



## **P2P in the Networked Future of European Cinema**

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The new peer-to-peer (P2P) technologies have impacted the film industry, which advocates sanctions against the downloading and sharing of products found on the Internet. But the economic effect of file sharing on the film industry remains difficult to determine. In this article, we ask whether file sharing networks will affect the survival or potential growth of European cinema. The steady decline in traditional film distribution channels for European productions—cinema theatres and direct sales or renting—is leading to the emergence of new distribution channels. And yet the results of the movie industry's calls—including those voiced by its European players—for stronger legislation against these same distribution channels are making their way through Europe by means of enforcement tools like HADOPI and other graduated response programs. Our hypothesis is that this offensive runs the risk of condemning a potential open distribution network and commons business model at its birth. For this, we start by clarifying the emerging global P2P phenomenon; we then stipulate what we mean by European cinema, outline its peculiar traits, and contrast it with North American cinema. Finally,

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we compare the consumption of European film in theatres with the availability of seeds and leechers for European cinema in P2P networks.

### Introduction

Cultural production and distribution have been, and still are today, influenced by technological development in an interdependent relationship of multiple influences. Examples can be found throughout the history of media, in moments such as the respective births of printing, radio, television, and now the Internet (Winston, 1998, p. 8). Peer-to-peer (P2P) networks are part of an emerging phenomenon on the Internet. P2P involves a set of protocols with one essential characteristic in common: network nodes are the users. This does not mean that there is no centralization whatsoever; but it does mean that users are the support for the functioning of the networks, or the structural elements that input content and resources, acting both as enablers of and participants in a content and technology resource-sharing process.

One characteristic of the architectures of P2P networks in relation to other Internet protocols like the Web's hypertext transfer protocol (HTTP) is the way they are allowing a reconfiguration of the distribution of cultural production. In contrast with the market economy, in P2P networks, sharing is a *sine qua non* condition of the trading system. Most are free access networks requiring only client software that is obtainable online at no cost. No money is paid to the service providers or exchanged by users. In fact, the only way a user needs to "pay" is by contributing bandwidth to the community of other users when downloading or uploading files.

This duality of the P2P network architecture between lower distribution costs—in the sense that most bandwidth is "paid" for by the users—and absence of any physical restriction to access is seen by many content producers as a menace to their traditional business models. Thus, it is no surprise that, for the past few years, we have been witnessing all over Europe a concerted strategy of influencing legislative and executive powers toward urgently adopting stronger enforcement measures, such as "three strikes" or a "graduated response." The aim of these measures is to terminate a user's Internet access after he or she has been alleged and found two times to be sharing copyrighted files with no authorization from the holder(s). The first country in the world to introduce a graduated response regime was France, by means of its HADOPI law, but New Zealand, South Korea, Taiwan, and the UK have since followed its steps.

Despite some misleading and inconclusive data issued by official sources (Moya, 2011), these measures aren't enough to significantly reduce file sharing, nor have they represented a growth in revenues for the economic sectors who claim to be severely affected by file sharing.

The argument that every copy made is a lost sale (and thus must be forbidden) is not specific to P2P networks. In fact, it has been invoked by the movie and recording industries several times in the last few decades—first with the audio cassette and later with the VHS tape (Lessig, 2004). And yet these two media ended up being adopted as distribution platforms for both industries, respectively. This begs the question of assessing whether the enforcement strategy is once again doomed to failure. Moreover, in the case of European cinema, which is mostly publicly funded (in contrast to the tradition of private financing

dominant in the United States), enforcement can even be counterproductive to regional cultural policy. If the aim of subsidizing European film production is to balance the distorted “playing field” that is the audio-visual distribution market, as well as to enable the public’s access to artistic and non-commercial cultural perspectives beyond Hollywood’s blockbusters, shouldn’t national and regional authorities be supportive of the new media environment? After all, that same environment is fostering a participatory culture where users have direct access to the works made by creators, and so can contribute to their promotion by way of subtitles, remixes, and mash-ups (Jenkins, 2006), thus combating obscurity, which is considered by some as the biggest threat to independent filmmakers, as opposed to piracy (O’Reilly, 2002).

### Peer-to-Peer in Context

Up until a few years ago, P2P traffic volume was higher than all others put together for most of the regions studied, with the exception of North Africa and the Middle East (see Figure 2). Basically, the P2P traffic share has been growing since the creation of Napster in September 1999 (Menn, 2003, p. 54). Recently, however, it has lost its supremacy in terms of Internet traffic<sup>1</sup> due to a resurgence of the importance of the Web<sup>2</sup> and the emergence of streaming video,<sup>3</sup> as well as of the so-called “cyberlockers.”<sup>4</sup> Nevertheless, there is enough solid evidence to support the view that P2P is still growing in absolute terms. In fact, its worldwide usage is still today estimated at 25% of all Internet traffic.<sup>5</sup>

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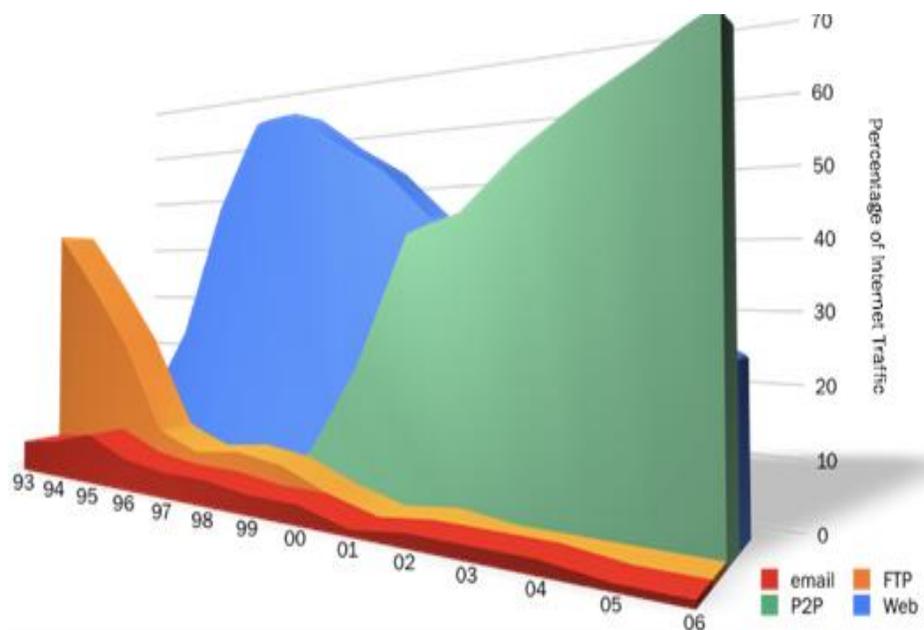
<sup>1</sup> This is according to several studies of bandwidth usage released by network monitoring companies such as Sandvine, Ipoque, Arbor Networks, and Cisco. The results of these studies were condensed in a technical report published in January 2011 by Envisional (Envisional, 2011).

<sup>2</sup> Social networks—Facebook and Twitter—Google, Wikipedia, blogs, and so on.

<sup>3</sup> YouTube, DailyMotion, Hulu, and Netflix.

<sup>4</sup> Web-based file hosting sites such as Rapidshare, MegaUpload, 4Shared, and Hotfile which, like P2P, are also used to share movies, TV shows, and music albums. Unlike P2P networks, which require a dedicated client application (such as uTorrent for BitTorrent or eMule for eDonkey), users of a cyberlocker only need a Web browser to store or access content on it. Envisional estimates that cyberlockers are responsible for around 7% of Internet traffic (Envisional, p. 47).

