traditional business model. So far, the take-up of this has been limited and opinions vary as to the scale of its long-term impact.

CHALLENGES AND POLICY CONSIDERATIONS

Considerable experimentation by the marketplace and new collaborative ventures are needed to deliver music online. Thus the Internet creates scope for process and product innovations. The most important in this respect is to find a good equilibrium of available legitimate and innovative uses of new technologies for online music and the necessary protection of associated intellectual property rights while reducing online piracy. Next to experimentation with new business models and new alliances, the majority of challenges identified relate to the curbing of online music piracy, available broadband infrastructure, the availability of technological solutions for the distribution of digital works (including watermarking, DRM, micro-payment systems, electronic signatures), the creation of an environment where different players can access music content and distribution networks, finding solutions to address difficulties in clearing rights for music content, the removal of obstacles that result from lack of interoperability of content, devices and DRM systems (and the resulting confusion about usage rights), and the establishment of a legal environment that accommodates new technological solutions and digital distribution. Moreover, new business models and forms of use are hard to predict. Consequently, legal and other frameworks should strive not to pre-empt innovations.

Many of the solutions will evolve in the market place. Convincing content service and technologies need to be and are offered to attract users from offline to online content and from unauthorised file-sharing networks to licensed services. In fact, as this report has shown there is some evidence for the fact that this market is now developing rapidly. Importantly, players should be wondering about moving beyond simply delivering offline content in the online medium, wondering what value-added service (additionality) can be offered through the online medium and taking new innovative user needs into consideration (*i.e.* sharing of playlists, new forms of organising/accessing content). New forms of interactivity between creators, content and users is a key element for new content offerings. Whereas the marketplace has the responsibility of creating suitable business models, it is the government task to ensure an environment for innovation and non-discriminatory framework conditions where small players can compete.¹⁶³

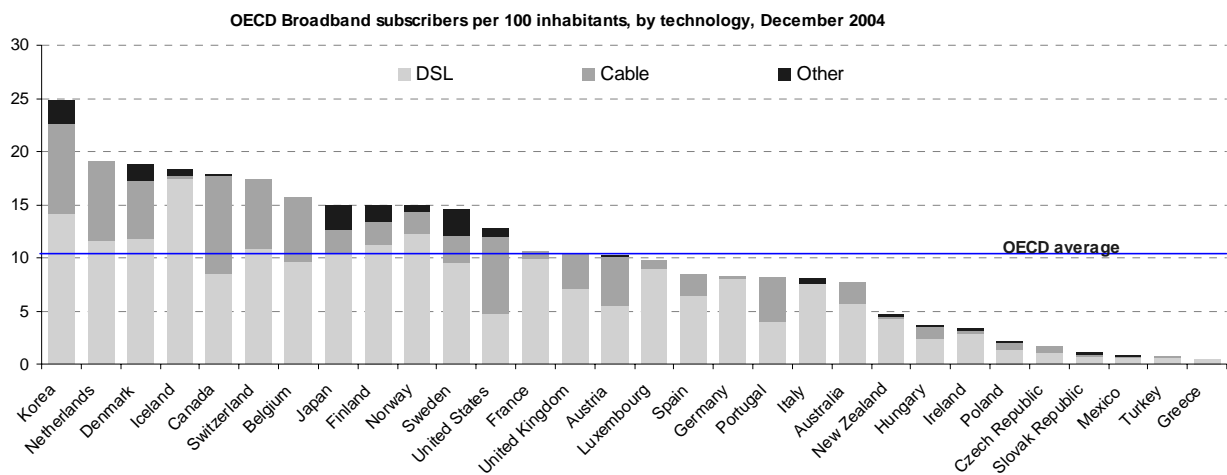
The next sections set out some of the main issues identified in this study or through a review of ongoing policy activities in OECD countries.¹⁶⁴ The set of obstacles and possible policy issues is illustrative and certain aspects merit further consideration.

Infrastructure, innovation and technology

Broadband access and policies

A key requisite for the frequent and efficient downloading and streaming of music is a competitive and wide spread access to broadband infrastructure. Along the lines of the OECD Broadband Recommendation, the virtuous circle of development of infrastructure is leading to increased supply of content and services, leading to improved skills, leading in turn to improved infrastructures. Growth of broadband networks is continuing to be a key policy priority.

However, broadband access in OECD countries still varies widely (see Figure 21). Korea, Canada, Iceland and Denmark lead OECD country broadband access per inhabitants. But Poland, Germany, France and other countries perform less well in terms of subscriber numbers per 100 inhabitants.

Figure 21. Broadband access in OECD countries per 100 inhabitants, December 2004

Source: OECD ICT database.

In addition, these country-specific broadband access indicators mask regional differences within OECD countries that apply both to subscriber numbers and the high speeds necessary to access content-rich services. High broadband penetration and speeds are sometimes confined to large metropolitan areas.

Accelerating the dissemination of high-speed access and managing the balanced development of digital infrastructure throughout OECD countries are key policy priorities. Providing a competitive environment (*e.g.* local loop unbundling, promoting inter-modal competition) has proven to be beneficial to broadband roll-out. Often the incumbent telecom operators still have significant market power which in many cases can slow broadband deployment. Amongst others, the OECD Council Broadband Recommendation sets out a few policy priorities, which are summarised in Box 1.

Mobile connectivity also merits improvement. Whereas most OECD countries now have a significant penetration of mobile handsets (the hardware), frequent use of data-rich content services is still very much limited to Asian countries like Korea and Japan. This has mostly to do with unattractive cost structures and unavailable mobile content services. However, distribution of music over mobile is beginning to develop as 3G rollout moves forward (OECD, 2004e).

R&D and new technologies

The delivery of online content necessitates new technologies and an environment that facilitates the creation, acquisition, management and delivery of content. The technologies needed pertain to the field of hardware, Internet services, codecs and software like DRM and need to be adapted for fixed and mobile offerings (mobile and wireless systems). Platforms for the distribution of audiovisual content and technological and business solutions that bring concepts like the “new digital living room” or “ubiquitous networks” alive, are in demand. These scenarios are likely to involve open and interoperable platforms and – in the end - convergence of multiple technological solutions and different forms of content. Next to compelling offers, security and privacy are essential to build consumer trust.

While market players are responsible for creating innovative solutions (such as the leading labels and technology companies forming the Secure Digital Music Initiative, SDMI in 1998, which was dissolved in 2001), governments need to provide an environment conducive to R&D and innovation. As part of its research and development programme (e-content work programme) the European Union is, for example,

fostering the study of technological solutions that allow cross-platform access of content.¹⁶⁵ In a next step, these programmes are concerned with fostering research in imaging technologies and audio-visual representation, multi-dimensional environments as well as virtual reality technologies. Device adaptivity and contextualisation, personalisation and (emotive) feedback, and the ability to capture real-time, multimodal and multi-sensorial input are also research objectives. The promotion of R&D and the dissemination of results, including the development of environments for storing content data and disseminating them, is also part of Japan's "Promotion policy for content business" as devised by the Office for Intellectual Property Strategy.¹⁶⁶ The Korean digital content promotion policy also includes R&D specific aspects that foster 3D graphic production capabilities, mobile content, infrastructure services (wire/mobile high speed network infrastructure), digital animation (3D content production) and standardisation. The support of leading advanced tech-based content and the fostering of technical protection measures (DRM, encryption, watermarking, etc.) are also essential. As product and process innovations are shown to involve business reorganisation and new strategic partnerships, the regulatory environment needs to be conducive to these changes. Moreover, research into the societal and economic impacts of new content offerings and the role of governments may be warranted.¹⁶⁷

Policy should facilitate the fostering of robust technological development and the beneficial use of digital technologies. In this context, the interactions between technological development and the effective protection of intellectual property are of continued policy interest.

Standards and technical interoperability

A diversity of interoperable content, standards and hardware are likely to prove most beneficial to competition and efficient online content markets.

However, the digital delivery of online music involves the rise of an increasing amount of proprietary formats (including DRM), networks, services, and consumer devices. On the one hand, some of these standards act as key facilitators for online music distribution while reducing piracy. But, on the other hand, they also provoke concerns about compatibility, transparency and unintended or exaggerated usage restrictions. Too many incompatible audio codecs, DRM formats and hardware devices could depress the growth of online music.¹⁶⁸ For maximum growth to occur, it is important that technological protection measures like copy controls, access control, electronic envelopes, encryption, watermarking, metering and monitoring of usage, and remuneration systems be developed and broadly adopted by all players in the value chain associated with online music delivery, and that they are utilised or implemented in an interoperable fashion as the various market sectors will permit.¹⁶⁹

As the European Commission recently noted, "Standards have a fundamental role to play in establishing DRM in the marketplace. This is because standards allow different entities to create technically compatible equipment and services." Numerous industry initiatives to promote interoperability and standardisation involving all players of the digital musical distribution chain are ongoing. It is not clear whether they will or should produce one uniform standard for technological protection measures.¹⁷⁰ A promising first step is the recent completion of MPEG 21 on the MPEG 21 Rights Data Dictionary and Rights Expression Language, which provide a common "language" which will help systems to "speak" to each other. DVB, the Digital Video Broadcasting group, is also working to define the boundaries of a space for content consumption, which should help to further interoperability of commercial DRM systems. Incompatible technologies may be deemed to the detriment of growth of digital broadband content. Efforts to create digital content standards (including DRM) and enhanced co-operation with International Standards Organizations are part of the new Korean growth strategy (OECD, 2004b). Further policy issues in the standards area are addressed in a WIPO study on Current Developments in the Field of Digital Rights Management.¹⁷¹

Finally, while there are benefits to the adoption of standards, there are also potential costs, such as inhibiting later innovation and limiting possibilities for product differentiation. There are reasons why markets do not always adopt standards. And governments usually do not have the experience and technological or other foresight to pre-select standards in fast-moving areas. Often initial experimentation by the market place is needed to develop the best approaches. However, governments can provide frameworks for co-operation, can engage business, experts and standard organisations to work together to develop better standards. With vertical integration, lock-in of consumers in certain standards, and difficult access to certain content, attention should be paid to maintain an environment where small and innovative players can compete. This may be an important guiding principle in related downstream areas of digital music distribution (*i.e.* music software, DRM technology, hardware, etc.).

(Micro)-Payment issues

Effective and secure payment systems are needed for the development of the digital content market (see also OECD, 2004e). This report has shed light on the difficulties of online music providers to charge for small transactions (individual tracks), an essential bottleneck to be resolved if growth is to materialise. This problem is not only a technological one. Rather liberalisation of existing regulatory frameworks or more fitting regulations may be needed to accommodate the rise of efficient payment systems (*e.g.* for non-financial institutions which offer some payment and credit functions).

Value chain and business model issues

Securing a competitive environment: Content and networks

In the current Internet environment, alliances between the content providers, broadband and technology providers that come up with new business models play a critical role in driving the adoption of licensed content services (Park Associates, 2004). As a consequence, a competitive and legal environment needs to ensure that broadband and technology providers benefit from content whereas content providers benefit from delivery over the broadband infrastructures. Business models need to be developed that respect the positions of content producers and that of the telecommunication operators.¹⁷² Frictions between the content industry and technology providers that are recurrent when new technologies arise need to be overcome. In the case of music, disagreements between the music industry (labels, collecting societies and authors associations), technology providers (PC and consumer electronics industry) and network operators can jeopardize the deployment of successful broadband content services.

