



ASK (Art, Science and Knowledge)
Laboratorio di economia e gestione delle istituzioni
e delle iniziative artistiche e culturali

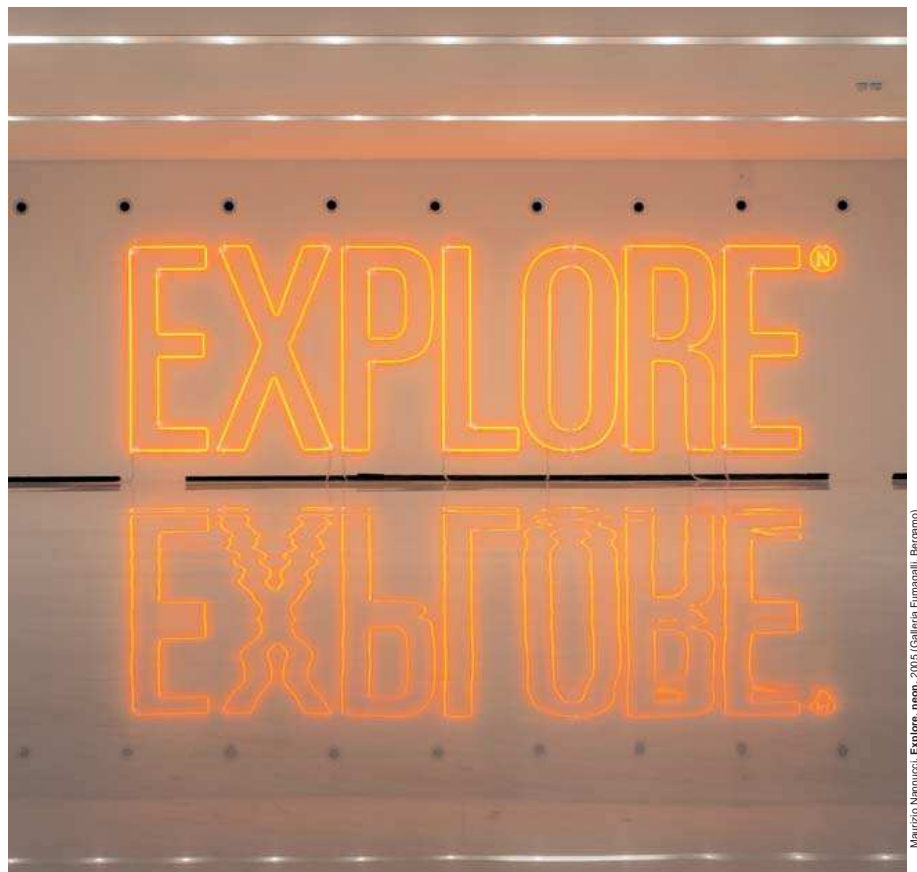
Quaderni ASK

1/2012

Digital music

**An empirical analysis for an evolution
of legal consumption to contrast piracy**

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Introduction

The following paper presents a snapshot of the digital music market, through the analysis of a sample of digital music services available on the web. The aim is to provide general suggestions for an improvement of the legal supply of digital music on the web by acting on the legal offer itself, understanding its drawbacks and its point of strength, in order to make it more appealing to music users.

The digital evolution has strengthened a tension between intellectual property and accessibility of content: content providers, both individual and corporate, are rightholders who have started to argue against piracy, which in the last decade has been deemed to threaten protection of content and industry incomes.

Considering this tension, the question that needs to be formulated to address the problem is the following: how is it possible to both satisfy the need for using creative content by consumers and the need for legal protection of content?

Literature regarding piracy lacks of shared framework and consistent gathering of data about the impacts of piracy on revenues of creative industries¹, since “such activities tend to take place outside of the formal economy”² (IPCG, 2010); however music industry statements report that free file sharing of content on pirate networks has been deemed to cause radical changes in the music business and a general decline of profits³.

The worrying aspect of the music industry in particular is that illicit behaviours are quite largely diffused among consumers⁴, and this is considered to be widely influencing the industry revenues⁵.

Even though in 2010 industry pressures lead to the closure of some pirate services, such as *Pandora* and *Limewire*, rightholders still fear that illicit consumption remains the biggest threat for the future of the digital music market⁶.

Besides blocking the most diffused illegal services for the fruition of copyright content – measure whose efficiency is doubtful – this study suggests how music industry should react to piracy⁷ emphasizing the strengths of the legal market⁸: in particular, this research is aimed at

¹ A. BALESTRINO, *It Is a Theft But Not a Crime*, in *24 European Journal of Political Economy*, 2008/2, pp. 455-469; S. DEJEAN, *What can we learn from empirical studies about piracy?*, CESifo Economic Studies, 2009/2, at 236.

² IPCG, IP Crime Group Annual Report, 2010, at 5.

³ IFPI, The recording industry piracy report 2006, *Protecting creativity in music*, 2006, available at www.ifpi.org/content/library/piracy-report2006.pdf

⁴ C. HILL, *Digital piracy: Causes, consequences, and strategic responses*, *24 Asia Pacific Journal of Management*, 2007/1, 9, p. 2 and A. BALESTRINO, *supra* note 1, at 455.

⁵ IFPI, Digital Music Report 2011 *Music at the touch of a button*, 2011, <http://www.ifpi.org/content/library/DMR2011.pdf>: from the report it is possible to discover that the percentage of illegal consumption varies from country to country, but for example in Spain, which is one of the countries detaining the highest piracy rates, unlicensed services are accessed by 44% of active internet users.

⁶ C. HILL, *supra* note 4, at 2.

⁷ With “piracy” it is meant illegal file sharing on peer to peer computer networks with consequent illicit download of copyrighted content.

⁸ R.K. SIHNA, N. MANDEL, *Preventing digital music piracy: the carrot or the stick?*, in *Journal of Marketing*, American Marketing Association, 2008/72, 1, pp. 1-15.

suggesting which aspects of the digital music legal offer should be improved in order to decrease the need of using pirate services.

Currently about 400⁹ licensed digital music services (which means digital music stores, music on demand services and also live streaming web radios) are available on the legal market (IFPI, 2011). This study will analyze a dataset of 120 digital music on demand services to get a concrete idea of the current legal scenario and to underline some criticalities that should be improved. After analysing the service offered, this research will discover the main causalities related to such critical points, in order to suggest possible solutions to cover the “gap” between consumers expectancies and the legal offer. This way, with an improvement of the offer and emphasizing the security and reliability aspects of legal consumption, more music consumers should be shifted from the illicit market to the legal one, with a consequent consistent reduction of piracy.

1. The context

1.1 The digital music industry today¹⁰

A report made by the International Federation of the Phonographic Industry (IFPI) in January 2011 reported that, while the global music market revenues have been decreasing of about 31% during last years, in 2010 the digital music market reached 4,6 billion US Dollars of value. In 2010 more than a quarter (29%) of the total revenues of music industry has come from digital channels¹¹. The current leader of the market is *iTunes*, with about 70% of market share in the US, which is popular also for its “à-la-carte” download service: it facilitates the purchasing process requiring to provide the credit card number only the first time the user makes a purchase.

To improve the current situation and decrease the amount of illegal services, music industry is currently focused on the following main matters, which are aimed at the creation of an effective alternative to piracy¹²:

- knowing all the music consumers (both legal and illegal ones) and their needs
- make music available everywhere, accessible from several devices and from different places
- diversification of music business models
- keeping intellectual property safe

⁹ IFPI, *supra* note 5, at 11.

¹⁰ In order to furnish a proper picture of the current music industry landscape, several literature sources have been consulted for this research, but, among all of them, the official industry reports have resulted to be the ones providing more detailed and accurate figures. As a consequence, most of the data presented will be coming from IFPI International Federation of Phonographic Industry. Additional information has been collected from H.L. VOGEL, *Entertainment industry economics: a guide for financial analysis*, Cambridge University Press, Eighth edition, 2011 and D. S. PASSMAN, *All You Need to Know About the Music Industry*, Rosetta Books LLC, New York, 2010.

¹¹ IFPI, *supra* note 5, at 5.

¹² *Id.*, at 10.

In addition to this, it is necessary to underline the crucial problems emerging from the current music market situation, which are commonly recognized in¹³:

- a low level of awareness of legal services among consumers, caused probably by a not enough developed marketing action;
- a general delay in the European digital music sector, affected by a strong difficulty in managing publishing rights worldwide, together with the need of improving the licensing methods still not standardized for the several territories, which still create numerous problems to collecting societies' activity;
- consumers' reluctance to pay online, which is still high in some countries and is influenced by the low level of usability of the services.
- especially in Europe, piracy more diffused and developed, with approximately 29,8 million file sharing users.

More than this, at the basis of this evolution there is education of consumers: we are facing an historical moment of disregard towards copyright and content property¹⁴ (Balestrino, 2008) and the focus for a change should start from understanding the music demand.

1.2 Music demand, legal and illegal music consumption: a literature review

1.2.1 Why do people prefer to consume music on illegitimate services?

The 70% of total music consumption in Great Britain, France, Germany and US in 2010 has been through digital channels, but only 35% of their total music revenues come from digital income¹⁵: evidently there is still a huge final demand of music not completely exploited.

Why do people prefer to consume music on illegitimate services?

The main reason recognized as the crucial lever to download illegally is that consumers are attracted by the **gratuity** of the services¹⁶ (Bahanovich, Collopy, 2009).

An ISPI survey reports that legal downloading is just at an early stage in Europe, since only 4% of internet users use legal music stores regularly; only in the UK and in Germany regular legal buyers exceed peer to peer users of 1%¹⁷. The ISPI Survey states also that 50% of P2P users would never pay to download music; only a 25% would¹⁸.

The main **reasons for file sharing** are recognized in the following list:

- Cost: it's free¹⁹
- To find music not commercially available (i.e. not yet released)²⁰

¹³ Id., at 11; S. GORDON, *The future of the music business: how to succeed with the new digital technologies. (A guide for artists and entrepreneurs)*, San Francisco, CA, Backbeat Books, 2005.

¹⁴ A. BALESTRINO, supra note 1, at 460.

¹⁵ IFPI, *Digital Music Report 2010 Music how, when, where you want it*, 2010, <http://www.ifpi.org/content/library/DMR2010.pdf>, p. 18.

¹⁶ IFPI, supra note 5, at 5 ; D. BAHANOVICH, D. COLLOPY, *Music experience and behaviour in young people*, University of Hertfordshire, 2009.

¹⁷ IFPI, supra note 3, at 11.

¹⁸ IFPI, supra note 3, at 11.

¹⁹ C. HILL, supra note 4, at 17.

- To experiment and “try before, then buy”²¹
- Very weak fear of legal penalties²²
- Easy to be used and immediate service²³
- People do not share the idea that online piracy is wrongful and immoral²⁴
- Equity reasons: the perceived value relative to price is considered unequal²⁵

However, a survey conducted by the University of Hertfordshire in 2009 reports that 85% of young (14-24 years old) P2P downloaders “would be interested in paying for an unlimited, all-you-can-eat MP3 download service”²⁶(Bahanovich, Collopy, 2009); 57% of these said such a service would stop them using unlicensed P2P services.²⁷ Illegal downloaders seem to be aware that such activities are not legitimate²⁸, but they still keep on doing what technology allows them to do²⁹. 56% of the interviewed agree that technology manufacturers should pay a fee to compensate artists for their work. There is a huge enthusiasm for the streaming services, but 78% of respondents said they would not pay for such services³⁰.

University of Heltfordshire’s research showed also the key drivers leading a music consumer not to use illegal services.

This study (Bahanovich, Collopy, 2009) identifies that the main **reasons for not file-sharing** in the following list:

- Equity: the artists/songwriters are not paid (27%)³¹
- Legality: fear of penal consequences (23%)³²
- Security: worries about viruses and spywares (34%)³³.

What is clear is that there’s a huge need of implementing the awareness of legal value of copyright of content and of penalties for eluding it. Moreover, the focus to improve the current legal offer should be on music listeners’ needs and on music file sharers’ habits, in order to create an appropriate offer and, consequently, drive them to legitimate services.

Actually, the Hertfordshire University’ s survey reveals also that only 15% of music consumers would still continue using illicit services³⁴, when an unlimited paid-for download

²⁰ D. BAHANOVICH, D. COLLOPY, supra note 16, at 17.

²¹ “40% said their main reason for filesharing is to save money or because it's free. 23% said they did so to get hold of music they could not buy (for instance, pre-releases, DJ mixes) and 22% to experiment and try-before-they-buy.” From D. BAHANOVICH, D. COLLOPY, supra note 16, at 17. This concept is closely related to the fact that music is an experience good, as illustrated in C. HILL, supra note 4, at 10.

²² A. BALESTRINO, supra note 1, at 455; D. BAHANOVICH, D. COLLOPY, supra note 16, at 17; C. HILL, supra note 4, at 5.

²³ D. BAHANOVICH, D. COLLOPY, supra note 16, at 18 and C. HILL, supra note 4, at 6.

²⁴ A. BALESTRINO, supra note 1, at 455 and C. HILL, supra note 4, at 5.

²⁵ C. HILL, supra note 4, at 5; P. BRINDLEY, T. WALKER, *Digital Music attitudes and behavior report*, The leading Question, UK, 2009.

²⁶ D. BAHANOVICH, D. COLLOPY, supra note 16, at 18.

²⁷ Id., at 19.

²⁸ Id., at 23.

²⁹ Id., at 17.

³⁰ Id., at 17.

³¹ Id., at 17.

³² C. HILL, supra note 4, at 3; D. BAHANOVICH, D. COLLOPY, supra note 16, at 17.

³³ D. BAHANOVICH, D. COLLOPY, supra note 16, at 17.

service would be provided to them; this underlines how an appropriate legal offer might decrease piracy.

1.2.2 What do music consumers need and expect from a digital music service?

In the attempt to answer this question, the literature review allows to make the following considerations about this issue.

a) “Consumer becomes the king”: personalization of the service, playlists, embedding tools, shared content and recommendations

The digital era has increased music consumption in quantitative terms, especially because consumers can access music from several devices, choosing between subscription models or à la carte offers, downloading or streaming services, free or paid products. Moreover, users have become producers of content, since they can upload music and self-publish their works: the entry-barriers to the industry have definitely fallen down.