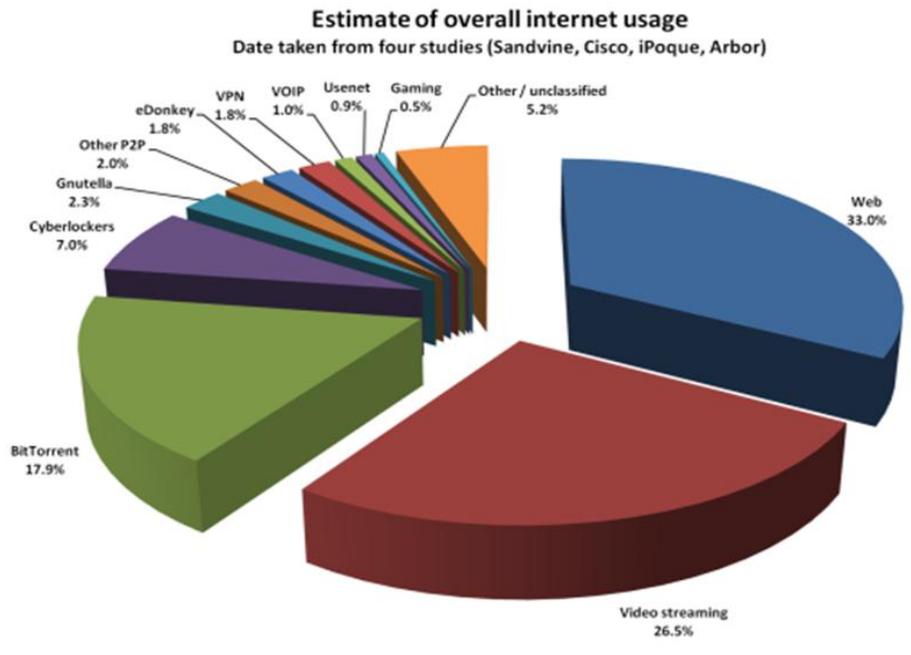
<sup>5</sup> “Determining how much internet traffic is peer to peer is more difficult. The proportion varies from study to study and, within those studies, from region to region. . . . Given these issues, this analysis estimates P2P usage worldwide at 25% of all internet traffic. On this reading, BitTorrent uses around 17.9% of all internet bandwidth” (Envisional, p. 47).



**Figure 1. Internet Protocol Evolution, 1993–2006.**

*Source: CacheLogic (2006).*

There are several P2P protocols operating over the Internet. Different criteria can be used to map the most significant among them: the number of computers with installed clients, content availability, and the amount of traffic generated within each protocol. But, given the specificity of the technology and its diverse appropriations, it should be also noted that measurements of use in P2P might hide some problems. Some examples might be found in the fact that, despite the P2P client being installed, users may not be active. As for content availability, it is not clear whether said content is actually being downloaded or not. And one can always argue that a small number of users are generating large traffic volumes, making this last indicator a less powerful one.



**Figure 2. Distribution of Internet Protocols, 2011.**

Source: Envisional, 2011.

Files with large volumes of data, such as movies or episodes of TV series, are harder to share, which in turn encourages users to take advantage of the efficiency of the BitTorrent protocol.

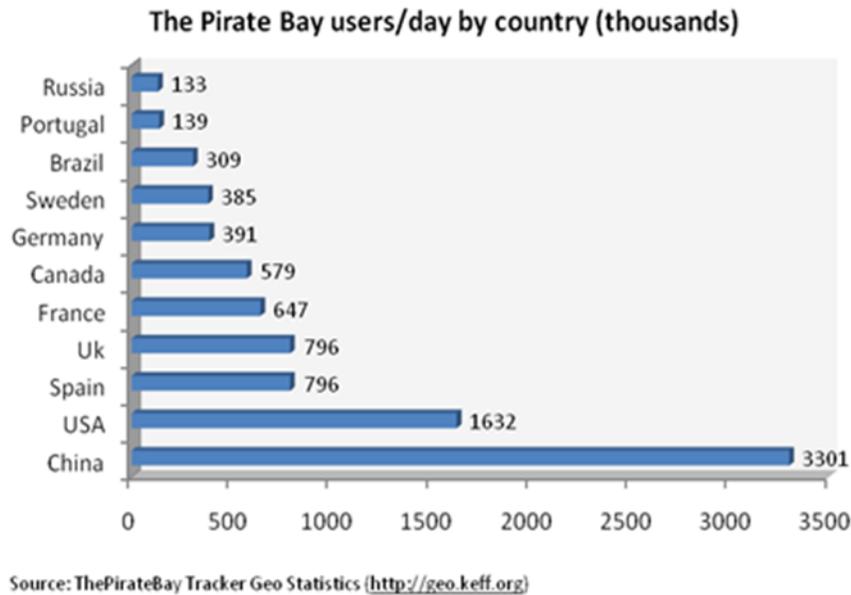
BitTorrent's architecture also combats free riding, which is the term used in P2P networks to describe users who download without sharing. To prevent free riding, two mechanisms are integrated into the protocol: BitTorrent users cannot download a file without automatically uploading parts of the incompletely retrieved file, and users with a higher upload/download ratio are rewarded with faster download speeds (Werbach, 2008, p. 103). While BitTorrent's characteristics help to achieve successful downloads, one cannot assume that downloads will always be fast and easy, especially for video content. Although it may be somewhat difficult to advance precise figures regarding the total number of regular users of all P2P protocols—as stated above—there is at least one reliable source of BitTorrent data: the company responsible for the original BitTorrent mainline client and uTorrent, BitTorrent's most widely used application. According to information provided by BitTorrent, Inc. in January 2011, the two clients combined had more than 100 million active users a month, and 20 million active daily users from over 220 countries (BitTorrent, 2011).

Essential to the smooth functioning of the BitTorrent protocol is the existence of central servers called trackers. Users' clients communicate with trackers to find other users already holding a complete copy of the requested files (commonly called seeders), or who are also downloading the files at that exact moment (leechers). However, this brokering is only needed to start the file download. After that, all communication between clients (or peers, as they are also known) can occur without the presence of the tracker. It's important to stress that a tracker does not host any of the files shared by BitTorrent users. All the available content is stored and shared between peers. What the tracker hosts instead is only the collection of torrent files containing metadata or information about the files that the users seek. In that sense, each torrent is a type of index of the file being transferred. Thus, it is clear that a torrent cannot be considered copyrighted material. The target file is then divided by the torrent into a series of equally sized small pieces. Peers swap these pieces of files with as many other peers as possible. The requested files are, in the end, combined from all these little pieces, just like the final image resulting from all the disjointed parts of a puzzle. This enables users to download complete files much faster than the connection speed of any single peer.

This article analyzes one of BitTorrent's most popular trackers and index sites, The Pirate Bay,<sup>6</sup> which, at the time we began this study, had the biggest tracker in terms of both user and traffic volume. For every region analyzed by Ipoque in the 2007 edition of its Internet study, this tracker had the highest traffic volume of all other BitTorrent trackers. When one takes a closer look at The Pirate Bay user statistics, one also finds a large number of users from around the world who are connected to this tracker. The Pirate Bay was thus an excellent observation site. The following analysis focuses mainly on this website and its content user data.

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<sup>6</sup> It is important to contextualize the current situation in terms of the platforms we included in this study. Although this study (particularly its empirical aspects) was initiated before April 17, 2009—when the three founders of The Pirate Bay (Peter Sunde, Fredrik Neij, and Gottfrid Svartholm), together with the investor Carl Lundström, were first found guilty of assistance to copyright infringement by a Swedish Court—and although the great majority of the data we report is directly linked to it, we still consider our findings to be of interest for the academic community.



