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Digital Piracy as an innovation in Recording Industry

Master Thesis in Innovation, Knowledge and Entrepreneurial Dynamics

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Abstract

Purpose – The purpose of this paper is to study the emergence of digital piracy in record industry. The aim of this study is to identify whether and how digital piracy has acted as an innovating factor in the music market, what were the key factors of it and how legitimate business could have used digital piracy for their advantage.

Methodology/approach/design – A qualitative instrumental case study of Spotify is built which presents how legitimate business models can successfully provide viable alternative to digital piracy and use the new transforming market of recording industry.

Findings – The analysis identified that digital piracy has acted as a radical process and market innovation transforming the mature recording industry market dominated by traditional distribution and marketing models into fragmented and multi-platform one with gradually increasing digital consumption. This transformation gave rise to new legitimate digital distribution models such as digital ownership and digital streaming ones.

Research limitations/implications- The findings of this study are limited to recording industry market and can only be applied indirectly to other digital piracy sensitive industries, such as, movie and software.

Value – The paper aims to build a follow up case study using D. Y. Choi and A. Perez paper findings on digital piracy being innovating factor (2007). This study provides a more explicit overview of digital piracy in recording industry and presents Spotify case as a newest legitimate business response to digital piracy.

Keywords – Digital piracy, radical innovation, recording industry, Spotify.

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1. Introduction

"People are not catalysts of rising piracy; new technology is." (Sudler, 2013).

The digital piracy emerged in late 90s and quickly started making its fingerprint in a number of sensitive industries becoming a global viral phenomenon. Driven by the exponential growth of World Wide Web and consequently increasing global demand digital piracy has become a direct threat to a vast number of firms and industries worldwide. The uncontrolled pirating online has been identified to cause significant damage to legitimate sales, brand value and firm reputation, firms' incentive to innovate, welfare of consumers and money going into shady economy (OECD, 2007).

While traditional piracy and product counterfeiting methods were relatively easily controlled and often could be ignored by industries, digital piracy required new approaches in both enforcement and analysis of the threat. New "inventions such as the photocopier, CD burners […] have made the copying of books, music and movies inexpensive and easy and the enforcement of copyright more difficult" (Adermon & Liang, 2014). The most radical of them all, piracy online, brought in new technologies disrupting a number of mature and relatively stable industries and eventually forcing them into digital evolution.

The recording industry market was one of the first to be majorly affected by digital piracy. Music owners and distributors have had sustainable marketing and distribution models which enabled them to make reasonable profits in a stable and mature market. On a positive side the digital piracy introduced new ways how content can be distributed and marketed massively online with little costs. On a negative side however, these advancements were followed by methods of finding, copying, sharing and using that content without pay (Navarro, et al., 2014). The immediate response of legitimate businesses was to fight the piracy and, consequently, fight the technology of it. Major record industry publishers have started gathering business intelligence towards digital piracy to better understand and adapt their business according to it. Enforcement and educational programs have been launched to combat the digital piracy from both suppliers' and consumers' sides (Chaudhry & Zimmerman, 2013). The fight against consumption of illegally distributed content however has proven to be of high cost and not always effective (Conner & Rumelt, 1991), forcing firms to adjust how and where to combat digital piracy.

"Innovative winners will harness these trends [of new technology] to become global icons. The losers will struggle to stay in business and many of them will fail." (Cronin, 2014)

The recording industry was dominated by traditional distribution models for which both artists and consumers had to comply simply because viable legal or not alternatives were either non-existing or underdeveloped, "it used to be so simple. People would hear a tune they liked on the radio, then go to a shop and buy the physical recording of it" (Spotify Ltd, 2013). Major recording industry distributors have developed capabilities suited for a given market environment driven by hard copies' sales (Mukherjee, et al., 2004).

The evolution of World Wide Web however was so radical that it was only a matter of time before it would invade majority of markets, including recording industry. The internet has been used "to redefine existing industries […] breaking unbreakable rules in the industry." (Szulanski & Ovetzky, 2004). Radical, disruptive innovation, ecommerce, big data, cloud computing, social connectivity and digitalization driven entrepreneurs has become a new norm for majority of information based industries (Cronin, 2014). Relatively stable and mature markets of video and audio industry were disrupted by a new and radical invasion of their market that was possibly initiated by digital piracy enabled sharing, a theft of their intellectual property.

Recording industry has undergone fundamental changes in its core aspects. A traditional large-scale material manufacturing of hard copies has become more and more substituted by the digital distribution (Sengupta, 2014) along with advanced social networking and information gathering, quickly and globally. The main costs have shifted more towards creating and producing the music as opposed to manufacture of hard sales' as "modern technology involves high fixed cost […] but very low or negligible marginal cost" (Sengupta, 2014). Consequently the negligible marginal costs together with insufficient legal enforcement have contributed to the "freeconomics expectation, meaning people expected things to be available cheap or for free." (Swanson, 2013) as users have grown accustomed by easy access and high quality with low costs. Even the understanding of being involved in illegal activities seems to diminish with high accessibility and no perceived high risks of digitally pirated content, " 'hear no evil, see no evil,

speak no evil' has become the norm when it comes to counterfeiting and piracy" (BASCAP, 2009).

Despite these challenges first legitimate digital distribution models emerged, in 2003 Apple has built a digital record shop called ITunes, where consumers could buy songs online out of vast library provided (Seabrook, 2014). Apple's distribution model has become a huge success, in 2012 accounting for 60% of worldwide digital sales (Swanson, 2013). Following ITunes success, a number of other digital distribution models emerged, such as Spotify, MOG, Rdio, Pandora, and others (Swanson, 2013). All these business aimed to fight against digital piracy in a sense of satisfying the changed demand due to digital revolution of recording industry.

The negative aspects of digital piracy have been analyzed profoundly and arguably agreed to have caused major negative disruptions in relatively stable markets. The digital piracy however emerged as not only a way to steal content, but also as an alternative as to how people can reach desired content, making nowadays "music consumption "inherently multimodal" (Wejters & Goedertier, 2015).

A lot of IPR supporting studies and industry ordered studies agree that there is a certain silver lining to the piracy which may be beneficial and industry giants are working to exploit it, whether in a possibility of business intelligence or entirely new business models. However these points are often undermined, since in order to control piracy, there has been an identified need to shift public opinion and raise awareness of counterfeit production as unethical and illegal practice (Chaudhry & Zimmerman, 2013). There is a relatively small amount of studies and articles analyzing digital piracy as a means of innovating and transforming market as opposed to its analysis of illegal and immoral aspects hurting legitimate business (Choi & Perez, 2007). This paper in no way aims to diminish the intellectual property infringement done via piracy and its possible damage to firms and industries as a whole. The study's goal however is to shed more light on aspects of digital piracy that may have positively affected the recording industry market in the sense of forcing a radical transformation of mature and relatively stable market into a digital and multiplatform one.

1.1 Research question

The objective of this paper is to find out whether and how the digital piracy acted as a discontinuous and radical innovation and re-shaped the old and possibly conservative market of recording industry.

The first research question aims to find the positive transformative effects that digital piracy was capable of either directly bringing into or indirectly influencing in the recording industry market:

1. HOW HAS DIGITAL PIRACY SPURRED INNOVATIONS IN RECORDING INDUSTRY?

First research question can be divided into two more precise sub questions:

a) How did digital piracy change the consumption and consumers' demand?

b) How did digital piracy change the distribution and marketing possibilities for artists and labels?

The second research question of this paper aims to find out whether and how legitimate business could have used digital piracy to increase their competitiveness using a case study of Spotify:

2. HAS DIGITAL PIRACY HELPED NEW BUSINESS MODELS SUCH AS SPOTIFY EMERGE?

Digital piracy is a difficult and multi-layered phenomenon which has grown significantly from its emergence becoming a challenge for entire industries to control it. This paper aims to provide explicit review of digital piracy in order to provide insight as to how this activity could have affected markets both negatively and also positively, helping mature and declining industries in terms of radical innovations.

2. Methodology

This chapter explains the methods and approaches used in the study to analyze and answer provided research questions. Firstly, research method is introduced defining how the topic will be analyzed in this paper. Following part explains the case study approach that has been used to support and strengthen the analysis. Afterwards the methods of identifying and collecting main sources for study are provided. Lastly, project design is shown to provide a better understanding of paper's structure.

2.1 Research method

Two main research methods can be identified for majority of academic studies: quantitative and qualitative types of studies. The quantitative study relies on numerical data, its changes and/or relationships with area of interest. This type of study most often uses hypothesis that can be measured mathematically with the study's aim to either confirm or deny it.

The qualitative study is used to "understanding some aspect of social life, and its methods which (in general) generate words, rather than numbers, as data or analysis" (Patton & Cochran, 2002). This type of study relies not on the numerical data but rather on the data provided by perceived and at times subjective experiences and implications of the analyzed subject. The reason of a qualitative study is to acknowledge on these experiences and provide an insight whether and how they have made an effect.

This study is using a qualitative research method as it enables to analyze and evaluate subjectively perceived views and experiences built around digital piracy phenomenon, and identify how these different implications might have changed the recording industry.

Multiple approaches can be used in academic studies providing different structure and insight emerging from the analysis. Deductive and inductive types of approaches can be identified. The deductive approach starts with the theory, using a broad perspective and eventually narrows down to the area of study's interest to analyze a more definite research problem. The inductive approach is used when specific observations and ideas are presented which later on lead into detecting patterns and providing general conclusions and/or theoretical support (Bryman, 2012).

This paper is going to exercise both of these approaches to fully analyze the presented subject. The deductive approach will be used analyzing the theory of product counterfeiting, then narrowing down to the digital piracy and eventually connecting it to the theory of innovation in the recording industry market.

The case study of Spotify will exercise a more inductive approach, as the analysis of case provides additional insight and possible findings that can be applied to a broader population, the recording industry market.

Study's findings will be focused on digital piracy effect as an innovating factor. It has to be noted that these findings will be restricted to recording industry only, while it is possible that they may be applied to other digital piracy sensitive industries, such as movie and software, the analysis and comparison between different industries will not be analyzed as they are beneath the scope of this paper.

2.1.1 Case study approach

The main research method of this paper has been chosen to be case study. This design enables to concentrate on an explicit analysis of a single case, as it is connected with the "complexity and particular nature of the case in question" (Stake, 1995). A case study "investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Yin, 1984).

The case study, like every research method, has certain advantages and drawbacks. The main disadvantage is likely to be its limitations that make it difficult for final conclusions to be generalized and/or build a misleading view of presented theoretical implications (Yin, 2008). Another important limitation of case study is its interpretative nature itself, as the researcher can shift the direction of conclusion according to his personal interpretations making it rather subjective and its results dubious (Yin, 2002). The advantage of case study is, however, the ability to interpret the data in order to describe and illustrate certain complications that would not be available in other types of studies (Zaidah, 2007).

This paper builds an instrumental case study with the aim to provide an insight of the entire digital piracy phenomenon through a different perspective (Stake, 1995). The case of Spotify

here acts as a support, providing the needed examples of real-life situations to the study of digital piracy as an innovating factor.

