

# THE RISE OF MP3: EXPLORATORY STUDY AND RESEARCH AGENDA

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## ABSTRACT

The Internet/World Wide Web (Web) is an important way for the sharing and selling of products and services, including music, in crescent virtual communities. The MP3 standard is the world's most popular file format and allows many on-line individuals to access to music which they would otherwise be denied. Although electronic commerce (e-commerce) has received considerable research attention, the literature reveals that the relationship between the music industry and the consumers through the Internet has not yet been sufficiently studied. This research contributes to a better understanding of the use of MP3 files as legal products and also as digital piracy. This paper considers the nowadays and the future use of MP3 and attempts to provide a research agenda.

## KEYWORDS

E-Communities, E-Commerce, Music Distribution, MP3, Music, Consumer Behaviour, Internet Piracy

## 1. INTRODUCTION

Although the consequences of marketing to the Internet are not clear yet (Peterson et al, 1997), there is a consensus concerning the attractive and different environment for marketing activities which Internet represents (e.g. Ruiz & Soriano, 2002). More than 420 million people had Internet access in 27 countries in 2003 (Nielsen, 2003). Several studies have indicated that since 2000, the proportion of Internet users who shopped on-line increased globally by 50%. Forecasts of electronic shopping sales have ranged from \$5 billion to \$300 billion annually (Shim et al, 2002).

The most shopped products in the Internet are books, films (dvd) and music (cd). Music industry reveals big incomes from Internet shopping. Although in the past bandwidth restrictions have obstructed a massive distribution of music in digital form over the Internet, those times are now gone away. The improvement of digital technologies over the last decade, have been threatening the music industry. And as the «old» restrictions disappeared, consumers become more able to search, download and play high-quality music in accessible digital form directly from the Net. This is undoubtedly accelerating the development of the Internet as an infortainment hub, whereby it is becoming the main conduit for both information and entertainment (e.g., Lam & Tan, 2001).

The record labels which made and sold CDs in the 1980s could not keep up with all the money flowing in. Once you signed up an artist and cut the master disk, the marginal cost of production was negligible. In the 1990s an acceleration of new independent record labels not only crowded the marketplace with niche products but also attracted artists with better terms because their break-even point was lower. Over the past few years, new and irreverent upstarts in the Internet began to rewrite the industry rules with an entirely new business model (Harari, 1999).

Music is one of the most important media trade in open networks, and the Internet users are more and more attracted to popular P2P<sup>1</sup> technologies to exchange music files (Serrão & Marques, 2004). Piracy has become an integral part of digital online culture. It has made the MP3 the world's most popular music file format and allows many individuals to have a broad online access to music which they would otherwise be denied (e.g., Lam & Moscicki, 2004). Hackers are interested in attack computers for many purposes but now they also want to get MP3 files (Schultz, 2002), and the hackers are not the only Internet users who search the Net to obtain MP3 files... its emerging an Internet subculture of audio piracy (Cooper & Harrison, 2001). But isn't it a very thin line, which we sometimes hardly can distinguish, between piracy and the free use of Internet (and the consequent easy access to free MP3)?

This paper presents an exploratory study that considers the different web sites to obtain MP3 files from the Internet.

## **2. THEORETICAL FRAMEWORK**

### **2.1 Internet Shopping**

The Digital Economy emergence, sustained in a new concept of enterprise organization, has in the Web and in the Internet its foundation and main operational sustainability (Domingues & Cordeiro Gomes, 2003). Some literature indicates that the collapse of some empires based on the Digital Economy may be the end of economical models sustained in the virtual organizations and the consequent return to the classical models and the old economy (e.g., Porter, 2001). But the Internet is still growing at a high speed and firms are investing millions into online presences to gain competitive advantage (Gervy & Lin, 2000). Almost every company has its own web site these days. The problem is that they often end there: many companies create a web site just to be present on the Web (De Wulf et al, 2002). And more... nearly 90% of web sites are developed without asking customers what they want (Korgoankar & Wolin, 1999). All companies want to be visible in the Internet and so it is not surprising that even the direct selling organizations which mainly rely on personal relationship to obtain sales are including the Internet as part of their marketing strategy, either to communicate with the salespersons or to promote the products and the business to the consumer (Alturas, 2003). Quelch and Klein (1996) analyzing the posture of the on-line companies, ended that the form how the Internet is explored by the companies depends a lot of its activity history. They suggest the existence of two different operation models: the first developed by multinational companies, that use the Internet initially as one more communication and information vehicle, and that only in a more advanced phase explore their potentialities in terms of commercial transactions; and the second adopted by start-ups (companies that appear addressed to the use of the Internet potentialities). These follow a posture based since the beginning in on-line transactions.

