

# Internet piracy from a digital consumer's viewpoint

Dimitrios Xanthis, Eisa Aleisa

**Abstract**—It goes without saying that Internet piracy in several countries has taken massive proportions, causing serious conflict between social groups and the respective industries. The reasons behind this rapid and, seemingly, uncontrolled phenomenon is investigated aiming to aid the industry in their search for common grounds with these communities so as to, maybe, use this otherwise illegal practice for the industry's benefit but the social welfare as well. The study provides and briefly explains the arguments of both sides i.e. the digital consumers/pirates and the industry in an effort to help realize that this is not a problem with an easy solution since there are many parameters to consider and account for which are not clearly pro or against one of the two parties. The conclusion is that the problem is mainly the result of a big gap between the industry's and the digital consumers' perception of the real commercial value of digital content in different forms.

**Keywords**—Digital material, copyright infringement, freedom of the speech and the Internet, Internet piracy

## I. INTRODUCTION

The rapid growth of Internet usage around the globe and the introduction of broadband and P2P technologies provided grounds for the phenomenon of copyright infringement of audio/ visual material or various forms of software to grow on a global scale of unprecedented proportions larger than it could be thought of been possible. The results of the industry's efforts against this trend should probably be characterized as poor and, certainly, not satisfying. Indeed, although in a total of 100 countries in most of them the illegal downloading of material was reduced but, overall, there was an increase from 41% to 43% mainly due to the rapid growth of Internet usage in very large developing countries such as China, India and Brazil [1].

According to BBC [2] a study of the internet security firm MarkMonitor found that 43 selected web sites specializing in allowing users to download and share illegal digital material had 53 billion visits per year of which 21 billion were made to just 3 of these web sites, i.e. Rapidshare, Megavideo.com and Megaupload.com. These sites not only provide their visitors with the opportunity to download the material but also catalogued it and even put in place mechanisms to make the trace of their visitors by third parties almost impossible.

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The dispute between one of them and its legal opponents, asking them in court to place filters to stop the illegal practice of downloading, ended in favor of Rapidshare.

More particularly in Greece illegal pirated installations have increased in 2009 by 1% reaching 58% with the value of illegal software being about €173m or \$248m. This brings Greece at the 3rd place of the ranking of the countries with most illegal 'pirated' software after only Bulgaria 67% and Romania 65%. The problem is relatively the same in size for the illegally owned audio/visual material mostly acquired through illegal downloading [1]. In an effort to face the problem the local government has made some moves towards introducing a new legal framework that would address the problem. However, according to the International Intellectual Property Alliance [3] this effort should be further intensified and the framework tightened considerably aiming not only at helping the local industries' fight against the copyright infringers but also benefit from additional taxes that would be paid to the local government through the expected increase in legal sales in the local market.

One of the results of the local government's efforts against the phenomenon was the recent shut down of gamato.info, a web site with torrents, i.e. peer to peer files, and the imprisonment of its administrators. It was estimated by alexa.com that Gamato.info was the 13th most visited web site in Greece before it was shut down. Statbrain.com calculated that 155,000 users visited the site on a daily basis "sharing" more than 35,000 infringed music albums and collections, 13,000 movies, 6,500 video games and 6,500 books. This followed the shutting down of another very popular local web site the greekfun.com and the temporary closing and reopening of the gamato.info a couple of times earlier [4].

Some of the pirates in Greece, when asked to explain their illegal practice, responded informally providing several reasons for their actions. One of them reacted "...it is an act of defense against those who want by just selling a product to profit 400%-800% ... How is this morally justified? ... If they charged [half price] then I am certain everyone would buy it... The same applies for the movies, the videogames and the software..." Another person said, "... There is a lot of [hypocrisy] on the matter in Greece. The very people that claim it is illegal are the ones who practice it. Who is the person that blames the practice? Isn't that same person that will pay much less the plumber or the electrician for their services

as long as they don't give him a receipt?" Yet a third suggests a solution that "... the music labels can offer the music product absolutely free. Then, the 'pirate' will have no reason at all not to prefer the original source of the material. Automatically the number of visits to the particular label's web site will [go sky high] which will allow the label to charge way more for commercial ads through its web site thus indirectly profiting from this practice..." Finally, one points to a certain practice followed by almost everyone in defense of his practice saying "... why am I considered illegal if I offer copies of movies to my friends to watch it and the person who borrows it from the video club for 3-4 days and during that time shares the [rented] movie with all his friends and family [circle] is not considered one?" [5].

The obvious thing to do in such a case as the one under study is to demonize the whole community of practitioners of illegally downloading digital material through what are often called underground communities, i.e. the web sites offering this opportunity among other services to their members, and chase the administrators of these sites and the sites' existence and services in court. However, this approach is not without major drawbacks. First, as Charlie Abrams of MarkMonitor says [2] the statistical facts are "outrageous" so much so that the authors of this study believe further investigation should be made not to prove the numbers, which are undeniable, but to understand why such a huge number of individuals, lawful citizens other than that, follow this practice. Second, according to Mark Mulligan of Forrester Research the new legal cases look very much like that of Napster some years ago but a lot more difficult now because they are a lot more complicated and financially costly to the point that it isn't really worth the trouble [2].

## II. AIM AND OBJECTIVES

The aim of the research study is to explain the phenomenon of emerging underground communities, local or international, facilitating the rapid growth of Internet piracy in the aforementioned region of Northern Greece. The following research objectives were addressed:

- Examine whether the local population of practitioners admit their "illegal" actions, hence verifying (or not) the relevant statistical data,
- Explain the rationale behind this practice from the "pirate's" viewpoint,
- Investigate the local population's general attitude towards the Internet piracy phenomenon.

## III. BACKGROUND

It would be like breaking open doors to say that the problem is complicated and most certainly multifaceted. It is the outcome of the conflict of not some superficial and contradicting issues but some of the most essential elements of modern-day information technology and society. It involves the essence of the copyright law on

digital material [4] on which all the showbiz and software industry are built on but also the core of freedom of speech, one of the cornerstones of modern democratic societies and its most vivid global experience, during the current information era, utilizing the information technology in the form of technologies such as the Internet and the web.

There is no doubt the application of both results in a conflict between two different peoples and professionals, i.e. the individuals of the industrial and the, usually younger, of the information era. This clash of mentalities brings along a clash of interpretations and a clash of interests.

### *A. Clash of interpretations*

#### *1) The industry's viewpoint*

IFPI (International Federation of the Phonographic Industry) reports consistently every year increase in sales of digital music but still blames piracy for loss of overall revenue. This is even though they admit that just 10% of the claimed illegal downloads, which account for an estimated 95% of all downloads, are seen as real sales loss and that the claim that "every pirated download is a lost sale" is a myth [5]. Their fury against piracy could be explained by the results of an earlier study on 15,000 European consumers that indicated that having shared files reduces the probability of purchasing music by 30% [6].