**Figure 3. The Pirate Bay in Numbers.**

Despite the sentence issued against its founders, The Pirate Bay is often compared by its advocates to a search engine like Google, as it also indexes and links to pirate files (Fleischer, 2008). One additional strong connection between the two sites is that Google enables users to search for and find torrent files.<sup>7</sup> Following the April 2009 condemnation, The Pirate Bay operators decided to shut down the tracker as a matter of caution against further additional legal setbacks. In its place, a more decentralized architecture was adopted, one based on trackerless technologies (Ernesto, 2009b, 2010a).

Public trackers like The Pirate Bay aren't, however, the only kind of torrent sites available. Also relevant to our analysis are private trackers like the Portuguese Btnext.com, to which users can gain access via an invite from a current user. To combat free-riding, the operators enforce a share ratio, so that the users don't consume more resources (by way of downloading) than they provide (uploading). This acts as an incentive for the users to continue to seed the torrents after the download is completed, for as long and with as much bandwidth as possible. Those who do not achieve the minimum stipulated ratio are

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<sup>7</sup> This similarity between the two sites has not been missed by Google, which in 2009 felt the need to publish a post in the official blog of its Italian subsidiary defending itself from those who accuse the company of facilitating copyright infringement (Pancini, 2009). More recently, Google has strengthened its collaboration with the entertainment industry by putting in place a series of anti-piracy measures, including acting on copyright takedown requests within 24 hours and preventing terms "closely associated" with piracy from appearing in its autocomplete feature during search queries (Walker, 2010). But while specific terms like BitTorrent, torrent, uTorrent, RapidShare, and MegaUpload no longer appear on Google's search suggestions (Ernesto, 2011), one can still find links to infringing content.

banned from the site. Moreover, because these sites are generally more moderated than the public ones, members can be sure that the torrents are not corrupted with viruses or spyware.

There are several types of private BitTorrent trackers. Even though the vast majority of them are like small communities focused on providing very specific content, the biggest ones are those that offer any kind of content.<sup>8</sup> This is the case of BTnext.com, the largest Portuguese BitTorrent tracker.

## **What is European Cinema?**

### ***History and Relationship with the U.S. Cinema Market***

When looking to cinema as a form of art, the first important thing is to recognize that there is not just one film industry working with unified production and operation codes; there is an enormous variety of industries favoring distinct styles and ideas. Although the movie world seems dominated by Hollywood media companies and blockbuster films, the idea that everything is an extension of the hegemony of the U.S. film industry is erroneous. Going backward in history, one can see that Europe hasn't always created cinema for small audiences. In fact, the early 20th century beginnings of cinema were strongly marked by developments in France (Taplin, 2007).

Up until the post-war era, the environment of world cinema remained unstable, with many logistical and material innovations coming from Europe and Asia. It was only in the 1970s that the U.S. cinema's capacity to (re)invent itself strategically precluded more widespread hegemony of European productions (Moul, 2005, p. 12; Schatz, 2009; Taplin, 2007).

### ***A Comparative Approach***

To convey what we mean by the specific characteristics of European cinema, we answer a series of questions below that allow us to distinguish it from other forms of cinema, particularly its U.S. counterpart.

### ***Are Films Produced Differently in European Cinema?***

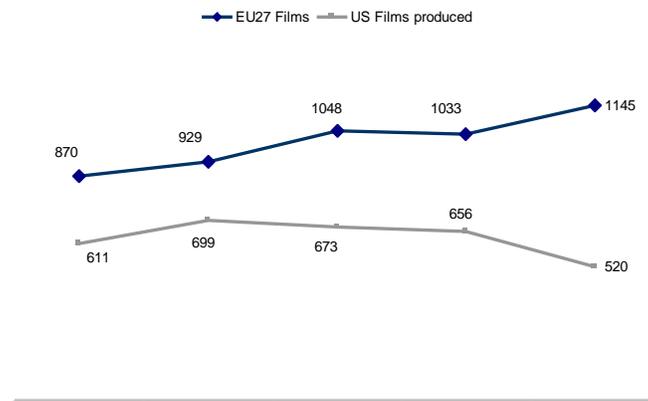
The answer is clearly yes. It is well known that European cinema has been historically considered more art-oriented, placing special emphasis on the actor as a character, and as the essence of production itself. By contrast, American cinema is seen as oriented toward sales and profit: "Although the U.S. film industry may have some unique characteristics, it is still an industry organized around profit. . . . Hollywood films are made because they are perceived to be profitable or represent low risk" (Moul, 2005, p. 17).

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<sup>8</sup> Music, European and Asian cinema, books, magazines, TV shows, console games, computer software, etc.

### ***Is Film Distribution and Viewing Different for European Cinema?***

There is a double answer to this question. In theory, distribution forms are the same for all types of cinema, because the technological revolution provides the same conditions for all. But European film distribution is involuntarily different from others, particularly the U.S. model. With the predominance of so-called traditional forms of distribution (via cinema theatres and, more recently, via television) linked with profitable, mass-produced merchandise of U.S. origin, the main form of consumption of European films today is through online file sharing and downloading, as is discussed in detail below.



**Figure 4. Number of Feature Films Produced.**

Source: *World Film Market Trends: Marché du film 2009*.

According to the *Focus 2010: World Film Market Trends* report from the European Audiovisual Observatory (EAB), "European films captured a provisional market share of 26.7% of total admissions in the European Union, down from 28.2% in 2008 and the lowest level since 2005," while "the market share for US films climbed from 65.6% to an estimated 67.1%, the highest level since 2003" (EAB, 2010). Even more worrisome, "while many European countries had registered record national market shares in 2008, market shares for national declined in 18 out of 23 member states for which data were available in 2009." It is noteworthy that this is still the case, even though the number of American films has decreased in recent years, while European films are being produced in ever-greater numbers. We can therefore conclude that the number of European films that are not released theatrically every year is also growing.

**Table 1. Cinema in Europe.**

| <b>Cinema and its circulation in Europe, by country of production</b> |       |       |       |       |       |
|---|-------|-------|-------|-------|-------|
| Region  | 2005  | 2006  | 2007  | 2008  | 2009* |
| European films  | 24.6% | 27.9% | 28.1% | 28.2% | 26.7% |
| Europe inc/ U.S. co-productions                                       | 10.3% | 5.6%  | 7.5%  | 4.4%  | 4.2%  |
| U.S.  | 62.5% | 63.4% | 62.6% | 65.6% | 67.1% |
| Others  | 2.6%  | 3.2%  | 1.8%  | 1.8%  | 2.0%  |
| *Pro-rated  |       |       |       |       |       |
| <b>European films by country of production</b>                        |       |       |       |       |       |
| FR France   | 9.2%  | 10.6% | 8.4%  | 12.1% | 8.7%  |
| GB Great Britain  | 3.9%  | 2.8%  | 6.1%  | 2.3%  | 3.9%  |
| IT Italy  | 2.9%  | 3.0%  | 3.8%  | 3.6%  | 3.0%  |
| DE Germany  | 3.2%  | 4.8%  | 3.8%  | 3.6%  | 4.1%  |
| ES Spain  | 2.3%  | 2.8%  | 2.1%  | 1.6%  | 1.9%  |
| Other European countries  | 3.1%  | 3.9%  | 4.6%  | 5.0%  | 5.1%  |

Source: EAB (2010).

As the data in the tables show, the great majority of films that were released in the European Union in 2008 came from the United States. Indeed, this is a long-standing trend.

As far as television is concerned, the data clearly indicate that European films are only slightly more predominant on European television channels, so television is also not a viable alternative for the few European films watched in cinema theatres. Most film programming on European television stations seems to stick to the wisdom of broadcasting according to profitability. At the same time, television is also undergoing change.