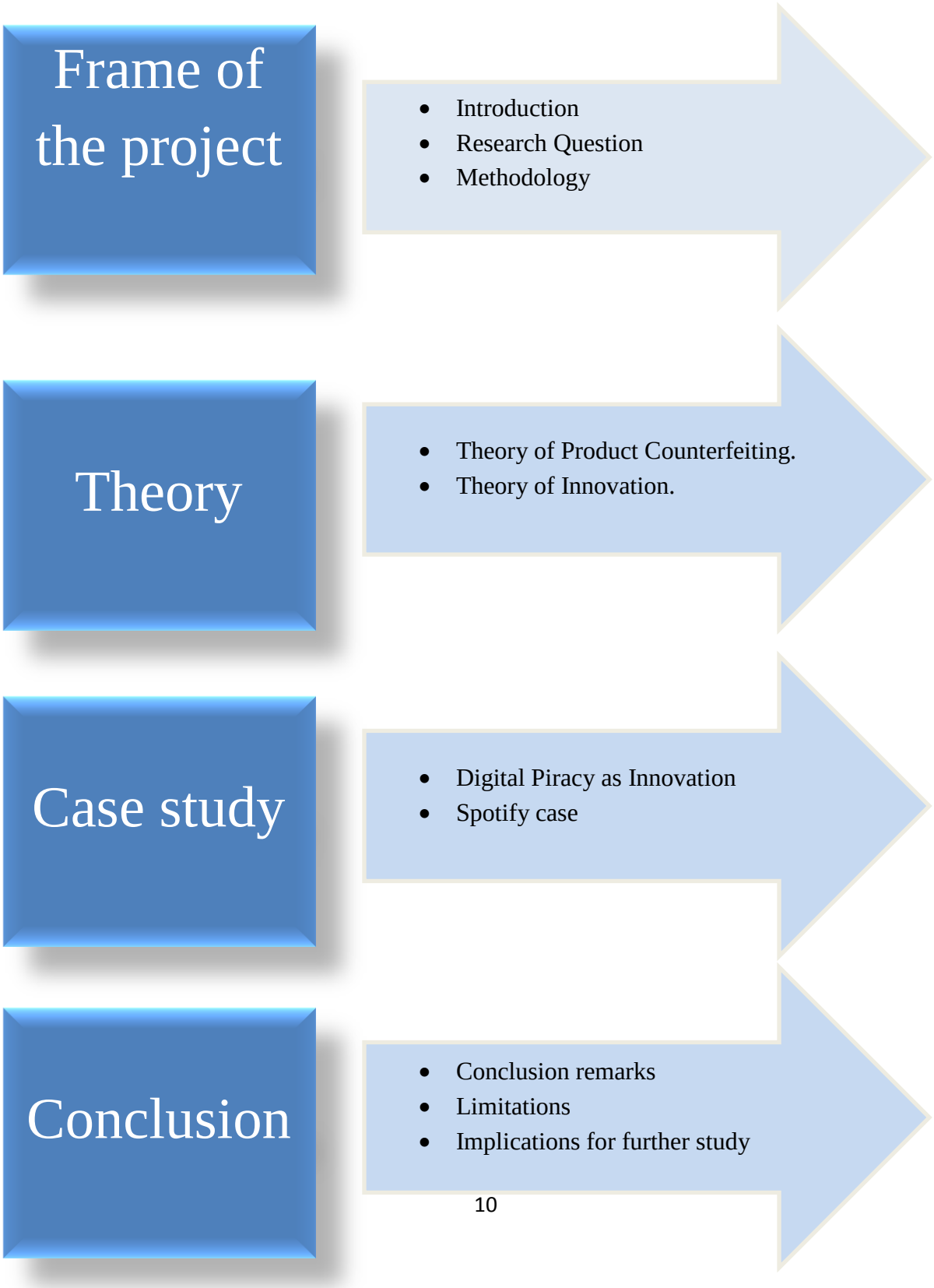
2.1.2 Collection of data

This paper has used an extensive list of both academic and journalistic sources to build the explicit overview of digital piracy, provide a relevant theory part of innovation and carry on with the case study of Spotify. The sources were gathered from internet using relevant to the area of interest search queries. Aalborg University electronic library (http://www.en.aub.aau.dk/) was used to search for articles, books and other types of publications.

First queries used were 'digital piracy' and/or 'innovation' which provided 97 results. Around 20 articles were identified to be relevant and used in this paper, these publications formed the first tier of sources. An initial overview of first tier sources provided suggestions for other needed papers for the study, around 40 new sources were identified, forming the second tier. Lastly, approximately 25 articles were found relevant to the case study of Spotify, making the third tier of sources for the paper.

2.2 Project design

This part summarizes the flow of the paper, describing the structure and goals of each section in it.



First part of the paper introduces the phenomenon of digital piracy, stating the radical nature, problems and opportunities of it. The research questions are then formulated that aim to identify positive factors and influences that piracy online has brought into recording industry. Following chapter provides a methodology of the approach used in this study together with data collection methods.

The theory part aims to provide an explicit overview of digital piracy in the context of other illegal product counterfeiting activities. The chapter starts with the broad overview of counterfeiting and piracy. Definitions of counterfeit production are introduced along with illegal market evaluation and types of counterfeited products. Afterwards reasons why this illicit trade is being globally used are presented together with negative effects of it. Further, chapter narrows down into digital piracy, defining the concept and evaluating its market. The next part analyzes consumer complicity, a major aspect in understanding the users' demand for digital piracy. Last part of this chapter provides an overview of the fight against digital piracy, the actions being done by businesses and governments to control this illegal activity.

The Fourth chapter provides an overview of innovation theory that is going to be applied analyzing digital piracy. The different types of innovations, together with diffusion of it are defined. An unsatisfactory innovations' term is introduced along with industry life-cycle theory.

The fifth chapter of the study analyzes the digital piracy in terms of innovation providing examples of radical innovation that may have been highly influenced by this illicit trade. The following part narrows it down to recording industry market providing an overview of this industry and describing the emergence of digital piracy in it. Afterwards the impact of piracy online to labels, artists and consumers is estimated. Lastly, key effects are summed up making the initial conclusions to the first research question.

Sixth chapter provides a case study of Spotify. After the introduction of company, following subchapters about its technology, business model, consumers, artists and labels are used to analyze the case study in terms of second research question. The end of the chapter provides initial conclusions of case study engaging the second research question.

The last part of the study provides final conclusions merging together the findings of fourth and fifth chapters. Following are the implications of the study along with suggestions for further research.

3. The counterfeit production

This chapter will propose product counterfeiting definitions, market evaluation, counterfeited products' types, what are the reasons behind counterfeiting and what effect on economy this illicit trade has. Afterwards the digital piracy is defined as a newest type of counterfeiting with certain similarities and fundamental differences compared to traditional counterfeiting.

3.1 Defining the counterfeiting

The products' counterfeiting is an old and mostly well-known issue for a significant number of markets worldwide. While digital piracy dates back to no further than the emergence of the World Wide Web, its roots for illegal usage of trademarks and copyrighted content are as old as the trademarks themselves. For most of the time industries have been relatively accepting product counterfeiting as a natural occurrence in the free market. Furthermore, in certain ways product counterfeiting helped promote the brands, explore new markets and increase product acceptance (Sudler, 2013).

The product counterfeiting can be found as early as in Babylonian and Ancient Egyptian cultures where priests had placed inscriptions from other, earlier, civilizations on their monuments to increase the legitimacy and value (Chaudhry & Zimmerman, 2013). The trademarks have evolved a lot since then, nonetheless product counterfeiting remains to be as significant if not more in the face of globalization of markets. The traditional product counterfeiting has remained relatively acceptable mainly due to perceived limitations in quality of reproduction and less efficient distribution channels, making these products inferior to original ones (Sudler, 2013). The product counterfeiting however evolved with the help of new reverse engineering technologies and internet distribution. The fake product has become close to or of the same quality as original, posing a real threat to intellectual property owners worldwide.

3.1.1 Types of Counterfeiting

Counterfeiting can be divided into four different categories based on the illegal activity and the content being stolen (Jacobs, et al., 2001):

1. **Traditional Counterfeiting**: an unauthorized production of good protected by trademarks, copyrights, or patents.
2. **Brand piracy:** An unauthorized use of patented and/or copyrighted brands. Businesses often invest vast amount of money and effort into promoting their brand and making an image to build a long lasting relationships with consumers. Brand piracy exploits that by using well-known logos and/or rebuilding look alike production.
3**. Near brand usage.** Counterfeiters use logos that are very similar in their appearance to the original, well-known brands in order to exploit customers. These brands are different very slightly only to avoid legal prosecution from originals, i.e. "Rolix" compared to "Rolex". Products like these are aimed to deceive unaware consumers into buying their production expecting the well-known original products
4. Intellectual property copying. This includes trademarks, patents and copyrights. Copying digital content without losing any significant quality has become easy for both consumers and illegal counterfeit businesses. This type of counterfeiting made digital piracy a serious issue growing at alarming rates worldwide.

3.2.2 The counterfeit market evaluation

The counterfeit market is genuinely difficult to evaluate, as "no direct measurement of counterfeit trade can be undertaken, since by definition this is an illegal activity" (Chaudhry & Zimmerman, 2013). The quantification of economic impact is difficult primarily due to insufficient data available as the fake and/or pirated products are distributed illegally. The counterfeit market is therefore often evaluated based fragmented data, which has not been collected and/or evaluated systematically, developing facts based on unsubstantiated opinions (GAO, 2010). The evaluation of counterfeit market is introduced only to the point of showing the relativity of it as the correct or even objective market evaluation of digital piracy is beneath the scope of this paper.

The OECD report estimated the volume of counterfeit production in the international trade to be up to $200 billion in 2005 (2007), excluding domestic counterfeit usage and digital piracy.

The calculations of digital piracy's impact to industry vary, likely due to similar, if not bigger, difficulties in providing accurate estimations. A study on costs of recording industry estimated that "U.S. economy loses $12.5 billion in total output annually" (Siwek, 2007) due to audio content being distributed illegally. The digital piracy of motion pictures results in $20.5 billion losses in U.S economy annually. Business Software Alliance piracy study (2012) calculated the value of pirated software market to be around $63.4 billion in 2011, with the estimated 7% growth compared to 2010. Furthermore, countries highly dependent on intellectual property industries, such as USA, are most directly affected by piracy (Siwek, 2007), as they experience major loses due to IPR infringements.

Analysts working to estimate the global counterfeit market, its value and the loss caused to the content owners can mostly agree on two things (Chaudhry & Zimmerman, 2013):

1. The measurement of these values can be inaccurate and there is a high level of uncertainty. Furthermore, interested parties, such as industry paid studies, may bend the numbers to adjust public opinion. The evaluation of these values is at best a very difficult task.
2. Despite the variations and uncertainties, it is agreed that global counterfeit market is significant and is growing.

3.2.3 Counterfeit products

"The truth is any product may be subject to counterfeiting" (Chaudhry & Zimmerman, 2013)

The counterfeiting can be successful in almost every industry nowadays, as either brand can be illegally used and/or technology reversely engineered in a majority of products and services.

Figure 1: Counterfeit products in different industries (OECD, 2007)

Industry sector	Examples of products subject to IP infringement
Apparel, footwear and designer clothing	T-shirts, hats, jerseys, trousers, footwear, caps, socks
Audio-visual, literary and related copyrighted work	Music, motion pictures, TV programmes, (CDs DVDs), software, books, computer/video games
Automotive	Scooters, engines, engine parts, body panels, air bags, windscreens, tires, bearings, shock absorbers, suspension and steering components, automatic belt tensioners, spark plugs, disc brake pads, clutch plates, oil, filters, oil pumps, water pumps, chassis parts, engine components, lighting products, belts, hoses, wiper blades, grilles, gasket materials, rings, interior trim, brake fluid, sealing products, wheels, hubs, anti-freeze, windshield wiper fluid.
Chemicals/pesticides	Insecticides, herbicides, fungicides, non-stick coatings.
Consumer electronics	Computer components (monitors, casing, hard drives), computer equipment, webcams, remote control devices, mobile phones, TVs, CD and DVD players, loudspeakers, cameras, headsets, USB adaptors, shavers, hair dryers, irons, mixers, blenders, pressure cookers, kettles, deep fryers, lighting appliances, smoke detectors, clocks.
Electrical components	Components used in power distribution and transformers, switchgears, motors and generators, gas, and hydraulic turbines and turbine generator sets, relays, contacts, timers, circuit breakers, fuses, switchgears, distribution boards and wiring accessories, batteries.
Food, drink and agricultural products	Fruit (kiwis), conserved vegetables, milk powder, butter, ghee, baby food, instant coffee, alcohol, drinks, candy/sweets, hi-breed corn seeds.
Personal accessories	Watches, jewellery, glasses, luggage, handbags, leather articles.
Pharmaceuticals	Medicines used for treating cancer, HIV, malaria, osteoporosis, diabetes, hypertension, cholesterol, cardiovascular disease, obesity, infectious diseases, Alzheimer's disease, prostate disease, erectile dysfunction, asthma and fungal infections; antibiotics, anti-psychotic products, steroids, anti-inflammatory tablets, pain killers, cough medicines, hormones, and vitamins; treatments for hair and weight loss.
Tobacco	Cigarettes, cigars, and snuff.
Toiletry and other household products	Home and personal care products, including shampoos, detergents, fine fragrances, perfumes, feminine protection products, skin care products, deodorants, toothpaste, dental care products, shaving systems, razor blades; shoe polish; non-prescription medicine.
Other	Toys, games, furniture, sporting goods (such as basket balls and golf clubs), stickers, dyed and printed exotic fabrics, belt buckles, decals, flags, lighters, tabletops, flowers, plant cuttings, qualification certificates, abrasive tools, sanitary products (bath tubs, wash basins, toilets), tableware (plates, bowls, cups).

A. Jacobs identifies four most vulnerable to piracy industry types (2001):

1. Low technology, well-known brand name, mass produced product like chocolate, shampoo.
2. High technology, high priced products, i.e. computer games, audio and other digital content.
3. Prestige products such as well-known accessories and perfume.
4. High technology products with intensive research and development involved, such as pharmaceuticals.

3.2.4 Reasons for counterfeit production

The counterfeit production has been identified as significant phenomena in majority of industries, furthermore growing at substantial rates in certain areas. It is important to identify the key aspects as to why it is appealing for counterfeit products to be produced and bought. P. Chaudhry and A. Zimmerman identify seven key reasons for the growth of counterfeit goods (2013):

1. Low cost Technology = Low investment, High profits. Product counterfeiters usually avoid most of the costs associated with R&D and marketing of their production. Products such as books, software, video and audio content all have high fixed cost of development and very low marginal reproduction costs (Yoon, 2002). Low illegal copying costs with no sophisticated technology needed make these products very appealing for profit seeking counterfeiters.
Illegally produced production also avoids the costs of health and safety, wage regulations, quality control, warranty service and etc. All these factors contribute to fast profitability, making counterfeiting business appealing to a significant number of businesses.

2. Globalization and Lower Trade Barriers. World trade growth has grown exponentially from $6 trillion in 1999 to $19trillion in 2010 (Chaudhry & Zimmerman, 2013).This positively affected the counterfeit production as well, creating opportunities to distribute their products worldwide, gaining larger market shares and also covering their tracks through long distribution channels to avoid legal prosecution.