As to the movie industry, in its 2005 report the Motion Picture Association, representing all the big studios, estimated the studios' loss at \$6.1 billion a year and the industry's overall (theatres, cable TV etc. included) at \$18.2 billion of which \$7.1 billion was attributed to internet piracy. They blamed this loss of revenue for the serious financial problems of the studios and to some extent to their current downfall [7].

In general, the industry, whether music, movie, video game and software complain that copyright protection is weakened since more than 60% of internet traffic attributed to sharing of digital content, whether music, video, video games or software [8].

#### *2) The consumers' viewpoint*

The consumers and the organizations that are on their side mainly just tend to underestimate the problem. In regard to music a recent study [9] of students' behavior on music products revealed that when they pirate 10% more music, they intend to buy 0.7% fewer iTunes and 0.4% fewer CDs suggesting that piracy has no significant effect on music sales. In support of this according to Hong [10] the introduction of Napster explains only 20% of the decline in music expenditures whereas the rest 80% is due to changes in the prices of other entertainment goods and the ending of the transition from LPs to CDs. Moreover, a more recent study of the same person concluded that the effect of Napster would be significantly overestimated if it was to blame for the entire industry [11].

There are also those who argue that either Internet piracy did not damage the music industry or, even, it helped it increase its sales. A 2004 Japanese case study on 261 best-selling music titles concluded that file sharing does not reduce sales [12]. A more recent study on 200 students who sample music showed that those with faster Internet connections are more likely to sample music first which, it is assumed by the study, increases the tendency to buy the music [13]. Another that took place in Canada [14] suggests that not only file sharing has no negative effect to music sales but it even increases music purchases because they found that 12 additional downloads lead to the sale of an additional 0.44 CDs.

Additionally, there are some who argue that the quality of music also plays, it seems, an important role in buying the music that an individual has sampled. A 2003-2004 survey of 412 students' purchases and downloads of 8.200 specific recordings has pointed that for hit albums there was no relationship found between downloading and sales whereas for the rest downloading five albums displaces the sale of one CD. Thus the researchers concluded that overall file sharing increases social welfare [15].

As to the movies there is the argument that in the worst case according to a study (2002-2005) [15] on 500 students and their viewing of 50 top movies illegal burning of DVDs and downloading make up 5.2% of the movie viewing reducing the paid consumption by 3.5%. Another more recent study on 267 movies during the period 2005-2006 by Smith and Telang [16] based on TV broadcasts of movies showed that DVD sales on Amazon increased by 118% during the first week after the movie broadcasts. This indicates, according to the study, that piracy does not affect this increase in demand.

A clue of the effect of changing the marketing strategy by using broadband in a legal way as a reaction to 'pirated' movies was given by Disney's Co-Chair Anne Sweeney who revealed that 84% of those that used the company's on-demand service said that it was a "good deal" to get a free episode in return for watching an ad and, especially important for advertisers, 87% of those could recall the advertiser that sponsored the program [17].

Everything in the previous two sections points to a certain socio-economical problem that was well "hidden under the carpet" but the information technology through the Internet piracy has just revealed. It is not so much a problem of legalities and application of the law but of conflicting interests between the industry and the consumers and the power they each have to enforce those. The main issue is that "reproducibility has become so widespread that it has decentralized the production of information and enabled people to have voices as loud and powerful as corporations. As a result, traditional productions of knowledge, such as the Britannica Encyclopedia, are competing with online tools such as Wikipedia; and P2P file sharing has become pervasive, especially in regards to reproducing music" [18].

### *B. Clash of interests*

Most industries while addressing the problem are focusing in reinforcing the "letter" of the copyright law through legal actions against the Internet piracy practitioners and those facilitating this practice. Their line of argumentation could be briefly described in the following list [19]:

- Internet piracy is a crime and it's the industry's responsibility to go against it,
- The consumers lose as costs of legitimate products are increased as a result of it,
- Society loses from job cuts as legal retailers cannot compete with the prices offered by illegal vendors, or free illegal downloads,
- Record companies lose since they depend on the profitable 15% of the top recordings mainly hit by the music piracy to cover the costs of the rest 85% which are either the new artists' or lower quality recordings with not enough revenue,
- More important, "the creative artists lose...since they don't get the royalties and fees they've earned and on which 95% of them depend to make a living",
- The artists also lose their reputation by the inferior quality of pirated copies sold,
- Even pirates lose because when found they will "pay the fine or do the time."

Although these arguments are in support of the music industry they do apply in the cases of the movies, videogames and software industries as well.

One could say they are quite reasonable but obviously there are the counterarguments. The line of argumentation in favor to Internet piracy and P2P file sharing as expressed by many groups of people or influential individuals could be summarized in the following list:

- Illegal downloaders discover new music, movies, videogames and software titles and their creators in products they might purchase later resulting in benefits for the industries in the long run [5],
- The damages that Internet piracy afflicts is much overestimated and, at the same time, the benefits it brings as a result to increased demand for more expensive complements to protected works, like concerts, additional advertising, company recognition, creators' fame and, above all the incentive for more and better quality creative works, are underestimated [8],
- Access to older music, movies, videogames and software, which may no longer be available in the market and their copyrights do not belong to their original creators, is effectively "dead" except if it is "pirated" through file sharing [20],
- The teens and youngsters, the majority of the downloaders at the moment, have the time to download mass amounts of this material but not the money to legally purchase it. This affection, however, will most likely follow them in their adult years later on when they will have the money to

purchase what they like but not the time nor the willingness to search for it, increasing, hopefully, the sales of such material [20],

- Most of the creators of these types of material are less known and not covered by the 4 record companies and the few other companies in the movies, videogames and software industries which comprise altogether more than 3 quarters of the industry. They are covered by small size and budget independent companies and are the ones that benefit the most from this 'piracy' move utilizing the large numbers of members of these underground communities to raise their sales enjoying, at the same time, the freedom to extent their creativity beyond the 'norm' of the dominant industry [21],
- More and more individuals select home entertainment, in front of the computer or from a home cinema, instead of going to the cinema as a result of poor films coming from dominant industries like Hollywood, the ever-increasing cost of seeing films in cinemas especially in times of economic depression in many countries, the delayed releases in places other than the U.S., the opportunity to view no-star driven quality films but most important because through the internet platform and the underground communities it is free [7].

It is not hard, for the objective mind, to see that both sides have very strong arguments and interests of critical importance for them. In Greece there is the saying "no law may stand unless it is supported and obeyed by the majority of the citizens". No doubt the industries have all the legal rights standing on their side. However, there is also very little doubt that the Internet pirates of the underground communities have at least the moral on their side. It is difficult to decide whose right weighs more but rather easy to conclude that as the time goes one should expect this conflict to become fiercer rather than resolve. Perhaps, the best reaction from the industries' part is to realize the problem and decide to change their strategies following one of the several that are suggested against this phenomenon.