**Table 2. Film Incidence in TV Schedule (24 hours).**

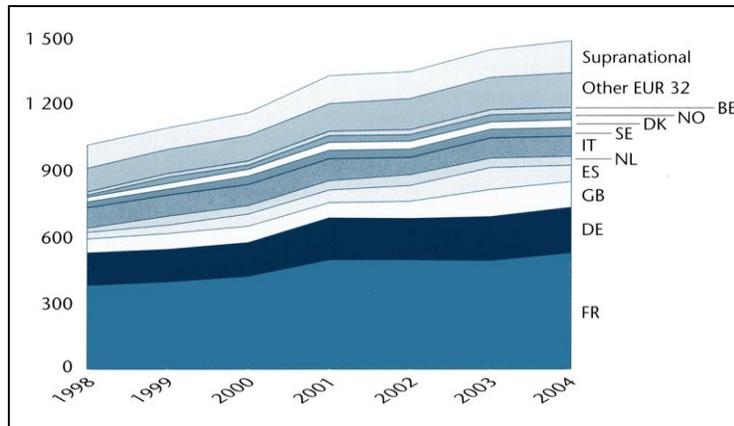
| TV        | Network Country | 2002   |
|-----------|-----------------|--------|
| RTL TV    | Germany         | 6.00%  |
| SAT.1 TV  | Germany         | 7.90%  |
| ZDF TV    | Germany         | 14.70% |
| TF 1      | France          | 3.70%  |
| M6        | France          | 3.00%  |
| Canal+    | France          | 45.80% |
| ITV       | UK              | 5.80%  |
| Channel 4 | UK              | 12.00% |
| RUV TV    | Iceland         | 18.00% |
| Media Set | Italy           | 17.90% |
| VRT       | Belgium         | 7.30%  |
| HRT TV    | Croatia         | 11.40% |
| MTV       | Hungary         | 7.10%  |
| RAI       | Italy           | 8.40%  |
| SVT       | Sweden          | 7.90%  |
| STV       | Slovak Republic | 1.20%  |

Source: European Audiovisual Observatory (Gambardo, 2003).

In the face of this challenge, several European public broadcasters have already begun experimenting with P2P to reduce their bandwidth costs for online video distribution: Norway's NRK, the Netherlands, Canada's CBC, and even the BBC have all tried this (Ernesto, 2009a, 2010b; Orvis, 2008; *The Economist*, 2010). Nevertheless, it may take some time before all the right issues with independent producers are cleared.

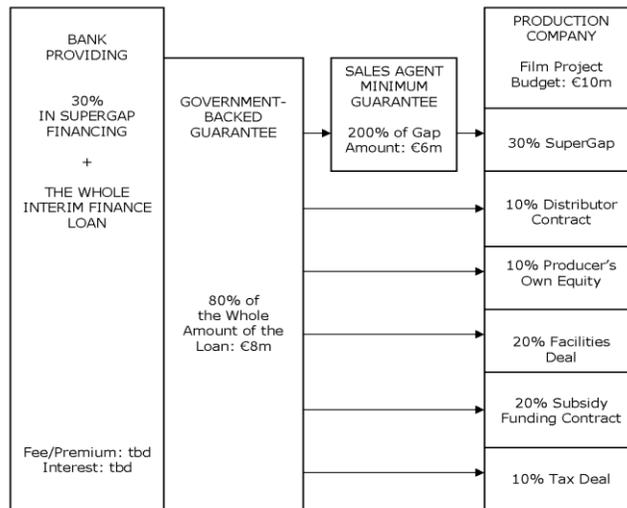
### ***Is the Financing Different for European Cinema?***

Further corroborating the "historical" arguments, European film financing is different from that found in the United States. There, the film industry has been a for-profit private business operation almost from its inception. European cinema, by contrast, has always been associated with public funding, and its history cannot be dissociated from governmental and public interest policy. The French government, for example, has played a very active role in promoting the cultural importance of the national film industry. "In Europe the market and the arts are often seen as unhappy bedfellows . . . today much of the cultural elite of Europe finds commercial culture suspect and argues that subsidies for high culture are essential" (Ginsburgh & Throsby, 2006, p. 1,185). Clearly, this is related with the idea that "the market demands purchasing power. Who pays, joins in. Market forces dumb down expressions of high culture in order to get mass attention" (ibid., p. 1186).



**Figure 5. Public Funding of Europe's Film and Audiovisual Sectors, 1998–2004 (In Thousands of Euros).**  
 Source: European Audiovisual Observatory (2004).

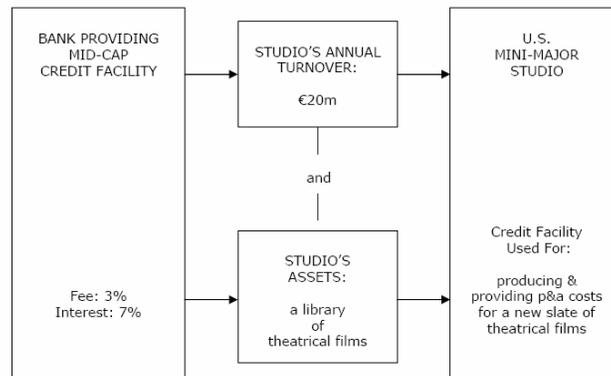
As shown above, public funding of the European film industry has increased in the last decade, particularly in France, Germany and Italy. As far as the diverse financing models are concerned, below is an example of a European film production model with 80% of its funding coming from state bodies.



**Figure 6. Public Funding Model for a European Film**  
 Source: Peacefulfish (2009, p. 52).

The funding available to European film producers comes from various sources—not just national, but also supranational sources with different formats.

Apart from producers and writers being able to apply for funding from their national state bodies, funding for European films is generally indirect, meaning that the state is considered a co-producer.



**Figure 7. Private Funding Model for a Film.**

*Source: Peacefulfish (2009, p. 55).*

As can be illustrated by Figure 7, in a private funding model for films, banks provide mid-cap credit facilities, combining fees and interest, in what can be seen as an alternative funding model to public funding. This model illustrates the more common approach to film financing in the U.S. Clearly, we can therefore argue that there is a dichotomic pattern for obtaining financing for film production.

### ***Are Stories Told Differently in European Cinema?***

Again, the answer is yes. European cinema has the reputation of being more liberal than U.S. cinema when it comes to representations of the human body and nudity (Elsaesser, 2005, p. 563). Indeed, this is a distinguishing characteristic, as from the early days of Hollywood there were great concerns about European cinema influencing the sexual and moral norms of a more conservative U.S. society. European cinema also seems less violent than its U.S. counterpart, where violence-related themes feature recurrently in films (ibid.). Further, European cinema has sought to mirror the real world, “while classical Hollywood film centres on an active, goal-oriented protagonist who confronts various obstacles in a quest to attain certain objectives” (Schatz, 2009, p. 52).

Equally important, European cinema has been comparatively unconcerned with attracting large audiences, and for that reason as well, it is regarded as more “erudite,” with close ties with music, literature, and the fine arts.

***Are the Economics and Distribution Patterns of European Cinema Different?***

Summarizing all of the above, the answer is clearly “yes”:

Hollywood studios have been subsumed by a cartel of global media conglomerates: Time Warner, Viacom, News Corp. (20th Century Fox), Sony and GE . . . operations of the American film industry as a whole demands that we recognize the movie business as precisely that: a commercial enterprise requiring enormous capital investment, in which the major corporate powers strive to optimize efficiency and minimize risk. (ibid., p. 54)

In Europe, film production involves small-scale entrepreneurship and a centrally important role for national funding, so the industry is less profit-oriented. Moreover, the growing number of co-productions between the United States and France and Germany, particularly for big productions, will likely reduce European profits further, as these will be shared with the U.S. industry.