Moreover, the report has shed light on the increasing role of new emerging players involved in digital music distribution: online content portals, content encoding, hosting, DRM providers, etc. The need for dialogue among the key stakeholders and the potential role of government to host this dialogue has been recognised in many OECD countries. In Italy, for instance, the need for dialogue between the different stakeholders (telecommunication operators, content producers, content distributors, authors' associations, consumer associations, law enforcement authorities, collecting authorities, EC) has led to the establishment of an Inter-Ministerial Committee on digital content in July 2004.¹⁷³

Rights negotiations

Irrespective of the willingness of right holders to license their music rights, most users nevertheless need to clear the rights of composers, artists and producers in the repertoire they use. This will often necessitate negotiation with a number of different parties for different rights and different repertoire. The negotiation of licenses for online music is also subject to the territorial nature of copyrights and in many cases, rights are managed on a country-by-country basis. When it comes to online music offerings, both the

recording industry and music publishers are developing international clearing systems for certain digital activities.

Although the process of obtaining rights for the legitimate sale of online music and remuneration of artists is absolutely necessary, the high business costs and administrative burden of clearing rights for country-specific online music services has been raised as an issue potentially slowing digital music distribution (WEF, 2004). The fragmentation of the online music market due to rights' negotiations for different national territories has been recognised in the European Union.¹⁷⁴ Apple, for instance, initially secured shops in the United Kingdom, France and Germany, and has only recently reached Austria, Belgium, Finland, Greece, Italy, Luxembourg, the Netherlands, Portugal and Spain. The Work Programme 2003/2004 of the EU e-content programme recognises that the "effectiveness and efficiency of the multimedia rights clearance have a strong and direct impact on the functioning of the content industries in the digital world." The facilitation of digital music licensing, is also being debated in the US.¹⁷⁵ But it can also be said that through the WIPO treaties and their national implementation a harmonisation of intellectual property rights has already taken place.

Copyright management organisations (CMOs) or collecting societies play an important role in the granting of rights for the Internet music stores.¹⁷⁶ Copyright and related rights grant exclusive rights to creators of musical content, but individual exercise of these rights is not always practical or feasible.¹⁷⁷ This problem is addressed by collecting societies, which are mandated by the owner of rights (*e.g.* music publisher) to manage rights on his, her or its behalf. CMOs control use of protected content by granting licenses, negotiating with users, collecting remuneration and redistributing it to the individual rights holders.¹⁷⁸ The European Commission recently characterised the role of CMOs as follows:

"From the users' viewpoint, collecting societies occupy a key position in the licensing of certain rights in so far as they provide access to a global catalogue of rights. Collecting societies function in this respect as a one-stop-shop of licensing. Collective management also allows particular right holders, whether corporate or not, within a less lucrative or niche market, or who do not dispose of sufficient bargaining power, to manage their rights efficiently. From this perspective, collecting societies carry the joint social responsibility of right holders to make sure that all of them benefit from their intellectual property rights at a reasonable cost."¹⁷⁹

The degree of public regulation of CMOs varies significantly across different jurisdictions, and covers matters such as the functioning of the societies, control of tariffs (including their determination in cases of conflict) and licensing conditions. Some topics of interest for the future of CMOs are: (a) competition issues; and (b) CMO accountability to rights holders and users. Significant questions in regard to the effect of CMO operations on competition have been raised in recent years, particularly in the European Union.¹⁸⁰ Recently, the European Commission stated – referring to authors' societies - that, "the lack of competition between national collecting societies in Europe hampers the achievement of a genuine single market in the field of copyright management services and may result in unjustified inefficiencies as regards the offer of online music services, to the ultimate detriment of consumers. The European Commission has also recently confirmed the importance of good governance, non-discrimination, transparency and accountability with respect to CMO operations.¹⁸¹ But it is also true that collecting societies have a special status that should be taken into consideration in the process of applying competition policies to them.

Business and regulatory environment

Protection of Intellectual Property Rights

The economies of the OECD countries increasingly rely on intangible assets and in particular on the creation and protection of intellectual property. Various studies in OECD countries have demonstrated the importance of the copyright industries to economic growth and employment (see Siwek, 2004 for the United States). Intellectual property – in the form of copyrights – is of particular importance to online music distribution.

The advent of digital technology, with its ability to create near perfect reproductions of works at minimal cost and the networked environment with its possibilities of costless distribution, creates a major challenge for digital content. Throughout the study it is recognised that piracy is an important impediment to the creation and strengthening of legitimate services to distribute copyrighted content on line and to sustaining an environment conducive to the creation of original materials. The key challenges for existing copyright frameworks resulting from the new digital environment are summarised in WTO (1999a,b) and WIPO (2000).¹⁸² It is vital that existing intellectual property rights are respected throughout new distribution channels. In the face of increasing piracy, OECD governments have worked to promote the protection of IPRs through legislation (national law and international treaties), its enforcement and awareness/education campaigns (including youth education programmes). They realise the need to take additional steps to address Internet piracy. Otherwise the economic foundations that presently permit investment in the creation and distribution of original recordings may otherwise be endangered. In sum, OECD governments are interested to preserve both the social and economic benefits that can accompany legitimate distribution of music and other forms of content via the Internet.

National copyright law and the ratification of the WIPO Internet treaties

As the Internet is global in scope, the problem of protecting and enforcing copyrights has an international dimension. In that context, OECD governments have pursued the protection of their citizen's / firm's copyrights abroad; an objective which is made possible by international copyright frameworks.

In December 1996, the WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT) (commonly referred to as the "Internet Treaties") were adopted by more than 100 countries. Both treaties have entered into force: the WCT on 6 March 2002 and the WPPT on 20 May 2002. They adapt existing international copyright conventions to digital technology (see Annex 1 and UN ICT TF, 2004). Their implementation into national law will thus facilitate the creation of a secure and predictable legal environment that will foster the development of Internet transactions relating to digital content. The main improvements relating to the use of works and phonograms on the Internet and other interactive digital networks concern the right of communication, prohibition against the circumvention of technological measures and preservation of the integrity of rights management information. WIPO Member Countries have thus developed treaties to respond to the challenges and to expand opportunities raised by the online medium. Ratification of these treaties on a global level is a key priority for many countries and is ongoing or completed in many OECD and non-OECD countries.

In devising regimes for intellectual property, governments constantly have to strike a balance between setting the right incentives for creation and diffusion of protected works (including respect for the rights of rights holders and those of users).¹⁸³ New disruptive technologies like the Internet do give rise to new thinking as to whether the appropriate balance is being maintained. In many cases, intellectual property regimes in many countries are flexible enough to satisfactorily cater for the rise of new technologies. Nonetheless, the question of whether protection and exceptions are adequate and how the WIPO Internet Treaties are best ratified is the focus of ongoing debates in certain OECD countries.

The following issues have been identified by various stakeholders as potential challenges to the success of new business models, and where further work may be needed (see Box 6). Furthermore, in certain circumstances, conflicts arising between copyright and competition laws may be a consideration (OECD, 2004b).

Box 6. Potential challenges to the development of new business models

- High incidence of copyright infringement involving unauthorised digital distribution of copyright content on line, with harmful effects on music, audiovisual and software industries.
- Differences in the nature and scope of limitations and exceptions to copyright across jurisdictions (e.g. exceptions for the benefit of disabled people, illustration for teaching or scientific research, reproduction for information purposes, and ephemeral recordings by broadcasting organisations), creating uncertainty as to which uses of music might be exempted (free) in multiple territories.
- Differences in the duration of protection of copyright and related rights across jurisdictions, particularly for sound recordings and performances, creating uncertainty as to which subject matter is protected in transactions involving multiple jurisdictions.
- Differing approaches to establishing copyright liability of Internet intermediaries, including Internet Service Providers, across jurisdictions.
- Different national approaches to ensuring that beneficiaries of exceptions and limitations have access to digital copyright content to which technological protection measures (TPMs) have been or may be applied.
- Differences in the scope of individual privacy rights and data protection legislation across jurisdictions, resulting in different practices for gathering of personal information in the course of applying DRM solutions, or for purposes of enforcement of copyright.
- Multiplicity of rights clearance and cross-border licensing processes, creating uncertainty as to which rights have been cleared for digital delivery in each territory.
- High cost of enforcement of intellectual property rights in multiple jurisdictions, and slow uptake of alternative dispute resolution mechanisms for intellectual property disputes.
- Absence of agreed international principles on the application of private international law to online transactions.

Source: WIPO contribution to the underlying study.

Beyond the implementation of the WIPO Internet Treaties, OECD countries are active in devising programmes to reaffirm and enforce copyrights.

Government actions that relate to the protection of IPR

Some OECD governments are active in stepping up their enforcement initiatives in the field of file-sharing. In some cases, the anti-piracy actions involve the modifications of existing legislation. This study cannot provide a full overview of these measures but concentrates instead on a few examples.

Recently, the French government installed an anti-piracy Action Plan which involves an agreement between French ISPs (Free, Noos, Club Internet, Wanadoo and Tiscali France), French groups of right holders, including the French recording sector and the French public sector, to fight online piracy and to promote the development of legal online music sites.¹⁸⁴ In this agreement, ISPs agree, for example, to conduct information campaigns on the illegality of unauthorised file-sharing aimed at their users and their new subscribers and to only link to legitimate online music services. On their side, right holders pledge, for example, to rapidly increase the number of legitimate online music offerings and having available all digitised tracks to all online music services at transparent and non-discriminatory conditions. The French

government in turn has, for example, pledged to increase awareness campaigns with children and teenagers¹⁸⁵, to study efficient online payments systems and bottlenecks with online music services and to ensure the compatibility of DRM systems.

In March 2004, the Italian Government promoted the so-called San Remo Charter for the adoption of a set of Codes of Conduct, drafted respectively by connectivity and access providers, rights holders, content producers and distributors, and consumers associations, to foster the growth of sustainable business models based on a large competitive offer of quality content online in a secure environment and to organise and promote educational campaigns in particular amongst youth to ensure the respect of digital rights.¹⁸⁶

The US Digital Millennium Copyright Act (DMCA) also creates a legal process for ISPs to co-operate in taking down infringing materials from their systems or networks. Generally in OECD member countries the ISP can terminate a subscriber upon the decision of a judge. The DMCA has a provision for termination of “repeat infringers” who likewise would be adjudicated to have infringed.

Proposed ideas for compensating content right holders for file-sharing

Other proposals have been suggested to compensate content right holders. Ideas that are raised include: *i*) new levies on hardware equipment that allows for the digital download of music and *ii*) an incorporation of a flat fee or a higher fee on top of the ISP bill to be redistributed to content right holders for the use of their content over then legalised P2P networks. It has to be recognised that some of the cited proposals are likely to be in conflict with the exclusive rights provided to right holders under existing international agreements. It should be recognised that such fees on ISPs or hardware producers are often passed on to consumers through the final retail price, potentially depressing broadband access and the sale of hardware. In addition, collective licenses or any sort of levies on hardware or ISP subscription would create a so-called “rough justice”-effect¹⁸⁷: all Internet or PC users must compensate copyright holders for activities committed by a small minority of them.