In such a context, “consumer becomes the king”³⁵ (Levy, 2006), meaning that digital users are able to discover music, buy and promote it through social networks and other internet tools: music consumers have now become the real marketers and distributors of music content, thus causing some of the most consolidated figures of the industry to result unnecessary in the value chain.

The importance gained by music users is exemplified by the diffusion of tailor-made services on the net, thanks to the increasing presence of instruments for personalising a music service, such as playlists, recommendations and embedding tools³⁶. In Berkman Center’s opinion, one fourth of frequent online music consumers gives much importance to the ability of sharing music with others at the moment of selecting an online music service³⁷ (McGuire et al., 2005). The recommendations provided on the websites seem to be fundamental for another one-tenth of online music purchasers when they have to decide among several music items to buy. The relevance given to favourite tastes, recommendations and sharing tools finds its evidence also in the fact that the new developed technologies are often based on a sort of “memory of tastes”³⁸. This way the consumer-generated recommendation tools are acquiring an always wider importance in music services.

Moreover, users are about to face a scenario characterized by transactions driven by C2C³⁹ taste-sharing applications, such as ranking tools and playlist of favourite contents⁴⁰.

³⁴ Id., at 19.

³⁵ A. LEVY, Chairman and CEO of EMI Music on LBS London Media Summit, October 2006, published on www.ifpi.org/content/section_views/view024.html.

³⁶ Embedding tools are defined in this case as the instruments and systems to share content on social networks or other websites (e.g. embedding codes, widgets, etc.); in this text they will also be named as “sharing tools”.

³⁷ M. MCGUIRE, D. SLATER, *Consumer Taste Sharing Is Driving the Online Music Business and Democratizing Culture, the Berkman Center for Internet and Society at Harvard Law School*, Publication Date: 13 December 2005, p. 5.

³⁸ Discovering new music on music websites and be given other recommendations powered by the previous listenings of the user.

³⁹ Consumer to consumer, from M. MCGUIRE, D. SLATER, *supra* note 37, at 5.

⁴⁰ M. MCGUIRE, D. SLATER, *supra* note 37, at 5.

Considering this, sharing options and personalization of the service (which includes playlists and recommendations) appear to be two fundamental features to be needed by an online music provider.

b) A new value to music and new consumption behaviours

Several research studies show how consumption behaviours of music listeners have changed with the digital innovation: almost 70% of MP3 owners all over the world listen to music more often since they have their mp3 player⁴¹; people are more keen than ever on music and they consider it as a crucial part in their daily life. Another important data is that 43% of young adults tend to delete tracks when they become bored with them⁴²: there is the tendency not to build up big collections of music catalogues in personal music devices⁴³. This fact is completely new if compared with some decades ago, when nobody could think about “throwing away” physical albums. This is the reason why some studies report that people don’t really need to own music anymore⁴⁴; this might represent a reason for streaming and clouding services to be gaining so much success.

Paradoxically, nowadays there is a much greater offer of music and consumers can access a much bigger catalogue, but, surprisingly, few people tend to know who sings a specific song, the title and other information that, differently, for the purchasing of a physical album were fundamental. Music consumers seem to be now less involved in the relationship with the song and the artist.⁴⁵ This might be a reason behind the devaluation of music value and concept for some consumers, which makes them recur to illegal services with no sense of guilty.

c) Interoperability of content

A survey⁴⁶ conducted by the *Berkman Center for Internet and Society* reported that there is a quite regular consumption of music and that the importance of using different devices should not be underestimated. Similarly, a survey conducted by the University of Hertfordshire states that 87% of young (14-24 years old) P2P downloaders consider transferability of content very important⁴⁷.

Actually, it is possible to say that one of the key drivers of a digital music service is the portability and transferability of music files to portable players: 45%⁴⁸ of file sharers transfer music on portable devices. Illegal downloading provides almost all compatible formats, while legal services have often several restrictions on file formats or on the

⁴¹T. SCHINABECK, *Music consumer behaviour on the way to the age of access*, in *Digital Wave Riding*, 2007, available at <http://digitalwaveriding.wordpress.com/2007/12/02/music-consumer-behavior-on-the-way-to-the-age-of-access/>, Last Accessed on November 10th 2010.

⁴² *Id.*, at 1.

⁴³ D. BAHANOVICH, D. COLLOPY, *supra* note 16, at 9.

⁴⁴T. SCHINABECK, *supra* note 41, at 1.

⁴⁵*Id.*, at 1.

⁴⁶ M. MCGUIRE, D. SLATER, *supra* note 37, at 7.

⁴⁷ D. BAHANOVICH, D. COLLOPY, *supra* note 16, at 12.

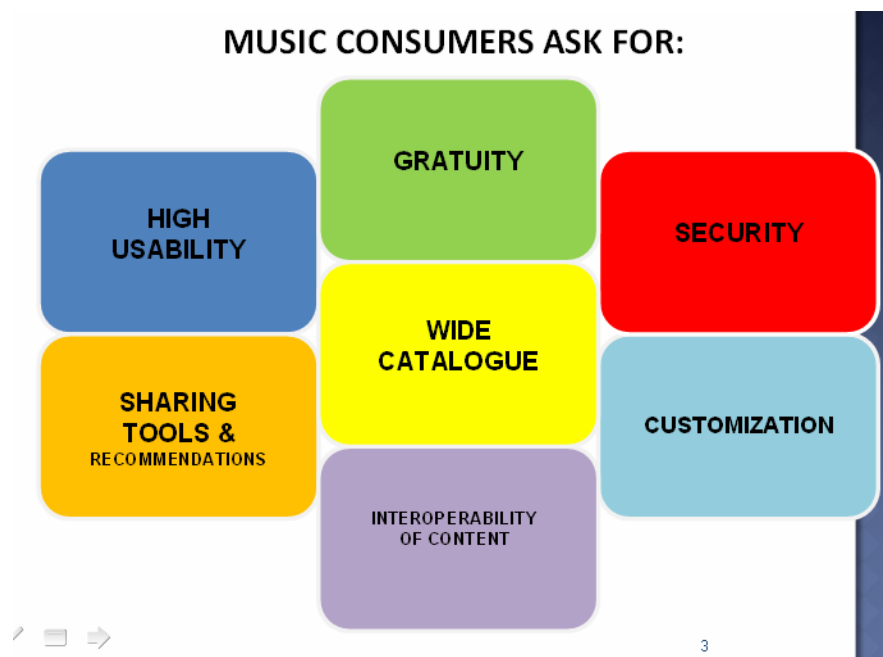
⁴⁸ IFPI, *New IFPI Research into consumer behaviour*, IFPI Report, 2006, available at http://www.ifpi.org/content/section_resources/digital-music-reportc.html: IFPI's survey was conducted by Jupiter/IPSOS from a sample of 3,929 randomly selected adult internet users in five European countries: Germany, UK, Spain, France, and Sweden. The survey consisted of face-to-face interviews in November 2005.

number of downloads or on the number of devices to transfer music to. This is another reason that increases reluctance of several music consumers to use legal services.

Concluding, in order to answer to the question “What do music consumers expect from a digital music service?” it is possible to summarize their needs in the following list:

- Accessibility to content everywhere and at anytime
- Playing music in as many devices as possible
- Sharing content with others
- Making playlists
- Recommendations and advice to direct their choices
- Filters for quality and authenticity
- User-friendly services
- Security and privacy
- Customization and personalization
- Accessibility to wide and complete catalogues

Graph 1: Music consumers' needs



Source: personal elaboration from literature review (Hill, 2007; Bahanovich et al., 2009; Balestrino, 2008; McGuire et al, 2005)

It's clear that music industry needs to know its consumer to provide him appropriate services, personalized content and easy to be used interfaces. These needs must be considered together with the reasons behind file sharing, in order to move illegitimate users to use legal services.

As gratuity seems to be fundamental in the decision making process of downloading, free services (with or without AD) could be the best solution to such kind of users. Another important issue is the file format, which should be transferable and compatible with the majority of music players; the wideness of the available repertoire should be taken into consideration too, in order not to make users go searching for rarities on illegitimate services.

Moreover, as the Berkman Center's research⁴⁹ suggests, there's the need of investigating the dynamics of playlists and recommendations in order to use them to direct and influence marketing strategies and promotion for music, since consumers seem to be very interested in sharing options and playlists⁵⁰.

In order to improve the process of music sharing among consumers, the process of licensing rights should become faster and easier, to allow users to publish copyrighted songs on playlists and generate additional revenues. "*Rights holders (including publishers and performance rights organizations) should look to create licensing schemes, such as blanket podcasting licenses, which provide the flexible use of content by consumers.*"⁵¹ (McGuire et al., 2005). Moreover, "*Music labels and rights holders will have to ensure that their contracts with online retailers are designed to allow for maximum flexibility in the consumer sampling of content.*"⁵² (McGuire et al., 2005). And thus, "*By allowing more flexibility in licensing terms to allow full-song sampling for songs, including in published playlists, ..., online stores will be able to drive additional sales by taking advantage of consumers' interest in taste-sharing tools.*"⁵³ (McGuire et al., 2005). Actually, sharing tools have proved to increase loyalty of a music consumer, who is more likely to subscribe or pay for downloading⁵⁴ (McGuire et al., 2005) and who starts consuming also old repertoire music, generating additional revenue streams for the content providers⁵⁵ (Anderson, 2004). A fundamental matter is the presence of third party links on these websites: the music sharing with no monetary implications could guarantee some benefits for rights' holders if a link to third party websites is inserted beside the playlists and applications: playlists on a music website should drive the user to other C2C taste-sharing websites. This would increase incremental traffic and generate remuneration on the long run.

The increase in the accessibility of content has caused an increment in music diffusion: consumers may need a driver line to define their searches, to direct their awareness of content. This is the reason why recommendations and playlists become fundamental in the new online music market to improve the consumption experience.

Moreover, on social networks people have the possibility to send links to full version songs and stream them online. It's fundamental to underline how these sharing tools and these forms of connectivity among users are an important source to gather information about consumption.

From the analyzed literature review, piracy seems to be much established on consumers' habits and moreover "*social condemnation of digital piracy is not strongly felt.... It is therefore clear that an anti-piracy social norm has no collective value.*"⁵⁶ (Baestrino, 2007). Therefore, this study is aimed at following the idea that it is necessary for the digital legal sector to continue operating against piracy, asking for regulations, sanctions and blocks, but it is also much important to shape legal services on consumers' needs and render them **more**

⁴⁹ M. MCGUIRE, D. SLATER, *supra* note 37, at 5.

⁵⁰ See Figure 2 and Figure 3 in M. MCGUIRE, D. SLATER, *supra* note 37, at 7-8.

⁵¹ *Id.*, at 12.

⁵² *Id.*, at 12.

⁵³ *Id.*, at 12.

⁵⁴ *Id.*, at 8.

⁵⁵ C. ANDERSON, "The Long Tail", *Wired* (Oct. 2004), at <http://www.wired.com/wired/archive/12.10/tail.html>

⁵⁶ A. BALESTRINO, *supra* note 1, at 457.

appealing, “learning” from piracy how consumers wish to use music and, this way, providing very competitive services able to combat the illicit ones.⁵⁷ (Hill, 2007).

2. The research

In order to understand which are the main drawbacks and strengths of the current legal digital music services supply, an empirical analysis on digital music online distribution has been conducted.

120 Legal websites⁵⁸ providing digital music products have been analysed from June 2010 to June 2011, classifying them on the basis of their business models, legal frameworks and other relevant features.

These digital products are associated together because, when they are original and novel, they all fall under copyright law protection and their exploitation is about making third parties access and use a content owned by a rights’ holder through a licence. Rights’ holders are entitled to license such content to third parties and they are entitled also to prevent third parties to use and access that content.

2.1 Method of selection⁵⁹

a) Data selection criteria

In the following study *only* the music services providing digital **music on demand content** have been taken into consideration; in particular online music stores, free music distribution legal websites, Creative Commons or open source online music websites (commercial and non commercial) and digital music hosting services (i.e. content uploaded).

Websites providing *only* live streaming contents (such as webradios) have been excluded from the following analysis. Similarly, websites selling only physical products, or content without the authorization of rights’ owner are not part of the project. Finally, websites providing only links to other websites or other services whose main activity is not about download or streaming of music are excluded.

b) Data collection method

The dataset has been created in the attempt of representing the current digital music market in the best possible way. In order to do this, two main criteria have been used to select and collect the websites : popularity and legality.

In order to find the most popular websites used by digital media consumers, **internet search engines** (in particular *Wikipedia* and *Google search*), **Google Ad Planner** and **Industry Reports** have been the main reference (i.e. *IFPI Digital Music Report*).

⁵⁷C. HILL, *supra* note 4, at 3.

⁵⁸ This digital services’ analysis is part of a broader study, the FP 7 Counter Counterfeiting & Piracy Research 2010, which is a European research project about pirated and counterfeited digital leisure goods (such as music, videos and videogames), conducted by Bocconi University in collaboration with other international universities.

⁵⁹ To describe the data selection, the data collection and the analysis the reference is made to Bocconi University Counter deliverable D12: M.L. MONTAGNANI, M. BORGHI, *Models for managing intellectual property rights on the Internet: Online Distribution of Digital Media Content*, Counter Publications, 23rd October 2009, available at <http://www.counter2010.org/research/publications/>, since the data selection method and sources for collection are the same.

Moreover, Industry Reports together with **Industry Associations Members Lists**⁶⁰ have been fundamental to verify the legality of an online media service.

Music websites have been collected using three different sources:

- *IFPI Digital Music Report 2010 and IFPI Digital Music Report 2011*;
- *Pro Music*, the coalition of music record companies and retailers⁶¹;
- A list of case studies available at the Creative Commons Licence website⁶²;
- The list of top websites resulting from Google AD Planner, “search by audience”⁶³;

Subsequently, the resulting dataset has been further reduced and modified in time, maintaining only the working websites, since many of them have been closing or changing the service or changing their position in the Google Ad Planner charts during the period of analysis.

It is necessary to remember that some websites included in the analyzed dataset are not referable to any of the previously listed sources: they have actually been added to the dataset only because of their services’ peculiarities. They might be, for example, online music stores which are focused only on selling one musical genre (i.e. classical, reggae, etc.); otherwise they can present some very innovating characteristics which could not be excluded from the dataset.