Equally important is the distinct distribution model. This is what has contributed to the success of Hollywood cinema: “[B]efore a film can be considered as a cultural object, it must first be conceived as an industry,” because “films have to be produced, promoted and made available to an audience before any meaning or ideological effect can be derived from the film” (Moran, 1996, p. 1). Why is distribution so important? Moran argues that “as an industrial enterprise, film is divided into three interdependent yet separate sectors. Of the three—production, distribution and exhibition—the middle activity is the most crucial, not least because it connects the other sectors” (ibid., p. 2). And for Solanas and Getino (1976), “the models of production, distribution and exhibition continued to be those of Hollywood and the borders were wiped out along with the expansion of US Imperialism and the film model that is imposed: Hollywood films.”

***Is the Substance of European Cinema Exclusively European?***

The substance of European cinema is no longer exclusively of the old continent. There are non-European directors who have appropriated key features of European independent cinema. Thus, independent film is no longer a strictly European affair. Per Suppia, Piedade, and Ferrarez:

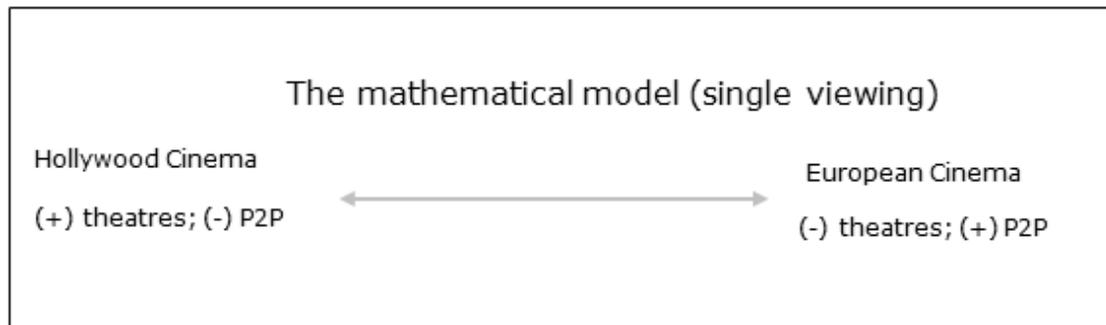
[T]he term *independent film* refers to a cinematic practice that, in some way, provides an alternative or opposition to the dominant or mainstream cinema. The term itself encompasses a variety of cinematic practices, both commercial and noncommercial, and extends beyond the production, including the distribution and exhibition systems. (Suppia, Piedade & Ferrarez, 2008, p. 235)

Moreover, according to Levy, “Ideally an indie is a low budget film, with this unusual subject that expresses a personal vision of its director” (1999, p. 2). There are “two different conceptions of independent cinema: one based on how films are financed, another focused on artistic aspects such as innovation or authorship” (ibid.). According to Bohn and Stromgren (1975, p. 445), “. . .the movement of

new American cinema in the 1960s, began historically with Maya Deren, the filmmaker who made the connection between the *European Vanguard* of the 20s and the *New Wave* that emerged in America after World War II" (Suppia, Piedade & Ferrarez, 2008, p. 337). In short, "Hollywood films are big on budget but small when it comes to artistic talent" (ibid.). Santos argues that "independent film mainly means freedom of production" (1994, p. 70), while Rocha claims that "independent cinema is free and this freedom is basically intellectual" (2003, p. 118). Ultimately, the nature of European cinema, like its U.S. counterpart, is independent of its geographical barriers.

### Why Peer-to-Peer and Not Other Media?

The relationship between P2P and the way European cinema is watched can be better understood with the help of Sung Wook Ji's mathematical model (Ji, 2007). As noted above, first and foremost we must remember that U.S. cinema is increasingly important in theatres the world over. Considering, then, that most people tend to pay for and watch a film only once (ibid.), we can assert that other forms of watching films will tend to be favored by those seeking other types of films, including European films. P2P and other channels have the capacity to bring to people films that do not normally feature prominently in today's cinematic world, which is focused on distributing profitable products with mass appeal. Ultimately, if most people watch a film only once, and if U.S. films are mostly associated with cinema theatres, then they will seek other sorts of films—including the more inaccessible European films—via online sharing resources.



**Figure 8. Cinema and Sung Wook Ji's Mathematical Model.**

One might object that other ways of viewing cinema at home, other than P2P, could lead to an increase in the number of people viewing European cinema. But this does not seem to be the case. For instance, as far as DVD is concerned, it is said that films released in the cinema can sometimes have a negative (according to the mathematical model theory), and sometimes a positive impact on DVD sales. On the one hand, if someone has seen a film in the theatre, they are not likely to acquire it in DVD format; on the other hand, there is a possible link between the theatre run's marketing and advertising strategies and the sales of DVDs. Sung Wook Ji (2007) argues that the best-selling films on DVD tend to be based on box office hits and steady coverage in the media. In other words:

- 1) Few European films in cinemas = absence from the box office hit lists = little feedback = lower DVD sales = less European cinema watched;
- 2) Lots of American films in cinemas = presence on the box office hit lists = lots of feedback = higher DVD sales (with a possible reduction associated with the cinema mathematical model) = greater prevalence of American films in terms of DVD viewing.

***Is P2P Economically Immoral, and Should It Thus Be Strictly Regulated?***

There is a widespread opinion that P2P is immoral because it undermines pricing, property, and investment, and also brings disorder to the market. And while the entertainment industry has the habit of regularly presenting the mainstream media with statistics giving force to the substitution effect—i.e., file sharers tend to replace the purchasing of original legal copies with the downloaded illegal ones just to save money—what is frequently missed is that, generally, these numbers come from the entertainment industry itself. Nevertheless, in a paper released in 2004, Oberholzer-Gee and Strumpf proclaimed that “downloads have an effect on sales that is statistically indistinguishable from zero” (2004, p. 1). They reached this conclusion after analyzing nearly 1.8 million music downloads over 17 weeks in the fall 2002.

Since then, however, their position has somewhat shifted. In a 2010 paper, they've collected the average values of eight “relevant studies” on the issue to reach the conclusion that file-sharing is responsible for a portion—“no more than 20%”—of the decline in music sales (Oberholzer-Gee & Strumpf, 2010, p. 1). This resonates closely with the conclusion of a 2007 Capgemini study commissioned by a UK music industry working group which attributed 18% of the total value lost by the UK recording industry from 2004 to 2007 to digital piracy. The main culprit was the unbundling of the CD spawned by the launch of Apple's iTunes Music Store in 2003 (Orlowski, 2007). Also related is the rise of new entertainment options, including video games and DVDs.

On the other hand, in their 2010 paper, Oberholzer-Gee & Strumpf also go to great heights to debunk the idea that the sharing of files and (art) works leads to the decline of the music or cinema industry. According to them, between 2002 and 2007, there was a 66% increase in the number of books published, the production of new music albums all but doubled, and film production grew by 30%. “In our reading of the evidence there is little to suggest that the new technology has discouraged artistic production” (Oberholzer-Gee & Strumpf, 2010, p. 2). What's more, they say that file sharing has increased the demand for “compliments to protected work” like concerts and merchandise. These have partially made up for the decline in music sales. Thus, P2P has neither eliminated artists' incentive to create, nor has it reduced consumers' choice.

More pertinent to the film industry are the results of a 2008 survey conducted by Dejean, Penard, and Suire. The survey was taken within a representative sample of the French region of Bretagne and composed of 2,000 individuals aged 15 or older. The individuals who declared that they had already

downloaded a cultural good from a P2P network were more used to paying for video content than those Internet users who said they watched online videos from other sources.