### *C. Realize the problem – Follow alternative strategies*

Disney co-chair Anne Sweeney said about Internet piracy:

*"We understand now that piracy is a business model ... It exists to serve a need in the market for consumers who want TV content on demand. Pirates compete the same way we do - through quality, price and availability. We don't like the model but we realize it's competitive enough to make it a major competitor going forward ... Audiences have the upper hand and show no sign of giving it back"[17].*

There are a few strategies suggested by experts that if followed by the industries might, the experts say, not only fight Internet piracy and the underground communities but even use them to the industries' benefit.

The first is to utilize the underground communities, which appear and grow very large extremely rapidly, as a marketing channel of great prospects to advertise new products and even distribute them through these Internet piracy channels in addition to the traditional marketing channels. The story of Jerome Bixby's "The Man from Earth", a small-budget (less than \$200,000) science fiction movie released on DVD shows how piracy can "salvage, not sink, high-quality cinema." The producers used the popularity of the Releaselog blog, which posts links to movies, music and software mostly copyrighted, to run a review of the movie and allowed its members to illegally download it. They not only did not sue the blog or its members but even thanked the blog in public for helping them promote their movie increasing its sales and raising its rank from the 11,235th to the 5th place of most popular movies. Once it topped the charts of independent and science fiction films and became available in the large stores the producers provided directions to the members of the underground communities on how to send him money for copies shared online. This way the films' popularity rose not only at a national but also at the international scale and the producers by losing 2,000 sales in the local scale gained more than 20,000 sales in the international scale. When asked they said that they decided to follow this strategy because it seemed to them that the traditional marketing and distribution channels no longer attract the attention and trust they used to in the past [21]. The same strategy followed by the Radiohead music band and other music artists with great success [22].

There are many advantages from following this strategy. The industries don't have to create the technical or social infrastructure for this channel, nor to deal with matters related to local issues or legalities since these are either illegal anyway or taken care of these communities themselves. They don't have to spend on advertising their products but just convince a few of their members of the quality of their products and let the momentum of these communities take care of the rest. They don't have to store their products or archive them but just provide, possibly, just one link to a copy of each and the underground communities will share in no time. Hence, all the money they would otherwise have to spend in marketing and distribution costs could be invested in improving the quality of their products or elsewhere more appropriate [22].

The second strategy is to take advantage of these underground communities facilitating the Internet piracy practice in order to move against the worst enemy of the industries that, many believe, is not the Internet but the commercial piracy. By fighting internet pirates, who are usually young people they just drive them to the "arms of the commercial pirates" who make very cheap and poor quality copies of copyrighted material and sell it illegally. If the producers allow Internet pirates to continue their practice, under some type of informal agreement of paying online fees, then they effectively eliminate the

need for buying illegal products from commercial pirates helping legal shops to increase their sales and, also, benefit from the massive popularity of their products that the underground communities will provide [23].

Since this is not just a legal problem but a society and technology problem then the approach should probably be three dimensional: a. educate the people on the matter [24], b. listen to the people's needs and c. address their needs by adopting to methods and practices that attract them the most instead of trying to enforce traditional ways of marketing and distributing such material for which they are no longer interested in following.

#### IV. METHODOLOGY

This is basically an investigative pilot study both quantitative and qualitative in nature. The authors self-administered a specific structured questionnaire gathering 170 random responses from participants in Thessaloniki, Central Macedonia, Northern Greece, which is a rate of a little less 1/10,000 (quite usual for surveys in the area). Although random in nature, the sample reflects the main characteristics of the local population in terms of education, income and age (detailed analysis supporting this fact is available).

The first 3 questions, commonly characterized as demographic, targeted in identifying respondents' main personal characteristics of age, education and personal/family income that probably form their opinion and behavior on the subject under study. The next group, questions 4, 5 and 6, sought to find the category of how frequent (or not) downloader the respondent is in order not only to measure the problem in Greece but additionally, maybe even more importantly, to see whether the "pirates" would admit their illegal practice and to investigate the process they would generally follow to get what they want.

Questions 7-12 aimed at helping recognize the difference, if any, between consumers' perception of the right price tag for the products under study and those determined by the industries as presented on the shelves of the stores. Finally question 13 and its 10 sub-questions sought to reveal respondents' feelings towards morality issues related with internet piracy and their understanding about whether they see it as a benefit to the related industries and the societies or not.

#### V. FINDINGS

##### A. Official Web sites' attractiveness

The responses on official web sites' attractiveness could divide the participants of the study into 3 distinct groups. First the "regular visitors" that visit official web sites very frequently, i.e. every day, or a little less frequently like twice a week. Then, there are the "casual visitors" that visit such sites twice biweekly up to twice a month. Last, there are the ones that "seldom or never" visit these sites (figure 1).

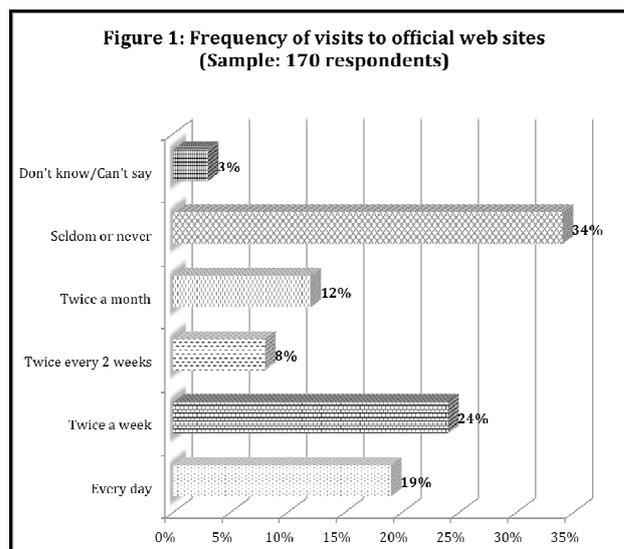


Figure 1: Frequency of visits to official web sites

Results suggest that 43% of the sample population should be characterized as "regular visitors" of official web sites (19% would "visit" such sites every day and 24% twice a week). Although, the sample is not balanced as to the age of the respondents, leaving room for doubts, it could be said, based on a deeper analysis (SPSS v.18) of the statistics, that there is a significant shift from younger to older individuals towards visiting less regularly the official web sites. That could mean either that younger people are more prone to visiting official sites together with underground communities or that the more aged individuals ignore the existence of the official ones.

Another unexpected characteristic of this category is that the more financially independent a person the less it should be expected for that person to visit official web sites. This is rather strange keeping in mind that these individuals should have no financial problem engaging in an online transaction that possibly involves some type of payment of a legally acquired or rented digital product or service. It certainly shows there is an inclination towards visiting less legal unofficial web sites or underground online communities to get what they want or it suggests they are not interested much about engaging in online activity.