Levies on hardware

Private copying levies were introduced in the 1960s in Germany and have been since established, on a different scale, in many OECD countries (like Canada). These levies can either be on recording or copying technologies (hardware like photocopiers) or on blank media (CD-Rs). Under these schemes manufacturers of consumer electronics engage into redistributing some of their profits to the copyright owners. Levies on MP3 players and other digital music technologies that would serve to compensate copyright holders (musicians and songwriters) for unauthorised copying of music have been discussed in recent months opposing consumer electronics manufacturers and the content industries. Rights owners point out that levies have since only been used to compensate for truly private copying as defined by national legislation, not for unauthorised distribution of material such as takes place in P2P networks.

Higher upload traffic and blanket licence

Outside of OECD discussions, several ideas have been proposed that aim at extracting some compensation for copyright owners on the basis of higher ISP charges or the paid access to legalised P2P networks. Many of these ideas seem hard to put into practise, are potentially not compatible with international obligations resulting from WIPO treaties, or may not be the most efficient solutions.

Higher charges on upload ISP traffic: To compensate right holders for the uploading of digital music, it has been suggested that ISPs could significantly increase their traffic charges for uploaded traffic (Bomsel & Leblanc, 2004).¹⁸⁸ These charges for upstream traffic could then be used to compensate right holders for unauthorised copies of their works on P2P networks. Problematically, this proposal does not take into account that it would discourage just any upload of content (*i.e.* including pictures, or PDF files),

effectively failing to discriminate authorised from unauthorised uploads, and could thus significantly slow down Internet content development. Independently of the file-sharing issue, implementing price discrimination according to type of Internet traffic has been found to reduce Internet usage (Odlyzko, 2004). Furthermore, traffic- or data-based charges are, in most OECD countries, a thing of the past due to flat-rate access pricing for unlimited up- and download.

Licensing schemes for P2P networks: Parties including academic scholars have proposed a range of content licensing schemes and alternative compensation systems that would recompense rights holders for works made available on file-sharing networks.¹⁸⁹ A number of these *alternative compensation mechanisms* have recently been proposed which assume that exclusive rights apply to both uploading and downloading of files, but seek to overcome the difficulties of individual licensing and to establish sustainable business models for music distribution based on either collective licensing, compulsory licensing systems, or a combination thereof. These proposals cannot be discussed in any detail in this study. However, they have to be set against the number of online music stores which has increased recently (as has the quantity of works available from these outlets). Marketplace solutions rather than collective or compulsory licenses, blanket fees (*i.e.* non-market pricing) or other interventions in the IPR-related transactions may thus be working. New compulsory licenses for P2P could also be found to interfere with obligations under the major international agreements dealing with copyrights such as the Berne Convention and the WIPO Copyright Treaty.

Digital rights management

Effective DRM technologies have been seen as business enablers for the digital distribution of music and for the variety of new business models that consumers may want. Despite their shortcomings, they may be an essential technical tool to protect IPRs and are expected to become pervasive throughout the entire digital distribution chain. Through their ability to protect content, they may encourage the content rightholders to make content available for digitisation and subsequent digital sale. Through their ability to create diverse access schemes to content, DRMs may enable content offerings that are more tailored to consumer demand (*e.g.* the right to purchase time-limited access to songs) and that may – if prices reflect the level of access – increase consumer choice and satisfaction. The European Commission has also stated that the: “establishment of global and interoperable infrastructure on DRM systems based on consensus among the stakeholders appears to be a necessary corollary to the existing legal framework and a prerequisite for the effective distribution and access to protected content.”¹⁹⁰

Several problems still exist in relation to DRMs. First, one of the central problems with DRM's seems that in the past they have failed to prevent unauthorised uses. Digital rights management programmes and technologies must be sufficiently robust to ensure that digital content cannot be subjected to unauthorised copying or unintended uses. Ways of harnessing technology to protect intellectual property are just developing and starting to be effective. To remedy this situation, many governments have through the signing of the WIPO Treaties pledged to create “adequate legal protection and effective legal remedies against the circumvention” of technological protection measures like DRMs. These legal protections are likely to be needed so that DRMs may operate as intended. Second, the increasing use of DRM technologies that has raised the concern that the latter could potentially limit usage rights. This topic has become a policy consideration notably for consumer associations (The European's Consumers' Organisation, Beuc, 2004) and is reflected in relevant conferences¹⁹¹ and consumer surveys.¹⁹² According to some academics, limits set to private copies could be troublesome when they shift the balance between the interests of copyright holders and the public (Gasser, 2004).¹⁹³ But it is fair to say that – as opposed to some CD-Rom copy-protection technologies - so far DRMs have rarely been known to prevent legitimate uses of content and services. Still, developers of DRM, players in the market employing DRM, and users of DRM-protected material should be equally concerned to ensure appropriate usage rights, transparency, privacy, as well as ease and reliability of access.

This study cannot provide a comprehensive analysis of the social and economic dimension of DRMs. Additional research on DRMs (*i.e.* impact of current and proposed DRM technologies on consumers' existing rights, technological innovation, and the effectiveness of DRM in protecting rights holders' intellectual property rights and other points of interest) may thus be warranted.¹⁹⁴ Moreover, the need to enforce intellectual property rights with the help of DRM systems but also in the case of monitoring and enforcement of infringement need to be reconciled with the existing privacy protection (Katyal, 2004). But it is equally important to note that consumers also have a voice in the marketplace and the arena of public opinion concerning issues of access. This voice may be an effective and efficient mechanism to provide incentives to remedy too restrictive or incompatible DRM schemes.

In sum, digital rights management programmes and technologies must be sufficiently robust to ensure that digital content cannot be subjected to unauthorised copying or unintended uses, but must accomplish this without unduly inconveniencing or diminishing the rights of the user (see also the relevant part of the OECD Council Recommendations on Broadband Development in Box 1).

Many OECD countries are active in conducting internal reviews of the DRM issues. The European Commission, for example, has been involved so far not only in setting norms, but also as a facilitator, in promoting a dialogue between stakeholders (manufacturers, copyrights holders, collecting societies, consumers). It recently set up a High Level Group on DRMs which delivered a report in July 2004. This report from the EU stresses the importance of DRMs as the way forward for the delivery of legitimate content, the fact that DRMs are well developed from a technical point of view but still need more take up from the market, the need to continue to develop interoperability and the importance of migrating from unauthorised file-sharing to legitimate on line services.

In all DRM-related development and standard setting exercises, one of the first aims should be openness and interoperability. As Internet delivery can be global in nature, international standardisation (through business or government efforts) in the field of DRM could be essential, although the same reservations as mentioned earlier apply (governments may not be good standard-setters and may act prematurely). Considering the general theme of the paper (the need to develop new business models), it also seems implausible that a single, standardised approach to DRMs would fit all possible value chains, business models, and approaches to digital delivery. Experimentation will be needed to develop the best approaches, and there will be different answers in different situations.

Fostering adequate legal frameworks

Inadequate regulatory frameworks may limit the growth of Internet content, increase the cost of doing business and create uncertainty in the market place (WEF, 2004). The online distribution of services and content is a relatively new phenomenon and consequently legal frameworks for such transactions may need to be revisited. Issues such as electronic signatures, rights protection technologies (DRM, watermarking, encryption), secure payment systems, privacy protection, taxation, illegal or harmful content, have been voiced as key concerns of market players and governments (see Loudeye Annual Report 2003 for such stocktaking).

Value-added taxes

This study has shown that taxes levied on offline and online music distribution vary between OECD countries, sometimes making up to one-fifth of the retail price. Some efforts are ongoing to secure a special tax treatment for music sales. With strong support from the French music industry, the French government, for instance, pledges to pursue efforts with the European Commission to reduce the value-added tax on audio recordings purchased off and online (19.6% in France). From the point of view of economic

efficiency, however, the most important would be that taxes are effectively neutral as to their delivery (the same tax no matter whether physical or digital distribution).

Plurality, diversity and government support for the music industry

Some OECD countries have programmes to support song writing, composing, new musical works, specialised music, market development, sound recording entrepreneurship and the preservation of musical collections. The Government of Canada, for instance, invested an additional USD 28 million over three years to nurture writers and composers; for the development of new artists and the production and promotion of new recordings; for cross-cutting projects affecting the industry; and for the preservation and digitization of significant Canadian musical works.¹⁹⁵ Some of these support programmes are also directly aimed at making available musical works in the digital context.

Finally, new music distribution technologies as well as structural changes in the digital value chain may have an indirect, medium-term influence on the supply and diversity of music and on artists. Governments and third-party studies may be needed to fully understand the long-term implications of the online medium and its associated business models' on music supply, the artists and users. This is a subject that merits further discussion.

ANNEX 1. WIPO INTERNET TREATIES

Annex Box 1. The WIPO Internet Treaties

The Internet Treaties update and supplement the existing international treaties on copyright and related rights, namely, the Berne Convention for the Protection of Literary and Artistic Works and the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations. The Internet Treaties respond to challenges posed by digital technologies and, in particular, the dissemination of protected material, including music and published text, over the Internet.

The following paragraphs address some points relating to (a) the scope of rights protected under the Internet Treaties; and (b) enforcement and management of rights.

Scope of Rights

The most fundamental right granted under both copyright and related rights is the right of reproduction, which under the Berne Convention (Article 9(1)) covers reproduction "in any manner or form." This right is at the core of digital content delivery, because any transmission of a work or object of related rights requires the uploading into the memory of a computer or other digital device, and the making of multiple copies in the memories of numerous computers, in the course of network transmission. In this context, agreed statements to the WCT and WPPT provide:

"The reproduction right ... and the exceptions permitted thereunder, fully apply in the digital environment, in particular to the use of works in digital form. It is understood that the storage of a protected work in digital form in an electronic medium constitutes a reproduction within the meaning of the [relevant treaty right]."

Appropriate application of the reproduction right in the case of temporary copies in computers' random access memory (RAM) continues to be a subject of debate.

The Internet Treaties also clarify the extent of rights holders' control when works, performances and phonograms are made available to the public for downloading or access on the Internet. For example, Article 14 of the WPPT provides:

"Producers of phonograms shall enjoy the exclusive right of authorizing the making available to the public of their phonograms, by wire or wireless means, in such a way that members of the public may access them from a place and at a time individually chosen by them."

The Internet Treaties require that an exclusive right be granted to control such acts of "making available," while leaving it to individual countries to decide how to implement the right under national law.

Still to be resolved at international level is the question of the extent to which the "making available" right applies to the exchange of music files across peer-to-peer ("P2P") file-sharing networks. It is more or less clear that the right applies to *uploading* of files onto such networks. There are differing views, however, as to whether the making available right also covers the act of *downloading*, which involves an act of reproduction. Regulation of illegal file-sharing through control of technologies used for copying is problematic because the same technologies that enable illegal file-sharing are also used to legitimately copy, upload, share and burn music that is either owned by the user or otherwise in the public domain.