The Internet – and the MP3 standard in particular – is changing the music industry (e.g., Lam & Tan, 2001), and the threat posed by MP3 has provided all record labels with motivation to engage in learning and capability development in order to mitigate potential damage from this disruptive technology. In response, the establishment of a web site is the record labels first step. The capabilities and features of these web sites can play a large part in captivating the customer retention and loyalty and given that e-distribution of digital content has a vast potential to increase efficiencies in distribution there is also inevitable price pressure in result (Easley et al, 2003). In 2001 a survey was conducted to determine how the availability of digital music files has changed the music consumption habits of collegial students. Findings revealed that nearly two-thirds of the subjects owned MP3 files at the time of the survey and that although having restricted incomes and easy access to free MP3s they expressed a willingness to pay for legal downloads from commercial sites (Galloway & Kinnear, 2001).

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<sup>1</sup> peer-to-peer

## 2.2 The MP3 Standard

From project to the new "spiritual medium", the MP3 format generated around itself a new industry and an emerging paradigm change. The beginnings of the technology remounts to 1992 but it is the massification of the Internet, in the middle of the 90's, that gives rise to its visibility. However, it was not before the final of the past century that MP3 leaves the computer magazines - to turn to a global scale subject. Nowadays, the popularity of this format is fully accomplished. MP3 (or even other better compression method) it will substitute the music CD in a way such as cruel as the CD substituted the vinyl. We think it is just a matter of time. «How soon is now?», as Morrissey (The Smiths) would sing.

In 1992 the Moving Picture Experts Group approved the MPEG-1 norm, as the flag for the storage and digital access of images in movement with audio. MPEG Audio Layer III (or MP3) is the correspondent for the storage of audio clips with similar quality to the one of a musical CD.

In the next year (1993), at a time that Internet was used by over 20 million people, the first MP3 was created in an academical server of California. The responsible authors of the Internet Music Underground Archive aimed to turn a repository of independent artists' music, and planned to distribute all of these work freely at an international level.

During the next years we assisted to the creation of the MP3 Audio Consortium, and a "mailing list" was founded. It was created to discuss the specificities and potentialities of that digital format. The declaration of intentions refers that "none of us has a patent interest in copying music in an illegal way; we are squeezed simply by the special characteristics of the new half."

It has appeared in scene the first software able to reproduce MP3, the AMP MP3 Playback, created by Tomislav Uzelac, of Advanced Multimedia Projects. One of the today's most popular reproducers of MP3 is Winamp, which was programmed by Justin Frankel and Dmitry Boldyrev. It began by being a simple "freeware" (of free distribution) but early it turned to be a "shareware" (subject to an optional payment in case of being frequently used) to finance the bandwidth used for about 30 thousand downloads every day.

MPEG algorithms compress the data to form small bits which can be easily transmitted and then decompressed accurately and quickly to allow high-fidelity reconstruction. MPEG standards aim for a compression ratio of about 52:1, requiring the reduction of, for example, 7.7 MB to less than 150 KB. Approved in 1998 and 1999 respectively, MPEG-4 and MP4 are intended for very narrow bandwidths, speech and video synthesis, fractal geometry, computer visualization and artificial intelligence to accurately reconstruct images for minimal data (Lais, 2002).

Recently two new metadata standards appeared: MPEG-21 and PDF/A. Other standards of interest to the publisher and library communities are NISO Z39.87, which uses metadata to describe images; MPEG-21, an extension of earlier versions of the MPEG standard that uses XML to describe content elements; and PDF/A (PDF/Achievable), a version of Adobe's widely used PDF that should remain stable over time and therefore can be used for digital preservation purposes (Hawkins, 2004).

The ability to share files via Peer to Peer (P2P) systems has given the public means of acquisition that challenge the monopoly of major recording and distribution companies (Lam & Moscicki, 2004). Most of P2P search applications are dedicated to file sharing services. In these applications the contents usually consist of multimedia data (e.g. MP3 audio, MPEG video) and search is done using meta-information about them (e.g. song title, author, movie title) (Attardi et al, 2004). P2P refers to a technology that enables two or more peers to collaborate spontaneously in a network of equals (peers) by using appropriate information and communication systems without the necessity of central coordination (Schoder & Fischbach, 2003).

## 3. RESEARCH

### 3.1 Research Question and Methodological Considerations

We derive our basic research question: Can we found in the Internet a large choice of web sites which permit music consumers to download all the MP3 files that they want?

The exploratory research we propose was built after the literature research, and we decided not to derive any hypotheses because this is a preliminary step in a broader empirical research. At the time we will present

this paper, we will continue to this research, carrying on other studies which aim to apprehend many other questions such as the frequency they download and listen to MP3.