3. Consumer Complicity can be defined as willingness to purchase counterfeit production. In a lot of counterfeiting cases buyers are completely aware that they are acquiring a fake product (BASCAP, 2009). Furthermore, intellectual property rights in certain cultures, such as China, are undermined. Consumer complicity will be discussed more thoroughly in the next chapter of this paper.

4. Expansion of Channels and Markets. The globalization enabled entrance for international manufactures to the new markets such as BRIC countries (Brazil, Russia, India and China). The counterfeit production is majorly distributed via retail shops, informal channels, sidewalk vendors, etc. and definitely the Internet (Chaudhry & Zimmerman, 2013).

5. Powerful Worldwide Brands. The globally known and highest priced brands have become the major targets of counterfeiting.

6. Weak International and National Enforcement. The intellectual property rights are underdeveloped in many countries, allowing counterfeit product business to exploit other legitimate brands with low risks. Attempts to strengthen these laws are also often disliked by the public and met with criticism and resistance as limiting the market freedom.

7. High Tariffs and Taxes. While these aspects result in certain markets being unable to receive certain products, i.e. alcohol, medicine, the counterfeiters may as well step in to supply the existing demand. Consumers will be willing to buy counterfeit products even if they are less effective or even possibly dangerous to their health if legal supply is inefficient or unaffordable.

The counterfeit production exploits both the attraction for easy profit of counterfeiters and the demand for cheaper products of consumers. This is achieved because counterfeit production is R&D and taxes free, carries relatively low legal risks in majority of global markets and is being provided with sufficient technology such as reverse engineering. Furthermore, the consumer complicity is determined to be rather insufficient and sometimes even supporting for counterfeiting production worldwide.

3.2.5 Negative effects of counterfeit production

The emergence of significant counterfeit markets has resulted in heavy estimated losses for legit businesses. Chaudhry and A. Zimmerman describe five main stakeholders negatively affected by counterfeit production (2013):

1. Consumers. Negative effects on consumers range from minor dissatisfaction, poor quality and performance, money loss to serious injury depending on fake products acquired. While counterfeit luxury and elite brand products result in money loss and/or poor quality, the fake pharmaceutical production can even be life threatening.

2. Home countries that are importing counterfeit production suffer from loss of export, taxes, also employment.

3. Host countries that produce the counterfeit production suffer from loss in foreign investment, taxes' incomes and increase of underground economy. Legitimate manufacturers also may be discouraged to produce their products in countries where counterfeiting is significant (OECD, 2007). Internet piracy is especially evident in less IPR established countries such as China, Russia, Brazil and others.

4. Wholesalers and Retailers lose their sales to fake products and also sometimes have to deal with customers requesting warranty service for fake products which cause confusion and dissatisfaction from exploited customers.

5. Intellectual property owners experience loss in their revenues, sales and profits. Firms, who are not ignorant to counterfeit production, also have to spend their budget to analyze and fight piracy which could have been spent on innovations and organizational growth. Furthermore, certain counterfeit products may damage the brand and loyalty of customers in cases where they are unable to distinguish between original and fake products.

3.3 digital piracy

3.3.1 Defining the concept

Digital piracy is the newest area of product counterfeiting, which has emerged together with the growth of World Wide Web. Government and intellectual property owners may not yet be completely aware as to what are the best approaches to analyzing and fighting this issue. While digital piracy does have certain similarities with other product counterfeiting areas it also contains some fundamental differences that set this phenomenon apart.

The traditional product counterfeiting has developed a certain tolerance level by industries which resulted from perceived limitations of illegal content, such as lower quality and inferior distribution channels making this type of piracy a manageable threat (Sudler, 2013). The digital piracy however can act as a direct theft of intellectual property, lowering IPR owners' incentives to develop, innovate and even threatening the survival of firms by stealing their legitimate sales (Nill & Shultz, 2009). This type of counterfeiting may not be diminished by same limitations as traditional types of illegal content reproduction.

The pirating can be identified as "intentionally copying the name, shape, or look of another product to steal that product's sales" (Jacobs, et al., 2001). Digital piracy however often does not aim to steal product's sales and instead it shares the copyrighted content to people for free. The file sharing itself is "the act of distributing digital materials between groups of users" (Cox & Collins, 2014) and becomes piracy only if the shared content is copyrighted.

Examples of digital piracy can be:

1. Using peer to peer technology to download licensed software, movies and albums.
2. Downloading or streaming licensed digital content directly from certain pirating websites. (Al-Rafee & Rouibah, 2010)

Digital piracy is unique in the perspective that "the pirate is producer as well as consumer" of the digital content (Nill & Shultz, 2009). In a traditional product counterfeiting supply and demand are separate units similarly to the market of original production. The internet provided sharing abilities blur the lines between these concepts in the digital piracy. All it takes is one supplier to share the content online, and consumers themselves contribute to further sharing, making the

content, legal or not, go viral and be reachable globally. Furthermore, content storage in digital formatting has enabled easier copying with little to no loss in quality (Sudler, 2013), making copies nearly as appealing as original files to the consumers.

Pirated content online can be defined as digital copies of original files, these copies may be equal or lower quality than the original, providing two versions in the market of the same product: original and illegal digital copy (Peitz & Waelbroeck, 2006). Digital piracy therefore is an "unauthorized duplication, distribution, and downloading" of copyrighted content (Nill & Shultz, 2009), where participants can be both consumers and providers of the content via sharing networks.

3.3.2 The market

Digital piracy is clearly dependent on the internet and its widespread as it is the main channel of digital content's distribution. World Wide Web, serving as a counterfeit production global virtual marketplace, similarly to real underground fake production markets, is almost impossible to be measured accurately. P. Chaudhry and A. Zimmerman identify that "no country, whether developed or developing, is immune to consumer demand for pirated software" (2013).

The digital piracy also has much faster reaction time compared to traditional product counterfeiting, where items need to be reverse engineered and re-produced before pirates can start distributing fake products. Newly released digital content can be copied and re-distributed in piracy channels within a matter of hours, furthermore digital copies have nearly no defects or quality reductions compared to original, officially online distributed content (Chaudhry & Zimmerman, 2013).

Furthermore, pirated online "digital products can be copied at almost no cost and are subject to non-commercial copying by final consumers" (Peitz & Waelbroeck, 2006), digital copies do not deteriorate in quality when being copied multiple times, meaning that consumers can serve as providers and share the content furthermore to other potential users, creating a viral sharing network of illegally used content.

The internet is estimated to have around 2,92 billion users worldwide in 2014, roughly 30% more than there were on 2010 indicating the significant growth in access of World Wide Web globally (Statista Inc., 2014). All these users either intentionally or unaware may participate in digital piracy throughout the world. The internet can be used to both serve as an online retailer

for physical goods (i.e. Amazon) and as a distributor of digital content, such as software, video games, movies, audio and other content.

The main factors of digital piracy growth (Al-Rafee & Rouibah, 2010):
1. Availability of high storage media at low cost.
2. An increased use of computers and digital devices connected to Internet.
3. Untraceable peer-to-peer networks.
4. The spread of high-speed Internet connections at low cost.

OECD report provides five main factors why internet is so highly exploited by pirates and complicit consumers (2007):

1. The participants in digital piracy perceive themselves to have anonymity in their actions online.
2. Pirates have flexibility to create online websites anywhere in the world and take them down once needed in order to avoid legal prosecution.
3. Internet provides an easy reach of global audience compared to traditional localized markets of product counterfeiting.
4. Online websites can be provided with high class deception with low cost. Pirates have the ability to design professionally and officially looking websites in order to deceive consumers into thinking they are shopping in legit, respectable markets.

The global market means global opportunities for both IPR owners and pirates. The digital counterfeiting is not limited to flea markets and shady underground websites but can be quite easily accessed and exploited online, making it a real threat to certain industries that distribute their production online.

3.4 Consumer complicity

Counterfeit market growth is especially evident in virtual marketspace, driven by an increasing global demand of customers, who often appear to be either unknowing or ignorant in the matter that they are retrieving content illegally. P. Chaudhry and A. Zimmerman claim that "consumer complicity to purchase counterfeit goods is a function of both intrinsic (demographics, attitude towards counterfeits, cultural values, and ethical perspective) and extrinsic (product attributes, shopping experience, and demarketing communications) determinants (2013). IPR owners along with governments initially have started a fight with the supply side, trying to enforce the production of illegal content. However understanding the demand side and consumer behavioral concepts has become equally important in order to successfully fight digital piracy. Consumer complicity has been thoroughly analyzed by businesses to identify both which production and which market segments are keener to participate in counterfeit trade. A lot of both intrinsic and extrinsic variables were analyzed in a number of consumer complicity studies, with sometimes quite unexpected outcomes.

The main analyzed determinants of consumer complicity:

Intrinsic determinants:

1. Demographics of Consumer. Certain studies show that counterfeit trade is visible in all countries, including emerging and mature markets (BASCAP, 2009). Furthermore, multiple demographic factors such as gender, age and ethnicity were not identified to be of significant influence to counterfeit trade. (Wee, et al., 1995) (Chaudhry, et al., 2011). Interestingly, higher education contributed to the higher likelihood of attaining illegal software based on studies (Wee, et al., 1995). Business Software Alliance (2012) analysis shows that consumers in emerging markets are much more likely to pirate compared to users in mature markets, as frequent pirates download around 4 times more programs illegally in developing countries. The higher degree of piracy in developing countries can as well be supported by the fact that relative price level of intellectual property goods is higher for consumers compared to the ones in developed countries (Tsui & Wang, 2012) (Nill & Shultz, 2009). Significant differences may as well be found between developed countries as well, Y. Sang's study reveals that a much higher

number of students of Korea participate in illegal sharing of files compared to students in USA (2014). Authors argue that these differences were highly influenced by cultural values.

2. Attitude towards Counterfeits. Studies show that consumers may purchase counterfeit goods knowingly for a variety of reasons, such as perceiving the fake product to be of the same or close quality to the original, expressing their rebelliousness sentiments against 'big business – corporations' (Tom., et al., 1998). Attitude towards counterfeiting appeared as a major variable in (Wee, et al., 1995) study.

People perceive that counterfeit production does not hurt economy in a significant way, let alone their own pirating does not contribute to a difference. It is in many countries accepted as a social norm. Even if it is understood to be somewhat of stealing and hurting IPR owners, consumers often feel little sympathy as they perceive them as big multinational corporations complaining about their lost profits (Nill & Shultz, 2009). Studies on students' consumer complicity (Krawczyk, et al., 2014) (Sang, et al., 2014) show that frequent pirates are often more aware about piracy being illegal compared to casual digital copies' downloaders. Awareness about this activity being illegal and somewhat immoral did not result in significant change for American students, the risk of being caught however was influential in students' decisions to participate in illegal sharing activities in USA. This statement shows that raised awareness may be insufficient if it is not backed up with laws and/or regulations to enforce behavior or provide other educational convictions.

Consumers also perceive that they are being unfairly charged for certain luxury items, such as designer clothes. This perception may also be seen in the digital content, where majority of product's cost is determined by its research and development compared to actual manufacturing.

3. Cultural Values may have a significant influence to consumer complicity in certain countries. For examples, intellectual property rights have been perceived as a Western concept in China, where there is a strong sharing culture (Nill & Shultz, 2009). Collectivist culture plays a strong factor in consumers' minds diminishing the importance and understanding of intellectual property.

4. Ethical Perspective can influence customer's willingness to obtain a counterfeit product. High idealism US consumers would be reluctant to either buy or use fake production (Chaudhry

& Zimmerman, 2013). The ethical perspective can be highly dependent on factors such as enforced laws and availability of illegal content. If the consumer can easily find the content online, "it might create the illusion that it is acceptable from an ethical, and even a legal, point of view (Nill & Shultz, 2009). Illegal content's "availability, quality, price and low risk generate an overall sense of social acceptability" (BASCAP, 2009).

Extrinsic Determinants:

1. Product Attributes that affect the purchase of counterfeit product are somewhat similar to the attributes a customer would consider for an original product. The considered attributes are price, quality, performance, image, purpose of purchase, investment at risk. Many of these attributes work as the indicator to distinguish between real and fake products as well, for example, lower priced, poorly packaged items can help consumers identify that they are not buying an authentic production. Similarly, digital content in irregular formats or needing additional settings of retrieved content (i.e. software needing to be 'cracked') may give an impression of participating in illegal download.

2. Shopping Experience depends greatly on the shopping environment, counterfeit production is naturally associated with flea markets and shady looking shopping districts, i.e. China Town in New York and similar. Distinguishing counterfeit markets online may be more difficult, even though certain websites knowingly admit that they are selling fake production (www.replicawatchcenter.com), in other legit online markets, such as Amazon, it is possible to buy fake production by mistake. Nowadays pirates can make online shopping experience quite similar to legit business with relatively low costs.

3. Anti-counterfeiting campaigns. Various industry associations have launched campaigns to reduce consumer complicity towards fake production and raise awareness. These campaigns have used worldwide known stars in ads to disregard piracy (Chaudhry & Zimmerman, 2013), however they seem not to have made a significant affect to consumer complicity.