The rights provided by the Internet Treaties are subject to limitations and exceptions that preserve a fair balance between the economic interests of rights holders and the public interest in providing access to copyright content to certain user groups without authorisation or payment. Examples include use of protected content for non-profit educational, research and news-reporting purposes.

Enforcement and Management of Rights

1. Faced with the threat of piracy heightened by the use of digital technologies, rights holders are increasingly turning to technology to provide protection for their intellectual property. This approach is supported by two provisions of the Internet Treaties, which recognise technological protection measures (TPMs) and rights management information as important tools for control of rights in the digital environment.

2. Articles 10 of the WCT and Article 18 of the WPPT require Member States to provide adequate legal protection and effective legal remedies against the circumvention of effective technological measures used by rights holders to restrict unlawful and unauthorised acts, while leaving the form of implementation up to the States themselves. TPMs include: anti-copy devices, access control, electronic envelopes, proprietary viewer software, encryption passwords, watermarking, fingerprinting (user authentication), metering and monitoring of usage, and remuneration systems.

3. The Internet Treaties (WCT Article 11 and WPPT Article 19) also require Member States to protect the integrity of "rights management information," which usually consists of metadata identifying and describing the protected content, owners of rights, and contractual usage rules.

Source: WIPO.

ANNEX 2. LEGAL CASES INVOLVING FILE-SHARING¹⁹⁶

Legal action against companies providing P2P software or P2P file-sharing sites

Initially, lawsuits were brought by record companies against P2P file-sharing sites, *i.e.* in a legal action against Napster Inc in 2001, the first centralised MP3 file-sharing network.¹⁹⁷ A US federal court required Napster to exclude unauthorised music files from its directory, where it had centrally co-ordinated distribution of music files among users. The court considered Napster to be liable for contributory copyright infringement, because Napster had actual knowledge of infringing file-sharing made possible by its software, and for vicarious copyright infringement because Napster profited financially from the infringement and had the right and ability to supervise and block infringing conduct. Faced with the requirement to filter infringing files out of its network, Napster closed its operations in 2001, before re-emerging as Napster 2.0, a legal music distribution service.

Similarly, in the case of *Re Aimster*, the United States Court of Appeals for the Seventh Circuit found the Aimster P2P network liable for contributory infringement, because Aimster had knowledge of the infringing activity.¹⁹⁸ While recognising that it was possible that the Aimster network could be used for non-infringing uses, the Seventh Circuit seemed to find particularly important the fact that the Aimster software tutorial gives as its only examples of file-sharing the sharing of copyrighted music, including copyrighted music that the recording industry had notified Aimster was being infringed by its users. Copyright holders have also successfully taken legal action against file-trading networks such as Audiogalaxy and Scour, to address unauthorised file-sharing activities. Moreover, a Japanese case was brought by the Japanese Society for Rights of Authors, Composers and Publishers (JASRAC) and 19 record companies against MMO Japan, a P2P network that ran a local version of the 'File Rogue' file-sharing software which, like Napster, stored information about its music files on a central server. Other cases have been settled out of court (*e.g.* the case of iMesh).¹⁹⁹

However, legal actions for copyright infringement have proven more difficult to sustain against decentralised P2P platforms, where shared content is said not to be physically routed via centralised network computers of firms that provide P2P facilities. While Napster provided centralised P2P networks, it was quickly followed by second-generation file-sharing networks such as Gnutella, KaZaA, Morpheus and Grokster; all designed with a decentralised structure thereby allowing users to connect directly with each other to trade files (see Annex Box 2). While Napster offered a list of files on a centralised server, Gnutella operates via a network of computers that each maintains a separate list of files available on only that computer. Finally, KaZaA utilises a 'FastTrack'-technology (also used by Morpheus and Grokster) to operate a supernode system, in which a number of computers operate as indexing servers. In 2002, in a case brought by the author's collecting society BUMA/STEMRA a Dutch Appeals Court held that KaZaA was not liable for copyright infringement committed by users who use its software to trade unauthorised music files.²⁰⁰ The Dutch Supreme Court held that makers of file-sharing software KaZaA were not liable for copyright infringement, because the software merely provided the means for accessing copyright protected works. In addition, KaZaA's software was also used for legal purposes, such as sharing works that were authorised or were in the public domain.

In Korea, the Recording Industry of Korea (RIAK) brought suit against Soribada, a Korean file-sharing site with 4.5 million users that initially operated using a centralised server to enable exchange of MP3 files, then changed to a decentralised structure. The Suwon District Civil Court held Soribada liable

for damages for infringement that occurred before its system was decentralised. Later versions of Soribada, however, allow members to exchange music files without passing through its main server. In May 2003 the Seoul District Court dismissed charges against the operators of Soribada on technical grounds that evidence provided by prosecutors was not sufficient to prove that Soribada is liable for copyright infringements committed by users of their software.²⁰¹ This decision has been appealed.

Annex Box 2. Lawsuits against file-sharing networks Grokster and Morpheus

Grokster and StreamCast Networks are companies that freely distribute software that allows users to share computer files with each other. A recent lawsuit presented the question of whether distributors of peer-to-peer file-sharing computer networking software may be held contributorily or vicariously liable for the copyright infringements of its users, thus implying a secondary liability alleging that the P2P systems contribute to and profit from the infringing conduct of their users.²⁰² The copyright owners argued that Grokster and StreamCast are “[t]urning a blind eye to detectable acts of infringement for the sake of profit which gives rise to liability”. The case has raised concerns throughout the technology sector that the Court, in determining the liability of Grokster and Streamcast, would impose overly broad new theories of secondary liability that will result in increased litigation for companies who will be accused of “inducing” infringement by virtue of introducing a new product or service.

The United States Court of Appeals for the Ninth Circuit rejected the plaintiffs’ claims and concluded that the two software companies are not liable for contributory and vicarious copyright infringement. One of the main reasons for this decision was that through decentralised systems file-sharing sites have no direct knowledge of individual file transfers and no direct ability to stop transfers. Whereas Napster employed a proprietary centralised indexing-software architecture in which a collective index of available files was maintained on servers it owned and operated, Grokster and StreamCast Networks distribute files without maintaining the same kind of centralised directory server. Under a decentralised index peer-to-peer file-sharing model, the software broadcasts a search request to all the computers on the network or the most easily accessible point, which – without direct interference of the company itself - conducts the search of its index and supplies the user with the results. Moreover, it has been argued by the court that these file-trading networks are also used for legal activities.

In its reasoning, the Court invoked the Sony/Betamax case. In 1984 the US Supreme Court ruled that Sony was not liable for copyright infringements through the use of their VCRs because VCRs have beneficial uses besides infringing copyrights by copying television content. Following this reasoning in the Grokster and StreamCast Networks case, the Ninth Circuit stated that “[t]he introduction of new technology is always disruptive to old markets, and particularly to those copyright owners whose works are sold through well-established distribution mechanisms. Yet, history has shown that time and market forces often provide equilibrium in balancing interests [...]. Thus, it is prudent for courts to exercise caution [...]” It did not say file-trading itself is legal. Lower courts in the United States have said that individual computer users are breaking the law when they trade copyrighted files without permission.

The decision also implied that any ability to hold software developers liable for copyright infringement might have to come from legislators rather than from courts. The case is currently being appealed to the US Supreme Court. The latter has agreed to hear the case. The US Congress has also considered new legislation that would make inducement to infringe copyrights over P2P networks illegal (so-called Induce Act and its later iterations).²⁰³ The music and film company plaintiffs in the case have asked the Supreme Court to overturn this decision and the case will now be heard in front of the US Supreme Court.²⁰⁴

Based on: United States Court of Appeals for the Ninth Circuit, Music industry versus Grokster and StreamCast Networks, Inc., f/k/a Musiccity.Com, Inc., No. 03-55894, D.C. No., CV-01-08541-SVW, 19 August 2004. See also Feder (2004).

In other jurisdictions, cases have involved direct actions against the individuals who are developers of file-sharing networks. For example, in Japan, a developer of the file-sharing software Winny was arrested for aiding copyright infringement by providing the said software to offenders in 2004, but has not yet been convicted²⁰⁵.

A different scenario involves actions against those who establish Web sites that provide access to music content, without constituting a file-sharing network. In the Netherlands, the Court found that Techno Design, the operator of a music search engine portal, Zoekmp3.nl, was not guilty of copyright

infringement, because it concluded that linking was merely a form of referencing music sources, and the search engine had other independently legal purposes.²⁰⁶ The court did find that Zoekmp3.nl would be required to remove links when it got notice that they pointed to infringing material. In Australia, a lawsuit was brought by six Australian and 25 international record companies against the operator of the mp3s4free.net Web site. In another Australian case, this time a criminal proceeding, the operators of MPW3/WMA Land, a site that offered songs for download, were convicted of online music piracy. In addition to fines, the penalty included 18-month prison sentences that were suspended in the circumstances of the defendants' youth and the non-profit character of the site.

Right holders have brought a case against the principals of KaZaa for infringement in Australia, with the outcome still pending. A decision in this case is expected in the first half of 2005.

Legal action involving ISPs

As a result of the passage of the WIPO treaties, ISPs were granted limitations on their liability in implementing legislation, such as the DMCA, the European E-Commerce Directive and similar laws in Singapore, Japan, Australia and other countries. ISP functions such as conduit, transmission and routing functions, caching, hosting, linking and information location tools were protected from liability.