2.2 The variables

Since the main purpose of the following study is to analyse the characteristics of music websites worldwide, several variables have been identified to classify the features collected. By contrast with the state of the art usually presented by official reports and literature review⁶⁴ in this document, the approach adopted here is evidently bottom-up and is aimed at identifying the common characteristics and the differences between music services, both a from legal and business perspective starting from the services themselves.

⁶⁰ The main Industry Association Members List used to compose the music dataset are *International Federation of Phonographic Industry* and *Pro-music, the coalition of music record companies and retailer* (available at pro-music.org).

⁶¹ From the Online music stores list available at pro-music.org/Content/GetMusicOnline/stores-europe.php

⁶² wiki.creativecommons.org/Musician

⁶³ In Google Ad Planner search, the following settings have been selected: Geography: all countries; Ranking method: best match (results balanced between big and small sites); Category: Music streams and downloads.

⁶⁴ The reference is to literature based specifically on top-down categorizations of legal business models for digital content online distribution made by the Berkman Center in its Digital Media Project, in particular: U. GASSER, D. SLATER, M. SMITH, J. PALFREY, E. LOCKE, M. MCGUIRE, *Copyright and Digital Media in a Post-Napster World*, Version 2, *The Berkman Center for Internet and Society at Harvard Law School* available at cyber.law.harvard.edu/media/wp, 2005; S. GORDON, *supra* note 13. Similar top-down approaches have been taken by U. GASSER ET AL., ‘*iTunes How Copyright, Contract, and Technology Shape the Business of Digital Media . A Case Study*’, *The Berkman Center for Internet and Society at Harvard Law School*, June 14 2005, available at cyber.law.harvard.edu/media/itunes; D. SLATER, M. SMITH, D. BAMBAUER, U. GASSER, J. PALFREY, *Content and Control: Assessing the Impact of Policy Choices on Potential Online Business Models in the Music and Film Industries*, *The Berkman Center for Internet and Society at Harvard Law School* January 7, 2005, available at cyber.law.harvard.edu/media/content_and_control.

Nine categories have been identified to collect different relevant features of music websites: the subsequent step has been verifying the extent to which each of the selected websites met those features. These nine sets of characteristics are composed of several variables (which are each one a feature).

The majority of these variables are qualitative (categorical), since the information collected is about characteristics of the object analysed: they are qualitative binary variables⁶⁵ or nominal categorical variables, since the feature examined is not numerical (i.e. “country” or “role” of the website) . Binary data 1 or 0 represent a new variable for every different modality of categorical variable observed.

Some other variables are quantitative discrete frequency variables (used to indicate a specific number, i.e. the number of copies allowed for CD burning).

The sets of variables identified deal with business models adopted, legal licensing regime, level of interoperability related to technological restrictions adopted by the website and privacy policies and they can be specifically listed as follows:

- **Website generalities**
- **Content & Services**
- **Distribution methods**
- **Technical restrictions**
- **Rights Management**
- **Uploading regime**
- **Revenue Model (which includes payment methods)**
- **Privacy regime**
- **Social networking**

Website generalities include all the descriptive information to identify a website, such as its commercial name, its address and the description of the service provided. Beside this, generalities regard also the language of the website, the role occupied in the online music market (found with the use of Google AD Planner search and defined with “major players, followers, innovators and indie”) and the country in which the domain is registered.⁶⁶

⁶⁵ They are the result of the answer “YES, this website presents this characteristic” or “NO, this characteristic is not featured in this website”, and YES is identified by the digit “1”, while NO is identified by the digit “0”.

⁶⁶ In order to get the information about the domain of a website, information gained from Google Ad Planner (<https://google.com/adplanner>), Alexa (alexa.com) Quantcast (quantcast.com) and public databases (such as Whois) have been used. In order to classify websites’ roles, Google AD Planner’s Unique visitors (estimated cookies), Unique visitors (users), Page views and total visits statistics have been used and compared. In particular, a website has been considered as a big player if its Unique Visitors are more than 1 Million in Google Ad Planner. Both Google Ad Planner’s statistics and Alexa’s traffic rankings do not provide information for subdomains (e.g., subdomain.domain.com) or subpages within a domain (e.g., domain.com/subpage.html). They are both only for top level domains (i.e. domain.com). Some of these considerations and information are taken from Bocconi University Counter deliverable D12: M.L. MONTAGNANI, M. BORGHI, *Models for managing intellectual property rights on the Internet: Online Distribution of Digital Media Content*, Counter Publications, 23rd October 2009, available at www.counter2010.org, since the data selection method and sources for collection are the same.

Content and services regard the digital products and services offered on the website. The information collected has been divided for *Music content*, *Video content*, *Videogames*, *eBooks*, *Playlists*, *Mobile applications*, *Ringtones*, *Pictures* and *News*⁶⁷.

By **distribution method** it is meant the ways in which content is made available to users. In the distribution methods are included: *download*, *streaming*, *live streaming*, *hosting*, *podcast*, *mobile*, *embedding*, *syndication*.⁶⁸

Technical restrictions include all limitations to the provided services, such as geographical limits, technical (Hardware, Software, Operative Systems, etc.) requirements to use the service and the restrictions on downloading. This set is very important, since it distinguishes between DRM (Digital rights management) free or DRMed music files available through the music service.

In the **Rights Management** set are the variables regarding IPR Management, such as the typical sign “All rights reserved on website” and “All rights reserved on content”, or, differently, the Creative Common License signs, the GNU or GPL (which stands for General Public License) indication or other. This way it is possible to verify under which protection music content is distributed, if modifications are allowed, if the purposes of use will be commercial or not, for personal use or not. This set regards specifically the licensing regime, which provides information about download restrictions and accessibility to content.

Uploading regime is referred to how content submitted by users is licensed and protected by the website and it regards only some music websites. In particular, the variables introduced are about the ownership of content’s rights, the nature of the licence (non exclusive, irrevocable, ..), the eventual remuneration for the uploaders, derivative works and the copyright infringement notice. The consequent considerations will be about the relationships

⁶⁷ The news variable, in particular, has been considered to be present on websites only if they presented a section dedicated to generalist news; consequently those websites providing only music news have been considered as not presenting this feature. Similarly, pictures have been considered to be available on a website only if this had a dedicated section specific for photos and pictures. The general presence of photos on a web page has not been considered in the analysis.

⁶⁸ Download is the possibility to get a permanent copy of a music file onto the own hard disk or other devices. Streaming happens when the websites allows you to listen to entire songs on demand, making a temporary copy of the music file, but with no possibility to download it. “Streaming on demand” means that users can search for a particular music and choose what to hear. Differently, with live music streaming the content is not on demand and this service is usually very similar to a web-radio: users can listen to music broadcasted live and programmed randomly by the website radio service, with no chance to choose which specific song to hear. Playlists created by users with the possibility to be heard are sometimes called “radios” on some websites, however they have been considered as part of the streaming service, since they’re a music on demand service. “Hosting” is available in those services allowing users to upload musical content on the website; comments, chats or other “forum and community contents” *posted* on the website are excluded from “hosting”. Podcast is the service that allows users to download pieces of previously live streamed content. In the mobile method are included all websites giving the possibility to use the service also from a mobile phone. Embedding is the possibility to share a webpage link to another webpage. It is usually identified by the presence of a code under the music content, which needs to be copied and pasted on another page. Often, embedding is possible just through some social networks icons on the webpage or some banners with the clear written sign “share”. Syndication is the possibility to get constant updates on that webpage, usually identified by the symbol/icon of “RSS Feed” or just “Feed”. In the distribution methods, also the presence of links to other music retailers is included, such as Amazon, iTunes or others.

between content uploaders and the website hosting it and between uploaders and other uses of such content⁶⁹.

Revenue Model set includes the sources of income for the music services analyzed; specifically it defines if an online service is provided through a subscription model, a pay per download model or an open source model. The open source models include both free with AD or free without AD services. The availability of content for free (with or without AD) regards downloads, streaming and podcasts. In the music sector, some websites use also a form of revenue coming from donations made by users to artists. This is the reason why also this variable has been included in this set. In the revenue model set are included also variables about payment methods, such as credit card, paypal, mobile phone billing payment and other prepaid forms.

The **privacy regime** set analyses the privacy policy declared by the websites, including which use they will make of personal information collected and if users have to express their consent for such uses. With this set it is also possible to analyze if registration to websites is required in order to access and use services provided or not, and, if yes, which personal information users are asked to deliver.

Finally with the **social networking** set it is verified if the websites provides a link to the main social networks or if it just signalizes its presence on them⁷⁰. In this set also recommendations, reviews, forums, communities, blogs and chats presence is evaluated.

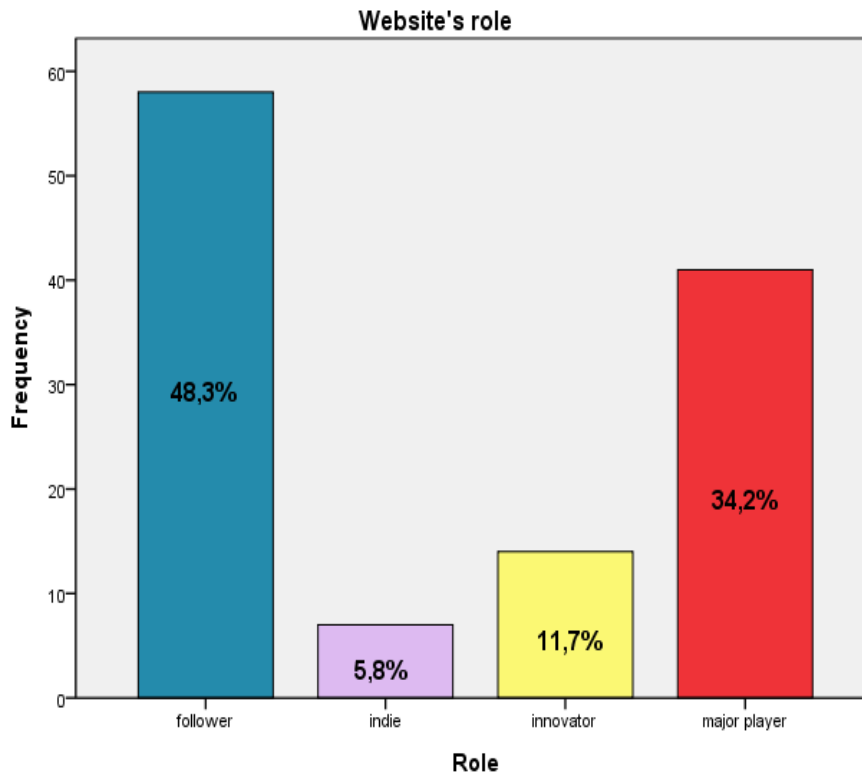
⁶⁹ This set has become much more important, considering the massive development of “User generated content” platforms (UGC Platforms), especially for video websites; however these kind of platforms are not very common for music services.

⁷⁰ It was not part of the analysis to verify if a website is actually on such social networks, but the intent was only to evaluate whether they signal it or not.

2.3 Descriptive analysis key findings: Classification A

The dataset analyzed shows that the market is characterized by a not homogeneous supply, rather by a portfolio of different businesses.

Graph 2: Music services' classification by market role



Source: SPSS elaboration

Most of digital music services are developed **in the US and in the UK**⁷¹, and most of them are defined as “followers”, since they don’t detain high traffic rates, but their activity “follows” the one of the major players, which are another big part of the dataset.

The so called “major players” are those websites considered to be the big players on the market by the Industry Reports and by Google Ad Planner. In particular, Google Ad Planner allowed to identify which services are classified as very popular using the “Unique visitors⁷²” index: a website has been considered as a big player if its Unique Visitors are more than 1 Million.

⁷¹ “The US is the world leader in digital music sales, accounting for some 50 per cent of the global digital music market value. ... The UK saw the biggest increase in digital sales in the first half of 2008 among the top markets, with sales up by 45 per cent. ... In Germany, online single track downloads totalled 37.4 million in 2008, a 22 per cent growth on 2007. Digital album sales increased by 57 per cent, totalling 4.4 million. (Media Control GfK International).” - From IFPI, *Digital Music Report 2009: Key Statistics*, IFPI Report, 2009.

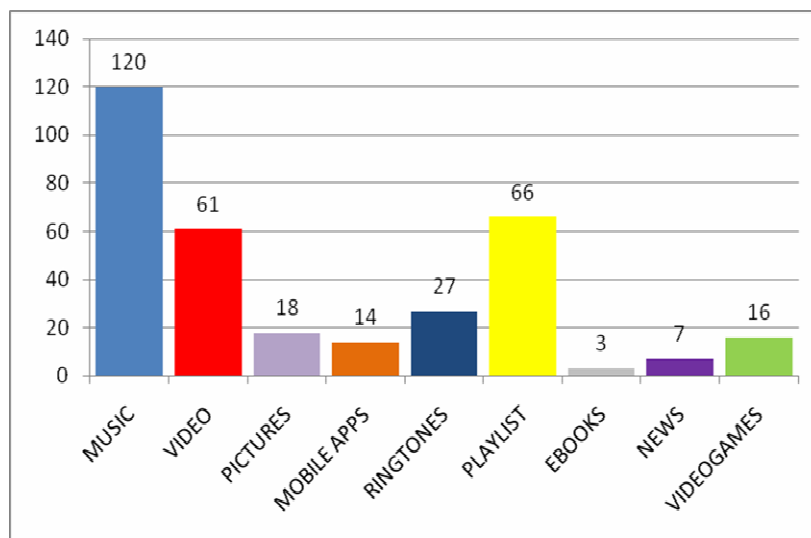
⁷² The index used to identify the popularity of a website on Google Ad Planner has been the “unique visitors” index; the more the “unique visitors” index was high, the more the site was considered to be massively used and, consequently, popular. The level used to classify a big player (e.g. 1 Million unique visitors) has been set up taking as reference the unique visitors index of those services considered to be the most popular digital services by the industry reports.