In order to find the major sites where music consumers can share and download MP3 files we use some well known search engines in the World Wide Web: google (<http://www.google.com>), altavista (<http://www.altavista.com/>), and yahoo (<http://www.yahoo.com/>).

## 3.2 Findings

### 3.2.1 Paid Music Download

As we watch the incredible expansion on the exchange of free digital music files amongst thousands (or millions) of Internet users, the music industry, though its initial hesitation, hugged the protected digital download once and for all. Some musical groups have done the same «by their own hands», with the promise of high quality MP3. Despite the volume of businesses of this new reality is still residual, there is already «some voices» who predict that the veteran CD won't wait a lot to give, finally, showing us its last signs of life. In the last two years it was attended the proliferation of paid services, with the Apple iTunes, to lead a market that – in the words of the specialists - is in frank expansion. Therefore let us know the main platforms which we can use to accede to the music that, until recent times, we could only found in some selected music stores. I've found 14 web sites: **Napster** ([www.napster.com](http://www.napster.com)); **Music Match** ([www.musicmatch.com](http://www.musicmatch.com)); **eMusic** ([www.emusic.com](http://www.emusic.com)); **WalMart** ([www.musicdownloads.walmart.com](http://www.musicdownloads.walmart.com)); **Sony Connect** ([www.connect.com](http://www.connect.com)); **Bleep** ([www.bleep.com](http://www.bleep.com)); **iTunes** ([www.apple.com/itunes](http://www.apple.com/itunes)); **Streamwaves** ([www.streamwaves.com](http://www.streamwaves.com)); **Real Rhapsody** ([www.musicstore.real.com](http://www.musicstore.real.com)); **MSN Music** ([www.music.msn.com](http://www.music.msn.com)); **All Of mp3** ([www.allofmp3.com](http://www.allofmp3.com)); **mp3 Search** ([www.mp3search.ru](http://www.mp3search.ru)); **Sapo** (<http://musica.sapo.pt>); **Wippit** ([www.wippit.com](http://www.wippit.com)).

### 3.2.2 Free Music Download

Here we are, as so many other times in our history in the well-known game of the cat and the mouse. When a judicial order contained, definitively, the first apparel of Napster, the explosion of the "peer-to-peer" stopped being a forecast. They were profiled immediately alternatives to the "imprisoned father" and entirely free services like Audiogalaxy could reign during some time. Also by the pressure of the industry, this left legacy in the actual eDonkey, BitTorrent, LimeWire... and many other. It also left a lot of work for the tribunals. They've become the illegal options... at the short distance of a simple click that only a few can still resist. I've found 7 web sites: **eDonkey** ([www.edonkey.com](http://www.edonkey.com)); **Shareaza** ([www.shareaza.com](http://www.shareaza.com)); **Soulseek** ([www.slsknet.org](http://www.slsknet.org)); **BitTorrent** ([www.bitconjurer.org/BitTorrent/](http://www.bitconjurer.org/BitTorrent/)); **Kazaa Lite** ([www.filessharingplace.com/downloads/kazaa\\_lite\\_k++.php](http://www.filessharingplace.com/downloads/kazaa_lite_k++.php)); **Emulate** ([www.emule-project.net](http://www.emule-project.net)); **LimeWire** ([www.limewire.com](http://www.limewire.com)).

## 4. A POSSIBLE DISCUSSION

This research paper represents a first step towards the study of the importance of the MP3, the way it has been spreaded amongst Internet users and the responses from the music industry to this so-called problem. We are in the early stage of the research and we have focused our study on a particular group of web sites used by the music consumers. This choice inevitably limits the possibility to generalize any results beyond the target group. Although I've found 14 web sites where we can get paid music download and 7 web sites where we can get free music download.

Our findings indicate that there is a large range of choices paid and free to download MP3 files, and the music industry seems to have no means to end with all of those web sites which provide free MP3 files to the music consumers. Are we all becoming «pirates» or this is a natural way to use the incredible variety of resources that we can find in this huge e-community(ies)?

These empirical evidences could be relevant for e-commerce music firms who seek better marketing strategies including the Internet, and also to understand and predict post consumption behaviours and to the music industry that are still not dealing with Internet piracy. To sum up, we need to expand the scope of this research in order to test the reliability and external validity of the present results.

In future studies, in our empirical research, we aim to find some answers to many of the questions involving these virtual communities, such as what are the net consumers musical motivations and the frequency they download - for some price or for free - and listen to MP3.

We are living on the edge of incredible discoveries. In fact, an emerging (almost) new power is rising. As billions of bits come and go... we try to find our own way and to keep our balance. We really just seem to be in the dawn of the greatest revolution in the world of digital music (and multimedia in general). Are we ready for the next step?

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