The content community has brought several test cases to test the limits of those protections. Several legal actions have been taken by the music industry against Internet Service Providers (ISPs). They involved either the music industry requesting the ISPs to reveal the names of suspected music copyright infringers, or attempts to hold the ISPs liable for tolerating or facilitating peer-to-peer traffic, including claims for damages. On the one hand, the content industry contended that ISPs have no intrinsic interest in limiting infringing use and that ISPs induce copyright infringement and boost their broadband subscriber numbers while tolerating or even advertising the possibility of unauthorised file-sharing over P2P networks. On the other hand, ISPs have refuted the latter arguments and pointed to the technological neutrality of their broadband technology (essentially pipes). ISPs have also argued that the identification of file-sharers poses technical difficulties (also because differentiating legal from illegal file-sharing proves to be a challenge) and that enforcement activities impose significant costs on ISPs and potential privacy concerns for Internet users.²⁰⁷

These cases, while not always consistent, have demonstrated the limits of ISP liability. In cases where the ISP acts as a 'mere conduit' for transmission of digital data over the networks, ISPs have been found not liable for copyright infringement. In some cases, the courts have imposed restraints on the music industry's requests for ISPs to reveal their customers' identities, to facilitate legal actions against individuals for copyright infringement, so as to protect individual privacy and free speech. In other cases, courts have ordered ISPs to provide data, as the providing of customer data for law enforcement purposes is covered by ISPs general contract terms, and as this is covered by the recognition of enforcement interests in any privacy legislation. The Canadian Supreme Court addressed the question of how Canadian artists should be compensated for their copyright in music downloaded in Canada from a foreign country via the Internet.²⁰⁸ The Court confirmed that ISPs, when acting only as a conduit, and caching for information provided by others, cannot be held liable for copyright infringement.²⁰⁹ In 1995, the Society of Composers, Authors and Music Publishers of Canada (SOCAN), asked the Copyright Board to approve a tariff establishing a royalty structure for ISPs. The Court noted that the useful capacity of the Internet to disseminate information should not come at the expense of copyright holders interests, however the Court also noted that it was impractical, both technically and economically, for ISPs to monitor the amount of material that passes across their systems. To the extent that ISPs act as mere conduits, they cannot be held liable for infringements, but in cases where ISPs perform other functions (*e.g.* acting as content providers, or creating embedded links to copyrighted music from other sources) they may become liable in that respect. As mere intermediaries, the Court ruled that ISPs were not liable to pay royalties to composers and

publishers for music that is downloaded or streamed by their customers from file-sharing networks (a tariff of 3.5% of gross revenues had been proposed). The Court also stated that ISPs are not liable to pay royalties for music content that is stored on their networks. The Court did find that for purposes of Canadian copyright law, Internet communication originating outside Canada could constitute licensable communications to the public covered by Canadian copyright law if there was a 'real and substantial' connection with Canada, including if the user was in Canada. In another recent case in Canada, the Court of Appeal has confirmed that consumer copying onto MP3 players is not covered by Canada's private copying exemption.²¹⁰

The US Digital Millennium Copyright Act of 1998 (DMCA) establishes a scheme that is designed to limit ISP's liability for copyright infringement, provided they meet certain requirements. The DMCA also provides an expedited subpoena procedure that enables applicants to obtain identifying information about users of the Internet, who may operate anonymously and are otherwise difficult to identify through their online activities. In the United States, the music industry made use of these procedures by serving subpoenas on ISPs to obtain details of users alleged to have infringed copyright.

The subpoena process has been examined in a series of legal actions involving the Recording Industry of Association of America (RIAA) and Verizon Communications, Inc. (a US network provider). At issue was whether a subpoena attached to no other legal proceedings can be used to obtain information about the identity of customers using the ISP service for infringing copyrights through file-sharing networks. At issue were not only the need for RIAA to obtain users' identities, but the question of privacy, safety and due process. Verizon argued that the copyright-infringing in question was not covered by the scope of the specific subpoena provision in the DMCA. Verizon also argued that the RIAA demands created serious privacy concerns over how easily a subscriber's identity could be revealed. After a District Court rejected Verizon's interpretation and Verizon appealed, the US Court of Appeals ruled that subpoenas could not be issued against an ISP provider that does not store the copyrighted material on its computer servers. The Court instead required the recording industry to seek the identities of users suspected of illegal file-sharing by filing civil law suits. In October 2004, the US Supreme Court rejected an appeal by the RIAA.²¹¹ RIAA brought the identical test case in *RIAA v. Charter Communications (03-3802)*. RIAA sued Charter, a cable company seeking the names and addresses of its subscribers again based on a subpoena. The 8th Circuit Court of Appeals, following the Verizon case, rejected the RIAA's use of this subpoena process and questioned *in dicta* whether the process was constitutional. In *CoStar v. LoopNet – MPAA* and RIAA argued that ISPs can still be found to be direct infringers of copyright when they passively host and copy materials for their users. The 4th Circuit Court of Appeals affirmed that ISPs are not direct infringers, noting that when a network provider hosts content, it is more like a copy machine than a publisher.

In the case of *Sony Music Entertainment, Inc. v Does 1-40*,²¹² a US District Court held that use of anonymous P2P networks to "download, distribute or make sound recordings available" qualifies as constitutionally-protected free speech, but that the protection is subject to copyright owners' legitimate need to discover who is infringing their works. A subpoena was served on the ISP, Cablevision Systems Corp, to reveal the defendants' identities, and four of the defendants claimed that the subpoena violated their First Amendment Rights. The Court stated that "a person who engages in P2P file-sharing is not engaging in true expression ... Such an individual is not seeking to communicate a thought or convey an idea. Instead, the individual's real purpose is to obtain music for free."

However, other cases – like a recent one by the British Phonographic Industry before the High Court of London – have led to the ISP being asked to hand over customer information in cases of massive copyright infringements (users uploading music on a massive scale).²¹³

Legal action against users, universities and firms

As an adjunct to their efforts to restrict unauthorised file-sharing aimed at P2P sites, the music industry is filing law suits directly against users who upload or download copyright files, and have increased demands on universities and companies on whose networks their students or employees share files to prevent such use. The number of legal actions against individual file-sharers has grown, particularly directed at users of popular fast-track networks like KaZaA, and has shifted from primarily the United States to Europe.

The US has the greatest number of file-sharing users in OECD countries. Thus the RIAA has been first to take legal actions against file-sharing users.²¹⁴ It is said to have initiated more than 5 700 actions since the actions began in September 2003,²¹⁵ with a majority being settled out of court, usually for a few thousand dollars. An additional 152 lawsuits were filed against “named” defendants – individuals who were identified through the litigation process and then declined or ignored an RIAA offer to settle the case before it proceeded any further.²¹⁶

But – with some time lag – a similar number of lawsuits are now also being filed in Canada, United Kingdom, France, Germany, Denmark, Italy and Austria (with IFPI having initiated more than 650 lawsuits by October 2004 with the majority in Denmark and Germany but actions in France,²¹⁷ the United Kingdom and Italy²¹⁸ following rapidly).²¹⁹ Italy is an exception, however, because these cases are brought by the public prosecutor.

In terms of the number of legal actions to be initiated, legal actions against file-sharing users have been the most burdensome but maybe also the most efficient. The cases involve the identification of large movements of MP3 file transfers. Downloading and uploading of files seem to be perceived differently, with the latter attracting more legal action and higher claims for damages.

In practise, often the industry has sent out instant messages to uploaders’ computers warning them of the consequences if they continue. Awareness campaigns complemented these activities. A next step is for the identified individual file-sharing users to be contacted. The industry then proposes to settle the copyright infringement out of court against a specific fee for damages attached to shared music, a fee for the legal procedure and a pledge to renounce future file-sharing. This contacting of file-sharing users works on the basis of identifying the IP address of the user and asking the ISP to deliver a letter to the file-sharing user or to reveal his/her identity. Charges are filed in court if the user does not agree to settle out of court. These are of a varying nature (civil, criminal or both, depending on the legal system of the OECD member country concerned). But most cases have ended with settlement out of court (and thus no formal establishment of guilt on behalf of the P2P user). The forwarding of warnings to users has been a controversial issue, with ISPs claiming substantial costs and burdens on them and threats to privacy (including termination of accounts without interventions of judges).

In Europe, lawsuits focus on persons who make music available to others via the Internet. Many of these users have agreed to compensation payments. In most cases the legal actions were aimed at major file-sharers, meaning users that upload a great amount of music. In Europe the number of individuals that settle out of court is still very small, probably intended to send out a signal to the large P2P user base. Similar actions have taken place in Switzerland (1 300 actions with 800 settlements out of court).²²⁰

When the cases reach courts judgements have been mixed. For instance, courts in Canada and the United States have come to opposing conclusions about whether individuals who download music violate their respective national copyright laws (with lower US courts judging that the use of P2P networks to trade unauthorised copyrighted works is illegal and Canadian Courts ruling otherwise). Whereas one French court also recently acquitted an Internet user charged of downloading a large number of movies

from the Internet²²¹, another French court (Tribunal of Pontoise) sentenced an uploader for illegal file-sharing on a P2P network.

A new trend, both in the United States and the European Union, is that legal actions increasingly include users of non-fast track networks like EDonkey/eMule, Gnutella, WinMx, OpenNap and DirectConnect services. Furthermore, increasingly firms are made aware that they may be liable for their employees using company computers to conduct unauthorised file-sharing.

Impact of legal action and new online music offerings on file-sharing

The impact of the lawsuits on P2P usage is being debated with some seeing a decline in downloading while others see an increase. Certainly the music industry has affirmed that legal actions against a limited number of file-sharers can significantly reduce music piracy.²²²

First, some effect is said to have been felt on the number of files on P2P networks available and the number of simultaneous P2P users. The music industry has referred to the decreasing share of P2P users in the United States, the declining number of available files and the falling number of simultaneous users on P2P networks as demonstrations that the combination of awareness campaigns, legal actions and the rise of file-sharing sites have been successful. In the estimate presented in the OECD Information Technology Outlook 2004 and updated for this paper in Figure 18, a decline of fast-track users from peaks in October 2003 can be confirmed. Figures for September 2004 show that growth of fast-track simultaneous online users has been halted and that the number of simultaneous users is now back at the September 2002 level of 3 million simultaneous users. Recent PEW surveys also suggest that, owing to increasing lawsuits by the record industry²²³ and the rapid adoption of commercial on line music sales, the number of people in the United States swapping music files on line has dropped by half, while the number of people downloading files on any given day has dropped by 75% since mid-2003 (Pew and comScore, 2004). This trend has been confirmed for Canada by larger surveys run by Statistics Canada (2004), showing that 38% of regular Internet users claim to download music through their home PC in 2003 (down by 10% from 48% in 2001).

However, it has been argued that these survey figures may overstate the drop in file-sharing because survey respondents are now more reluctant to admit to engaging in downloading activity (OECD, 2004a and Statistics Canada, 2004). It has been argued that the Pew studies do not take into account the fast growth of P2P use outside the United States and the lawsuits may not be achieving their desired effect (California Senate, 2003). In fact, Figure 18 shows that the use of all monitored networks (fast-track plus all other networks) has been on the rise until the peak in April 2004 with almost 10 million users and month-on-month growth (seasonal effects seem to reduce P2P usage in the summer month). The rather flat trend of the fast-track networks since November 2003 and the parallel rise of simultaneous use of other networks may hint at a migration of P2P users to networks that attract less attention from the music industry and thus fewer lawsuits (OECD, 2004a).²²⁴ This result is confirmed by more recent analysis (Karagiannis, Broido, Faloutsos, 2004). Some studies also contest the existence of an impact of the lawsuits on file-sharing; with P2P users recognising the low probability that they will be targeted by a lawsuit (thousand lawsuits vs. several million users, see Geisler, 2004).

Second, the effect of the increased lawsuits is reported to be felt by the industry with a renewed pickup of music industry sales in the last quarter of 2003 and the start of 2004. As has been shown, this pickup also coincides with falling retail prices, an improving economy and the rise of legitimate music stores.