BASCAP[1] in their research report summarizes attitudes of consumers that are willing to obtain fake production into three main categories (2009):

1. A lack of resources. Person perceives original to be too expensive for him, and therefore as he would not be buying it in the first place, there is no harm in getting a cheaper counterfeit product.

2. A lack of recourse. Consumer perceives this as not a big deal, with little to no risk of actual legal prosecution, "the more consumers are aware of the potential penalty and the chance of getting caught, the less likely they are to pirate software" (Nill & Shultz, 2009).

3. A lack of remorse. Person does not think this as unethical, as he perceives the original item unaffordable.

3.4.1 Consumer complicity in digital piracy

The digital piracy has certain fundamental differences apart from traditional counterfeiting and therefore a number of determinants may be of more or less influence to a consumer willing to download an illegal copy online.

According to BASCAP report, many consumers perceive greater risk of prosecution when downloading illegal content compared to traditional counterfeiting (2009). The industry and government actions seem to have had greater effect raising consumer awareness for digital piracy. Consumers also possibly feel greater recourse having illegally downloaded content compared to owning bought counterfeit products. Digital pirates reported to be reluctant to show their personal computers in fear of being caught (BASCAP, 2009).

Even with this greater risk, digital piracy's perception as stealing is much lower compared to traditional theft. 95% of interviewed parents perceived shoplifting as a serious crime (i.e. stealing a movie from a video store), however 30% of interviewees felt that it is alright to illegally download the content online according to studies (Nill & Shultz, 2009).

The internet provides a certain level of perceived anonymity for the consumers, which raised the complicity towards downloading illegal content (Sudler, 2013), certain industries are using technologies and laws to change this perception and show consumers that their illegal activities

[1] Business Action to Stop Counterfeiting and Piracy (http://www.iccwbo.org/advocacy-codes-and-rules/bascap/)

online are seen and they can be prosecuted for them. For example the graduate response program is used in USA to raise awareness and reduce consumer complicity (Sandovai, 2011).

Digital piracy does not contain similar life-threatening risks to such counterfeit production as medicine or machinery. The illegal content however can be damaging as well, consumers do not want to face issues, such as viruses, that may damage their hardware and software (BASCAP, 2009). Public awareness that illegal digital content often carry those risks could help reduce consumer complicity.

The highly complicit consumers may not necessarily be uneducated or unaware of breaking the IPR laws, "the easier it is for consumers to use the software, the higher the probability that they will acquire a pirated version of it" (Nill & Shultz, 2009). The legal digital content usually contain additional value such as warranty and support, which makes it superior compared to illegal content. The advanced consumers however may not need provided support and therefore does not perceive it as additional value for their personal needs, making them more likely to obtain free illegal copies.

It is important to note that consumer complicity may be affected by the fact that internet is increasingly being used as a discovery tool for the digital content itself (Warr & Goode, 2011). New music discovery plays an important part on many, especially younger users' audio consumption behavior. The illegal file sharing networks can provide vast catalogs of available content and help consumers search and discover new artists and albums. Consumers therefore will be complicit to use these channels, especially if they perceive that there is no legal alternative with similar capabilities online.

The BASCAP report identified five types of counterfeit production consumers:

1. Happy purchasers who consider pirating a smart choice, have a sufficient income to legally acquire content but no desire to do so.
2. Struggling consumers who have lowest income and could not afford to buy the content that they are pirating. Furthermore they often lack the knowledge and education to know the product origin.
3. Innocent Purchasers who perceive pirating as rightful option for them due to lower income and/or other personal difficult situations. These consumers might be able to afford original product, but refuse to do so due to subjective reasons.

4. Robin Hoods who absolutely refuse to accept the system and perceive branded originals as overpriced content pushed on consumers by greedy corporations. These consumers will definitely look for ways to avoid paying for original content even if they easily can.
5. Genuinely Frustrated consumers are the ones who would prefer buying legit production, but they cannot afford as much as they have started consuming illegally (BASCAP, 2009).

The consumers of digital piracy perceive it a greater risk compared to buying traditional counterfeit products where it is likely that producers and distributors of fake content were the only ones liable. Digital piracy, even if at much lower rates, is perceived as a direct theft of content, and therefore consumers feel that they are liable for these actions. This awareness however is greatly diminished in many markets, both emerging and advanced, due to perceived anonymity online and weak IPR laws.
The digital piracy understanding and awareness is growing, even though unequally in different countries and markets. It can be argued that "awareness is critical for decreasing demand for counterfeit goods in the virtual marketplace, where a consumer can exhibit a rogue behavior with a limited fear of prosecution." (Chaudhry, et al., 2011) The awareness is however only one variable in the consumer complicity, which alone may not be enough if other factors, such as attitude, cultural and ethical values are not addressed.
USA market can therefore be said to have significantly lower consumer complicity towards digital piracy compared to developing and a number of developed countries. Cultural values together with actively enforced laws and educational campaigns have led to people being reluctant to participate in digital piracy.

3. 5 Fight against digital piracy

The digital piracy can be challenging to understand, identify and estimate as it is multilayered phenomenon. Furthermore intellectual property owning businesses realize that finding successful solutions against this illegal activity is just as difficult, as "management must grapple with many economic, legal, political, ethical, cultural, psychological, and systemic forces that affect IP theft and protection" (Nill & Shultz, 2009). Actions against digital piracy can be divided from two perspectives:

1. Government initiatives

The copyright protection laws are the backbone of legal protection for IPR owners, "designed to secure producers' incentive to create useful products in these markets" (Yoon, 2002). Governments have executed a number of initiatives along with laws to help protect intellectual property and reduce the impact of digital piracy. The World Intellectual Property Organization (WIPO) and World Customs Organization have developed programmes for improving enforcement of intellectual property rights (OECD, 2007). USA government has taken strong action by leading a number of operations to fight digital piracy aimed at dismantling illegal distribution channels and seizing the supply provided by certain pirate groups (Chaudhry & Zimmerman, 2013).

A number of government laws were also presented to help reduce consumer complicity. For example, in 2009 France Parliament passed and anti-piracy law called HADOPI Law, aimed at monitoring online infringements and sending notices to pirates with the possibility to bring them to court, which helped increase the awareness of the piracy (Danaher, et al., 2014). IPRED Law was developed as the European Union directive aimed at enforcement of intellectual property rights. The law allowed IPR owners to request for an identity of people from their internet service providers if they have reasonable doubt that person may be pirating. This law had a positive effect on awareness and contributed to a decrease in overall internet traffic (Adermon & Liang, 2014).

The demand enforcing laws are often not met with acceptance from consumers as they are perceived as limiting the freedom of internet and also invading the privacy of web browsers. The proposed US laws Stop Online Piracy Act (SOPA) and the Protect Intellectual Property Act (PIPA) were so widely disliked that the US Congress decided not to go ahead with a vote on either. The laws such as Anti-Counterfeiting Trade Agreement (ACTA) are also being massively protested against by the public (Chaudhry & Zimmerman, 2013). There is no denying however that accurately targeted government intervention towards demand-side of piracy can have positive results in raising awareness and reducing illegal download volumes (Danaher, et al., 2014).

2. Industry initiatives

The businesses sensitive to digital piracy must be proactive if they are to retain their sales and keep growth. Industry associations such as MPAA, RIAA and BSA[2] have all adopted certain anti-piracy actions to analyze the scope of piracy and enforce illegal distribution in certain markets (Sandovai, 2011). OECD identifies two major challenges in a fight against digital piracy (2007):

1. New and efficient ways of enhancing enforcement.
2. Raising consumers' awareness to reduce complicity towards piracy and issues caused by it.

A number of anti-piracy technologies and private firms' services have emerged to help identify and combat piracy. These technologies can identify illegally put content and send takedown notices to remove it (Sudler, 2013). These services however are costly, and IPR owners must analyze whether and to what extent should they exercise them. Resources allocated to protect the digital content depend on (Nill & Shultz, 2009):

1. Strategic importance of intellectual property.
2. The likelihood that it is going to be pirated.

The firms and industries alike should determine what products and in which markets they should protect against digital piracy and concentrate their efforts. A thorough analysis of net present

[2] Motion Picture Association of America; Recording Industry Association of America, Business Software Alliance

value, brand image, customer relations, strategic significance, competition and market environment is needed for firms to adapt correct anti-piracy strategies. Based on strategic importance and piracy likelihood A. Nill and C. J. Shultz define four levels of enforcement (2009):

1. Low strategic importance/ high likelihood of infringement	Cost-effective methods to fight and lower levels of piracy
2. High strategic importance/high likelihood of infringement	Establishing piracy into firm's strategy, using all available options to fight and lower levels of piracy and determining optimal levels of protection.
3.Low strategic importance/Low likelihood of infringement	Ignoring the threat.
4. High strategic importance/ Low likelihood of infringement	Observing the levels of piracy and establishing certain precautions to prevent piracy levels from rising.

Fight against digital piracy in terms of digital rights management, strengthening intellectual property rights and enforcing laws on consumers can also pose difficulties and eventually be counterproductive for firms and industries according to certain studies. Ineffective anti-piracy strategy eventually can lead to (Sudler, 2013):

1. Failure to prevent piracy.
2. Discouraging of legitimate buyers.
3. Increase cost of management and overall costs.

Sensitive industries' firms need to be aware of digital piracy and its impact to their businesses. Private and public sectors' combined effort can make digital piracy a more manageable threat, as "Solutions must not necessarily be driven to completely eliminate piracy, but rather maximize revenue in the presence of 'managed' piracy. " (Sudler, 2013). Furthermore, direct enforcement measures may not be effective and simply alienate the consumers. Consumer complicity can play a major role in managing digital piracy, and in many markets the consequences of pirating are not understood by consumers (BASCAP, 2009), it can be argued that fight against digital piracy

is more reliant on “consumers’ self-consciousness on morality instead of severe laws” (Tsui & Wang, 2012). Understanding what makes digital piracy so appealing to consumers and implementing it in the legitimate business models may be what is crucial for current legitimate business, “The solution is not to ban P2P at all as RIAA has been trying, but to leverage the power of this new technology and improve the market for all the participants” (Zhang, 2002). Both ignoring and fully enforcing digital piracy should be carefully estimated by firms, as an “increase in copyright protection will increase the social welfare by inducing more creative works to be produced, while it will decrease the social welfare by limiting the unauthorized use of the works by consumers.” (Yoon, 2002), digital piracy may contribute in certain indirect positive ways, such as network expansion, which will be discussed further in the upcoming chapters of the paper.

4. Theory of Innovation

Digital piracy definitely has an overall significant effect on sensitive industries worldwide (Chaudhry & Zimmerman, 2013). Sophisticated strategies to manage this threat are needed from both governments and industries. The piracy online however made certain radical changes as to how consumers search, browse and choose the digital content compared to previously mainly limited to hard copies' only distribution provided by main industry players. This illegal phenomenon quite possibly brought new innovations into distribution, marketing, pricing strategies and more. This chapter will discuss the theory of innovation and industry life cycles in the context of digital piracy.

4.1 Defining Innovation

"While normally we define uncertainty as a situation where the unknown may happen innovation is a process where we know that the unknown will happen". (Lundvall & Christensen, 2015)

Innovation is a certainly broad concept which nowadays seems to be everywhere and is often coined as the driving force of industries and economy growth. The term definition can vary depending on how and for what purpose it is achieved, and it is important to distinguish and identify different types of innovations in order to apply best innovative strategies for firms and government. Innovation in the broadest sense is attained by developing new products, processes or organizational improvements within the industry (Sengupta, 2014). Innovation is "the creation of something qualitatively new, via processes of learning and knowledge building" (Smith, 2005). This obtaining of required knowledge is essential for an innovation to be a success as "even the most conspicuous single innovation has its roots in accumulated knowledge and experience" (Lundvall, 1985).

The innovation is fundamentally different from invention in the aspect that it is built to be commercially viable, meeting a certain demand whereas invention is not required to have a practical use in the market and can be developed for a scientific and research purposes only with no visible and practical use or market creation (Garcia & Calantone, 2002). Therefore the

accumulation of required knowledge for successful innovation has to be connected with the needs of the targeted market. The innovation leads to new specifics of either improving existing or developing new products, making it a commercial innovation. These new specifics are relatively measurable in order to define the commercial value of innovation. The innovation does not necessarily have to be new, but more so perceived as new by the individuals applying it (Rogers, 1985). Something that is perceived as old and tested might be completely fresh and contribute majorly to different firms and industries.

The commercial innovation can be controlled by two major aspects which have unpredictable relations with each other:

1. Market forces. A demand that is changing due to financial, demographic and other reasons is likely to act as a motivator for firms to innovate and adapt to changing market.
2. Forces of technological and scientific progress. The inventions can provide a commercial use, re-define existing ways of products and services and provide entirely new ones (Kline & Rosenberg, 1986).

A successful commercial innovation is dependent on both of these forces interacting with each other. The start of innovation process is not confined to any of these forces, a technological innovation can be initiated due to a foreseen opportunity in the market as well as new invented technology can re-construct existing or build an entirely new market.

A thoroughly defined innovation is an "iterative process initiated by the perception of a new market and/or new service opportunity for a technology-based invention which leads to development, production and marketing tasks striving for the commercial success of the invention" (Garcia & Calantone, 2002). B-A. Lundvall described innovations as "the result of collisions between technical opportunity and user needs" (1985). The described collision is however more often than not controlled and anticipated. The innovators must have both market and technology knowledge available to succeed in commercial innovation.