Innovators are websites showing a particularly original service and indie are those providing mainly independent content (that means, not supported by major labels); indie and innovators have still a small market quote, but many of them have quite high traffic rates however, with a recent tendency to increase their visibility and activity.

Major players and followers tend to present similar features, but also major players and innovators have some common characteristics; for example, they tend to give notice to details: multilanguage tools are adopted by about 36% of major players and by about 35% of innovators. Followers, on the contrary, tend not to use these tools (only 12% of followers for multinational tools and 25% for the Multilanguage option) and indie services are almost completely unfurnished with these details.

All websites analysed provide a music service, but it's interesting to see how many of them do integrate the music offer with videos, pictures, videogames, ringtones and other features.

Graph 3: Music websites' contents and services



Source: Personal elaboration

Generally, major players and followers are the ones provided with the biggest variety of additional services to music.

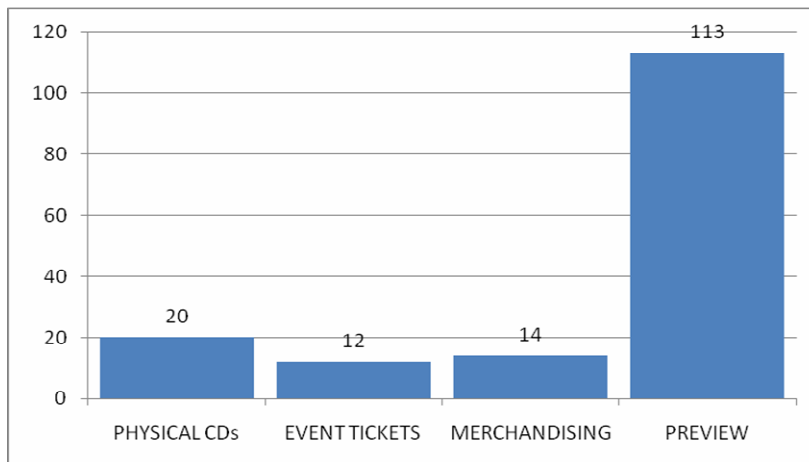
The most notable thing is that playlists and videos are the additional most adopted services, reflecting the general market tendencies underlined in the second paragraph of this study. However, these percentages could improve, considering that still 45% of the analysed ones do not offer playlists and that 49,2% of the dataset do not provide videos.

Major players are also the ones offering more specific extra services, such as event ticketing and merchandising while indie services have the highest proportion of CD shipping services, together with some big retailers whose core activity is based on physical shipping, such as *Amazon*, *Walmart MP3*, *Mediagigant* and *Hmv*. In addition to this, the analysis reveals that classical music digital shops tend to be still anchored to physical albums: *Preiser Records Vienna* website and *Deutsche Grammophon* are two examples of this tendency.

Generally, the presence of merchandising sections seems to be related to CD shipping and event ticketing services and it is also possible to say that the audio preview of downloadable tracks has become a fundamental feature for a digital music service, since about 94% of the analyzed websites present this feature. The ones not equipped with this feature are usually

services allowing free downloads, for which, considering the absence of costs for the download, preview becomes quite unnecessary.

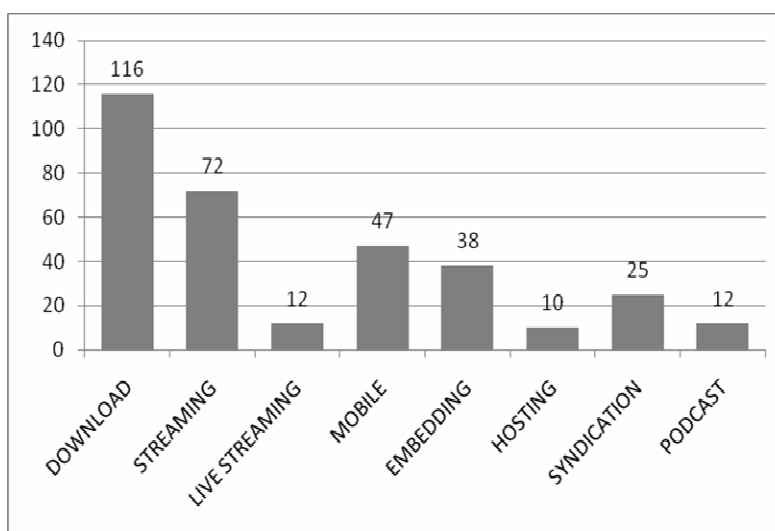
Graph 4: Specific contents and services for a music service



Source: personal elaboration

In the music services an important distinction has to be done between services distributing content with downloads or with “streaming on demand” models: this means that some websites can provide both of these distribution methods, but some of them are focused only on streaming and, consequently, they do not provide the possibility to download content; in the analyzed dataset, 4 services correspond to this case and they are all major players. Differently, 40% of the music websites of the dataset have a downloading distribution method, but they do not allow to stream full length songs from their service; they are usually followers. Some services will be further defined in this study as “integrated”, since they integrate both streaming and download together, and in the analyzed dataset they are 56,7%.

Graph 5: Music online services’ distribution methods



Source: personal elaboration

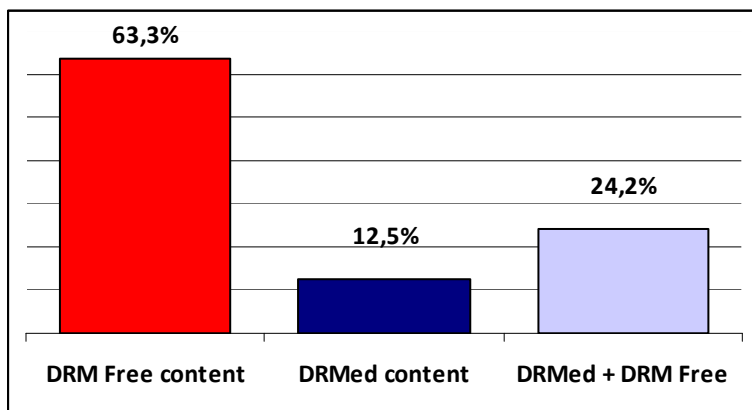
Music content is mainly distributed through downloads and streaming and the analyzed dataset proved to be an example of this. Mobile is also a common distribution method, used

most of all by major mobile companies' websites. In the on demand music websites, podcasts, live streaming and hosting are not much adopted and, consequently, neither uploading is, with only 12,5% of the dataset allowing it and belonging mostly to innovators. Indie services are the ones using a limited range of distribution methods, since their structure is usually very basic.

Services integrating streaming with downloads tend to be more completed, providing a variety of distribution methods, offering typically also a ticketing service and merchandising, presenting the possibility to create playlists and to share videos.

Half of the music services analyzed have geographical restrictions and a lower percentage requires software installations and updates in order to download music content; hardware and operating systems requirements are common for about 30% of the data. Usually indie and innovators have a minor tendency to impose such requirements.

Graph 6: DRM protection in digital music services

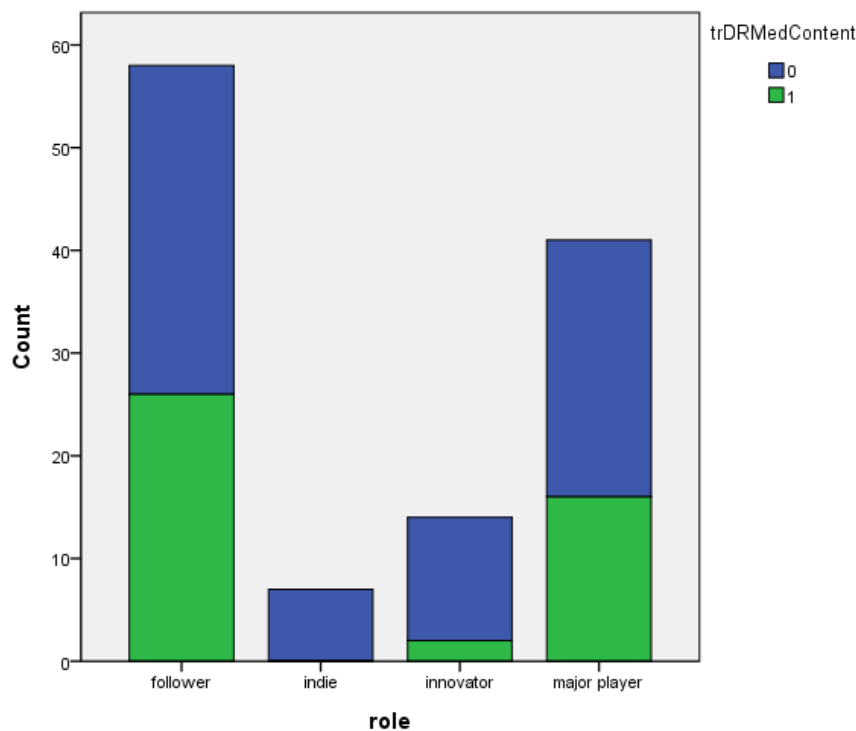


Source: personal elaboration

An important consideration to be made is that **DRM protection is decreasing its presence** in music services (12,5%), since most of them (63,3%) tend to adopt only DRM free content, or, otherwise, they tend to adopt both DRM free and DRMed content (24,2%). Those websites protecting content with Digital Rights Management protection are generally those imposing more technical restrictions to users: 44 websites do have downloading restrictions and about 77% of them do offer DRMed content.

On the contrary, DRM free regimes are more than a half of the dataset and they put no restrictions on downloading directly to devices, on transferability and on CD burning. DRM free is a synonym of a less degree of restrictions and more interoperability of content and it may be found most of all in innovators and indie services. Differently, followers and major players tend to be those adopting more DRMed content, as displayed by the following graph.

Graph 7: DRMed content and websites' roles



Source: SPSS Elaboration

Usually many websites tend to provide both DRMed and DRM free content since they have started their activity offering only protected content and in the last period, because of the increase of users' need of interoperability with different devices, they have been forced to introduce free content too, in order to improve the transferability to several devices, which is what customers are asking more and more from music services. Thus, the evolution from protection of content to an unrestricted scenario is very fast and constantly modifying itself.

Music services usually present an "All rights reserved on content" regime and those websites having a Creative Commons License⁷³ regime tend to allow uploading of content. Most of music websites have a clear definitions of allowed uses of content and they generally do not allow modifications and commercial uses.

Creative Commons (CC) or General Public License⁷⁴ (GPL) are not very diffused in the music sector and this confirms that hosting and uploading are not so common in music services.

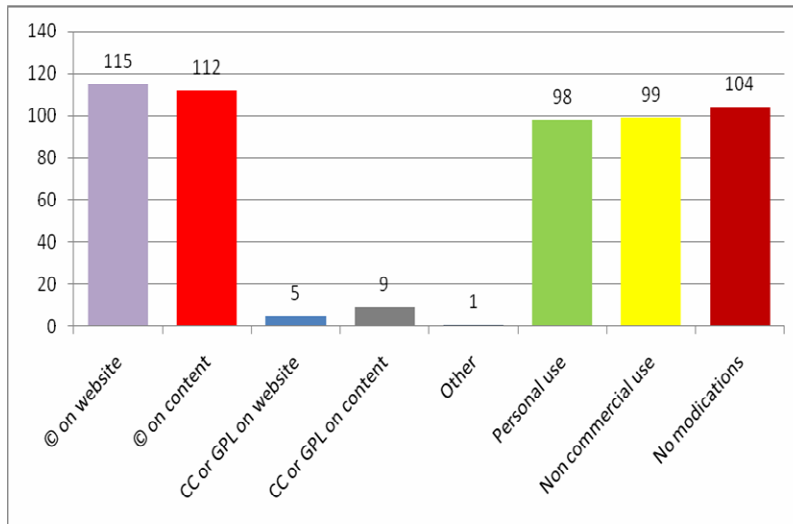
Usually major players have always a copyright form of protection on content; CC is much more applied by innovating, DRM free services. Actually, all of the fifteen uploading websites sampled provide content without DRM protection.

Summing the data regarding content protection ("© on content + (CC) on content), we notice that the result is more than 120. This happens because one website allows distribution of content both under Copyright and under Creative Commons: the uploader has faculty to decide which form of protection to choose. Some music websites tend to adopt this form of licensing regime.

⁷³ <http://creativecommons.org/>

⁷⁴ http://en.wikipedia.org/wiki/GNU_General_Public_License

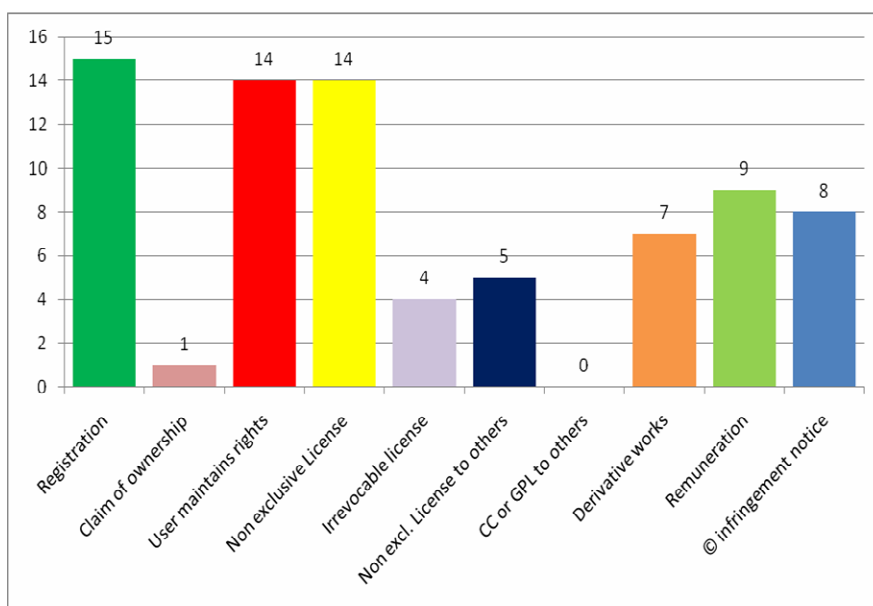
Graph 8: Rights management tendencies in music services



Source: personal elaboration

Closely linked to the licensing regime, is the uploading regime. Uploading is allowed in 12,5% of total websites of the dataset, not necessarily all belonging to “Creative Common Licence on website” services, however, the analysis shows that uploading is often diffused when CC or GPL on content is adopted and particularly in innovators and indie services.