In very practical terms, a number of universities have blocked unauthorised file-sharing networks from students and sent information about the illegality of file-sharing to students. The new partnerships between universities and legal online music services – with 20 such partnerships in place in the United

States by August 2004 – are also a noteworthy development that may have resulted from increased legal activity.²²⁵ Under these university tie-ins with certain music services (Napster, MusicNet, RealNetworks) students receive bundled discounts or receive access to cheaper subscription services offered alongside other university services for their yearly tuition fees.²²⁶

ANNEX 3. STATISTICAL ANNEX

Annex Table 3.1. Value and Unit Growth of World Sales

	Total Units	Year on Year Unit Growth	USD (current)	Year on Year Value Growth (variable USD)
2003	2.746,5	-5.6%	32.036,	-0.7%
2002	2.909,0	-7.8%	32.277,8	-6.5%
2001	3.155,4	-5.1%	34.514,8	-5.9%
2000	3.325,4	-1.9%	36.666,1	-5.0%
1999	3.390,6	1.8%	38.588,9	1.4%
1998	3.330,5	0.0%	38.074,7	-0.3%
1997	3.329,8	-0.2%	38.179,1	-3.3%
1996	3.334,8	4.2%	39.464,6	0.0%
1995	3.199,3	3.9%	39.448,6	10.3%
1994	3.078,3	11.4%	35.761,6	16.5%
1993	2.762,1	5.3%	30.696,3	6.0%
1992	2.624,0	-7.7%	28.957,9	6.1%
1991	2.841,8	6.1%	27.283,8	13.2%
1990	2.678,6	6.8%	24.103,8	13.2%
1989	2.508,9	5.5%	21.291,9	5.4%
1988	2.378,3	17.7%	20.207,7	22.8%
1987	2.020,0	7.4%	16.450,0	18.4%
1986	1.880,0	0.3%	13.888,0	14.4%
1985	1.874,3	3.0%	12.138,0	2.4%
1984	1.819,7	2.1%	11.850,5	-1.2%
1983	1.782,2	5.2%	12.000,0	7.2%
1982	1.694,5	-7.5%	11.192,5	-8.9%
1981	1.831,1	19.9%	12.292,5	7.5%
1980	1.527,4	-2.9%	11.432,9	6.4%
1979	1.573,5	0.2%	10.748,1	5.5%
1978	1.570,5	8.0%	10.191,8	26.1%
1977	1.453,7	20.7%	8.082,7	17.4%
1976	1.204,1	12.4%	6.882,1	16.8%
1975	1.071,1	3.4%	5.891,2	14.6%
1974	1.036,1	5.9%	5.142,4	13.7%
1973	978,3		4.521,3	36.4%
1972	-		3.315,1	24.2%
1971	-		2.670,0	14.7%
1970	-		2.328,4	15.5%
1969	-		2.015,8	

Source: OECD calculations based on IFPI data. Global sales figures in USD and associated growth figures must be used with caution due to fluctuating US dollar exchange rate which can make year-to-year comparisons difficult.

Annex Table 3.2. CD sale development (in units)

CDs	1998-2003 growth	1999-2003 growth
Denmark *	-43.02%	-44.32%
Canada *	-31.40%	-26.15%
Czech Republic *	-30.61%	-19.05%
Germany *	-29.01%	-30.29%
Japan *	-29.50%	-22.31%
Netherlands	-28.07%	-26.57%
Portugal *	-28.10%	-14.73%
Belgium	-28.13%	-28.13%
Austria	-25.52%	-20.56%
Poland *	-23.48%	-43.89%
Greece *	-21.69%	-5.80%
Norway *	-13.42%	-11.64%
Switzerland *	-12.26%	-14.29%
Slovak Republic	-12.50%	40.00%
USA	-11.83%	-20.11%
Iceland *	0.00%	-11.11%
Hungary *	0.00%	-5.71%
Finland	-0.95%	2.97%
New Zealand *	2.99%	-4.17%
Italy *	4.62%	-7.65%
Sweden	5.80%	-0.42%
Spain *	7.37%	-6.42%
France *	7.57%	6.60%
Mexico	18.63%	1.13%
Korea *	24.80%	-24.27%
Australia	27.78%	18.08%
Ireland	28.57%	9.09%
UK	31.04%	32.22%
Turkey *	125.53%	125.53%

Note: Some data series contain breaks due to revised categories or different methods of calculation (marked by *). Thus different years of the same country or the values between countries are not always directly comparable.

Source: OECD calculations based on IFPI data. Global sales figures in USD and associated growth figures must be used with caution due to fluctuating US dollar exchange rate which can make year-to-year comparisons difficult.

Annex Table 3.3. CD format and total music market by volume – standard figures (figures in Million USD)

CDs Music Market	1999	2000	2001	2002	2003
Canada *	71.9	65.6	60.7	57.0	53.1
USA	933.8	942.5	881.9	803.3	746.0
Austria	18.0	19.1	15.8	14.5	14.3
Belgium	22.4	20.9	19.4	17.8	16.1
Denmark *	17.6	18.7	14.2	11.8	9.8
Finland	10.1	10.7	10.7	9.8	10.4
France *	110.6	112.4	125.2	130.4	117.9
Germany *	210.6	205.4	182.9	179.4	146.8
Greece *	6.9	7.5	6.5	7.0	6.5
Iceland *	0.9	0.8	0.6	0.7	0.8
Ireland	6.6	8.0	8.4	8.0	7.2
Italy *	39.2	39.1	38.0	36.8	36.2
Netherlands	33.5	34.1	31.5	27.9	24.6
Norway *	14.6	14.5	13.5	14.7	12.9
Portugal *	12.9	12.2	11.6	12.5	11.0
Spain *	57.6	67.3	71.1	61.7	53.9
Sweden	23.8	26.1	26.3	26.4	23.7
Switzerland *	21.7	21.8	21.2	21.3	18.6
UK	176.9	201.6	218.6	221.6	233.9
Czech Republic *	4.2	4.8	4.7	3.3	3.4
Hungary *	3.5	4.1	3.3	2.9	3.3
Poland *	18.0	16.2	14.4	9.5	10.1
Slovak Rep.	1.0	1.0	1.7	1.0	1.4
Turkey *	4.7	4.9	3.9	4.5	10.6
Japan *	264.9	278.5	250.0	228.9	205.8
Korea *	20.6	21.5	25.4	21.4	15.6
Mexico	52.9	53.8	50.0	51.1	53.5
Australia	44.8	46.0	52.1	49.2	52.9
New Zealand *	7.2	7.3	7.6	7.6	6.9
Total Music Market	1999	2000	2001	2002	2003
Canada *	79.2	68.9	64.6	61.2	58.6
USA	1,084.7	1,034.2	954.2	854.9	789.5
Austria	20.0	21.0	17.4	15.7	15.8
Belgium	25.4	23.8	22.2	20.4	18.8
Denmark *	18.3	19.5	14.8	12.1	10.3
Finland	11.1	11.4	11.4	10.2	11.0
France *	135.5	134.4	148.7	153.2	139.3
Germany *	251.9	244.6	225.6	215.0	183.9
Greece *	7.8	8.3	7.3	7.6	7.1
Iceland *	0.9	0.8	0.6	0.7	0.8
Ireland	8.6	9.5	9.7	9.1	8.1
Italy *	58.3	53.5	49.8	45.7	42.7
Netherlands	35.9	36.5	35.0	31.8	31.2
Norway *	15.4	15.0	13.9	15.3	13.6
Portugal *	16.2	16.3	15.3	15.3	13.9
Spain *	70.8	78.4	80.2	65.4	57.9
Sweden	26.4	28.4	28.3	28.4	25.7
Switzerland *	23.8	23.7	23.1	23.5	20.6
UK	224.7	238.5	250.6	248.3	256.5
Czech Republic *	7.1	6.7	6.6	4.6	4.3
Hungary *	7.4	7.6	6.1	4.9	5.1
Poland *	39.8	30.4	25.2	14.0	12.5
Slovak Rep.	1.9	1.6	2.2	1.3	1.6
Turkey *	48.9	38.7	30.1	27.9	35.7
Japan *	322.6	329.0	304.8	274.7	260.2
Korea *	39.8	45.0	41.5	28.8	19.8
Mexico	72.8	67.0	56.9	55.0	56.9
Australia	49.7	51.0	58.3	56.6	62.0
New Zealand *	8.3	8.2	8.4	8.3	7.8

Source: IFPI. Note: Some data series contain breaks due to revised categories or different methods of calculation (marked by *). Thus different years of the same country or the values between countries are not always directly comparable.

Annex Table 3.4. Distribution of P2P users in OECD countries, 2003 (Percentage of all users and percentage of the total population)

	Percentage of all users		P2P users as a percentage of total population, Sept.-Oct. 2003
United States	55.4	Canada	1.2
Germany	10.2	United States	0.9
Canada	8.0	France	0.6
France	7.8	Germany	0.6
United Kingdom	5.4	Luxembourg	0.4
Italy	1.7	United Kingdom	0.4
Spain	1.1	Sweden	0.4
Netherlands	1	Belgium	0.4
Australia	0.91	Switzerland	0.4
Belgium	0.8	Austria	0.3
Sweden	0.7	Netherlands	0.3
Japan	0.7	Norway	0.3
Switzerland	0.6	Australia	0.2
Austria	0.5	Finland	0.2
Mexico	0.3	Denmark	0.2
Norway	0.3	New Zealand	0.2
Korea	0.2	Italy	0.1
Portugal	0.2	Spain	0.1
Poland	0.2	Iceland	0.1
Finland	0.2	Portugal	0.1
Denmark	0.2	Ireland	0.1
New Zealand	0.1	Japan	0.1
Ireland	0.1	Hungary	0.02
Hungary	0.1	Poland	0.02
Greece	0.1	Greece	0.02
Luxembourg	0.04	Korea	0.02
Czech Republic	0.04	Czech Republic	0.01
Turkey	0.03	Mexico	0.01
Slovak Rep.	0.01	Slovak Rep.	0.01
Iceland	0.01	Turkey	0.00
OECD countries	96.9	OECD average	0.24

Source: OECD based on BigChampagne data.

Annex Table 3.5. Change in share of global P2P user base, January 2003 to January 2004

Canada	+4.5%
France	+4.4%
United Kingdom	+3.7%
Germany	+3.6%
Spain	+1.2%
Japan	+1.1%
Austria	+0.8%
Netherlands	+0.7%
Belgium	+0.6%
United States	-23.53%

Source: OECD based on Big Champagne data.