4.1.1 Types of innovations

The innovation can be developed in different ways for multiple purposes. It can be said that "there is no single, simple dimensionality to innovation" (Kline & Rosenberg, 1986). The Schumpeterian model of innovation identifies five types of innovations:

1. Product. Innovation has been introduced into the market as a new product.
2. Process Innovation has been introduced into the production processes as a new way of doing things in order to achieve better existing product in either better quality or reduced costs. The process innovation can lead to new product innovations (Garcia & Calantone, 2002).
3. Organizational innovation. A change in management and/or structure of the organization that leads to market changes.
4. Market Innovation is an introduction or replacement of product to different markets, for example targeting new demographic groups or selling abroad the existing product.
5. Input Innovation is established when new materials and/or intermediate goods are introduced in the making of the product (Sengupta, 2014).

There is a wide array of innovations, and certain ones can be spurred with relatively small changes attained from new knowledge either from market insight or new technical, scientific opportunities. Four types of innovation based on the scope of change can be distinguished:

1. Incremental innovation. An innovation that upgrades existing product in terms of improved performance or lower production cost. (Evangelista, et al., 1998). These types of innovations provide relatively minor changes to the existing processes or products and are unlikely to pose discontinuity to the market but can be seen as competitive strategies by firms in mature established markets.

2. Modular innovation introduces new processes and/or technology into core design concepts providing a more severe change compared to incremental but leaving the existing linkages between the processes and components.

3. Architectural innovation combines components in different ways changing product configuration but without introducing any radically new technology into the existing process.

4. Radical or discontinuous innovation develops radical changes to firms or industries that may be in conflict with the existing investments and ongoing technology, structure, market position, etc. (Garcia & Calantone, 2002). This type of innovation develops a significantly different product or service from previously manufactured ones and is likely to involve radical new technologies. (Evangelista, et al., 1998). It involves both fundamentally new technologies and new linkages in the processes ultimately destroying the old existing structures (Magnusson, et al., 2003). This discontinuity along with a certain level of destruction is described as creative destruction – "the process by which old sources of competitive advantage are destroyed and replace by new ones" (Sengupta, 2014). Furthermore radical major innovations can develop benefits that transcend between industries and force changes even on the non-innovative, traditional and conservative markets (Kline & Rosenberg, 1986). For example, clothing industry has benefitted highly using laser technology for mass production.

4.1.2 Diffusion of innovation

The fundamental difference of innovation compared to invention is the purpose of it being applied into the market. Diffusion is "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1985). The diffusion of innovation is a complex and multi-layered subject comprising from several social and technological aspects (Tola & Contini, 2015), (Kline & Rosenberg, 1986). The outcome of innovation's success is highly dependent on communication and interaction between producers and users (Lundvall & Christensen, 2015). Therefore fully adopting a new innovation, even when it is clearly beneficial, is a difficult task. Certain innovations may be resisted due to social constrains, such as labor unions, ethical, cultural, conservative business models despite their simplicity of execution and predicted positive effect on the economy.

The diffusion of innovation always carries an amount of uncertainty, which implies a lack of information and predictability and might give setbacks to the execution of innovation (Rogers, 1985). This uncertainty can also be easily influenced by differences between current processes

and new ones, as the gap between the new technology and the existing one affects the rate at which innovation grows according to Schumpeter's innovation approach (Sengupta, 2014).

4.2 Unsatisfactory innovations

Certain innovations may become disliked and perceived as damaging industry despite a number of positive factors associated with them. These innovations either do not fully exploit the technology and/or knowledge it is based on, is not needed or poorly executed for the market needs.

B-A. Lundvall provided few practical examples where innovations may have been deemed as unsatisfactory (1985):

1. Dairy processing: hyper-automation	• Capital intensive, inflexible, automation oriented, few dominating producers. • High amount of users with a certain level of technical competence. • Standards imposed by producers rather than adjusting to the needs of users. • Automation driven process became unsatisfactory and not as cost effective as assumed.
2. Clothing Industry – Unexploited Technical Opportunities	• Technology innovations developed by a few major firms. • High amount of users with limited technical competence. • Main users are reluctant to apply radical technological innovations and are more interested in the production know-how rather than science know-how.
3. Software – Hyper-centralization	• Dominating producer which controls the central data processing capacity. • User needs undermined in certain ways due to over-centralization.

Lundvall's presented cases identified two key points which if lacking can make a viable innovation become unwanted and even potentially damaging the industry (1985):

1. Dominating producers and either competence or motivation lacking users.
2. Bad information channels between consumers and producers

These factors have led to innovations either being developed not in the best market interest or being perceived as such by users. This can cause both increased time of innovation diffusion and/or not efficiently targeted R&D costs. It can be said that the evolution of industries depends highly on selection mechanisms that determine which radical innovations are going to be applied into the existing procedures (Sengupta, 2014). These selection mechanisms can depend greatly on social and educational parameters in the industries and societies surrounding them.

Diffusion of innovation can be done via centralized diffusion system where decision making is done by few people at the head of the industry. A decentralized system means that there are a wide number of people, both consumers and producers, involved in the decision making and process of innovation adoption.

B-A. Lundvall describes two approaches to innovation process.

1. Unidirectional flow of information. A linear process that starts with research and ends with economic growth.

2. A demand based approach. A growing demand can pull certain technology and inventions to meet the increased need.

The author however describes them as inaccurate and proposes user-producer interaction as a more fulfilling non-linear approach to communication of innovation process (Lundvall, 1985). Kline and Rosenberg agree with Lundvall on Innovation non-linearity and provide three basic innovation aspects:

1. Innovation is not a linear process but one that involves multiple interactions and uses feedback to support innovation and continue the knowledge creation.
2. Innovation is eventually a learning process with multiple sources of knowledge, be it newly attained scientific knowledge or business intelligence.
3. Innovation is not dependent on inventions and the technology input is rather often used to support the market changes (Kline & Rosenberg, 1986).

It can be said that a successful diffusion of innovation takes a non-linear approach with constant interaction and learning process, obtaining all the needed knowledge to launch it in the market.

4.3 Industry life cycle

The processes of innovations and their diffusions can depend a lot on industry life cycles and firms' positions in it. The industry life cycle logic is often used by established large firms seeking for high-growth opportunities in new emerging industries and furthermore diversifying their markets and services (Mcgahan, et al., 2004).

The theory of life cycles indicates an industry's progression through emergence, growth, maturity and decline (Roy & Mcevily, 2004). Four main stages can be identified:

1. Fragmentation. The first period of industry life cycle consists of very high uncertainty, a lot of firms entering and exiting the market, entrepreneurship skills are significant, there are multiple technology alternatives as dominant model has not been defined yet (Murray & Tripsas, 2004).

2. Shakeout. Emergence of dominant model forces firms unassociated with it decline and eventually exit the industry.

3. Maturity. A dominant model is often accompanied by many incremental innovations and volume growth in its initial stage. However at certain point the growth along with possible innovations slows down and industry enters maturity stage. This stage can provide stability and profits for dominant model firms with high market shares.

4. Decline. An industry enters a decline stage once its aggregate sales volume lowers indicating the shrinking consumer demand (Mcgahan, et al., 2004).

Markets can mainly decline due to two reasons (Martin & Eisenhardt, 2004):

1. Evolution of the life cycle of industries forcing industries to decline at certain point.
2. Disruption or rapid structural change (emergence of superior technologies).

It has to be noted that neither timing nor duration of industry life cycles can be accurately estimated (Roy & Mcevily, 2004) as these phases are dependent on endogenous and exogenous events in the industries, such as innovation processes and changing forces of the market as well as disrupting new technologies.

The presented definitions and theories of innovation in this chapter will be used in analyzing the digital piracy in recording industry market. This paper aims to find out whether and to what extent digital piracy has acted as an innovation. Furthermore, identify what difficulties digital distribution had in diffusing it legally into market, which possible made it into unsatisfactory innovation, and whether its impact transformed recording industry in a new life cycle stage.

4.4 Digital Piracy as an innovation

"It must take a highly radically innovative product to cause discontinuity in the world. Few products have the inertial forces to accomplish this feat, although they do exist, for example […] World Wide Web" (Garcia & Calantone, 2002, p. 119)

There is a relatively low number of publications done in regards to digital piracy treated as innovating factor that produced new business opportunities for legitimate businesses. Possible reasons for low number of public studies may be due to a great deal of media, public relations and education being developed to reduce consumer complicity of digital piracy in first world countries (Chaudhry & Zimmerman, 2013). A positive output on digital piracy as innovating factor can be counterproductive in the fight against the piracy itself. Legitimate businesses, while still gathering business intelligence on digital piracy, rarely publicly releases information about it.

The main aspects that might separate digital piracy from other innovations can be identified as:

1. Digital piracy is an illegal activity, therefore it has an unfair advantage against legitimate business and their proposed business models.

2. Digital piracy can be a non-profit activity. In many cases the digital piracy is established by pirates who are not seeking profit and rather support the idea of free internet and global sharing. This contradicts with the understanding of commercial innovation, where an invention or an idea is targeted towards market and aims to be profitable. The digital piracy, while still maintaining possibility of being profitable to certain pirates, is not limited to it.

These aspects however do not completely undermine the idea of analyzing digital piracy as an innovation. It can be said that digital piracy emerged from new radical technologies and served the increased demand providing the enriched supply that the legitimate business could not at the time.

The Mckinsey & Company provided report on disruptive technologies define major technical radical and discontinuous breakthroughs based on four factors (Manyika, et al., 2013, p. 2). Digital piracy in the context of these factors can be defined as:

1. Technology is rapidly advancing or experiencing breakthroughs.	The expansion and technological change of digital piracy has been mostly driven by the expansion of World Wide Web. More users have become connected, virtual information sharing has become more and more global. Furthermore, the speed of internet has advanced exponentially, with the technology and tools of digital piracy evolving as well. While the first protocols were limited to sharing between two people (Napster), current peer to peer protocols give opportunity to share between multiple users enabling for a faster information retrieval. The piracy technologies have been developed to make owners not accountable for illegal distribution as well to avoid legal prosecution.
2. The potential scope of impact is broad.	Other types of product counterfeiting have been relatively tolerated by legitimate business often due to its limitations to local markets. The technology of digital piracy is as limitless as World Wide Web and provides ability to share content globally removing these restrictions.
3. Significant economic value could be affected.	The digital content along with its distribution, both legal and piracy, has created opportunities to new business models, worldwide distribution with very low marginal costs. While still there remain issues with digital distribution based business models as the upcoming chapters discuss, the potential economic value of this technology is undeniably significant.
4. Economic impact is	The impact to digital piracy to sensitive industries is difficult to estimate as was defined in the previous chapter, however it is agreed to be

potentially disruptive.	significant and cannot be ignored by firms and industries affected by it.

These factors prove that technology used by digital piracy provides radical and discontinuous worldwide changes and can be considered impactful to the economies and existing business models.

David Choi and Arturo Perez in their article 'Online piracy, innovation, and legitimate business models' provide an academical insight on how digital piracy may have served as innovating factor (2007). The study identifies four major aspects of online piracy that affected innovation and legitimate business creation:

1. Online piracy has pioneered the use of new technologies.
2. Provided valuable market insight. Rise of new technologies give new opportunities to monitor and analyze variety of data about users and their consumption habits.
3. Online pirates have contributed to new market creation. Digital piracy may increase overall social welfare and lead to expansion of legitimate markets and even the creation of new ones (Peitz & Waelbroeck, 2006).
4. Online piracy has directly and indirectly spurred the creation of legitimate and innovative business modes (Choi & Perez, 2007).

Lisa N. Takeyama presented positive impacts of illegal copying to social welfare and legal consumers. (1994). According to author, the illegal piracy can be a successful way to increase network size. Also the firm can "price discriminate" its production, where a number of users buy product and receive the full package while others illegally pirate it. This leads to positive Pareto improvement[3] in social welfare.

It has been commonly assumed that piracy results mainly to just reducing retail demand of the product as certain number of potential buyers retrieve the product illegally for free. Certain studies however argue that piracy increases the number of consumers, which gives a positive effect on products that rely on network extension, such as software and games (Conner & Rumelt, 1991), (Jacobs, et al., 2001). An increase of users, despite them pirating applications,

[3] Pareto improvement is an "action that benefits even a single person without harming anyone else". This improvement can utilize idle resources to optimize market.
http://www.investorwords.com/12231/Pareto_improvement.html

gives positive impact on the legitimate users through network extension. Sarnoff's, Metcalfe's, Reed's laws state that the network's value increases through its extension (Zhang, 2002). An enlarged user base for certain products may be very important, especially for firm's long term strategy goals. Furthermore this might be very important for emerging segments of the industry and even help establish dominant products (Jacobs, et al., 2001).

The digital distribution models complicate the different price strategies' models as essentially in a global World Wide Web market geographic and demographic parameters do not work as in traditional markets. Therefore firms are unable to price differentiate efficiently, making certain valid consumers not being able to afford the production (Peitz & Waelbroeck, 2006). Digital piracy in this situation can be identified not solely as a threat to sales, but also as a possible way to introduce consumers to the product and the brand with the possibility of making them customers in the future. Furthermore, the existing potential buyers will take into account the user base of products which are reliable on network and compatibility, despite part of this network consisting of illegal companies.