Finally, concerning this category of respondents, it seems that as education level increases so does the frequency of those visiting official web sites twice a week reducing the number of people that seldom or never visit the sites. This does not mean by itself that they end up finishing an online transaction in these official web sites, however, it could suggest that the more educated a person is the more informed s/he is on matters associated with the legalities of certain online actions and the moral issues related with these actions.

As to the "casual visitors", a solid 20% of the participants would be included in this group of which 8% visiting twice every two weeks and another 12% twice a month. The particular statistics of age, income and

education are quite dispersed and make any related conclusions risky and quite likely indifferent other than pointing the aforementioned general average.

The most important element of this part of the study, though, is that more than a third (34%) of the respondents belong to the group of those who “seldom or never” visit such sites. This is a very large percentage of the local population and becomes, quite surprisingly, even larger with the increase of income and the older age and just a little lower the higher the person’s education is. It is certainly a negative element, if true, and it suggests at least a couple of problems to be tackled by the online companies. First, it is too large a part of the population for the official companies to not be interested in attracting it. Second, either these people ignore the existence of the online companies or they avoid visiting them, one worse than the other. Since it is certain that all individual needs for digital content, whether audio/visual media or software, are always met by the market it is obvious that either the official companies will better address these people’s needs and attract them or somebody else will do even illegally.

*B. Frequency of illegal downloading from under ground communities*

At first glance (figure 2) it looks positive that about half of the sample population (47.1%) stated they would seldom or never download any type of material, be it audio/visual media or software, from illegal sources. It should be considered, however, quite disturbing that almost a third of them (30%) are quite frequently following such practice. A cumulative of about 17.6% are those characterized as occasional downloaders of such material either twice biweekly (8.8%) or twice on a monthly basis (8.8%).

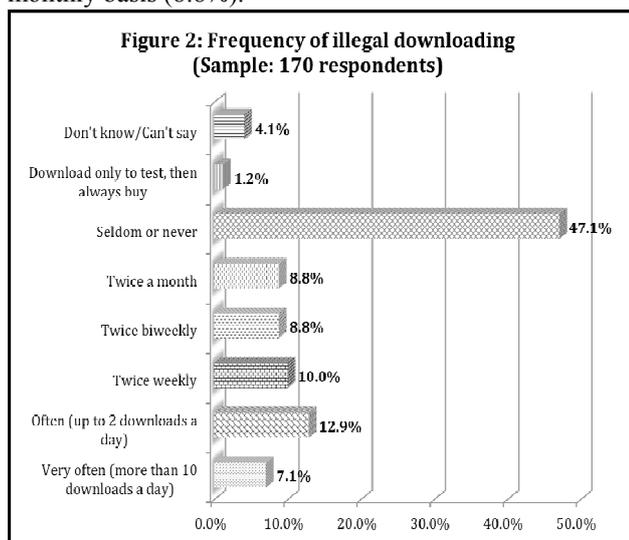


Figure 2: Frequency of illegal downloading

As one would expect grown-up individuals (i.e. ages between 35 and 49) tend to avoid this practice (77.1%) whereas younger ages are the ones that follow it the most. It is worth noting that the majority of the respondents up

to 18 years old, about 64.3%, reported being frequent downloaders of such material available illegally online. There could be, once again, various interpretations of these statistics. On one hand one could claim that the more aged a person is the less informed s/he is, probably, about the existence of these underground communities that make such material available online illegally and for free. The counterargument could be that these adults are more mature mentally and educated enough as to the moral issues associated with such activity. On the other hand, though, the thought that the younger ages will grow older carrying such a “bad” habit might be a warning of what is coming in the near future as to where the problem of copyright infringement is heading in relation to the general population. This is because it is not very safe to say that once a person becomes older maturity takes over “bad” habits especially when these are so “friendly” with that person’s finances. The industries have to work really hard educating these people and attracting them enough to keep their fondness to this material but not illegal practices.

The effect of personal income seem to be quite similar to that of age analyzed previously although less dramatic. Indeed, it looks that as the sample shifts from the smaller to the larger incomes so does the tendency. If that is the case, which is most likely especially in developing countries like Greece where the vast majority of the population is with a low income, then this finding is by itself quite negative as there is no projection that the local people’s finances will change to the better during the several years to come in full recession. On the contrary the “forecasts” for the local economy are quite dark leading to the suggestion that the problem of copyright infringement in the country will only worsen in the near future.

A 3-level deep statistical analysis (using SPSS v.18) of the frequency of downloading illegal material available online based on education, age and income simultaneously (as different levels), reflect the difficulty in analyzing the statistical results as to the effect of education in a person’s decision to follow or not such practice. It seems that the more educated a person is the less frequent downloader s/he is with the exception of those holding a Bachelor’s degree. Unfortunately this is, by far, the largest part not only of the sample population but of the local population as well making almost impossible, without further research, to extract safe conclusions. Still, there could be at least a couple of explanations of this phenomenon.

One could be the fact a great variety and the vast majority of individuals of different ages and incomes in the country hold a Bachelor’s degree as the higher education at this level is open for almost all residents. That is not the case for the other levels of education, i.e. vocational, postgraduate and doctorate, which usually require at least some minimal financial status for one to pursue. Another explanation could be that the local academic organizations and student societies encourage,

unofficially but it is a common secret in the country, the sharing of such material even among member of the local academic societies. One simple walk in the pathways of the local public universities and technological institutions easily proves this a fact everyone is aware of.

*C. Consumers' behavior towards getting A/V material*

It is correct to say that the numbers speak for themselves and they show, at least in the case of how people in Greece get A/V material, the problem quite clearly (figure 3). The majority (42.4%) would simply download illegally the complete and free version of A/V material and the software as well. A significant 18.2%, less than half of the first group though, would download from official web site the trial version and only if satisfied they would proceed with the purchase of the official version of it. Following closely there was a 15.9% of the respondents who reported they would download illegally the complete and free version and if satisfied they would purchase the original. Just one for every 10 (10%) individuals of the sample population would do the "right" thing that is purchase the original material. There is also a significant 13.5% that either could not or would not answer the question. It is safe, then, to say that local residents in Greece are not quite keen to directly purchasing such material, if at all, unless at least they "test" it first.