Annex Table 3.6. Market shares of music majors (by value), 2003, OECD countries

	BMG	EMI	SONY	UNIVERSAL	WARNER	INDEPENDENTS
North America						
Canada	11.5%	11.9%	14.9%	28.7%	14.4%	18.6%
USA	15.8%	10.4%	11.9%	27.8%	15.9%	18.2%
TOTAL	15.5%	10.5%	12.1%	27.9%	15.8%	18.2%
Europe West						
Austria	10.8%	15.4%	8.5%	30.7%	11.0%	23.6%
Belgium	10.3%	20.6%	13.4%	27.5%	8.3%	19.8%
Czech Republic	10.8%	20.4%	15.1%	24.3%	11.3%	18.2%
Denmark	7.2%	40.1%	13.9%	20.2%	11.3%	7.2%
Finland	9.2%	15.9%	9.1%	17.1%	13.7%	35.0%
France	8.1%	15.8%	16.9%	34.1%	14.4%	10.7%
Germany	19.3%	12.7%	10.3%	24.3%	10.8%	22.6%
Greece	0.0%	35.4%	14.0%	19.2%	8.0%	23.4%
Hungary	10.3%	13.4%	6.4%	14.3%	15.0%	40.7%
Ireland	13.3%	20.9%	17.8%	32.7%	13.8%	1.5%
Norway	8.1%	22.0%	10.8%	22.3%	11.5%	25.3%
Netherlands	13.0%	17.8%	13.9%	20.5%	9.4%	25.5%
Poland	12.3%	17.4%	10.1%	23.2%	12.7%	24.2%
Portugal	5.7%	22.8%	10.8%	15.5%	8.7%	36.5%
Spain	11.3%	11.2%	12.1%	16.9%	20.2%	28.3%
Sweden	10.2%	21.6%	12.5%	19.0%	13.6%	23.1%
Switzerland	12.0%	14.2%	11.0%	23.3%	11.2%	28.2%
UK	12.3%	19.6%	9.7%	25.9%	12.8%	19.7%
TOTAL	12.5%	17.3%	12.1%	25.6%	13.0%	19.4%
Asia						
Japan	3.7%	10.4%	16.2%	13.0%	5.1%	51.6%
TOTAL	7.2%	14.4%	13.0%	15.3%	12.2%	37.9%
Australasia						
Australia	12.1%	18.4%	16.9%	20.1%	15.2%	17.4%
New Zealand	9.0%	18.9%	17.4%	21.9%	14.5%	18.3%
TOTAL	11.7%	18.4%	16.9%	20.3%	15.1%	17.5%

Source: IFPI.

Annex Table 3.7. Domestic repertoire 1999 - 2003 as a % of market value (excluding multi-artist product)

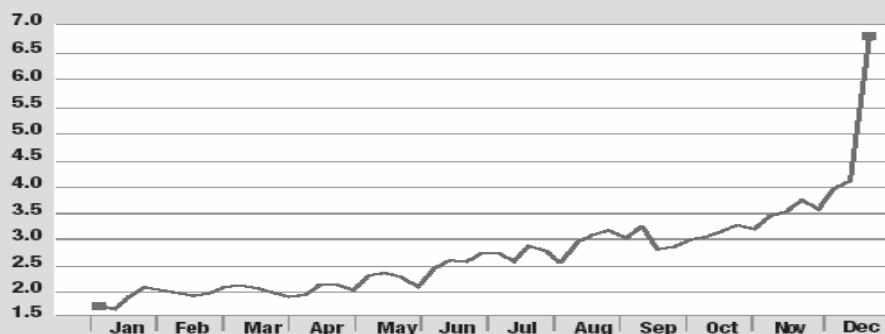
	1999	2003
USA	92%	93%
Turkey	79%	93%
Japan	77%	72%
France	54%	60%
Korea	60%	60%
Greece	56%	59%
Mexico	49%	54%
Iceland	42%	53%
Czech Rep.	52%	51%
Finland	42%	49%
Germany	43%	48%
Italy	43%	48%
UK	49%	47%
Spain	32%	46%
Denmark	35%	42%
Hungary	41%	38%
Poland	30%	38%
Sweden	36%	37%
Slovak Rep.	27%	35%
Portugal	24%	29%
Australia	22%	26%
Canada	11%	22%
Norway	19%	22%
Ireland	27%	19%
Netherlands	23%	19%
Belgium	17%	17%
Austria	15%	14%
New Zealand	5%	11%
Switzerland	9%	10%

Source: OECD based on IFPI. Note that the basis for origin classification differs across territories.

ANNEX 4. EXTRACT OF IFPI DIGITAL MUSIC REPORT 2005

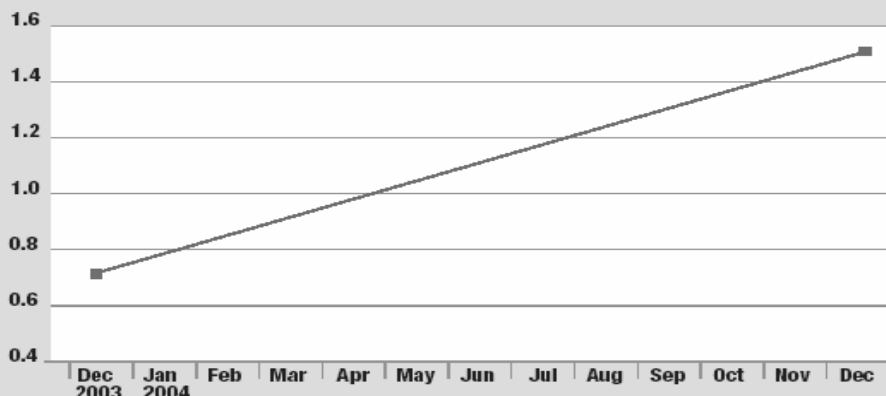
MUSIC SERVICE LAUNCHES IN 2004				
JANUARY	MARCH	APRIL	MAY	JUNE
MyCokeMusic: UK	Wal-Mart: US	Sony Connect: US MSN Music: Australia	Napster 2.0: UK, Canada MyCokeMusic: Austria	iTunes: UK, Germany, France
JULY	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Sony Connect: UK, Germany, France	Virgin Digital: US	iTunes: Austria, Belgium, Finland, Greece, Italy, Luxembourg, Netherlands, Portugal, Spain MSN Music: UK, France, Germany, Italy, Netherlands, US, Japan	MSN Music: Belgium, Spain, Norway, Denmark, Sweden, Finland, Austria, Switzerland MyCokeMusic: Switzerland Tesco: UK	iTunes: Canada

US DIGITAL WEEKLY SALES 2004 (MILLIONS)



Source: Nielsen SoundScan, single track downloads only (excluding album downloads and streams)

GROWTH IN US SUBSCRIBERS TO MUSIC SERVICES (MILLIONS)



Source: Rhapsody, Napster, MusicNet, MusicMatch, eMusic (public announcements)

Source: IFPI Online Music Report 2005.

SERVICE	COMPANY PROFILE	REACH and LAUNCH	MAIN PARTNERSHIP DEALS	BUSINESS MODEL	CATALOGUE	SALES TO DATE
Apple iTunes www.apple.com	Apple released the first iPod in October 2001. The iTunes Music Store followed in April 2003 and both have been a significant success	15 countries First launched in the US in April 2003 and expanded into three key European markets. Further launches in Europe were announced in October, followed by the Canadian launch in December. The service is expected to reach Japan in 2005	Partnerships announced with Motorola and Hewlett-Packard	<i>A la carte</i> downloads	Between one million and 700 000 songs depending on the territory	230 million by January 2005
MSN Music www.msn.com	Microsoft's MSN Music is driven by OD2 technology in the main European markets and by cdon.com in Scandinavia. In the US, the service was fully developed by Microsoft	20 countries Reached the US, UK, France, Germany, Netherlands, Japan and Italy in October 2004. Further European launches took place in November	Deal with GarageBand.com offers highlights of music and content from the community's top-rated independent artists (GarageBand.com Hub Page). MSN also has a promotional tie-in with American Express	<i>A la carte</i> downloads	Over one million songs	Not available
Napster www.napster.com	Created by Shawn Fanning in 1999, Napster became world-famous for being the pioneering file-sharing network. The service was closed down in July 2001 and acquired by Roxio in November 2002. Napster 2.0 emerged in October 2003 in the US as a legitimate online service	US, Canada, UK Napster 2.0 launched in the US in October 2003, and in UK and Canada in May 2004	AT&T Wireless will allow Napster subscribers to transfer songs to a mobile phone. The mobile phone will be sold by Orange in the UK (Napster To Go). Tie-in with Blockbuster launched the Digital Duo card in the US and Blockbuster Online DVD rental	Subscription (unlimited streaming) and <i>à la carte</i>	Over one million songs	270 000 paying subscribers as at December 2004
Sony Connect www.connect.com	Launched by Sony	US, UK, Germany and France The service was first launched in the US in April 2004 and expanded into Europe in July. Plans further European expansion during 2005	Promotional tie-ins with United Airlines and Intel	<i>A la carte</i> downloads	650 000 songs	Not available

SERVICE	COMPANY PROFILE	REACH and LAUNCH	MAIN PARTNERSHIP DEALS	BUSINESS MODEL	CATALOGUE	SALES TO DATE
Rhapsody www.rhapsody.com	Listen.com was the first independent service to offer content from all five majors, launching Rhapsody just before MusicNet and Pressplay. In April 2003 RealNetworks bought Listen.com and consequently Rhapsody, which started using RealNetworks technology as its primary platform.	US only. Launching in the UK and Europe in 2005 Originally launched in December 2001. Re-launched in May 2003	Rhapsody has partnerships with Comcast (broadband provider) and BestBuy	Subscription (unlimited streaming) and <i>à la carte</i>	850 000 songs available for streaming and over 750 000 available for purchase. More than 90% of the available tracks are streamed at least once each month	625 000 paying subscribers at the end of Q3 2004 representing a growth of 145% on Q3 2003. The average paying subscriber streams more than 250 songs each month, the equivalent of more than 25 CDs
Virgin Digital www.virgindigital.com	Service launched by the Virgin Group following the partnership between Virgin Digital and MusicNet	US only September 2004	Foot Locker promotional deal	Subscription (Virgin Digital Music Club) and <i>à la carte</i> (Virtual Virgin Megastore)	Over 1 million songs for streaming and purchase	Not available

Source: Adapted from IFPI (2005): *Digital Music Report 2005*.

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NOTES

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- ³ Other reasons for broadband uptake were: speed of access, avoid busy-tone of the telephone line, have a flat-rate, have an always-on connection.
- ⁴ See also Bourreau & Labarthe-Piol (2003).
- ⁵ Adapted from Vogel (2004).
- ⁶ US Ninth Circuit Court of Appeals (2004), *MGM et al. v. Grokster et al.*
- ⁷ Vogel, H. (2004); Krasilovsky and Shemel (2003); and Recording Industry Association of America/RIAA (2004), www.riaa.org; provide an account of the history of the music business.
- ⁸ Although not counted in these figures, Radio and TV/Video continue to be major release windows for music. Internationally, music videos, TV, and radio airplay are more important as marketing tools rather than revenue generators for the recording industry (Park Associates, 2003).
- ⁹ These observations from the music industry are taken from the first OECD Panel on Broadband Content. Summarised in OECD (2004b).
- ¹⁰ A codec is an algorithm for compressing and decompressing audio and video files without losing a significant amount of information. Once a file has been compressed by a codec like MP3 or RealAudio, it is smaller and easier to transmit across the Web, and still sounds fairly true to the original.
- ¹¹ Recording Industry Association of Japan (2004), Japanese industry association, www.riaj.or.jp/e/index.html.
- ¹² Global sales figures in USD and associated growth figures must be used with caution due to fluctuating US dollar exchange rate which can make year-to-year comparisons difficult.
- ¹³ Particularly the data on global sales values that masks the underlying exchange rate fluctuations must be used with some caution, however.
- ¹⁴ IFPI (2004), www.ifpi.org.
- ¹⁵ RIAA (2004), www.riaa.org.
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- ¹⁷ Jung, Ally Hawon (2004). "Downloading Pushes S. Korean Stores to Brink," story reports 95% of music retail businesses in the country failing in the last five years, with online shopping and other music distribution through large retail chains increasing competition.
- ¹⁸ Zuel, Bernard (2004), "Sound of Cash Registers is mMusic to the Ears," www.smh.com.au/articles/2004/03/18/1079199330947.html.