Another recently released study giving more weight to the sampling effect of file sharing of video content—i.e., individuals tend to download videos in order to watch them before buying them—against the substitution effect uses YouTube and the P2P network Winny to examine the effects of piracy on the sales and rentals of anime (Japanese TV animation) DVDs:

Estimated equations of 105 anime episodes show that (1) YouTube viewing does not negatively affect DVD rentals, and it appears to help raise DVD sales; and (2) although Winny file sharing negatively affects DVD rentals, it does not affect DVD sales. (Tanaka, 2011, from the English abstract)

Thus, people who have downloaded anime appear to use it to replace their rentals, rather than purchases.

Moreover, even if Tanaka's research is right about the deleterious effect of file sharing in DVD rentals (something which, must we remember, is contradicted by the results of the survey conducted by Dejean, Penard, and Suire), this loss of revenues can be reduced with more sophisticated and flexible online offerings that cater to the demands of the industry's best costumers, file sharers themselves. Starting from the assumption that the Internet is a copying machine, Kelly (2008) speaks of generatives to designate eight qualities that not only cannot be copied, but also add value to the free copies.<sup>9</sup>

Instead of fixing its gaze on Hollywood, whose distribution model—despite all the available new streaming video services like Netflix and Hulu<sup>10</sup>—is still very much rooted in an analogue past,<sup>11</sup> the European film industry could learn a lesson about piracy from Brazilian film makers and producers. Indeed, one could say that it is Brazil where cinema's new business paradigms are starting to emerge. An extremely successful case-study can be found in *Elite Squad*. One day before its commercial release in the theatres, on October 5, 2007, the film about the daily life of Rio's special forces police had already been seen by 19% of São Paulo residents, according to a survey (Novaes, 2007). In late July, months before the launch, a copy of *Elite Squad* had already leaked to P2P networks, and soon street vendors started making DVD copies and selling them all over Brazil. And yet, *Elite Squad* ended up being the highest-grossing national film of 2007 (Martini, 2007; Reuters, 2007).

The story behind the success of *Elite Squad* fits within the critical mass model used by Noam and Pupillo (2008) to demonstrate that the relationship between P2P file sharing and the traditional business

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<sup>9</sup> Immediacy, personalization, interpretation, authenticity, accessibility, embodiment, patronage, and findability.

<sup>10</sup> Which, in most part, due to regional copyright restrictions, can only be accessed from the United States.

<sup>11</sup> As demonstrated by the Motion Pictures Association of America's persecution campaign of any sharing of its content over P2P networks by U.S. film fans.

transaction system is not necessarily harmful.<sup>12</sup> Because production costs are greater than sales revenue, works are only made if individuals or entities bear the cost. But immediately after the point of critical mass is reached, the business venture becomes self-sustainable so that, paradoxically, the latter phase involves less investment. Indeed, Oberholzer-Gee and Strumpf argue that the benefits multiply with the number of users through the network effect (2010). Thus, one can estimate that the more P2P users there are, the greater the profits for European cinema will be. This means it will no longer be dependent on the phase that precedes the point of critical mass, specifically, the point requiring European state funding for the European film industry.<sup>13</sup>

On regulation, protective measures such as the seizure of illegal copy accounts or the centralization of download registers are difficult to implement on a global scale. One can also argue that attempts to centralize or prevent the use of P2P files and platforms would only contribute to (re)structuring of the whole file-sharing system, leading to new P2P practices that would render previous platforms obsolete. Open copyright-licenses such as the ones maintained like the Creative Commons Organization can here be of some help in the way that they offer some legal security in the face of the additional risks brought about by P2P distribution, such as inappropriate attribution of authorship, while enabling users and other authors to share the original creations and build something new upon them, such as remixes or mash-ups (Liang, 2004).

Ultimately, the problem with P2P lies in the widespread failure to perceive it as a profitable form of distribution, largely because P2P interferes with conventional forms of distribution. That is why its potential benefits are underestimated, and the economic stability guaranteed by the traditional distribution channels is prized instead. The key issue is that the film industry is facing a paradigm rupture which begs for new and imaginative ways of guaranteeing financial sustainability without compromising the creative output. In a world of digital abundance enabled by the Internet, it is no longer possible to continue to sell unitary files, pretending that they can't be infinitely copied without any quality degradation. Therein lays the pertinence of Kelly's suggestion of seeing information goods like films as loss items for the selling of scarce goods.

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<sup>12</sup> Without stretching too much the limits of the model, the same could be said about physical film piracy; that is, the making or distribution of DVD copies without the rights holders' consent, particularly when it comes to peripheral countries like Nigeria (Castells, 2009, p. 92). Nollywood can thus be seen as yet another example of the concept of piracy as an economic activity that enables the emergence of new markets, as advanced by Lawrence Liang (Beckedahl, 2007).

<sup>13</sup> That said, we feel we must explain that there is not necessarily any direct correlation between box-office revenues and popularity on BitTorrent. On the contrary, data pertaining to the last few years has shown that there can be films that, despite achieving a blockbuster status on the box office, end up being neglected by BitTorrent users (Ernesto, 2010c). One must not forget—as always—that there can be a third or a fourth variable in action.

### Cinema and P2P: Users as Distributors and the PCDI Index

Below, we analyze how many users download or upload films on The Pirate Bay that were released in Portugal in 2007. The number of peers was used as an indicator of the availability of these films and their distribution on this tracker. To see the differences between theatrical and P2P distribution of cinema films, the films were ranked according to 1) the number of moviegoers in Portuguese theatres and 2) the P2P Cinema Distribution Index (PCDI).

The PCDI is based on the ratio between the number of uploaders and downloaders (peers) at the time of observation, and the number of spectators in theatres.<sup>14</sup> The higher the values, the greater the role P2P plays in overall distribution. In 2007, 274 films were released in Portuguese theatres. In what follows, we compare the top 20 spectator films (those most watched in Portuguese theatres) with the PCDI top 20.<sup>15</sup> The PCDI, which is based on a ratio between the national spectators and international file-sharing peers, is exploratory in nature, so one must be careful when interpreting findings. Further, the number of peers does not account for total downloads.

Even though the BitTorrent system forces users to share what they are downloading at any given time, they can stop sharing files once they have been fully downloaded. Since the films we analyze were released a few years ago, the actual number of times a film was downloaded is probably much higher than the current number of peers. The index accounts for the availability of a film on The Pirate Bay in relation to the number of spectators in theatres, thus reflecting the present demand for a certain film in the network.<sup>16</sup>

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$$^{14} \text{PCDI} = \frac{\text{peers}}{\text{spectators}} \times 100$$

<sup>15</sup> Selecting the top 20 films of each rank shows which films rank highest in each ranking. The privileged films by each distribution channel are analyzed in the two top 20's used: 1) theatres in Portugal and 2) The Pirate Bay all over the world.

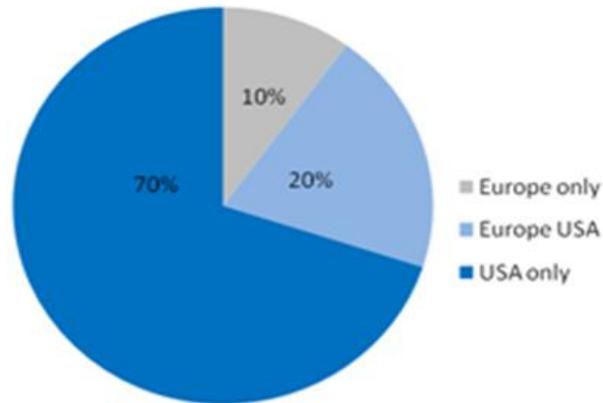
<sup>16</sup> Note that we do not intend at all to attest for any unequivocally direct correlation between the most watched movies in the Portuguese theaters and those whose swarms had the highest number of peers in The Pirate Bay tracker. First, because—as already stated above—grossing huge revenues in the box office doesn't always equate to intense activity on BitTorrent; second, because the data collected from The Pirate Bay may not be very representative of Portuguese file sharers' viewing habits.