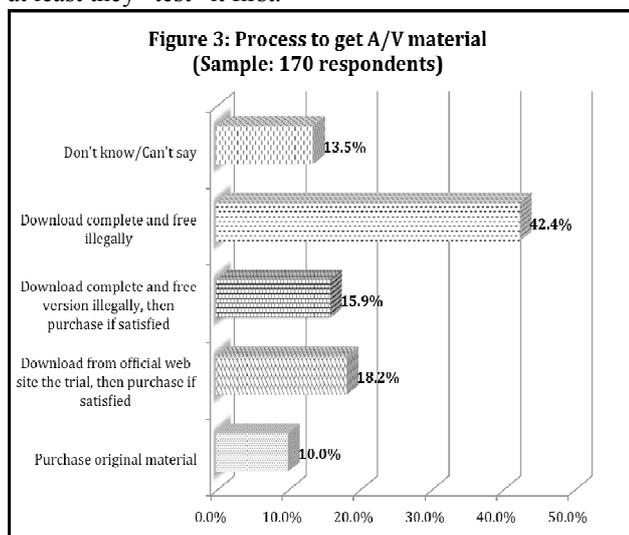


Figure 3: Process to get A/V material

There are two key points that need be addressed in order to interpret respondents' reported behavior. The first point is to explain the key word in this part of the study that is the word "satisfy". For some, it could be said, "satisfied" might mean that the material under consideration is worth keeping in their music/video home library even if enjoyed just once or, if software, in their software archives even if seldom used. If that is the case there might be some room for optimism that these individuals will eventually purchase the item itself. For others, however, the word may have a whole different

meaning, much more strict, implying they will mark it as "satisfied" only if they find it amusing enough, for the case of audio/visual material, to enjoy it several times or, in the case of software, so much useful as to utilize it for their everyday activity.

The second point, just to make the discussion on the issue even more intriguing, is the addition to the above line of questions of one more quite important as well, i.e. what would be the time frame that these individuals would move on with the actual purchase of the legal material once they find it "satisfactory"? What are the parameters that affect this time frame? For example, it is one thing to say "if satisfied I will purchase it the next few days to come" and a completely different thing to say "I will do so in the future as soon as my finances improve" or other similar projections.

*1) Effect of consumers' Age*

Looking from an individual's age viewpoint statistics speak a quite clear language. Youngsters under 18 would not even consider the possibility of purchasing such material before "testing" it either because they don't have the money for that, possibly as a result of their very young age, or because they don't see the moral of paying for something they might not be interested in. A second part of the sample population (28.6%) reported that they would download the trial version of the material from the official web site and only if satisfied they would buy it later. An equal third part (28.6%) said they would download illegally the complete version for free from an underground community not caring about the morals or the legal consequences of their action. Most of them (35.7%), though, would download illegally the complete version for free from underground communities and only if satisfied they would buy it sometime later. There was a 7.1% unable or unwilling to answer the question.

Things change dramatically in the ages between 18 and 34. A very small, nevertheless existing part, of the sample 7.6% is prone to purchasing the original material before testing it. Significantly more individuals would either download the trial version from the original site for free and buy it later on if satisfied (16.1%) or download illegally the complete version for free and, again, if satisfied purchase it later (16.1%). The problem is that most people of this age (49.2%), almost half of the sample population, revealed they would not care about purchasing the material if they could download it for free from underground communities. This should be very disturbing for the companies that market such material since this part of the population is, usually, the one most interested in it. There were, also, a significant 11% of respondents of these ages that did not answer the question.

This pattern changes considerably towards the "legal" behavior for the ages between 35 and 49. 20% of the population is prone to purchasing the original material, 22.9% would do likewise but only once they test its trial version offered from an official web site and are satisfied,

8.6% would do the same as the previous but test the complete version which they would download illegally for free and, finally, 28.6% would just illegally download it complete and free from underground communities. There were a very significant 20% of the respondents who were unable to answer. This type of behavior although closer to what is considered as legal and/or moral is still far from that one would expect from law-abiding individuals in developed or developing communities.

## 2) Effect of consumers' Income and Education

The previous behavioral pattern does not significantly change when analyzed from the individual's income viewpoint. It just becomes a little more difficult to explain. Hence, it is weird to see that more than half (51.7%) of persons with a relatively high income of between 25,001 and 50,000€ would still not purchase the original material at all but simply download it from some underground communities and, although the size of the sample for those earning more than 50,001 is statistically insignificant and no particular conclusions can be made from it, it is even more strange that this same behavior is reported by these people. Given the above it is no surprise that people with income less than 12,000€ (48.7%) or between 12,001 and 25,000 (42.9%) follow the same practice. There is a very slight shift towards more legal practices moving towards higher income but does not really change the general picture.

Finally, not even an individual's higher education seems to change the general behavioral pattern reported by the respondents. The main difference is the increased number of individuals who would not or could not distinguish their behavior.

### D. Consumers' appreciation of the economic value of A/V material and software

The research team investigated the consumers' appreciation of the economic value of A/V material and software in order to explain the Internet piracy phenomenon. The results of this attempt could be characterized between somewhat disappointing and quite disturbing (figure 4).

First, the authors sought to find the percentage of the consumers' (and their families') annual budget spent, or planned to be, for all the A/V material and software they "consume" per year assuming they get genuine copies of it. More than a third of them (36.5%) would not even consider including the legal expenses of such material in their annual budget at all. Most of them, almost 4 out of 10 (38.8%) would spend less than 2% of their income for this material. It should be particularly stressed this is the amount they would consider to spend not just for each of the items they use or enjoy (if A/V) but for all of them put together in a year.

A negligent 1.2% of the respondents would spend more than 20% of their income for legally enjoying or using this material, another 3.5% would consider

spending between 10% and 20% and a relatively small 11.2% would plan a 3% to 10% of their budget paid for the cause. 8.8% of them couldn't or wouldn't answer. The above behavioral pattern does not change significantly as education level is raised, as income increases or as a person grows older.

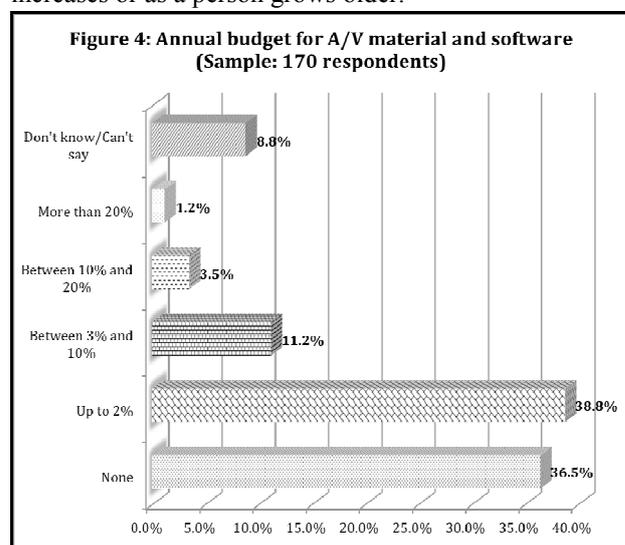


Figure 4. Annual budget for A/V material and software

It is not difficult to explain this attitude. It points to the fact that the vast majority of local residents although enjoy the A/V material or video games and use the software but they do not appreciate its value as suggested by the companies selling it. Also it shows that even educated people are still not convinced about the morals and legal problems associated with this behavior. Should that be the case, then, there must be a difference between the right price that these individuals would be willing to pay for each of these products and the actual price tag the industries impose on these before putting them on the shelves of the stores worldwide.