Graph 9: Uploading regime features in the dataset



Source: personal elaboration

Usually these uploading services tend not to claim the ownership of content uploaded; the uploader maintains all rights and users grant a non exclusive license to website for about 93% of the cases (14 websites on 15). Such license is irrevocable only for 4 analyzed websites and uploading content may also include a non exclusive license to other users, which is common for five of the analysed music services.

None of the services expressly says that CC or GPL is granted to third parties, but on 7 of the 15 uploading regime websites the non exclusive license allows derivative works.

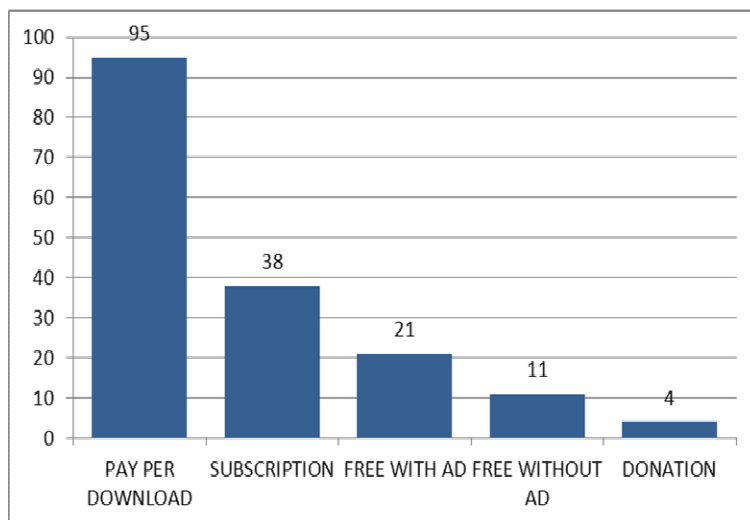
An important feature for uploads is the possible remuneration for uploaders. Uploads are remunerated by nine of the 15 uploading music services.

Finally, the copyright infringement notice is clearly indicated on only 8 websites of the 15 providing the upload service. This feature should be improved in such services, actually copyright infringement will be a key feature for future developments in the regulation of online music sector⁷⁵. This is the reason why the notice should be introduced in every service, in order to facilitate all the copyright protection processes.

Usually music services providing DRMed content do not allow uploading, moreover none of these DRMed websites has a Creative Commons Licensing Regime. There's a clear relationship between the presence of DRM free content and the uploading regime of a music service: all the uploading 15 websites sampled provide content without DRM protection.

The most used form of revenue model is pay per download (79,2%), followed by subscription (31,7%), and most of pay per download models are used by follower websites, while subscription is frequently used by major players.

Graph 10: Most adopted revenue models for digital music services



Source: personal elaboration

For what concerns the so called “open source” revenue models (free with and without Ad), free with advertisement models are more adopted by major players providing DRM free

⁷⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions – A digital agenda for Europe, COM(2010) 245, Brussels, 26.08.2010, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC0245%2801%29:EN:NOT> and Delibera n. 668/10/CONS del 17 Dicembre 2010, Autorità per la Garanzia delle Comunicazioni are two regulation acts giving particular relevance to copyright infringement. Particularly the Digital Agenda has the objective “to chart a course to maximise the social and economic potential of ICT, most notably the internet, a vital medium of economic and societal activity...”, being focused on balancing users’ rights and authors’ rights on the internet; AGCOM Delibera n. 668/10/CONS, among its main purposes, is focused on copyright infringement interventions with similarities to the “Notice and take down” disposition stated by the Digital Millenium Copyright Act in the United States (Digital Millenium Copyright Act 512, Safe Harbor, enacted by the 105th United States Congress, USA, October 28, 1998). The copyright infringement notice becomes particularly relevant in a website with reference to such policy and regulation tendencies to protect copyrighted content, maximising internet exploitation for economic development.

content or innovators and they are very rare for indie and followers; free without advertisement and donation models are much more adopted by innovators. Music services distributing DRM free content are those adopting more Open source revenue models: DRM free services present a higher frequency in adopting free with AD and free without AD models.

Moreover, the free advertising supported model seems to be more adopted by services provided with a streaming on demand service.

The four websites providing content only through streaming can be considered as a snapshot of the music streaming offer: the business models adopted in such services are usually the free with AD model or this model integrated with subscriptions usually dedicated to “premium programs”; differently, the typical digital music download stores usually provide a traditional pay per download method of purchase or a subscription model.

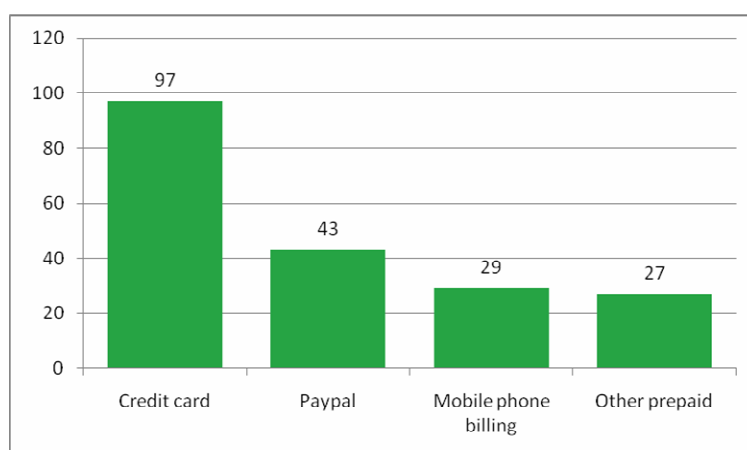
Donation is applied by the 3,3% of the analyzed cases; this model is very innovative and is focused on the support given by users to artists. Websites presenting this business model result to be very innovating and closely related to artists, especially indie artists, and usually they have also an uploading section. Donation is frequent on indie or innovators websites providing DRM free content.

It’s interesting to see how donation is usually integrated by subscription or by free advertising supported models, in order to assure a higher degree of sustainability to the website’s revenue model.

The most used payment method in the analysed dataset is credit card, with 80% of music services analysed accepting it; Paypal is used in about 35% of websites, while about 24% accepts mobile phone billing. Many of the websites accepting mobile phone billing are mobile companies or websites distributing content through mobile devices.

Paypal is less used by major players, while, in proportion, it seems to be often adopted by innovators and indie. Credit card is much adopted with pay per download revenue models, while donations are usually done with Paypal accounts.

Graph 11: Payment methods tendencies in digital music services

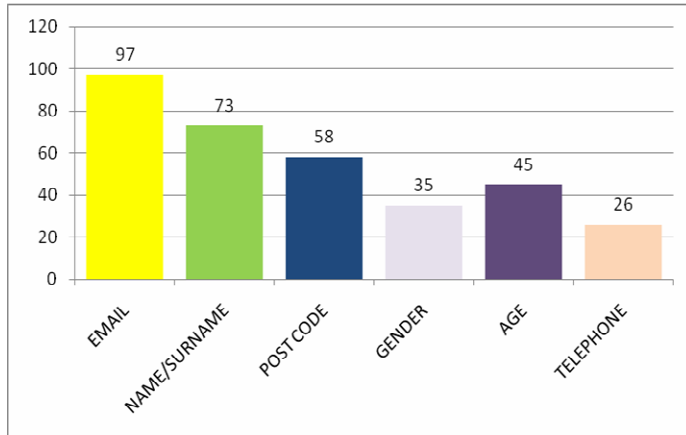


Source: personal elaboration

Privacy is secured by the majority of music services, with the requirement to register in order to access content for about 86% of the services. Major players tend usually to ask for more information in the registration's form and registration is usually not much required in follower services.

Usually data collected are used for profiling and marketing purposes.

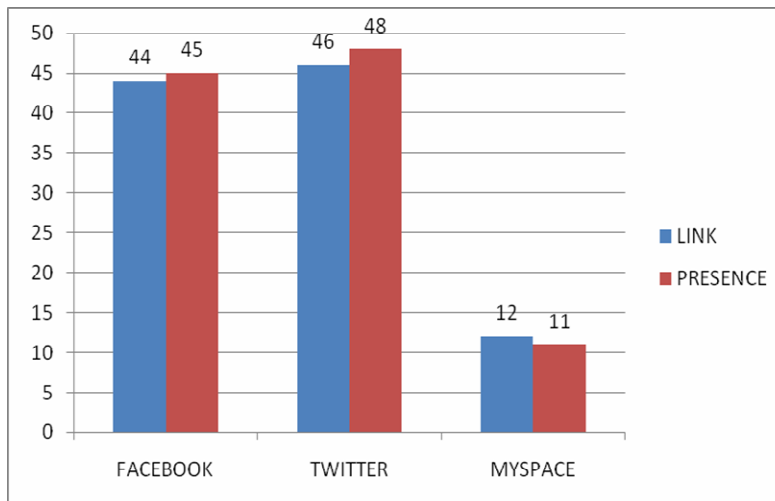
Graph 12: Most required personal data in digital music services



Source: Personal elaboration

Most of music websites signal their presence on social networks and many of them have community tools, to increase the degree of loyalty and knowledge of music customers' tastes and opinions.

Graph 13: Most adopted social networks in digital music services



Source: personal elaboration

The analysis has been focused on the presence of a link available on the website's pages (usually the homepage) to the website's page on social networks or on verifying whether the website indicated just its presence on some specified networks, without putting a direct link.

Although Myspace is a social network focused on relating music fans with music artists, its popularity has been decreasing in the last years and only about 10% of music services do provide a link to it.

From the analysis, indie websites are those developing social networking the less, almost completely missing this feature.

Music tastes are also “driven” by music websites, since 75 services of the dataset do write recommendations and reviews of new releases. Such services are much more adopted by major players and innovators, while indie tend not to put much relevance on them.

These tools are aimed at knowing consumers and increase personalization of service, as this study previously suggested in Paragraph 1.2.2, and in the following paragraphs they will be identified as “customization” tools and services, since, together with playlists creation options, they represent the possibility for users to personalize content, interact with the service and increase their level of loyalty to the website⁷⁶.

Indie websites don’t seem to adopt these customization tools very much in this dataset, and the amount could be improved also in followers. Major players, on the contrary do all their best to follow customers and gain information about their tastes and give advice to them to improve the service.

The landscape drawn by the descriptive analysis is the following: on one side of the digital music market it is possible to find major players and followers, which tend to be anchored to a more traditional model of service: they distribute a wider variety of contents and services, still providing DRMed content, with the tendency to use subscription and pay per download models.

On the other side it is possible to find indie websites and innovators, which are less structured, more basic, but, at the same time, more ready for innovating details, allowing uploads, providing more DRM free content and less restrictions.

In the following table a first classification of music services is defined.

This classification underlines how **major players and followers tend to provide more restricted content, while indie and innovators operate in a more “free” regime.**

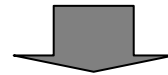
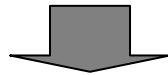
However, such division cannot be considered exhaustive, since inside of the two groups, some differences exist, especially because **followers and indie tend to provide more unstructured and basic services.** Moreover the descriptive analysis underlines how **innovators and major players have some similarities, especially in adopting community and customization tools.** Consequently, Classification A represents a good segmentation of the dataset, but more evaluations are needed in order to improve it. This is the reason why the following analysis will try to design an additional classification of the services available, in order to have a clearer idea of the digital music market supply.

⁷⁶ M. MCGUIRE, D. SLATER, *supra* note 37, at 5.

Digital music services: CLASSIFICATION A

(A distinction based on the market role of the websites and their general characteristics)

Major players and followers	Indie and innovators
<ul style="list-style-type: none"> • More contents and services • More DRMed content • Pay per download and subscription models • More video services • More extra services (ticketing, merchandising) • More restrictions • “All rights reserved” regime 	<ul style="list-style-type: none"> • More DRM free content • Less Restrictions • Good use of both download and streaming integrated together



Major players	Followers	Indie	Innovators
<ul style="list-style-type: none"> • General more attention to details • Multinational and Multilanguage websites • Event ticketing and merchandising • Pay per download, subscription, free with Ad • Half have forums, social networking, recommendations and communities • “Only streaming, No download” services are all major players 	<ul style="list-style-type: none"> • BASIC interface • Less multinational and multilanguage tools • Few open source revenue models; never free with Ad • Few community tools and recommendations • Streaming method less diffused • Often without privacy policy • Few consent requirements 	<ul style="list-style-type: none"> • BASIC interface • No multinational or Multilanguage • Less variety of distribution methods • Only DRM free content • Pay per download or free without AD • Less social networking • Few recommendation and community tools • Few consent requirements • More CD shipping 	<ul style="list-style-type: none"> • More attention to details and user-friendly interface • More uploading allowed • DRM free content • CC regime more diffused • Open source revenue models and subscription • Donation models • Importance given to community tools • Good level of social networking

Source: personal elaboration

2.4 Inferential Analysis key findings: Classification B

This part of the analysis is focused on evaluating the degree of association between variables and how strongly they might be related. In order to understand this, the researcher has used cross tabulations and the *Phi coefficient*, which is the index used to test correlation between binary variables⁷⁷.

In the conducted analysis, the correlations found are not so strong, however they are well definite and they are between the following features:

- *revenue models* and *licensing regime*
- *revenue models* and *distribution methods*
- *revenue models* and *community tools/social networking*
- *rights management* and *privacy*

In particular, the cross tabs showed that free with AD models are positively associated with streaming methods⁷⁸, meaning that such revenue models are much more adopted by websites providing a streaming service.

Websites adopting a free with AD model result to be the type of revenue model paying more attention to the most innovating features focused on users, such as the development of community tools, embedding links and social networking and they also tend to provide very often warranties to users through the obligation to give consensus to terms of use of the service⁷⁹.

While the other revenue models (subscription and free without Ad) don't seem to have any relevant correlation with such features, the most traditional model of pay per download results to provide less community tools and less social networking instruments⁸⁰.

The free without AD models have demonstrated to be more frequent than other revenue models on Creative Commons regimes' websites; actually pay per download methods are more often a synonym of "All rights reserved" regimes⁸¹.