- 19 The campaign included lawsuits against hundreds of large-scale Internet users; the dispatch of millions of instant messages to file-swappers; mass information campaigns in colleges and universities in over 20 countries; and the launch of the international educational Web site www.pro-music.org.
- 20 The files appear to be music files, but are in fact defective copies. Generally, spoofing has been considered to be a lawful form of technological self-defense. Critics, however, have disputed its efficacy, since several techniques have been developed to weed out the fake files. See, e.g. Johan Pouwelse, "The BitTorrent P2P file-sharing system," *The Register* (18 December, 2003), available at: http://www.theregister.co.uk/2004/12/18/bittorrent_measurements_analysis/. The industry can also programme computers sharing the spoofed files to upload at slow rates, thereby tying up the P2P user's connection. See BayTSP Corporation, "Combating Online Software Piracy in an Era of Peer-to-Peer File-sharing," at <http://www.baytsp.com/downloads/WhitePaperFinal.pdf>.
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purchases a download, but can only access the track on a specific computer. Other restrictions have been
used around digital downloads, including ownership models that are contingent upon an existing
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97 Sony Connect, for instance, offers songs for unlimited transfer when from own internal record label but
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98 « Fichiers musicaux : le juke-box détaille », by Florent Latrive, Tuesday 13 July 2004, see footnote 88.

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101 Most recently, Napster net losses totalled USD 15.3 million for the quarter ending 30 September 2004,
compared to losses of USD 11.9m during the same period in 2003.

102 In 2004 in the US, some 143 million individual single tracks were downloaded, compared with 5.5 million
albums. Thus around 4% of download purchases are for full albums. At 12 tracks per album, this gives a
single track – album track ratio of 2:1. Source: IFPI.

103 Online data shows that consumers download just one single from an album approximately 85% of the time.
Furthermore, consumers only downloaded entire albums digitally 1% of the time. Source: NPD Group.

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launch) requiring a very strong hosting and infrastructure solution.
- 108 The two largest suppliers of related artist content are AMG (All Music Guide), and Muze. Major stores
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- 110 Yahoo! Finance, www.finance.yahoo.com/q/is?s=lqci.ob.
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- 114 Recent OECD research based on Hitwise data has shown that Internet traffic in general and also in specific
sectors is extremely concentrated on a few sites (OECD, 2004a). In practice, for example, computer and
Internet-related sites (*i.e.* Yahoo!, Net communities or MSN Networks) capture around 40% of all Internet
visits with Entertainment or Shopping sites, for example, capturing only around 7 to 8%. Their advantage
over new music on line stores is thus that they already have a massive user base which promises a large
number of customers to new music online offerings. These sites try to perpetrate their role as “gateways to
content” and to encourage users to spend more time and money.
- 115 The service focuses on music, gaming and education content, brings together 15 brands including
Tweenies by BBC Worldwide, Big Brother, Encyclopaedia Britannica, Freeloader, Music Choice, Time
Tunnel, VidZone and Sonic Selector.
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paying GBP 9.95 a month for the Napster subscription service alone, customers will get the Broadband
Plus (including the Napster offer) for GBP 9.95 per month.
- 117 *Digital Music News*, 9 November 2004.
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www.ce.org/publications/corporate_report/default.asp and updated press release in January 2005 under
www.ce.org/press_room/press_release_detail.asp?id=10650. These trends are confirmed by other sources.
According to IDC, the worldwide portable flash player market grew very strongly in 2003 and is expected

to grow from 12.5 million units in 2003 to over 50 million units in 2008 representing a five-year compound annual growth rate (CAGR) of 20%. Devices that support compressed audio encoding and decoding as a secondary feature, such as DVD players, mobile phones and gaming devices, are expected to lead, being a competitive substitutes for audio-only devices. See IDC - Press Release (2004), "Booming Market for MP3 Players According to IDC's Latest Forecast". www.cdrinfo.com/Sections/News/Details.aspx?NewsId=10625.

120 Based on Sales Data Tracking and Telephone Surveys Conducted by CEA.

121 CNET networks. Hard-drive players with storage capacities from 10 GB to currently around 60 GB can hold the greatest number of songs (*i.e.* the 60GB Creative Nomad Jukebox Zen Xtra around 17 000 songs or Rio hard drive players like Rio Karma 20 GB with capacities up to 10 000 songs. This product innovation has the consequence that consumers can store all their digital music in digital format, making their whole existing music collection more portable. Micro hard drive based players with capacities up to 5GB are more compact. Flash-based players are more shockproof and small/light allowing songs to be taken for sporting activities, for example, but hold less music (from 32 MB to 1 GB). MP3 CD players that can read data CDs file with digital music also exist. This format, however, currently seems in decline as consumers are shifting to digital models.

122 The latest Apple I-Pod for example is also geared for the storage of photos. Technologies - like wireless stereo playback devices that connect players to the home stereo - have been invented that allow for the playing of music over the I-Pod to home or the car stereo (Apple AirPort Express with AirTunes™ lets users wirelessly stream music from their PC or Mac to a stereo located in any room in their home). Complementary devices like portable loudspeakers, special cradles, earphones, etc. are being built by third party companies (Altec Lansing, Bose, UBL, etc.) to fit certain devices. Portable players are also increasingly functioning in automobiles with alliances between iPod and BMW taking the lead ("iPod Your BMW").

123 2003 Annual Report of Apple.

124 Nakamoto, Michiyo (2004), *Japan's electronics industry revived*.

125 "Creative Technology Grows Fourth Quarters Revenues 35% Year-over-Year", Net Income Increases 43% Year-Over-Year SINGAPORE - August 4, 2004.

126 2003 Annual Report of Apple.

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128 Apple Reports Fourth Quarter Results Revenue Increases 37 Percent Year-Over-Year iPod Shipments Top 2 million. October 13, 2004.

129 Any digital music player carrying the "Plays For Sure" sticker is guaranteed to work with MSN downloads.

130 Van Buskirk, Eliot (2004), "Will your next MP3 player be a cell phone?", www.reviews.cnet.com/4520-6450_7-5535370-1.html.

131 "Music Tops Video, Games in Portable Media". *Digital Music News*.

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- 137 Second Workshop on the Economics of Peer-to-Peer Systems, Harvard University (2004), www.eecs.harvard.edu/p2pecon/related.html.
- 138 « Comment *la concentration de la distribution nuit au disque* », in *Le Monde* (22 January 2005).
- 139 “Report And Studies Of The Economic And Sociological Dimension Of Peer-To-Peer”, for a compilation of these studies see www.obs.coe.int/online_publication/expert/impactpiratage.pdf.
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- 142 Quantum study for Australia.
- 143 Liebowitz, Stan J. (2004), “Pitfalls in Measuring the Impact of File-Sharing”, <http://ssrn.com/abstract=583484>
- 144 See Berkman Centre (2005).
- 145 See Amicus Brief of Altnet in support of Defendants, appeal to MGM v. Grokster, 259 F.Supp.2d 1029, available at http://eff.org/IP/P2P/MGM_v_Grokster/20030929_altnet_amicus.pdf (discussing Altnet's licensors); Weed, “CD Baby members use SML's Weed to sell Music,” (June 24, 2004), at http://weedshare.com/web/releases/06-24-04_WEED_RELEASE.html; “Music Producers Hail SML's Weed distribution service,” (December 11, 2003) at http://weedshare.com/web/releases/12-11-03_WEED_RELEASE.html.
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149 www.altnet.com. Also unlike Weedshare, Altnet seeds the file-sharing networks with the content.

150 www.wippit.com.

151 Michael Hill, "Small company has big peer-to-peer dreams," *Cnews* (Dec. 27, 2004) <http://cnews.canoe.ca/CNEWS/TechNews/TechInvestor/2004/12/22/793848.html>; Tony Smith, "Wippit adds 10,000 BMG tracks to catalog," *The Register*, (Mar. 15, 2004), www.theregister.co.uk/content/6/36254.html (on Wippit).

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- 167 European Commission (2004): Anticipating Content Technology Needs, ACTeN, Final Report, www.acten.net/uploads/916/ACTeN_FINAL_REPORT.pdf.
- 168 IDC (2004), “U.S. Paid Music Service Provider 2004-2008 Forecast and Analysis: Sounding Better and Better”, www.mindbranch.com/listing/product/R104-15970.html.
- 169 See also the Subcommittee on Courts, the Internet, and Intellectual Property Oversight Hearing on “Digital Music Interoperability and Availability”, <http://judiciary.house.gov/Oversight.aspx?ID=129>. This shows that legitimate questions have been raised regarding the impact of digital interoperability on consumers.
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- 171 See WIPO Study on Current Developments in the Field of Digital Rights Management, Prepared by Jeffrey P. Cunard, Keith Hill and Chris Barlas (WIPO Document SCCR/10/2, 4 May 2004).
- 172 Presentation of François Bruns (Alcatel) during the ICCP Future Forum in October 2004.
- 173 Minister for Innovation and Technology; Ministry of Communications; Ministry of Cultural Heritage; Ministry of Justice; Minister for European Affairs; Ministry for International Affairs.
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- 177 Based on a contribution from WIPO.
- 178 For further information, see Mihály Ficsor, “Collective management of Copyright and Related Rights” (WIPO ed.), Geneva 2002. CMOs operate in the fields of music, literary and dramatic creation as well as for audiovisual productions and performances. They licence activities such as communication to the public and cable retransmission of broadcasting programmes, mechanical reproductions, reprography and copying of digital texts, public lending, the artist’s resale right, private copying and certain educational uses. In the field of music, ‘singer-songwriters’ have the right to earn royalties from activities that include sale of published music, broadcasting, performance by third parties, synchronisation of music in films, and re-recording. Musical artists therefore frequently entrust their rights to CMOs in order to manage and collect royalties from all these forms of exploitation.
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shift music for players of their choosing. Similarly, online stores eliminate first sale rights - if applicable to the online environment at all by - contractual or technological means.

194 Comments on the OECD Working Party on the Information Economy Draft Report “Digital Broadband
Content: Music” submitted by Berkman Center for Internet & Society, Harvard Law School (William W.
Fisher, Urs Gasser, Derek Slater, Meg Smith, and John Palfrey), 10 January, 2005. See Chantepie (2003),
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Jeffrey P. Cunard, Keith Hill and Chris Barlas (WIPO Document SCCR/10/2, 4 May 2004) for studies in
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Gartner|G2 & Berkman Center’s Whitepaper “Copyright and Digital Media in a Post-Napster World”
(updated edition 2005), discussing case law and legal developments. For an overview of the relevant case
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Quash Subpoena Served by the Recording Industry Association of Ameff.org E.D.Mo., Case No. 4:03
MC00273CEJ, October 3, 2003, paragraph 6.

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