### 1) Affordable cost for software

Given that most brand software, like antivirus, desktop operating system, multimedia applications, etc. come with a price tag between 50€ and 100€ and most of the development software comes with a price of a few hundreds of €s the authors asked the respondents how much they would be willing to spend in order to get a genuine copy of a piece. Results are quite disturbing and provide the first clue as of the real reason behind Internet piracy and the popularity of the underground communities facilitating it.

A quarter of them reported they would never purchase a software product no matter what, as long as they can find it to download it for free (24.7%). This percentage almost doubles (42.9%) in the case of individuals aged less than 18 and drops just a little for the individuals between 35 and 49 years old. It increases up to 33.3% as the income drops and decreases the higher the person's education level is. The statistics in the case that software is priced between 5€ and 10€ are not in contrast with the

aforementioned but complementary rather. This price range is unrealistically low, probably almost as good as being offered for free, for the industries to even consider.

The quite clear message these people are sending to the respective industry is either that “we don’t want to pay” or that “we cannot pay”. There are at least two very good reasons for this attitude. The first could be that in a country in full recession with no visible “end of the tunnel”, where a third of the young people below 30 are completely unemployed living with their families, many more are partially employed for some 300-400€ and the rest don’t take more than 592€ (actual amount as released by the local government) a month, on which they have to survive an admitted as very expensive everyday life, even for the European standards, it should not be a surprise that they would consider spending on anything else a luxury they simply cannot afford even if they wanted to. The second is probably that these young people, especially in Greece, are “testing” a large number of software packages before they decide which one to use and most often they change the software they are using for their purposes quite often. Combine this with the previous explanation related with their finances and it is obvious that it would be nearly impossible for these individuals to purchase all the software they have used since not even all their monthly income would be enough to pay for it.

Then there is another part of the participants that said they would purchase the genuine copies of the software they would be interested in only if the price tag for it was between 10€ and 50€. It is well known, of course, that only a very small part of the so called professional software on the shelves of the stores is priced in this range mainly antivirus, some multimedia software tools, and some updates or offers to students of other genuine copies of limited versions of expensive software purchased in the relatively recent past. Although this is a significant part of the sample population (31.8%) is, probably, not enough to make a positive impression to the companies. Increase in the personal or family income and a higher education once again improve these statistics in favor of the companies but do not change the general picture.

The findings are shocking for the companies in the cases of software priced between 50€ and 200€ and even worse for those priced more than 200€. In the case of the former just over 1 out of 10 (11.2%) would consider paying the price for the genuine copy of the software. What is more surprising is that this percentage is further dramatically reduced when the personal or family income is more than 25,000€ and the more grown-up the individual is and does not significantly change with the person’s education or age. In the case of the latter just a negligent 2.9% would purchase the software. Finally, there were a small 11.8% of the respondents that would not or could not answer.

## 2) *Affordable cost for music*

Before an analysis is made on the statistics of what consumers perceive as affordable cost to purchase music, it would be essential to refer to the average prices of new music albums and of music tracks, old and new, in Greece nowadays. Usually the price for a new music album is between 12€ and 15€ with a few exceptions in which it reaches or even goes above 20€. In the case of older releases prices may go down about 4-5€ on average and in the case of the very old ones further down even as low as 5-6€. That takes the price per track/song, if available and assuming an album includes 10-15 tracks/songs, around 1€ on average in the case of the new releases, around 0.7-0.8€ for the older and about 0.5-0.6€ for the very old ones. This pricing scheme applies more or less for almost all Greek and international music albums and tracks/songs marketed in the country.

The respondents to this question could be grouped into 5 distinct categories. Those that would “never purchase but just download” as long as they could find albums or tracks/songs for free, or that could/would spend at most 0.10€ per track/song make the first and most populated category (38.2%). Of these individuals 30.6% are not willing to spend even a cent for genuine copies of music material supplemented by the rest. As can be seen in table 6, for those not willing to pay at all, age plays a dramatic role in their decision as the percentage increases quite sharply the younger the person is, then education also plays an important role since the more educated a person is the smaller this percentage becomes and, finally, income also affects this decision, although less than the previous two, since it reduces the number of the internet pirates.

Those that would be willing to pay between 0.10€ and 0.30€ or between 0.30€ and 0.50€, with equal percentages, belong to the second category with a sum of 20% (each with a 10%). The third category includes the ones that would consider spending between 0.50€ and 1€ per track/song (14.1%), the fourth those willing to spend even more than 1€ (5.9%) and, finally, 8.8% of the respondents, the fifth category, would purchase the whole album even for just 2-3 good tracks/songs in it. There was a sizable 12.4% unable or unwilling to say. Once again education, income and age play a role in the decision of the respondents the same way as in the previous category/case although considerably limited.

It is worth noting that the first two categories, put together, constitute almost 60% of the local population. Half of them are willing to pay a little for genuine copies of music tracks or albums and the other half are not willing to pay at all. They probably send the same messages like in the previous section, i.e. either they cannot afford to pay what the companies ask for or they don’t evaluate the music products the same as the company’s do. In both cases the companies have to address this consumers’ message whether it is the consequence of the socioeconomic problems the local

society is facing as a result of the deep economic crisis in the country or a defense mechanism from the consumers' part against a perceived as unrealistically, and outrageously highly expensive for many, pricing scheme of the music products. It is almost like saying, "keep prices low and we might buy".

As to the third category, one might argue, a significant 14.1% of the population finds the pricing of some music products low enough to buy. However, the authors believe that such a conclusion is far from being the reality. First, this is not, by far, what the industry is expecting to make profit from, as it should be considered as extremely low. Second, what this number suggests is that almost these individuals would buy a new music track/song for the price the companies are willing to offer a very old one. Obviously there is quite a difference. On the other hand the actual pricing scheme of the vast majority of the companies in the industry, that is "more than 1€ per track/song" would attract only a hopeless 5.9% and the idea of buying the whole album for just 2-3 good tracks/songs a disappointing 8.8%.

The conclusion that easily comes out of the above, which probably the music industry has to seriously consider, is that either 3 quarters of the local population are criminals based on the copyright law or that there is something terribly wrong with their products pricing scheme.

### 3) *Affordable cost for videogames and movie DVDs*

The statistics of the cost to purchase a genuine copy of a videogame and their respective analysis are quite similar to that of the cost of music material in the previous section. In the case of the videogames the price, in the local market, to purchase a genuine copy of a new release is usually around 40€-50€, for an older one is around 30€-40€ and for a very old one (if available) it may go down to 10€-15€.