⁷⁷ E. C. DAVENPORT, N.A. EL-SANHURRY, *Phi/phimax: review and synthesis. Educational and Psychological Measurement*, 1991, Chapter 51, pp. 821–828. See also <http://segrdid2.fmag.unict.it/Vademecum/Programmi0607/Zira%20Hichy/lezione6.pdf>. In cross tabulations of binary variables, usually the direction of association is measured by how many cases are disposed on the diagonal on the table: if most of the cases analyzed are on the diagonal on the contingency table, there's an association between the two variables. Phi is usually comprised between -1 and +1 (the "+" sign stands for a positive correlation, while the "-" sign is for negative associations), it is 0 if the variables are independent. J.P. GUILFORD, *The minimal phi coefficient and the maximal phi. Educational and Psychological Measurement*, 25, 3–8, 1965; M.J. WARRENS, *On Association Coefficients for 2x2 Tables and Properties That Do Not Depend on the Marginal Distributions*, *Psychometrika*, 2008, c. 73, pp. 777-789, available at http://www.biomedsearch.com/attachments/00/20/04/68/20046834/11336_2008_Article_9070.pdf. See also S. SIMON, *Stats: what is a Phi coefficient?*, 2005, available at <http://www.childrens-mercy.org/stats/definitions/phi.htm>. The basic hypothesis stated under every test of correlation between variables is the null hypothesis H_0 "there is no correlation between the two variables", which should be rejected in order to demonstrate that the correlation exists.

⁷⁸ "Streaming * Free with Ad" : Phi = 0,331.

⁷⁹ "Free with Ad * Community tools": Phi = 0,342; "Free with Ad * Embedding": Phi = 0,250; "Free with Ad * Link Facebook": Phi = 0,332; "Free with Ad * Consent required" : Phi = 0,303.

⁸⁰ "Pay per download * Community tools": Phi = -0,344; "Pay per download * Link Facebook": Phi = -0,291.

⁸¹ "Pay per download * All rights reserved on content": Phi = 0,356; "Pay per download * CC or GPL on content": Phi = -0,399; "Pay per download * All rights reserved on website": Phi = 0,304; "Pay per download*CC or GPL" : Phi = -0,304; "Free without Ad * All rights reserved on content": Phi = -0,610; "Free

Another distinction contributing to emphasize the differences between a traditional digital music service (pay per download) and a website based on an advertising supported model regards the possibility to upload content: it is more likely to find an uploading option on a free with Ad music service, while the in a pay per download scenario uploading is generally not available⁸².

The analysis shows also that those websites providing content under a Creative Commons regime are more likely to have missing privacy tools and requirements: they are usually those websites not provided with a privacy policy and not giving information about data collection purposes. They are also those websites where registration is not required to access⁸³.

The crosstab analysis shows that social networking, creating playlists, providing recommendations and reviews, profiling users and supplying instruments to build a community are tools which are positively related to each others; considering that they are all instruments allowing to develop a closer contact with users, such finding means that they are intrinsically connected in the community building and in the customization of the service in a music website.

There's a quite strong correlation also between social networking and the streaming distribution method and between recommendations presence and streaming: this allows to say that the most innovating services, which are those adopting streaming the most, are those more focused on social network presence and on creating a closer contact with users.

As easily predictable, there's a positive correlation between "All rights reserved" regimes and marketing purposes of data collection, as well as with the registration requirement for users.

To confirm that there are two different scenarios: one innovating providing less restricted content, more focused on consumers' satisfaction and another more traditional one, still not focused enough on users' needs and anchored to traditional revenue models and basic service features, DRMed content is negatively correlated with community tools and DRM free content has a positive correlation with recommendations and reviews' presence. Community tools and social networking are positively correlated only to free with Ad revenue models.

Moreover, the analysis displays how community tools and social networking are positively related to the possibility to upload content on a music service, as well as the possibility to upload content results to be more likely to be found in a Creative Commons regime website⁸⁴.

The resulting scenario is composed not only by music services which can be classified by market role (major player, follower, indie, innovators), as previously explained in Classification A, but, following the differences between pay per download (more traditional) and free with Ad models (more innovating), **they might be divided into two groups: paid-for services and open source services.**

"Paid-for services" are those websites where traditional pay per download or subscription revenue models are adopted, which have demonstrated to be associated with the same features and, consequently, can be classified in a unique group of distinction; differently, "open

without Ad * All rights reserved on website": $\Phi = -0,656$; "Free without Ad * CC or GPL on content" : $\Phi = 0,567$; "Free without Ad * CC or GPL": $\Phi = 0,656$.

⁸² "Uploading allowed * Pay per download" : $\Phi = -0,240$.

⁸³ "CC or GPL * Profiling and marketing purposes" : $\Phi = -0,272$; "CC or GPL * No Privacy Policy" : $\Phi = 0,258$; "CC or GPL * Registration required" : $\Phi = -0,274$.

⁸⁴ "Uploading allowed * CC or GPL on content" : $\Phi = 0,466$.

source” services are those websites where content is provided for free or at least it is “*felt like free*” by consumers (e.g. free with Ad services, which have a source of revenue from Advertising, but the users practically doesn’t pay directly for accessing content).

The following table shows the results of the correlation analysis, which has offered another classification of legal music services, (Classification B). In the descriptive analysis it was possible to say that major players and innovators were more provided with customization tools, communities and profiling purposes; their more detailed structure lead to consider major players and innovators better than followers and indie in providing a more attractive offer to music consumers.

Classification B leads to say that there’s another distinction to be made to understand the digital music offer: websites adopting a free with Ad revenue model are those which seem to be more focused on consumers, offering more possibilities to personalize content, to share it with others (i.e. communities, forums, embedding, hosting) and they tend also to provide enough security for privacy (i.e. frequently asking for users’ consensus and assuring privacy policy’s presence).

Thus, considering the literature review presented in the paragraph 1.2 of this study, the integration of Classification B with Classification A allows to say that **major players and innovators adopting a Free with Ad model tend to offer a more structured and more appealing service to music users’ requirements.**

The table in the following page displays how some features are more available in some music services (with the green symbol), while others tend to be absent (with the red symbol); the empty square symbolizes that the feature is present in the service but it should be improved.

Digital music services: CLASSIFICATION B

(A distinction based on revenue models and offered services)

Paid-for services	Open source services (Free with/without Ad)
<p>Pay per download:</p> <ul style="list-style-type: none"> - <input type="checkbox"/> Social networking - <input type="checkbox"/> Community tools - <input type="checkbox"/> Embedding - <input checked="" type="checkbox"/> Uploading allowed - <input checked="" type="checkbox"/> Consent and registration required - <input checked="" type="checkbox"/> "All rights reserved" regime - <input checked="" type="checkbox"/> Creative Commons Regime 	<p>Free with Ad:</p> <ul style="list-style-type: none"> - <input checked="" type="checkbox"/> Social networking - <input checked="" type="checkbox"/> Community tools - <input checked="" type="checkbox"/> Embedding - <input checked="" type="checkbox"/> Uploading allowed - <input checked="" type="checkbox"/> Consent required - <input checked="" type="checkbox"/> "All rights reserved" regime - <input checked="" type="checkbox"/> Creative Commons regime - <input checked="" type="checkbox"/> streaming distribution method
<p>Subscription:</p> <ul style="list-style-type: none"> - <input type="checkbox"/> Community tools, social networking, embedding and recommendation tools are available but this quantity might be improved - <input checked="" type="checkbox"/> Uploading allowed - <input checked="" type="checkbox"/> Registration required - <input checked="" type="checkbox"/> Creative Commons regime 	<p>Free without Ad:</p> <ul style="list-style-type: none"> - <input type="checkbox"/> Community tools, recommendations, embedding and social networking are available but should be improved - <input checked="" type="checkbox"/> Uploading allowed - <input type="checkbox"/> Less registration requirement - <input type="checkbox"/> Less consensus required - <input checked="" type="checkbox"/> Creative Commons regime - <input checked="" type="checkbox"/> More often "No privacy policy" - <input type="checkbox"/> Less Profiling purposes expressed

Source: personal elaboration

2.5 Cluster Analysis

In order to find a confirmation of the previously cited correlations, the analysis now takes into consideration the segmentation and profiling of the dataset in clusters.

A hierarchical cluster analysis has been conducted in order to identify similarities among the 120 cases and dissimilarities among the resulting groups.

Considering that the previous parts of the analysis lead to identify the main discriminant variables in those regarding Revenue models, Restrictions, Licensing Regime, Privacy, Services and Community tools, the hierarchical cluster analysis has been conducted considering the list of the following variables: Presence of Forum/Community/Blog/Chat, Presence of Twitter, Presence of Recommendations/Reviews, presence of Profiling/Marketing purposes in gathering users' personal information, RegistrationRequired, Consent Required to Terms of Users, Playlists presence, Video services presence, All rights reserved on content regime, Creative Commons License or GPL on content, Revenue model (Pay per download, Subscription, Free with AD and Free without AD), Uploading allowed, DRMed content and DRM free content.

The data have been clustered using Ward's method and the measure used is the binary Squared Euclidean Distance.

The resulting findings allow saying that it can be possible to identify **FOUR main types of music services** from the dataset and they're mainly differentiated by the way they address website's users and by the adopted revenue model:

1. TRADITIONAL PAID-FOR TYPE

The first group is composed of major players and followers, mainly distributing DRMed content through pay per download or subscription methods. They are multinational websites, providing many forms of content and services; actually here are the websites providing news, the highest rate of playlists and most of them do have a video service too. Registration is always required in these type of music services and very often they have geographical restrictions. Their restrictions' regime makes them impose limits on CD burning and transferability of content most of the times. Their community tools, such as forums, chats, blogs and other, should be implemented and improved, since they are often missing. They always provide a privacy policy and they are very interested in warranting consumers' security; although, doing this, consumers sometimes might feel frustrated about such requirements (registration and consent) and of such limitations (DRMed content and interoperability limits). This cluster is named "traditional paid-for", since the available revenue models of these services are pay per download or subscription, which are the traditional ones; moreover, considering that the first examples of digital services available on the market at the beginning of the period 2000-2010 were featuring similar characteristics, the researcher decided to remember this fact naming them "traditional".

2. STRUCTURED OPEN SOURCE TYPE

This second cluster is composed of many of the currently most popular⁸⁵ music services on the market. They are innovators and major players. Their revenue models are usually free with AD integrated with a pay per download or a subscription service, this is the reason why they could be identified as "mixed" models, since they unify open source forms of revenues with traditional paid-for models (usually with a "freemium" version). However, since this cluster is the one provided with the highest rate of free with Ad models, it will be named "open source" to emphasize this fact and, since they all present an articulated structure, provided with high variety of contents and services and with a good level of security to users, they will be considered "structured". In this cluster it is possible to find all the four "only streaming" services (e.g. *Grooveshark*, *Deezer*, *Myspace Music*, *Los40 Principales*). The "Structured open source" type of music services do not have particular geographical restrictions, they all provide DRM free content and they consequently do not impose restrictions on transferability and interoperability of music files on devices.

Registration is not always required to access content and when it is, it consists in a very easy and rapid process; this may be considered as a strength, since consumers have **less barriers** to get to use music on the website. Since consumers need always more easy accessibility and use of music content, long time consuming registration processes might represent a drawback for a music service nowadays; "structured open source" websites tend to avoid registration and, as a confirmation of what previously said, they are often the most used in the legal market. Consent however is always required for profiling and marketing data and this, together with the fact that privacy policy is never missing in these services, allows to say that this type of

⁸⁵ IFPI, supra note 3, at 28.

website demonstrates to care about users' privacy and security online. Moreover, profiling and marketing purposes are clearly expressed in every website of this kind.

Contact with users seems to be a key point addressed by such services, since they usually are all provided with recommendations and reviews sections, with community tools, with playlists and they often feature the possibility to use the service in the preferred language. Moreover, since social networking and sharing content is becoming even more and more important in music services (Paragraph 1.2.2), this type of music websites signal their presence on social networks and they offer the possibility to distribute content with embedding tools. In order to attract even more users, they are often provided with live streaming sections and event ticketing services.

“Structured open source” music services are also those allowing uploads of content the most and, together with the third cluster, they often have a Creative Commons on content licensing regime.

3. UNSTRUCTURED OPEN SOURCE TYPE

The third cluster is composed of many indie, followers and innovators; major players are almost completely excluded, this means that the general situation is very unstructured: some services do not provide a privacy policy, as well as community tools; forums and recommendations are present but they would need an improvement, profiling and marketing purposes are not clearly stated, consent and registration are almost never required to access content, playlists, and other customized services are almost unavailable and social networking is almost absent too.

This, together with the second one, is the cluster of Creative Commons licensing regime, with uploading allowed in many services and few limitations on downloading and interoperability of content. Moreover, the majority of music services belonging to this cluster provide DRM free content. Those few websites still providing protected content in this cluster are those still anchored to traditional models, such as big retailers like *Walmart* and *MediaMarkt*, which belong to the few cases of the cluster not offering a free without Ad revenue model.

Here it is possible to identify a basic and unstructured landscape, maybe influenced by the “indie” approach to distribution of content: it is common to find the possibility to have physical CD shipping, to have donation as form of payment and in these services streaming is less available. These, as demonstrated by the descriptive analysis, are all features available in a typical indie service.

This is the cluster of free without AD revenue models, often integrated by pay per download services.

This third cluster seems to have some points of similarities with the second one, starting from the attempt to apply an open source revenue model (the so called “free”), to end with the presence of less restrictions on content: however this third cluster is much less structured and its websites should improve many of their features in order to assure more security to users' privacy and in order to customize content: the embedding distribution method for example should be improved and most music services not presenting a privacy policy belong to this third cluster.

4. TRADITIONAL IN TRANSITION PAID-FOR TYPE

The fourth cluster is composed by major players and followers, with geographical restrictions, based mainly on pay per download and subscription revenue models; although it may look

similar to the first cluster, music services belonging to this group have less customization tools and generally they do not present many additional services, or, if they do, they require to be improved.

Music services belonging to this group provide content both DRMed and DRM free, consequently, they are the cluster imposing a quite high level of restrictions, both on technical requirement (software, downloaders, hardware and operating system requirements), and on interoperability of content (restrictions on downloading, downloading allowed on a limited number of computers, transferability and CD burning limited).