**Table 3. Index 1- Top 20 Films in Portugal and Production Country, 2007.**

| Spectators | International English Title               | Production Countries |                      | Main Dialogue Language |
|------------|---|----------------------|----------------------|------------------------|
|            |   | Index 1              | Index 2              |                        |
| 818904     | Shrek the Third                           | USA only             | USA                  | English                |
| 664639     | Ratatouille                               | USA only             | USA                  | English                |
| 510140     | Pirates of the Caribbean: At World's End  | USA only             | USA                  | English                |
| 492658     | Mr. Bean's Holiday                        | Europe only          | UNITED KINGDOM       | English                |
| 479152     | Harry Potter and the Order of the Phoenix | Europe - USA         | USA / UNITED KINGDOM | English                |
| 402145     | Spider-Man 3                              | USA only             | USA                  | English                |
| 391440     | Bee Movie                                 | USA only             | USA                  | English                |
| 346188     | The Simpsons Movie                        | USA only             | USA                  | English                |
| 323012     | Blood Diamond                             | Europe - USA         | USA / GERMANY        | English                |
| 300952     | Ocean's Thirteen                          | USA only             | USA                  | English                |
| 285510     | Transformers                              | USA only             | USA                  | English                |
| 244320     | Night at the Museum                       | Europe - USA         | USA / UNITED KINGDOM | English                |
| 234430     | Norbit                                    | USA only             | USA                  | English                |
| 230753     | Live Free or Die Hard                     | USA only             | USA                  | English                |
| 228481     | Corrupção                                 | Europe only          | PORTUGAL             | Portuguese             |
| 227904     | The Heartbreak Kid                        | USA only             | USA                  | English                |
| 227566     | Apocalypto                                | USA only             | USA                  | Maya                   |
| 224974     | 300                                       | USA only             | USA                  | English                |
| 217120     | The Golden Compass                        | Europe - USA         | USA / UNITED KINGDOM | English                |
| 197757     | American Gangster                         | USA only             | USA                  | English                |

*Source: Authors' Elaboration Based on ICA and IMDB Data.*

This ranking clearly reflects the domination of U.S.-produced films in theatrical distribution, as Table 3. The dominance of U.S. films is unambiguous: 14 films out of the spectator top 20 (70%) are entirely U.S.-produced.



**Figure 9. Index 1—Spectator Top 20 in Portugal and Geographic Area of Production, 2007.**

*Source: Author's Elaboration Based on ICA Data.*

As shown in Figure 9, of the spectator top 20, U.S. productions or co-productions account for 18 of the films (90%), while European productions or co-productions account for a mere 30% (six films).

Language is also an important barrier to cultural export. When a film is released outside its domestic market, it often needs dubbing or subtitling. But cultural affinities between Europe and the United States seem to compensate for the language barrier. The great popularity of American culture and the internationalization of English—the main language spoken in 18 (90%) of these top 20 films—also explain this.<sup>17</sup>

The films were ranked according to the PCDI value. The differences between the two rankings are clear: In the top 20 films with higher PCDI values (proportion of P2P distribution), U.S.-only productions were dominant, accounting for 10 films (50%), although this is a smaller proportion when compared to the spectator top 20. The share of Europe-U.S. co-productions decreases to 15% (three films). Europe-only productions account for a significant share—six films (30%). European countries were involved in the productions of nine (45%) PCDI top 20 films, be they Europe-only productions (30%) or U.S.-Europe co-productions (15%).

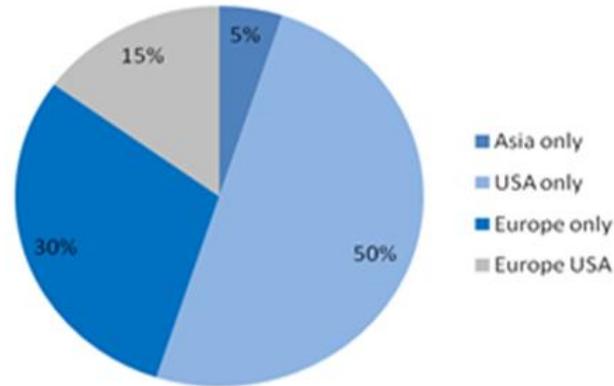
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<sup>17</sup> Empirical research in the field of network engineering also seems to support the conclusion that subtitled movies tend to attract larger audiences through BitTorrent than through regular distribution channels (Khirman & Gurbani, 2009).

**Table 4. PCDI Top 20 Films in Portugal and Production Countries, 2007.**

| PCDI | International English Title        | Production Countries |  | Main Dialogue Language |
|------|------------------------------------|----------------------|--|------------------------|
|      |                                    | Index 1              | Index 2  |                        |
| 41.6 | Across the Universe                | USA only             | USA  | English                |
| 14.9 | Tenacious D in The Pick of Destiny | Europe - USA         | USA / GERMANY                                    | English                |
| 8.6  | Peaceful Warrior                   | Europe - USA         | USA / GERMANY                                    | English                |
| 8.3  | Hot Fuzz                           | Europe only          | FRANCE / UNITED KINGDOM                          | English                |
| 6.1  | The Fountain                       | USA only             | USA  | English                |
| 5.4  | Saawariya                          | Asia only            | INDIA  | Hindi                  |
| 5.2  | 10 Items or Less                   | USA only             | USA  | English                |
| 4.3  | The Diving Bell and the Butterfly  | Europe - USA         | USA / FRANCE                                     | French                 |
| 4.1  | Vitus                              | Europe only          | SWIZERLAND                                       | Swiss German           |
| 4.0  | Planet Terror                      | USA only             | USA  | English                |
| 3.6  | Sicko                              | USA only             | USA  | English                |
| 3.5  | Fred Claus                         | USA only             | USA  | English                |
| 3.4  | Black Book                         | Europe only          | GERMANY / NETHERLANDS / BELGIUM / UNITED KINGDOM | Dutch                  |
| 3.3  | The Lookout                        | USA only             | USA  | English                |
| 3.2  | Kirikou and the Wild Beasts        | Europe only          | FRANCE   | French                 |
| 3.1  | Butterfly: A Grimm Love Story      | Europe only          | GERMANY  | English                |
| 2.9  | The Astronaut Farmer               | USA only             | USA  | English                |
| 2.9  | Taxidermia                         | Europe only          | FRANCE / AUSTRIA / HUNGARY                       | Hungarian              |
| 2.7  | Shortbus                           | USA only             | USA  | English                |
| 2.7  | Factory Girl                       | USA only             | USA  | English                |

Source: Self-elaboration from ICA, The Pirate Bay, and IMDB.



**Figure 10. Index 2—PCDI Top 20 in Portugal and Geographical Area Production, 2007.**

*Source: Self-elaboration from ICA and The Pirate Bay.*

As the figures show, for this ranking, there were eight European countries represented, which contrasts starkly with the spectator top 20, in which there were only three.

The differences do not end here. Language barriers partly account for the lack of appeal of European films. This is an obstacle even among European countries, which constitute a market that is very different from the United States' domestic cinema market.

Our starting hypothesis that P2P networks are enabling a wider public to become more familiar with European cinema was also confirmed with an updated comparative analysis between the 20 most watched films in Portuguese theatres during 2009 and the 20 most downloaded films on the Private BitTorrent tracker Btnext.com. Because Btnext only allows IP addresses originating from Portugal in its own BitTorrent client, it can give us a more reliable picture of Portuguese file sharers' movie preferences.