The respondents in this case could be grouped into 4 categories. Those that would "never purchase but just download" as long as they could find videogames for free, or that could/would spend at most 5€ make the first and most populated category (43.5%). It is quite extraordinary to find that exactly the same 30.6% of these individuals, like in the previous case with the music material, are not willing to spend even a cent for genuine copies of videogames. This amazing consistency is quite revealing of their determination to not purchase any of this material as long as they can have it for free.

Those that would be willing to pay between 5€ and 10€ or between 10€ and 20€, belong to the second category with a sum of 20% (10.6% and 9.4% respectively). These individuals would consider purchase genuine copies of this material only if the prices of the new releases would be as low as the prices offered for the very old ones; here is once again a gap between consumers' evaluation of the value of these products and the industry's pricing policy. The third category includes the ones that would consider spending between 20€ and 50€ per video game (18.2%)

which means only a fifth of the local consumers could/would accept the companies price tag of their products. Finally, a very negligent 1.8% would purchase such a product if priced over 50€. There was a considerably large 16.5% not willing or unable to say.

In the case of the movie DVDs the pattern of the disappointing statistics only gets worse. Assuming every new release is priced around 20-40€, except in rare cases when it can go up to 50€ and older ones may go down to 10€ the results of the survey are even more alarming for the companies than in the previous cases. As it appears, one third (35.9%) of the respondents admitted they would "never purchase a genuine copy of a movie DVD but just download it" if they had such an option. More than a fifth (21.8%) would only buy it if the cost was less than 5€ which is, quite likely, considered rather unrealistic by the companies nowadays. Another fifth of the participants (20.6%) could get the genuine copy of a new release only if it was offered for a price between 5€ and 10€ which is even lower than the price usually the very old releases are offered. Just a small 12.9% would buy such a new product if it was priced for 10€-20€ which, however, as mentioned before is the price for the old ones. A negligent 4.1% would accept a price between 20€ and 50€ which is the current price of new releases. Finally, there were 4.7% of them unable or unwilling to say.

The only major difference between the way consumers feel and think about the two cases analyzed in brief in this section and those discussed in the previous is that there seems to be no particular pattern of increase or reduction of the aforementioned percentages that could be safely attributed to the individuals' education, income or age. It looks that this is like a verdict towards appreciation, depreciation rather, of the companies' perceived value of this material independent of a person's particular characteristics.

The basic conclusion, almost boring consistent with that in the previous case, would be that just a fifth of the local consumers agree and abide with the companies pricing policies on these types of products. Their message could be decrypted, once again, as "keep prices low and we might consider buying".

### 4) *Affordable cost to rent a genuine DVD of a movie*

Concerning the cost to rent a movie DVDs the statistics allow enough room for optimism for the industry to believe their pricing scheme is very close to what the consumers can afford. Assuming the price to rent a new movie DVD in the local market is around 2.5€ for a day or two and goes a little down to about 1.5€ or 2€ for the old ones for usually 3-4 days the results of the survey draw a different picture, much brighter than in the previous cases.

Almost a fifth of the respondents agreed that a price between 2€ and 3€ (22.9%) or even more than 3€ (1.8%) is a reasonable one to rent a genuine movie DVD. About a third of them (31.8%) would accept the prices usually

the older releases are offered if that was the price for the new releases, i.e. 1€ to 2€. A little more than one for every 10 (11.2%) would rent for 0.50€ up to 1€ per DVD, 11.1% would accept a price 0.30€ to 0.50€ (7.6%) or 0.10€ to 0.30€ (3.5%) and a negligent 1.2% would not pay more than 0.10€ for this cause. Of course there is just less than a fifth (18.2%) that would still “never rent but just download” if they had the opportunity to do so. Finally, there were 1.8% of them unable or unwilling to say.

Like in the previous two cases, it looks that there is no specific pattern in these statistics to indicate that education, income or age play a particular role in the shaping of these results. Taking this as the actual picture that reflects consumers’ appreciation of the price to rent a movie DVD in all Greece, then, it is safe to say that more than half of the local population doesn’t seem to have any problems with the pricing scheme followed by the local video stores. This means that although the Internet piracy affects this part of the local market but it does so in a much lesser extent than in the previous cases.

*E. Consumers’ mentality towards Internet piracy*

Probably the most interesting part of the study was when the participants were asked to reveal their thoughts about certain issues associated with Internet piracy which, it would be safe to say, shape their mentality on the subject in general. The results of their responses are illustrated in figure 5.

Just more than half (55.3%) admitted, quite to the surprise of the authors considering their attitude towards the problem they also caused, that internet piracy is indeed a crime, a quarter of them (25.9%) refused it and almost a fifth more (18.8%) didn’t respond. However, when they were asked whether this is an immoral action or not those that accepted it to be so were considerably less that is just more than a third of them (35.3%) whereas about 42.4% argued it is not, implying this is some kind of an extreme reaction to the industry’s outrageous pricing policies and a little more than a quarter (22.4%) were unwilling to say.

The authors sought to get the respondents understanding of the damages they believe this practice causes to creativity and to the local economy. As to whether Internet piracy is the enemy of creativity respondents’ opinions are split among those that believe it is (41.2%) and those who disagree (39.4%) with almost a fifth of them (19.4%) undecided. However when they were asked if they believed that it damages the local economy almost half of them (48.2%) said it does with less than a third (29.4%) not agreeing and a very large part (22.4%) almost a quarter unable to say.

The participants were, also, asked whether they are convinced this practice brings any benefits to the respective industry and the society. As to the industry 0.6% of them argued that it helps the companies market their products better since it promotes those to a broader community of people that would otherwise not be aware