Firms that are reliant heavily in network effects for their products to be commercially successful may deliberately tolerate piracy and not apply effective protection against it (Peitz & Waelbroeck, 2006). Piracy can therefore be used as an alternative distribution channel to introduce consumers to the products and even contribute to getting a bigger market share as opposed to competitors' products that are protected from illegal distribution.

There can be found multiple examples where digital piracy has led to legitimate businesses finding new opportunities and being profitable.

1. Valve Software used illegally developed modification, Counter-Strike, of their owned game, Half-Life, to increase their profits (Choi & Perez, 2007). The company bought off the independent creators using their intellectual property and significantly increased their overall sales.

2. Microsoft setting the industry standard. The user base of Microsoft Office was crucial for it to become a dominant tool for administration purposes. The firm allowed a significant part of this user base to be from illegal copies, as compatibility was important for existing legitimate buyers. Furthermore, after establishing the industry standard, Microsoft has had an ability to provide legitimate only copies' additional support, features and even enforcement for illegally attained copies.

The digital piracy by majority of industries and business is viewed as a crime resulting in loss of sales, lack of profits, reduced incentives for innovation and possibly even bankrupting factor. Studies support the audio industry claim that digital piracy has been the main contributor to the declining legal sales and indicate that "pirated music is a strong substitute to legal music" (Adermon & Liang, 2014), however certain welfare implications can be found to the file sharing that piracy provides as this chapter has identified.

The digital piracy's brought technology and service can be viewed as an innovation that originated from new technologies and due to insufficient adaption from legal sector was used by illegal channels. The digital piracy given technology, mainly peer to peer networks, have exposed inefficient traditional music industry distribution models in terms of social welfare (Zhang, et al., 2011) and helped introducing new ways of distribution online.

One of major impacts that innovation can deliver is reducing the cost of units production and distribution (Sengupta, 2014), digital piracy, while illegally, introduced these ways of reaching global audience with limited to no costs where traditional distribution models either could not or were too expensive at the time.

Digital piracy is therefore a difficult phenomenon and can be described as a double-edged sword. On a negative side piracy can destroy legitimate sales and push firms to bankruptcy, on a positive side it can help product set industry standard increasing consumers' base and product familiarity (Sudler, 2013). The digital piracy therefore must be treated uniquely in different market situations.

It can be argued that in early emergence of digital piracy the industry giants have either ignored or diminished the factor of new technologies such as peer to peer, online streaming and more often than not adapted reactive innovation strategy, considering their old methods to be superior at the time. This paper does not incline that digital piracy is justifiable, however it presents positive aspects of this phenomena through the theory of innovation. Understanding a digital piracy not only as a direct theft of intellectual property but also as a new technology exploitation and markets' creation can help firms develop new business models adapting and even exploiting it.

4.5 Digital piracy in recording industry

The digital piracy has substantial effect on multiple industries and their markets. As previous chapters identified, businesses are affected by digital piracy through direct loss of sales, damage to their brand and reputation, loss of goodwill, trademark dilution and additional costs of protection to their IPR (Chaudhry & Zimmerman, 2013). Consumers are affected in a way that they have a much wider access and variety of content online which has developed and fueled increasing demand worldwide. Users however also face difficulties finding the desired content online in vast amount of data as well as myriads of fake and potentially dangerous content is available online. Governments face pressure from businesses to enforce IPR laws and at the same time lose in taxes' income and employment due to piracy.

Motion pictures, software and music have become most vulnerable industries by illegally distributed digital content online (Sudler, 2013). These markets have been majorly affected by rapid technological advances, which were not necessarily controlled. Digital formats of industry products, World Wide Web provided online distribution and shopping along with peer to peer sharing technologies have forced major players in these industries to acknowledge emergence of ecommerce and, other side of coin, illegal online piracy (Bhattacharjee, et al., 2007). This chapter will discuss more thoroughly how audio market was affected by digital content revolution and emergence of online piracy.

4.5.1 Recording industry

The music recording industry has been mainly oligopoly in USA, consisting of few major labels dictating the rules of distribution and promotion as well as releasing most popular albums. Minor labels have been struggling to receive wider audience for their content (Alexander, 2002). The global audio market was relatively stable during the end of last century, industry estimated continuous growth throughout 1990s with over $25 billion global sales in 1999 (Adermon & Liang, 2014). The new millennium however had a tremendous shift for music distribution which was either unanticipated or underestimated by the main players of the recording industry. The global music sales declined from roughly $27 billion in 2000 to $15 billion in 2010 (Danaher, et al., 2014). The emergence of digital piracy arguably has had a significant impact to this decline.

The music piracy has been present before, for example during 1980s, the illegal copying and distribution of audio content was being done in cassette tapes. Consumers taped their liked singles from radio and/or copied from other tapes, making illegal duplicates of songs. The quality of copied audio content however deteriorated with every single copy, making it hardly possible to mass produce. Furthermore, distribution of hard copies was limited to local markets.
The first introduction to digital storage for audio content arrived with compact disks in 1980s. These disks enabled consumers to use them on computers for storage and replay ability. This was still nowhere near as fast and comfortable as it is today (Alexander, 2002), furthermore the sharing between users was similarly limited to local amount of copying without the World Wide Web. Certain authors argue that music industry was over-inflated during 80s and 90s, due to limitations of sharing and consumers having only option to buy music (Swanson, 2013).

Recording industries were posed little threat by these limited in quality and distribution piracy business models and remained relatively tolerant for their operations (Sudler, 2013). The internet and digital content distribution however changed the game rules of audio piracy. The audio files could be copied limitless times with little to no loss in quality, and distribution became available worldwide, removing the implications of previous piracy attempts.
Three possible technological changes prior to digital piracy via MP3[4] files possibly have made influence in audio market:
1. The main format changed from vinyl to cassettes and later CDs digitalizing the content and therefore making its copying less quality costing (Zhang, 2002).
2. Cassette recordings and later CD re-writing players allowed the making of copies domestically and possibly contributed to the 'copying is alright' perception for music fans. The easiness to make copies with new technology increased consumer complicity towards what will eventually become digital piracy, even if it was just for relatives only and not a profit seeking activity.
3. Cassette and later CD players introduced first portable audio listening opportunities, therefore changing the market demand (Liebowitz, 2004).

[4] MP3 is a technology used to compress a sound recording into a small file and still preserve the majority of its sound quality. http://whatis.techtarget.com/fileformat/MP3-MPEG-Audio-Layer-3-AC3-file

4.5.2 Emergence of digital piracy

"The threat to the music industry is not MP3, but the arrival of a consumer distribution channel that is not controlled by the music industry." (Lam & Tan, 2001)

Online digital piracy entered audio industry mainly via first pioneer software called 'Napster'. This program introduced a revolutionary peer to peer technology enabling its users to share audio files in MP3 formatting between themselves worldwide simply by making their computer directories accessible for search and download for other users of the program (Tyson, 2000). This revolutionary software was built for three main functions:

1. Search and find MP3 files between users.
2. Share these files directly with each other, without the need of storage server.
3. Chat with users online to share information.

The software was introduced in 1999 by an 18 year old programmer Shawn Fanning (Swanson, 2013) and it quickly became very popular, possibly contributing to the decline in legit global audio sales. The lifetime of Napster however was not very long, in 2001 it lost the legal battle with the recording industry and was shut down (Adermon & Liang, 2014), the system was reliant on central servers to control distribution of files, which became targets for legal prosecution (Alexander, 2002). This relatively short lifespan of Napster managed to attract approximately 50 million consumers and (BBC, 2001) introduce them to peer to peer technology and its capabilities. The short existence of Napster did not diminish the effect and awareness of its service to the consumers. The revolutionary technology provided an access to almost unlimited amount of music online (Meisel & Sullivan, 2002). The consumers of Napster became distributors and marketers of their (illegally) owned music quickly propelling the service into millions of users globally.

Even with Napster shut down it quickly became evident that old industry established business models along with traditional albums' distribution may not be sufficient anymore to the changing demand and recently developed new technology to appeal to its evolved needs (Alexander, 2002).

New peer to peer software emerged, such as Ares, Gnutella, Kazaa, Emule protocols (Adermon & Liang, 2014), (Zhang, 2002) which were even more advanced and not limited to Mp3 only

files' sharing. Furthermore, this new software was developed to avoid legal prosecution that applied to Napster, being decentralized and able to shrug off accusations as users acted as both clients and hosts in the system (Alexander, 2002).

The currently leading peer to peer protocol in digital piracy, Bittorrent, was released in 2001 (Adermon & Liang, 2014). Its architecture allowed users to simultaneously upload and download parts of the files that they are sharing in a decentralized system making it a fastest way of getting wanted files compared to previous protocols. Bittorrent became extremely popular together with emergence of largest Bittorrent website, Piratebay.com in 2003. The increasing network size brought speed and availability of the content, making this protocol superior to others and increasingly threatening legitimate sales of piracy sensitive industries.

RIAA jumped into lawsuits to fight the emerging digital piracy along with evolving peer to peer technology. These IPR tactics however could be described as more of a delay rather than prevention strategy before audio industry could have identified possible efficient legitimate means of using peer to peer technology (Lam & Tan, 2001). It was becoming obvious that this type of digital distribution is here to stay, the main issue of recording industry was how to control it.

The fact that first peer to peer technology was developed only for mp3 audio files' sharing alone means that audio market was the first industry to encounter and adapt to the major emergence of digital piracy. There can be identified three other significant reasons why record industry markets were affected earlier compared to other sensitive industries:

- Downloading of music has been less technologically demanding compared to video or software content due to smaller digital size of content and simpler access of files. The MP3 format files dramatically changed requirements for storage and needed bandwidth speed for transferring audio content. These files managed to compress recordings' size 10 to 20 times of its original size (Alexander, 2002). MP3 files have become relatively small in size compared to software and video files, therefore consumers with lower internet speed could still share and download audio content online (Swanson, 2013).
- The market for singles was on a steep decline during 90s (Liebowitz, 2004). The introduction of MP3 format contributed majorly being a substitute to buying a single's CD. Consumers were likely to try out artists by listening to their singles with the

intention of buying full albums afterwards (Sudler, 2013), therefore an ability to try out this music for free, even if it meant borrowing a copy from a friend or eventually downloading it online, was not perceived as illegal or immoral, as long as it served the purpose of sampling the content for the consumers.

- Encryption of audio files to prevent from being distributed illegally has not worked so far as opposed to possible software and games solutions as licenses and serial keys, "The only way to make music that cannot be copied is to make music that cannot be heard" (Alexander, 2002). Legally bought audio content can easily be copied and shared without any encryptions or limitations.

It is also worth mentioning that music in general can be considered as an experience good with its value estimated only after using (listening to) it. This good is evaluated subjectively based on consumers' experience, personal taste and often current fashion trends or societal norms (Bhattacharjee, et al., 2007). The factor of experience means that consumers do not know before buying the good whether and how much they will enjoy it and its subjectively perceived value to them. There is an enormous amount of new albums from major and unknown artists being released every year. It can be argued that digital piracy's technology "helps to resolve the information asymmetry problem of music as 'experience good'." (Zhang, 2002), regular consumers may be reluctant to pay full price for an album before sampling any of the songs in it. Online sampling, be it legal or not, helps consumers gather information and experience the goods before purchasing them.

4.5.3 Impact to artists and labels

Digital piracy has definitely brought in a level of chaos and uncertainty into a rather stable and mature music industry with a difficult to estimate financial impact. Certain positive impacts however can be distinguished for either artists or labels by the piracy online:

Artists can use digital piracy to reach the targeted audience. Artists who create alternative music and/or struggling to reach their audience might purposefully submit their content for digital piracy and sharing in order to receive more recognition and build a fan base. "Several music groups […] went from obscurity to top 10 sales charts due to illegal p2p file sharing over Napster during the late 1990s." (Sudler, 2013). Illegal sharing can help less famous or upcoming artists reach their audience (Zhang, 2002).

Musicians can use digital piracy as an alternative to regular promotion services which are costly. Newcoming artists who are struggling to sign with major labels and receive regular promotion and marketing of their content can use online file-sharing to enter market with low costs and little investment needed (Swanson, 2013). Artists are therefore less dependent on major labels and their dictated rules of the market, giving more diversity to the industry and consumers

Labels and copyright owners can apply different distribution and marketing methods for their artists to target specific audience and share information with lowered costs (Peitz & Waelbroeck, 2006). A traditional way to inform potential consumers of a new album consists of large costs and is usually applied to mainstream popular artists. Digital copies however can act as samples and provide knowledge about artists for consumers in a very cheap way compared to traditional advertising at the expense of reducing a number of revenues.

Certain artists have applied extreme strategies in their distribution of music. The 'free' or 'name your price' distribution models have been introduced by Radiohead and used by artists, such as Nine Inch Nails (Tschmuck & Pearce, 2012). These models have no intention of having fixed fee on consumers by either price or advertisements and is aimed solely at distributing the content to widest possible audience.