This time, we took as a basis for analysis data related to 2009 gathered by the Portuguese Instituto do Cinema e do Audiovisual (ICA). The preponderance of U.S.-produced films in theatrical distribution is even stronger than it was in 2007, with 16 titles out of the 2009 spectator top 20 in Portugal being entirely produced in the United States (80%), while the remaining four are co-productions between the United States and European countries (20%).

Also of note is the important role of the United Kingdom when it comes to European/U.S. co-productions. Thus, it is no surprise at all that every film in this top 20 has English as its main language.

On the other hand, when we deflect our attention to the top 20 most downloaded movies on Btnext.com, we see a different scenario.

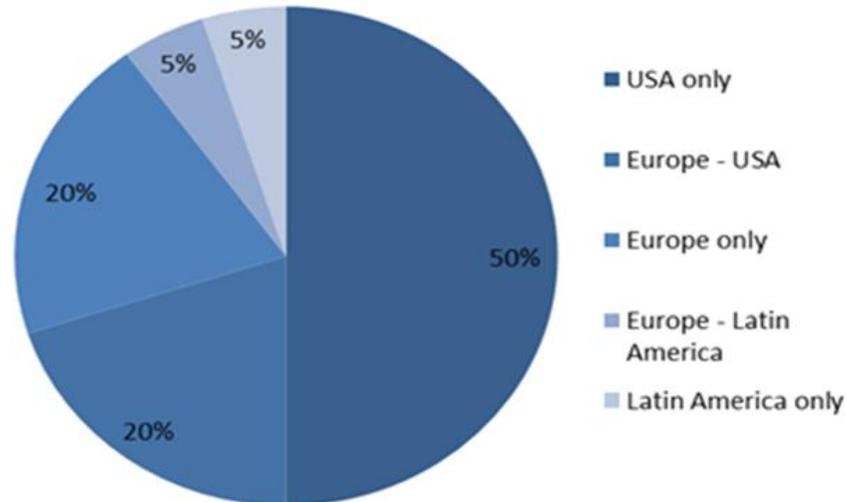
**Table 5. Top 20 Downloaded Films on Private Portuguese BitTorrent Tracker BTnext.com.**

| Completed Downloads | International English Title             | Production Countries   |  | Main Dialogue Language |
|---------------------|---|------------------------|--|------------------------|
|                     |   | Index 1                | Index 2                                  |                        |
| 10743               | Inglorious Basterds                     | Europe - USA           | USA / GERMANY                            | English                |
| 10497               | Twilight                                | USA only               | USA                                      | English                |
| 10022               | Second Life                             | Europe only            | PORTUGAL                                 | Portuguese             |
| 8931                | American Pie Presents: The Book of Love | USA only               | USA                                      | English                |
| 8243                | The Art of Stealing                     | Europe - Latin America | PORTUGAL / BRAZIL / SPAIN                | Portuguese             |
| 7029                | The Hurt Locker                         | USA only               | USA                                      | English                |
| 6707                | The Town                                | USA only               | USA                                      | English                |
| 6410                | The Book of Eli                         | USA only               | USA                                      | English                |
| 6294                | Prince of Persia: The Sands of Time     | USA only               | USA                                      | English                |
| 6232                | New Moon                                | USA only               | USA                                      | English                |
| 6226                | Inception                               | Europe - USA           | USA / UNITED KINGDOM                     | English                |
| 5377                | Elite Squad 2                           | Latin America only     | BRAZIL                                   | Portuguese             |
| 5085                | Solomon Kane                            | Europe only            | FRANCE / CZECH REPUBLIC / UNITED KINGDOM | English                |
| 5082                | Faster                                  | USA only               | USA                                      | English                |
| 4636                | The Hangover                            | Europe - USA           | USA / GERMANY                            | English                |
| 4618                | Quim Roscas e Zeca Estacionâncio*       | Europe only            | PORTUGAL                                 | Portuguese             |
| 4516                | Green Zone                              | Europe - USA           | FRANCE / USA / SPAIN / UK                | English                |
| 4477                | Law Abiding Citizen                     | USA only               | USA                                      | English                |
| 4255                | Clash of the Titans                     | USA only               | USA                                      | English                |
| 4173                | Beauty and the Paparazo                 | Europe only            | PORTUGAL                                 | Portuguese             |

\* DVD-only release of a stand-up comedy show performed by two Portuguese comedians (no international release)

Source: Self-elaboration from Btnext.com and IMDB.

Here, only half (10) of the 20 films are entirely U.S. productions, while European productions and co-productions account for 40% (8) of the movies. The presence of one European/Latin American co-production and one Latin American production gives also extra weight to the thesis that file-sharing sites can contribute to cultural diversity when compared to the mainstream commercial distribution circuit. This can also be assessed by the higher number of countries represented on Btnext's top 20: seven countries against three that were represented in the 2009 spectator top 20. Even more relevant is the presence of five films in Btnext's top 20 whose main language is Portuguese. Three of them were entirely produced in Portugal, while another is a Portuguese/Brazilian co-production and the fifth is *Elite Squad 2*, the sequel to the Brazilian blockbuster *Elite Squad* to whose successful theatrical release the leakage of an illegal copy months ahead of the launch contributed.



**Figure 11. Top 20 Films on BTnext.com and Geographical Area of Production.**

Source: Self-elaboration from BTnext.com.

### **Conclusion: P2P Cinema Distribution Characteristics and Demand Patterns**

The findings in this article indicate that different distribution circles correspond to different demand patterns. Cinema lovers the world over can find films on P2P networks that they are unlikely to find in theatres or on DVD, which is typically the case with European cinema. European cinema may benefit from the emerging alternative distribution systems analyzed here. In the case of P2P cinema distribution, problems may arise from a lack of regulation. But the fact that European cinema is so strongly subsidized means this is less of a problem than it is for U.S. productions (Rimscha, 2006, p. 2). Thus, currently existing P2P distribution networks could be used strategically to disseminate European

cinema works in foreign markets, alongside theatrical distribution and stronger marketing strategies. Whether or not that would compromise the content and very essence of European cinema—bringing it closer to the mass appeal-driven U.S. economic model—is an open question.

The sustainability of European cinema is not just about economics, income, or earning; it is mostly about how content can be made more easily available to consumers (i.e., film watchers or buyers). We argue here not for the creation of a U.S. style free market based on huge marketing campaigns to promote new films; rather, we argue that consumers of European cinema will try to meet their needs in a context where increasing numbers of European films do not reach the cinema theatres and cannot be displayed through other traditional means, and we ask how relevant P2P might be as an alternative means of access.<sup>18</sup>

By discussing European cinema in P2P networks, we are talking about the following things: how innovation creates content and new forms of mediation (new programs and platforms, for example), which permit people to extract content through the Internet in increasingly effective ways; the use and distribution of content; and finally, how we must also not forget that users of P2P networks are also judging the experience—a vital phenomenon when it comes to regulating the standard of file quality. This renders the system viable insofar as the best files, with the best classification, are seen by those who most contribute to a positive symbiosis between the quality of any given file and the frequency with which it is used.

We believe that the study of these three processes, intertwined, will enable us to see whether a film that is available on the Internet is more or less sought after, whether it is easily found or not, what its viewership might be, and how it is classified, as well as to know whether our central assumption—that there will be more European films on P2P networks—is warranted.

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<sup>18</sup> The emergence of private, ratio-enforcing BitTorrent trackers specialized on independent and classical cinematographies like Karagarga can be seen here as a possible prototype for the distribution of European cinema in the digital age. What is of most relevance in this site is that it only exists because of the collaborative work of a committed community of film fans who enforce rules with other members and regularly upload new films.

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