However, we can define it “in transition”, since it is composed of services which were born as traditional DRMed websites like the ones composing the first cluster, but they have evolved during last years introducing also DRM free content and reducing the level of restrictions (it the case of *iTunes* and *Napster 2.0*).

This cluster presents some characteristics of similarity with the first one, for example also the multinational tools and the “All rights reserved on content” regime, but it is very different in addressing the music consumer: such websites seem to be still anchored to traditional online music market, since followers belonging to this cluster provide very simple and basic interfaces and services, with generally no interest in caring about details. Differently, major players such as *iTunes* and *Rhapsody* tend to put much more relevance to quality services and assuring consumers’ security and privacy, but they still don’t provide completely unrestricted-content services (they can be DRM free, but still impose restrictions on accessing content) and their music catalogues could still be enlarged. Basically all websites belonging to this cluster have less community tools and recommendations sections should be improved; they tend not to allow embedding and uploading and social networking is basically not available on these music websites.

Many big retailers whose activity is focused not only on music (they usually are mobile companies, software providers, etc.) belong to this cluster, so here it is possible to find the majority of those websites using the mobile distribution method, providing ringtones and mobile applications.

This is a group of websites composed by followers still providing a very basic structure and major players which have few customization tools and sharing instruments to get closer to the music user or which should improve some aspects regarding restrictions and catalogues.

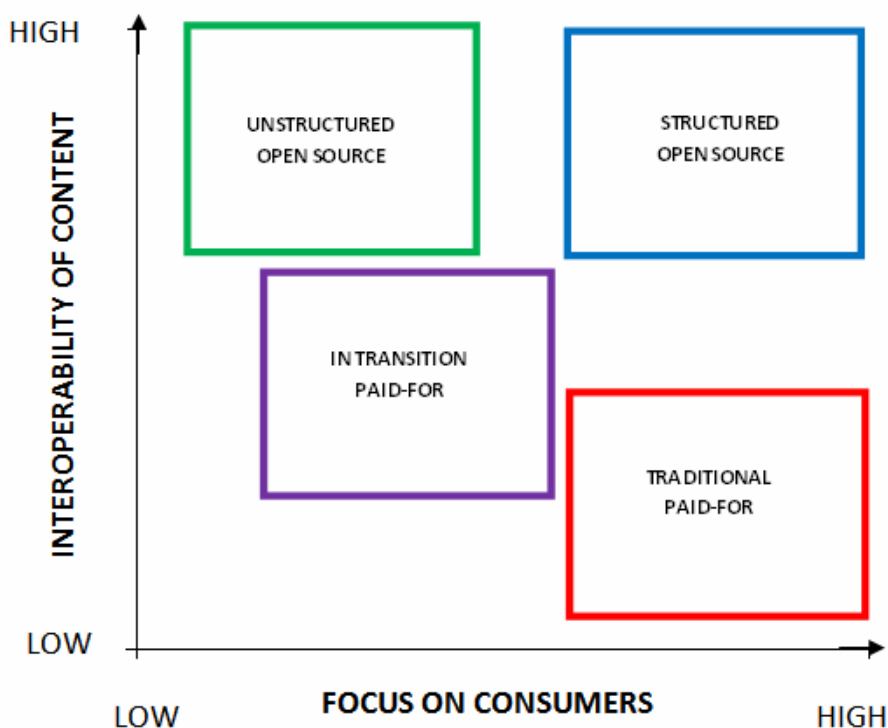
2.5.1 Cluster Analysis' key findings: Classification C

Cluster analysis' key findings confirm and integrate correlations and descriptive analysis' findings: it is possible to identify 4 main types of service, which differentiate on the basis of:

- Role (major players, followers, indie, innovators)
- Revenue models
- Licensing regime
- Interoperability restrictions
- Approach towards consumers' privacy and security
- Approach towards consumers' tastes and needs (community tools, sharing tools, recommendations and customization⁸⁶)

From this cluster analysis it is possible to integrate classification A, B and C in only one model illustrating the digital music market, which may appear as illustrated by the following graph and resumed by the subsequent table.

Graph 14: Digital music services' profiling: **CLASSIFICATION C**



Source: personal elaboration

⁸⁶ With "customization tools" the researcher means all instruments capable of personalizing services (e.g. playlists). "community tools" are forums, community, blogs, chats, recommendations, reviews. "Sharing tools" regard embedding, social networking.

TRADITIONAL PAID-FOR	STRUCTURED OPEN SOURCE
<ul style="list-style-type: none"> ❖ Major players and followers ❖ Pay per download / Subscription ❖ All rights reserved on content ❖ DRMed content → low level of interoperability of content ❖ High level of security of privacy ❖ Community tools to be improved ❖ Recommendations to be improved 	<ul style="list-style-type: none"> ❖ Innovators and major players ❖ Free with AD ❖ Creative Commons regime + All rights reserved on content ❖ DRM free content → high level of interoperability of content ❖ Good level of security and privacy ❖ Excellent community tools ❖ Excellent social networking ❖ Excellent recommendations and reviews section
IN TRANSITION PAID-FOR	UNSTRUCTURED OPEN SOURCE
<ul style="list-style-type: none"> ❖ Followers and major players ❖ Pay per download / subscription ❖ All rights reserved on content ❖ DRMed + DRM free content → medium level of interoperability of content (still some restrictions) ❖ Good of security of privacy ❖ Community tools to be improved ❖ Social networking to be improved ❖ Recommendations to be improved 	<ul style="list-style-type: none"> ❖ Indie, innovators, followers ❖ Free without AD ❖ Creative Commons regime ❖ DRM free content → high level of interoperability of content ❖ Low level of security of privacy ❖ Community tools to be improved ❖ Social networking to be improved ❖ Recommendations to be improved

Classification C is the integration of Classification A and Classification B.

Considering that consumers’ needs are currently identified⁸⁷ in *security on the web*, *gratuity*, *customized contents*, *interoperability of content*, *wide music catalogue to search in*, the main features that should be analyzed when evaluating a digital music service are “level of interoperability of content” and the level of attention paid to consumers’ requirements (including sharing, community, security, privacy and personalization needs, which are identified in playlists, communities, embedding links, social networking, recommendations and reviews) by the website, which might be generally called “focus on consumers”; putting these two dimensions on a *xy* graph, the result is as previously shown: **the best model resulting from this graph seems to be the “structured open source” type**, since it satisfies the highest number of consumers’ needs listed by the literature⁸⁸. The “in transition paid-for” group finds itself in an intermediate position, since it needs to improve some aspects of its services: for example *iTunes*, which belongs to this cluster and is the current leader in the digital music distribution, is a service paying much attention to details, to community development, to knowing consumers’ preferences and requirements. It has shifted its service from a DRM protected content distribution to DRM free files downloading; although the only

⁸⁷ See Paragraph 1.2 of this study for literature review: M. MCGUIRE, D. SLATER, *supra* note 37, at 5; D. BAHANOVICH, D. COLLOPY, *supra* note 16, at 17; C. HILL, *supra* note 4, at 9; A. BALESTRINO, *supra* note 1, at 455.

⁸⁸ See Paragraph 1.2 of this study for literature review.

things that iTunes lacks, considering the reasons behind consuming pirated content⁸⁹, are gratuity of content and avoidance of restrictions. Actually, even if content is DRM free, iTunes still imposes a limited number of devices to access the service.

3. Analysis review

From the descriptive analysis conducted on the music services' dataset, two different kinds of websites had been identified: one was composed by "traditional" and well structured music services, providing various forms of protected content through pay per download or subscription models, while the other group was composed of more "free" services, providing DRM free content through free without AD revenue models. It was however possible to identify some differences inside of the two groups, since also some very basic and unstructured services were among the first kind of websites, while some very innovating activities were developed among the second "more indie" group.

From the descriptive analysis it was clear that further segmentations of the dataset should be applied in order to understand it better and evaluate it.

Correlations made it possible to recognize the main relations among the websites' characteristics and this part of the analysis explained also how revenue models become a synonym of a particular scenario inside of a music service: pay per download models have proved to belong to a typology of websites partly different from free with Ad or free without Ad websites. Free revenue models have proved to be related to community tools, uploading regime and the level of social networking, which are all important features for establishing a relationship with consumers.

Traditional "paid-for" models, such as subscription and pay per download, can identify a scenario opposite to the ones of "open source" models, such as free with or without Ad model, especially in terms of approaches directed to website's users and protection of content. This division between open source and paid-for types of music services was good, but it still didn't fit completely with the division made at the end of the descriptive analysis between "majors/followers" and "indie/innovators".

In order to correctly classify music services of this dataset it was necessary to run a hierarchical cluster analysis, which confirmed and integrated the previous classifications: four different types of music services have been identified and from this division it is possible to emphasize how a music service can differently address a music consumer.

Since the main purpose of this study is to analyze the existing market in order to say how it could be improved to effectively contrast music piracy and be the preferred alternative of music consumers, the main aspects evaluated to make a cluster analysis have been the factors influencing the decision making process in music consumption, which are also the key factors pushing consumers to use illegal services⁹⁰. The decision to take into consideration these characteristics of a music service has come from a literature review regarding consumers, as previously illustrated in Paragraph 1.2 of this study.

The starting hypothesis is that a music consumer pays attention to usability of content and to the level of customization on a website and, as a consequence, the type of music services of

⁸⁹ See Paragraph 1.2 of this study.

⁹⁰ M. MCGUIRE, D. SLATER, *supra* note 37, at 5; D. BAHANOVICH, D. COLLOPY, *supra* note 16, at 17; C. HILL, *supra* note 4, at 9; A. BALESTRINO, *supra* note 1, at 455.

the analyzed dataset which seems to cover these particular consumers' needs is the one of "structured open source" services. They are mainly free with Ad services, paying much attention to consumers' tastes as much as to consumers' usability of content: they do not impose particular restrictions and, of course the user feels the service as "free". It's not a case that the most popular music services identified by IFPI Reports⁹¹ are mostly included in this cluster.

The other types of services have all some deficits: the "traditional paid-for" are excellent in securing consumers' privacy and in providing high quality content, since they all almost all major players, but their main drawback is that consumers would encounter difficulties in transferring content to several devices or they would generally be frustrated by the high amount of downloading restrictions and registration requirements. They would meet similar problems in the "in transition paid-for" services, since they do have DRMed content too, but here the scenario is different, since here there is an attempt of introducing a lower degree of restrictions, even if this cluster is not the best because part of these services are followers providing a very basic structure of the service. It is necessary to admit that consumers not willing to pay for music would barely choose a paid-for service, but these kind of services (of cluster 1 and cluster 4) are always reliable, since they warrant users' security of payment and of data collection and they are also the ones relying on a good reputation and fame. Some of them are also famous for providing a wide music catalogue (e.g. *iTunes*), even though other websites of this group are still providing a limited offer; richness of catalogues is proved to be an important factor when deciding where to purchase online music⁹². Finally, the "unstructured open source" services are those which provide unrestricted music under a free without AD revenue model, which might be considered as very positive by a potential consumer, but they feature a low level of security and privacy for users and low levels of customization. They could be a good choice, but they need to improve some aspects of their structure: they are still not very reliable.

Concluding, from this analysis it was possible to identify 4 different types of music services and it was possible to underline some relations among their main features. The main aim of this research is to provide suggestions to design a music website "prototype" capable of satisfying online music consumers' needs and at the same time capable to get an appropriate form of remuneration for the industry and the music's rights holders. The main focus is on trying to say what should be improved in order to create a music service capable of contrasting pirated services and able to be more attractive for music consumers.

From classification C it is possible to define **the "structured open source" music services as the most suitable to effectively contrast the illicit offer.**

⁹¹ IFPI, *supra* note 5, at 29.

⁹² M. MCGUIRE, D. SLATER, *supra* note 37, at 5; D. BAHANOVICH, D. COLLOPY, *supra* note 16, at 17; C. HILL, *supra* note 4, at 9; A. BALESTRINO, *supra* note 1, at 455.

4. Managerial implications

The image of the legal digital music market collected from this analysis underlines the clear gap existing between consumers' expectancies and behaviours as defined by literature review⁹³ and the digital music legal supply: consumers' needs identified by literature and industry reports are not completely satisfied, since, as reported by the empirical analysis of this study:

- **Gratuity**⁹⁴ is still not considered so much by music services. Pay per download method is still the most adopted one, followed by subscription.
- **DRM protection** is drawing back its presence from the market, but still too many websites do have interoperability restrictions
- **Security and privacy** are warranted by most of legal services, but consequently this feature is demonstrated to be related to registration imposition: music consumers don't want to find barriers to accessibility to content and time consuming registration forms are a deterrent from using such services.
- **Customized contents** and **customization tools** are adopted more by innovating open source services, but many followers, which are a wide part of the market, are basically still not provided with them. Many services have a too basic structure, which makes them neglect playlists, communities, embedding and social networking, which are considered to be a key point for success.
- **Sharing tools** are still not much developed on the legal music market, while "imitating" some aspects of sharing services might make legal services just more appealing to regular illegal file sharing consumers
- Long and inadequate **licensing processes** make legal **catalogues** be much poorer than the available amount of content on an illicit service; even major players still maintain some deficiencies on this side.

Covering this gap between digital music supply and demand would mean creating a theoretically satisfying music website prototype, which would feature the following characteristics:

- Free with AD or Free without AD revenue model (open source)
- DRM Free content⁹⁵
- Rapid registration forms
- User-Friendly interface
- Customization tools (playlists, recommendations, reviews)
- Sharing tools (embedding, community, social networking)
- Easy license acquiring process

The prototype profile has many features in common with the Structured Open Source Services; considering such characteristics, the emerging critical points for such a model are the possible **sources of revenues** to satisfy the gratuity need and the **license acquisition**

⁹³ From literature review of Paragraph 1.2 of this study; Midem, *Digital music consumption and digital music access*, Midem & Nielsen Report, 2011, available at <http://blog.midem.com/2011/01/music-three-times-more-consumed-via-youtube-than-via-legal-downloads-exclusive-nielsen-white-paper/> .