This strategy is obviously not applicable for all the artists but rather for those who already built a strong fan base and are confident in these consumers perceiving their product's value high

enough to voluntarily contribute financially to it. 'Name your price' distribution model managed to expose Radio Head and Nine Inch Nails albums to widest possible range of consumers as of price range parameters (from zero to infinite), and it showed that there is a significant amount of consumers willing to pay for the product for the value they perceive to get, even if they are aware that they are not forced to. Furthermore, giving away albums for free may be a long term strategy of an already established artist as it "creates a strong promotional effect raising the artist's popularity and brand value, which positively influences other revenue streams" (Tschmuck & Pearce, 2012). Artists can use free distribution and illegal piracy to increase their network of fans and build their image which afterwards can be exploited via concert tickets and new, priced album releases.

The emergence of digital distribution online both legally and pirated has changed the rules for traditional business models of record companies. The age where labels own majority of property rights due to distribution and marketing costs might be over (Peitz & Waelbroeck, 2006), as digital distribution models create an opportunity for new, emerging artists to distribute and share their content themselves via different, independent distribution channels.

The enhancement in audio sampling opportunities however can act as double-edged sword. The internet provides not only worldwide files' sharing opportunities but also discussions, comments and general feedback on a global level, "Word-of-mouth, now spread electronically, can significantly impact the consumption decisions of potential customers." (Bhattacharjee, et al., 2007). Critically acclaimed production may benefit from illegal sharing and consequential feedback, which not only creates fan base but eventually leads a significant percentage of them going and purchasing the albums legally due to perceived value. The less successful content however may be doomed by negative feedback and lose sales from curious consumers who would otherwise try the product, but are now reluctant after finding negative feedback from online communities and their information sharing (Bhattacharjee, et al., 2007). Eventually digital piracy provides more exposure to the content through free sampling. People can easily communicate, share feedback, sample music online for free before paying for it.

4.5.4 Impact to consumers

Digital piracy can arguably be stated as beneficial to consumers and social welfare through bigger exposure, broader reach and sampling of content. Also it has provided an opportunity for poorer users to experience content which they would otherwise not be able to. On the other hand, digital piracy have contributed gravely to the reduction of record industry incomes, pushing certain labels and artists to near bankruptcy and therefore possibly reducing the overall new content released.

The enormous amount of content illegally available online however is not without issues. Searching for certain artists and/or interesting audio content can be time consuming in often poorly structured pirates' databases. Furthermore, file names can be deceiving and files themselves can be corrupted (Peitz & Waelbroeck, 2006), making users waste time downloading fake content and even possibly jeopardize their safety by accidentally attaining malicious software from shady illegal download websites.

These factors may reduce perceived value of illegal copies to the consumers, making original copies a better choice at higher cost. Whether perceived value of original content is higher than the value of illegal digital copy with lower or no cost depends on the how user values his time spending online searching for content (Peitz & Waelbroeck, 2006). For example, a busy working parent of two children will more likely buy content online safely and instantly rather than spending time searching for its illegal copies and risking downloading bad quality/fake content. A student, on the other hand, might not have money to buy digital content with more free time and possibly skills to search for content online, making digital piracy a more suitable choice for him.

Legal digital distribution models can use these issues for their advantage, providing better, efficient search, suggestions' engines, ensure high audio quality and no fake/damaged content. These aspects can greatly increase perceived value of legal audio market and attract certain segments of digital pirates.

Digital piracy has helped consumers to experience different new platforms of listening to music, as no longer they were tied to listening to CDs and/or radio stations (Wejters & Goedertier, 2015). Users could now download or stream music which they wanted. New music acquisition models such as streaming are becoming increasingly popular.

Pirates of audio content can be divided into (Dorr, et al., 2013):

1. 'Savers' – perceive the legally distributed content to be unfairly expensive.
2. 'Samplers' – wants to experience and preview the content before making a decision whether to buy it or not.

B. Wejters and F. Goedertier have identified four types of music consumers based on their usage frequency and different platforms of listening to music using data from survey on Belgium consumers (2015):

1. All-round users (9.9%)	Around 34 year age group. Average music involvement, least price sensitive.
2. Traditionalists (33.7%)	Average 46 year group. Lowest internet use, expertise, music involvement.
3. Streamers-downloaders (20.7%)	Average 30 year group, highest student subgroup. Highest music involvement, internet use and expertise.
4. Light users (35,6%)	Average 40 years group. Internet expertise and music involvement is high, internet use and average price sensitivity.

This segmentation can provide important insight into the future of consumers' needs and how music distribution businesses should approach them. The 'traditionalists' group, while still significant, is likely to decline, as it consists mostly of older, less interested in music, users compared to other groups.

All-round users are likely to use all platforms for moderate usage in order to fill their needs.

'Streamers-downloaders' group's emergence has been likely affected by digital piracy, these users have had a high demand for music in different platforms (CDs, downloads, streams) and will continue to look for ways to satisfy these needs, be them legal or not.

Light users have similar knowledge and interest in new platforms but less demand for the content and, while preferring legal options, may be looking for limited services rather than premium and higher paid. Data from this study shows us that 3 out of 4 (66.2%) consumers' segments are subjects to digital piracy. The impact therefore to users' music consumption habits is tremendous, as digital piracy has provided alternatives that consumers have been longing for and are now willing to exploit, legally or not.

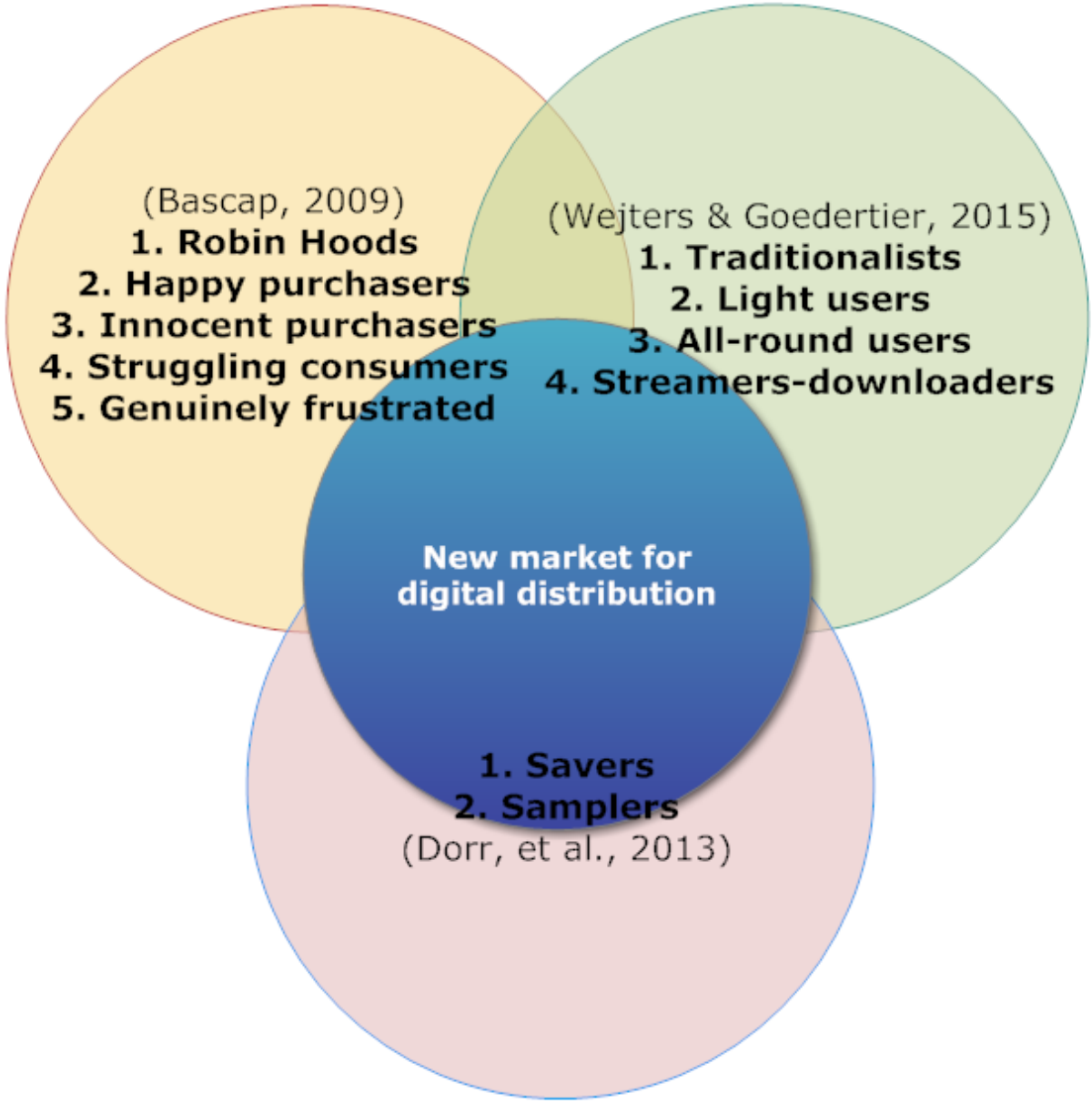


Figure 2: Market for legal digital distribution music business models

Different segmentations of both music consumers and pirates provide an insight of a new emerging market for legal digital consumption of music. Digital piracy has been a major contributor to new types of consumers and overall increased demand for content. The record industry market has evolved from mainly 'traditionalists' dominated consumers' demand into three additional types of users, who are prone to using other platforms and likely to consume music in digital form. While this does not directly lead to demise in traditional album sales, it can be argued that 'traditionalists' group may decline faster in the face of emerging new alternatives (Wejters & Goedertier, 2015), giving rise to all-round users' group.

Certain current piracy consumers' groups are prone to use legal services once they recognize them to have same or higher value as digital piracy and are perceived as reasonably priced.

Ideologically driven 'robin hoods' and 'happy purchasers' are likely to be most resistant in trying legal digital distribution models as they perceive piracy to be superior and justifiable compared to legal distribution.

Digital piracy has significantly affected samplers' segment, giving rise to a new content demanding consumers who previously were unable to sample music in traditional distribution models. It can be said that savers' group were relatively low participating as consumers in traditional distribution models' based audio market. Peer to peer technology provided options can vastly lower costs to sample and gather information about music for potential consumers (Bhattacharjee, et al., 2007), giving digital distribution models an opportunity to target majority of market segment groups.

4.5.5 The key effects of digital to the recording industry

The digital piracy has affected recording industry via:

Positive effects	Negative effects
1. Possibility to increase audience for artists and build fan base. Piracy usage as marketing.	1. Loss of legitimate sales.
2. Targeting audience with low marginal costs for both artists and labels.	2. Negative feedback can further damage the amount of legitimate sales for struggling artists.

3. 'Price distribution' model to reach broadest possible audience.	3. Difficulty for consumers to find the liked content in the often unstructured databases of illegally distributed content.
4. Free sampling opportunities for consumers.	4. Risk for consumers to download bad quality/damaged or fake content.
5. Information gathering opportunities for consumers.	