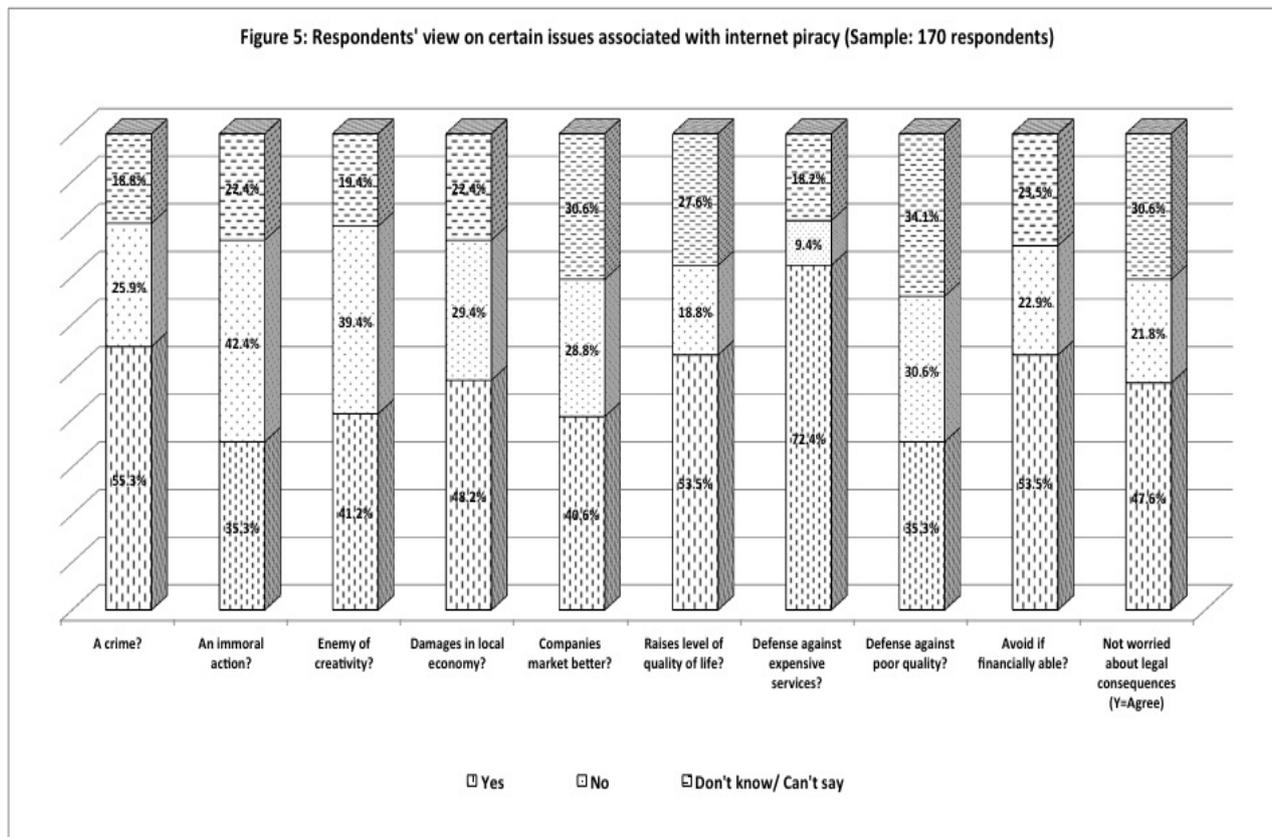


Figure 5: Respondents’ view on certain issues associated with Internet

of them, 28.8% refused it helps them at all and a little less than a third (30.6%) did not have an opinion. However,

their perception of the benefits to the local society is much clearer since more than half (53.5%) think internet piracy raises the welfare of the local residents, with only 18.8% disagreeing and a large 27.6% unwilling or unable to say.

The respondents were suggested two of the most important reasons behind the internet piracy practice. The vast majority of them (72.4%) admitted it is a defense mechanism against expensive services provided by the industry, with just less than a tenth (9.4%) denying the idea and a very noteworthy part (18.2%) undecided. However, the results were not so clear when they were asked whether this practice is a defense against poor quality. Statistics in this case were almost equally divided between those who agreed (35.3%), those who disagreed (30.6%) and the undecided (34.1%) or unwilling to say.

Finally, more than half of the sample population would avoid the practice if financially able to do so (53.5%), less than a quarter (22.9%) would do it anyway and 23.5% of them didn't/wouldn't want to say. However, almost half are not concerned about the legal consequences of this practice (47.6%), only just more than a fifth (21.8%) are worried and a very sizable almost third of them (30.6%) couldn't respond.

## VI. CONCLUSIONS

Quite a few times the Internet technology society, including the authors, has come across the dilemma of who is right and who is wrong as to the copyright infringement issue. There are so many people of interest to the issue with very strong arguments against each other, quite often taken to the courts all over the world, concerning possible damages happening as a result of the problem. Many efforts and techniques have been invented and used to protect copyrighted material, e.g. watermarking [27] [28], but still the phenomenon of copyright infringement through Internet piracy is growing maybe even faster than before, perhaps as a result of the growing number of music libraries [29] many of them available through the various underground communities. There is a very significant number of terms and relative terminology related to the subject the most important of them being, software/music/video/etc. piracy, copyright laws, right to use others' product, freedom of speech and the internet, sharing online, production quality, purchasing power and more. The real question is often whether there is a solution to this problem.

Let's assume then that every person has the right to enjoy the fruits of the developments of the societies, in this research study the technological ones. Let's, also, assume that developers and producers have the right to enjoy the benefits of their hard work and have a good life based on their contribution small or large to the society's developments, in this case once again, the technological ones. Then, the basic conclusions made in this study as to where these two seemingly conflicting people's interests meet are the following:

1. More than half of the local population does not regularly visit official web sites of the digital material they are interested in. Things get even worse as income increases and as individuals grow older and only improve a little the more educated a person is. Obviously the industries cannot afford to miss such a very large part of the population that will find, one way or another, what they need if they are not addressed/promoted through the official web sites,

2. Downloaders don't hide it, they openly admit, especially the younger ages, their practice of Internet piracy as it is facilitated by the underground communities. Education plays a role in reducing the phenomenon but the industries and the educators need a lot more work since not even financially independent people are convinced to abstain this type of activities,

3. Local residents have no problem to accept Internet piracy is a crime but they refuse it is an immoral action. In any case their message is crystal clear and quite simple and straightforward: "we don't have money or certainly not enough, keep prices low so that we will consider buying digital products",

4. Their opinions about whether Internet piracy is an enemy of creativity are split but, in general, most of them do believe it damages the local economy to a certain point. However, they argue that Internet piracy helps promote digital products to a broader community of people, often through small and independent production companies [30], thus benefiting the industry as a whole and raises the welfare of the society as a whole since it improves the quality of life of those unable to purchase this material,

5. Although internet piracy is not quite clearly a defense mechanism against poor quality media products, since many of the pirated products are of good quality, but it is most certainly one against very expensive services and products provided by the industry. Even if the illegal downloaders had the financial ability to avoid the practice, however, the legal consequences are not a threat to them enough to make them change their attitude and mentality.

This research paper is a serious attempt to not just recognize the problem, which is common grounds for everyone regardless of his/her viewpoint, but to provide inside towards a solution to it as fair and realistic as possible. The ultimate aim is to develop some type of a formula, a systematic mechanism or process, as objective as possible to allow the individuals of all walks of life, especially those with weak finances, to enjoy the fruits of technology and entertainment but at the same time provide to the relevant industries the financial incentive to continue their quality work.

The real dilemma is, probably, not whether the Internet piracy is a legal practice one or not but what parts of the populations around the globe really deserve it. If there were one single conclusion that could come out of this study it would be that the people that commit this crime want to follow the 'legal' way but the vast majority of

them simply cannot. The authors believe that as health services and medication are made available, for a small fee through public insurance systems, for all people that need it then, and the health centers or pharmaceuticals don't make any complains, it would be really appropriate to make provisions for the people's welfare as well especially in today's mostly democratic society. There must be some way.

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