⁹⁴ A. ADEMON, C. LIANG, *Piracy, Music and Movies: A natural experiment*, Working Paper, Uppsala University, 2010

⁹⁵ Explicit reference to the DRM protection as reducing utility for users is made in N. CURIEN, F. MOREAU, *The Convergence between Content and Access: Internalizing the Market Complementarity*, 6 *Review of Network Economics*, 2007/2, at 162.

process for the music catalogue composition, since legal music services' catalogues are often not wide enough to compete with pirate services' catalogues..

Some ways of making an open source music service economically **more sustainable** are listed here as follows, as shown by the examples in the dataset:

- Most of the times Open source models tend to be **integrated with subscription or pay per download** paid-for models; this way, consumers are attracted by free contents on the service and after testing the reliability of the website through the free distribution, they may be persuaded to purchase paid content. Such models are commonly recognized as “freemium”, from the literal union of “free” and “premium”.
- Otherwise the business is implemented with an additional activity like **licensing music for commercial purposes**; this can be done only if the service licenses indie content (not related to major labels or to collecting societies) under a Creative Commons License regime.
- Making a **partnership with an external retailer** to implement the download music portfolio is another way of implementing income for a music service. Usually the website redirects users to the external retailer's website and gains a percentage on content they purchase.
- The introduction of **specific extra services**, such as merchandising and event ticketing on music websites, could improve the economic sustainability of open source services and increase the level of loyalty of users.
- The solution suggested by Curien and Moreau is to make access providers participate in the production of content, co-producing it or subsidizing it. This form of **vertical integration** is called the “**access model**”⁹⁶. The fact is that in order to access pirated content and illicit digital music services consumers need to be provided with an access technology, may it be a personal computer or an internet connection and so “*content providers generate a positive consumption externality and bring value to the access markets.*”⁹⁷ (Curien, Moreau, 2007); moreover, the analysis conducted by Curien and Moreau affirms that this externality “*turns out to be more profitable to access providers than to content providers*”⁹⁸ (Curien, Moreau, 2007), so the participation of the former to the business would be required to recover the fixed costs involved in the production of content, since “*the decision to purchase access technologies is seen as a consequence rather than a cause of content consumption*”⁹⁹ (Curien, Moreau, 2007). This way, the music industry would recover its revenues lost in pirate services and the access provider would acquire new customers and they would increase their average revenue per user (ARPU); moreover such projects might be a good repositioning tool.¹⁰⁰ Unfortunately music industry is also afraid of co-producing with access providers, since this would increase the latter's bargaining power; “*content providers could thus prefer a contribution to content production deriving from a legal constraint*”¹⁰¹ (Curien, Moreau, 2007).

Currently, the more a legal service is reliable and sustainable, the wider catalogue it would have; with the increase of the sources of revenues, as previously explained, this situation should improve and, especially with an access model, the partnership between access

⁹⁶ Id., at 162.

⁹⁷ Id., at 162.

⁹⁸ Id., at 162.

⁹⁹ Id., at 164.

¹⁰⁰ IFPI, Supra note 5, at 8.

¹⁰¹ N. CURIEN, F. MOREAU, supra note 95, at 172.

providers and content providers would be reliable enough to allow easy licensing and presenting wider catalogues on the services.

Acquiring licenses is related to increasing the music files portfolio and, moreover, acquiring last releases and hits, which are usually excluded by open source services.

In order to have a better service from collecting societies, it's fundamental to build international common instruments, to make all the bureaucratic processes much faster and more efficient for authors, publishers, website owners and finally for the end users, since collecting societies' activity tends to suffer from a "fragmentation" problem¹⁰², with a lack of standardization and cohesion¹⁰³ in the organization of processes.

A cross-industry initiative has been recently taken and it is called "Digital Data Exchange" (DDEX), which is aimed at standardizing the data reporting structure of users, in order to warrant some communication standards in the distribution¹⁰⁴. Moreover, collecting societies are committed on facilitating "pan-European" licensing of digital rights, following the EC recommendation on cross-border management of online music rights¹⁰⁵, encouraging the adoption of collective agreements in order to improve the system of royalty remuneration.

5. Conclusions

Legal consumption of digital music has to satisfy some specific consumers' needs to become more and more appealing and to effectively contrast piracy: a literature review¹⁰⁶ allows to say that music consumers' main requirements are identified in gratuity or low prices for content, high level of interoperability of content, wide and updated catalogues, online security, immediate and user-friendly interfaces. The recent developments of customized services, communities and social networks increased the relevance of customization and sharing tools in music websites, allowing the researcher to give much relevance to the level of interaction established by a digital music service with its users and to the attention paid to consumers' preferences and tastes.

Similarly, literature reviews¹⁰⁷ reveal also that consumers' reasons for using illicit services are gratuity of the service, the possibility to download unreleased content, the fact that pirate

¹⁰² D. DE ANGELIS, *La tutela giuridica delle opere musicali digitali*, Milano, Giuffrè editore, 2005.

¹⁰³ Id., at 272.

¹⁰⁴ Screen Digest, *Interactive content and convergence: Implications for the information society, A Study for the European Commission* (DG Information Society and Media) By Screen Digest Ltd, CMS Hasche Sigle, Goldmedia GmbH, Rightscom Ltd, October 2006.

¹⁰⁵ Commission Recommendation 2005/737/EC of 18 May 2005 on collective cross-border management of copyright and related rights for legitimate online music services.

¹⁰⁶ C. HILL, supra note 4, at 9; A. BALESTRINO, supra note 1, at 455.; P. CHAUDHRY, E. STUMPF ET AL., *Consumer Complicity with Counterfeits: Fight or Flight - Addressing the Intellectual Property Issues in International Trade*, 5 *Global Trade and Customs Journal*, 2010/9.; OECD, *Piracy of Digital Content*, <http://www.oecd.org/dataoecd/50/22/42619490.pdf>, 2009; A. HUYGEN, P. RUTTEN, S. HUVENEERS, S. LIMONARD, J. POORT, J. LEENHEER, K.S. JANSSEN, N. VAN EIJK, N. HELBERGER, *Ups and downs. Economic and cultural effects of file sharing on music, film and games*, 2009 TNO & IviR, http://www.ivir.nl/publicaties/vaneijk/Ups_And_Downs_authorized_translation.pdf. M. MCGUIRE, D. SLATER, supra note 37; IFPI, supra note 48; D. BAHANOVICH, D. COLLOPY, supra note 16, at 17.

¹⁰⁷ C. HILL, supra note 4, at 9; P. CHAUDHRY, E. STUMPF ET AL., supra note 106; A. BALESTRINO, supra note 1, at 455; D. BAHANOVICH, D. COLLOPY, supra note 16, at 17.

services are easy to be used¹⁰⁸ and the fact that they have little fear of legal consequences of such illegitimate behaviour. The piracy context is actually characterized by DRM free content provided for free, with no possibility of remuneration for the industry and the rights owners. The availability of a very wide catalogue on such services makes the user neglect the low level of security warranted by the illegal framework: viruses and spywares are the main damages brought by such services, together with the unsecured degree of authenticity of content and the lower quality¹⁰⁹ level. This illicit framework often is characterized by the absence of a privacy policy for users and registration might be not required actually. These services are really immediate and user-friendly, so much that they do provide an even too simple service, without any customization tools, or without the possibility to embed content. Therefore, it is almost obvious to say that piracy offer is not able to provide a completely satisfying service for consumers and, therefore, legal services are obliged to contrast it and try to reduce it.

The analysis conducted in this study allows to compare consumers' needs with the current legal digital music offer on the market: if legal supply wishes to reduce piracy and be more appealing to consumers, persuading them to stop piracy activity, the digital music market should consider which are the features required by a music consumer from a music service and start working to provide a similar legitimate offer.

The best profile identified to be able to effectively contrast piracy is characterized by a very structured service, provided with accurate interfaces and a vast portfolio of products; its revenue model is "open source", since it is basically free and sometimes integrated with paid-for systems. The content distributed is not DRMed and the security is warranted by reliable privacy policies and "consent expression" requirements. Such competitive services are all focused on consumers' satisfaction, provided with customization tools, communities, forums and sharing instruments.

Generally, classifying such services on the basis of interoperability of content and their focus on consumers, they would be the best model currently available on the legal market in satisfying the music demand.

The other types of services identified on the market of course present some points of strengths, as displayed, but, in order to enrich their offer and attract more consumers they should improve their structure and contents, taking the "structured open source" ones an example to be followed.

However, such model should implement its service in order to effectively attract more users. The main criticalities that emerged from the analysis regard the revenue model and the licensing regime: a website attempting to compete with piracy should first care about acquiring enough licenses for implementing the music catalogue and assure economic sustainability of its revenue model.

An open source service has many ways of implementing its financial sustainability, but the most significant are the "freemium" model, which is the integration of the free model with paying ones (subscription or pay per download) or the possibility to make a collaboration with

¹⁰⁸ C. HILL, supra note 4, at 6.

¹⁰⁹ A. BALESTRINO, supra note 1, at 455; BAHANOVICH, D. COLLOPY, supra note 16, at 17.

access providers: thus, consumers would access content without paying for it and access providers would share their income with the music content providers.

An innovative solution to increase the revenues of a music service would be introducing extra services on the website, such as merchandising and event ticketing.

New licensing models are needed, together with the introduction of a multi-territorial system of collective copyright licensing for online music services and with warranting an adequate level of protection from copyright infringements¹¹⁰; the Digital Agenda¹¹¹ has planned the improvement of the licensing regime at European level with the adoption of an external collective license to warrant royalties to all content creators, while, at national level, Agcom¹¹² in Italy has established criteria for making content online licensing easier and more affordable. Moreover, collecting societies' activity is planned to be improved in transparency and fastness of circulation of content: the adoption of collective agreements in order to improve the system of royalty remuneration worldwide is a concrete proposal made with regard to the licensing regime.

A collaboration with Internet Service Providers would also be needed in order to control and monitor the legal consumption: European Directive 2000/31/EC¹¹³ on e-commerce disciplines the Isp liability in assuming the role of controller, warranting no copyright infringement on the legal services. Recent actions taken in France¹¹⁴ and in Sweden have demonstrated how a governmental intervention would also be needed to support ISPs intervention for the disclosure of infringing subscribers' accounts¹¹⁵.

The existing regulation is not well adapted to new business models, therefore, there's the need of an harmonization at international level to allow cross-border digital distribution of content.¹¹⁶

Initially, the music industry was focused only on protecting music, having scarce consideration over free revenue models and other new forms of consumption, but now the action of contrasting piracy should start from understanding what do pirate services give to users and what are the main requirements of a music consumer.

The evolution of music consumption can suggest a future scenario composed of legal services capable of providing not only gratuity, absence of restrictions and wide catalogues, but also

¹¹⁰ Screen Digest, supra note 104.

¹¹¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions– A digital agenda for Europe, COM(2010) 245, Brussels, 26.08.2010, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52010DC0245%2801%29:EN:NOT>.

¹¹² Delibera n. 668/10/CONS del 17 Dicembre 2010, Autorità per la Garanzia delle Comunicazioni.

¹¹³ Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000, on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market ('Directive on electronic commerce'), in *Eur Lex, Official Journal L 178*, 17/07/2000 P. 0001 – 0016, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32000L0031:EN:HTML>.

¹¹⁴ R. SUIRE, T. PENARD, S. DEJEAN, *Une première évaluation des effets de la loi Hadopi sur les pratiques des internautes français*, 2010, <http://www.marsouin.org/spip.php?article345>.

¹¹⁵ The reference is made to the Intellectual Property Rights Enforcement (IPRED) effects of its application in Sweden, reported in detail in the IFPI, supra note 5, at 11.

¹¹⁶ Screen Digest, supra note 104.

offering what piracy can never provide: security and privacy, authenticity of content and, generally, reliability of the service¹¹⁷.

The following table underlines the evolution of legal consumption and how some services might never be provided by the illicit framework.

PIRACY	LEGAL OFFER (2000-2010)	CURRENT LEGAL OFFER	PROSPECTED LEGAL OFFER
Gratuity	No gratuity	Free and paid	Free for consumers (integrated with paid or Access Models)
DRM free	DRMed	Mostly DRM free	DRM free
High level of interoperability of content	Low level of interoperability of content	Good level of interoperability of content	High level of interoperability of content
Wide and updated catalogue	Limited catalogue	Quite Limited catalogue	Wide and updated catalogue
Immediate and user-friendly	Less immediate and user-friendly	More immediate and user-friendly	Immediate and user-friendly
Less registration requirements	Registration required	Registration is often time consuming	Rapid registration
No authenticity No security No privacy No customization Less sharing tools Penal consequences	Authenticity Security Privacy No customization No sharing tools Legal framework	Authenticity Security Privacy Customization tools Sharing tools Legal framework	Authenticity Security Privacy Customization tools Sharing tools Legal framework

Source: personal elaboration

From this table a clear deduction can be made: if a legal service would provide the same offer of a pirate service, such as free content, wide catalogues and an immediate interface, **piracy would never be reliable and secure enough to compete with the legal framework.** Therefore, legal consumption will always have such advantage over piracy: this confirms that **the aspects to be improved to attract more consumers are those regarding the characteristics of the offer.** Legal distribution should now take piracy as a sort of “inspiration”¹¹⁸ to understand which are the things consumers prefer, and adopt some of them to combat piracy.

The basic paradigm to follow in the future legal developments would be “*consumer is the king*”¹¹⁹ (Levy, 2006), and the “structured open source” models have resulted to believe in this

¹¹⁷ C. HILL, supra note 4, at 2.

¹¹⁸ C. HILL, supra note 4, at 9.

¹¹⁹ A. LEVY, supra note 35.

vision. This is the reason why such services should be an example to be followed by less competitive models.

Of course, not only competitiveness should be addressed, but also an additional activity of promotion of such legal services should be implemented in order to increase their visibility on the market and to increase consumers' awareness of their legal offer, implementing the marketing action to promote the legal supply.

Digital music legal services should no more be focused only on protection¹²⁰ of content and compulsory paying: music consumers are asking for specific features and if these would be offered through a legal service they would have **no more incentives on using illegal services**. Of course piracy will never be completely stopped, but, since legal services do also provide more security and reliability frameworks, illicit consumption would certainly be reduced.

¹²⁰ A. BALESTRINO, *supra* note 1, at 465.

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