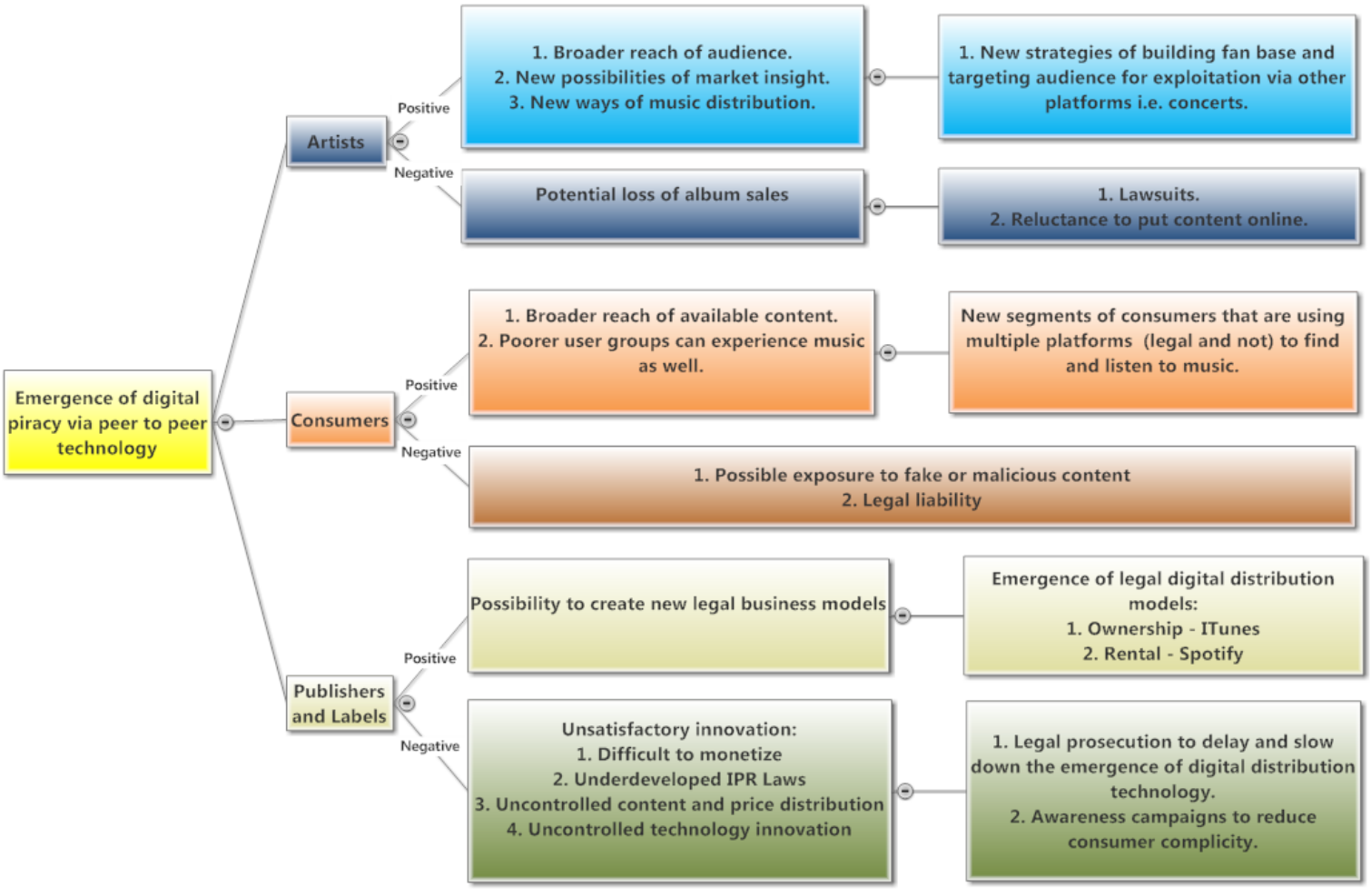


Figure 3: Impact to recording industry table

The digital piracy has affected recording industry in numerous ways as can be seen from Figure 3 table. Publishers and labels perceived the peer to peer technology as a possible opportunity for new business models. The underdeveloped legal areas, pricing and monitoring technologies however made this innovation difficult to apply into legal market making it an unsatisfactory innovation for legitimate businesses. On the other hand, consumers enjoyed the vast amount of content available online and the amount of pirates quickly rose. New segments of consumers emerged as gradually users became involved with multiple (legal and not) platforms in order to satisfy their increasing music demand needs. Legal prosecution, awareness campaigns and educational programs emerged in order to slow down and control the growth of digital piracy. Majority of artists were dissatisfied with globally increasing digital piracy, considering it as a direct theft of their intellectual property. Eventually certain ways of exploiting digital distribution evolved, and certain artists have established new marketing, pricing and branding strategies online.

Gradually legitimate digital distribution business models emerged, such as ITunes and later Spotify, which became successful in lower consumer complicity and strengthened IPR countries, providing legal alternatives to digital piracy for music consumers.

Looking from the industry life cycle perspective it can be said that recording industry market had attained maturity before digital piracy emerged. The market was controlled by few giant companies using traditional distribution and marketing business models and attaining solid incomes. The digital piracy possibly has plunged the recording industry into a new fragmentation stage where companies are developing new business models to monetize and profit out of digital distribution. The emphasis for industries should not be on preserving old and stable but possibly declining markets but capture emerging opportunities provided by new radical changes such as digital market evolution (Martin & Eisenhardt, 2004).

ITunes has been the first to provide dominant digital ownership model, becoming leader in legitimate digital sales (Swanson, 2013). Spotify is currently exercising the newest process of digital distribution, streaming service, which enables firm to quickly expand in markets and achieve high growth.

Peer to peer technology driven emergence of online piracy has acted as a major disruption to a mature and stable recording industry market. The disrupting technology can be compared as a radical process and market innovation:

1. Process – The distribution of audio content online can infinitely reduce costs of manufacturing, distributing and marketing compared to traditional hard copies' album sales models.

2. Market – Digital distribution enabled for an increased demand of consumers globally. Furthermore, new segments of users, prone to reach audio content digitally through new platforms, emerged.

Unfortunately the difficulties to control this technology have led to it being deemed as unsatisfactory innovation, which resulted in actions to delay the diffusion of innovation, such as lawsuits and digital rights management. Consequently, financing anti-piracy services and legal prosecutions may have reduced firms' innovative capabilities and R&D resources that otherwise could have been used adopt technology and processes of piracy services.

It can be said that digital piracy emerged driven by new technology and expanded as a market driven one. The greatly increased demand has left recording industry with only way to adopt this technology and produce legitimate alternatives rather than ignore or enforce the digital distribution of music.

5. Spotify case

5.1 The company

"Spotify and related music streaming services represent a window into the future of the music industry." (Swanson, 2013)

Spotify is a legal commercial digital distribution service that allows its users search, listen and explore vast amount of content from its library, ranging from mainstream to independent artists worldwide. This service was introduced in Sweden 2008, October. Its founders Daniel Ek and Martin Lorentzon realized the opportunity to develop something to be both commercially viable and act as a direct counter measure against digital piracy (Swanson, 2013).
Daniel Ek, the main entrepreneurial drive force behind Spotify, had been the C.E.O. of uTorrent, the application being majorly used in Bittorrent network and exploited in illegal sharing. While uTorrent made revenue by monetizing certain content being shared, it was still perceived as more or less piracy network. In 2010 Sean Parker, co-founder of Napster, joined Spotify with the goal to expand the service into USA market and challenge ITunes (Seabrook, 2014). To labels' and publishers' surprise two entrepreneurs previously massively involved in developing technology that was the backbone of digital piracy were now cooperating to make a commercial digital distribution model and fight digital piracy at the same time.

The Spotify audio stream business model's aim is to attract people to use this service who otherwise would download music illegally or use other digital distribution models such as ITunes. In most basic understanding Spotify operates as a radio station, where every user has an individual ability to program and pick what he wants to listen at the moment.
The establishment and success of this business model has relied on three major objectives:

1. Spotify had to build **a considerable amount of music available** so that users would feel similar freedom of choice as they have in illegal peer to peer networks. The Company had major difficulties with gaining licenses for other countries to stream the music. Copyright holders, being constantly ripped off by digital piracy, were reluctant to deal with entrepreneurs who

developed the very same technology that is being used by pirates (Seabrook, 2014). The labels were distrustful of the service due to its free of charge usage option, which they perceived as a threat to legitimate digital content sales. It took time and required success in Europe countries before Spotify managed to enter USA market.

2. A free of charge usage option was needed not only to introduce consumers but to build the overall user base, with the prospect of these users becoming premium once they realize the value of service. (Spotify Ltd, 2013). Expansion of user base in this type of service is crucial for this business model to work. An increase of users, despite of them contributing relatively less as an ad-financed, contributed greatly to overall increase of user base and popularity of service, which positive network extension effect attracted more paying users as well.

3. A technology capable of sustaining a fluid streaming service. The goal of Spotify was to build application that streams instantly without any visible delay to the consumer (Seabrook, 2014), making the vision of having all of the music instantly available come true. The new streaming protocol design was needed to establish that.

Spotify has been succeeding in these three objectives so far, expanding throughout Europe and eventually USA. The firm has experienced an exponential growth with current rate of nearly 8,000 new subscriptions per day and has been valued at 3 billion dollars by 2013 (Swanson, 2013). Currently this audio streaming service has attracted 60 million consumers in 58 countries, out of whom 15 million are premium users and contribute with monthly payments (Spotify Ltd, 2013)

5.2 Technology

"The problem with the music industry is piracy. Great consumer product, not a great business model. But you can't beat technology. Technology always wins." – Daniel Ek (Seabrook, 2014)

Spotify had to adapt and develop new revolutionary technology to start a successful streaming business. Other major players of music industry, such as ITunes recognized streaming to be one of upcoming possible major trends in the future, but disregarded it as technology was underdeveloped for it at the time along with internet bandwidth limitations in many countries. It was up to Spotify to pioneer this service along with other emerging streaming companies in the audio market.

The main challenge of this service was to achieve low latency – consumers should not have to wait for their requested tracks to download before streaming them, this process must be seemingly instant in the eyes of the users, just as if they have all the music in their hard drive. The key here was to stream under the timeline that human being perceives as a delay, Daniel Ek defined it to be 0,2 seconds (Seabrook, 2014). The core technology to achieve this streaming speed and efficiency of Spotify service was developed to be supported by three main sources (Yanggratoke, et al., 2013):

1. Spotify storage system provided by its backed servers. These servers are the backbone of the firm, providing audio streams to users for all available content, running playlist management, music search, social functions, data gathering and analyzing functions.
2. Client's local cache. The recently played content is temporarily stored in consumers' device, allowing it to be replayed without re-streaming entire content, therefore reducing Spotify servers' load and required internet bandwidth.
3. Assisted peer–to-peer technology allowing to stream parts of content from other consumers reducing the load of Spotify servers. The importance of this technology is increasingly important in streaming services and future of internet traffic in matters of resources sharing and streaming with low playback latency (Liu, et al., 2014), which are crucial for Spotify service. Furthermore, it can be said that this system is supported by network extension effect, meaning that with more users online streaming, they contribute their own internet bandwidth to maintain low latency, quite similarly to illegal sharing platforms.

Spotify collects vast amount of data where, how and when its users listen to music (Seabrook, 2014). Online streaming, unlike traditional albums' sales or even digital copies' offline listening, can easily track consumers' behavior and use this data to provide best and most suitable suggestions for the users. Spotify is now interested in not only users' music choices but their overall online profile, in an effort to combine play preferences' data with users' social information, i.e. Facebook profile, providing exponentially more opportunities for data mining (Seabrook, 2014). All this big data can provide huge opportunities for both advertisers and labels as well, providing insight into their target audience.

5.3 Business

"Spotify doesn't sell music; it sells access to it." (Seabrook, 2014)

Spotify provides a music streaming service which allows its users to listen to millions of songs available in firm's database with any web-connected device, and do so legally, with a monthly fee or free of charge (Swanson, 2013). This digital distribution model fundamentally works more as a rental subscription based service rather than ITunes digital content ownership model, as consumers pay for the service of listening to songs rather than the rights to own them. J. Dorr defines this type of distribution model as MaaS – Music as a Service, which is characterized by two main features (2013):

1. Music is not downloaded but streamed while being consumed.
2. Users pay either a subscription fee and/or are part of ad-financed service instead of being charged for the used content.

MaaS provides music streams to users when they request it out of its library, the users themselves neither permanently have the content stored nor own the rights to have it. This type of service establishes intangibility via digital distribution serving as a broker (Dorr, et al., 2013). Users can 'rent' all the available music in its database for a flat rate fee.

Spotify streaming service also thrives on its recommendation system engine to give its users the best experience of surfing their libraries and exploring music. Spotify lets users generate and share their own, as well as try others' and company itself has generated hundreds of playlists,

seemingly for every occasion and everyone's taste. The extra abilities to explore and share music between users are appealing to consumers and often are perceived as the features that contribute to the extra value compared to illegal downloading (Dorr, et al., 2013).

Spotify provides vast amount of music content from both major labels and independent studios. Users of Spotify can access all its content for free, using a "Freemium" ad-financed model, which gives the same unlimited access to the available content, however provided with advertisements in the forms of audio or pop-ups.

A premium model allows users to skip commercials, can offer higher bit rate streaming and offline access to the content for a monthly subscription fee.

Spotify provides free options for consumers in USA market (2013):

Freemium	• Access to all of available catalog. • Interruptions of audio and video advertisements while using application. • No ability to use the application offline, download songs.	Free of charge
Spotify unlimited	• No interruptions of advertisements.	4,99 dollars per month
Spotify Premium	• No interruptions of advertisements. • Ability to temporarily download songs to devices and listen offline.	9,99 dollars per month

Spotify identified that on average more than half of USA consumers do not spend any money on music, while the remaining users spend only about 55 dollars annually for products and services of this industry (Spotify Ltd, 2013). Therefore Premium users contribute more than two times compared to the average USA music consumers based on these statistics and can help music industry diminish the losses of declining traditional sales.

5.4 Artists and Labels

"The end goal is to increase the entire pool of music. Anything else is part of the transition." – Daniel Ek (Seabrook, 2014)

Spotify distributes back 70% of its earnings to music owners, which can be both major labels and independent artists. The labels and/or artists usually pre-negotiate the share rate which they will receive for each stream of their owned content (Swanson, 2013). The artists and labels are somewhat divided in regards to Spotify business model:

1. Artists and labels that dislike the digital streaming model. Main arguments against this service are that it does not pay sufficient for artists and content rights owners, does not work in the interest of artists and cannibalizes the traditional album sales being not much different from digital piracy.

Prominent mainstream artists have withheld their music from Spotify stating that payments are unfair and this digital service destroys album sales (Swanson, 2013). Taylor Swift decided not to make her newest album '1989' available on Spotify and furthermore has removed all of her content from the platform. She based this decision on opinion that streaming and digital file sharing has cannibalized album sales. The Swift's album was year's top seller and at the same time number 1 in Pirate Bay illegal sharing platform. Album's legal sales, while topping current other artists, were nowhere near all-time highs of traditional album sales (Seabrook, 2014).

It is difficult to estimate whether and to what extent digital distribution (legal and illegal) affects traditional album sales. Certain consumers' groups may always prefer traditional purchasing methods, as they perceive higher value in owning hard copies and are unlikely to revert to other consumption platforms (Wejters & Goedertier, 2015). The emergence of new platforms however may eventually affect the balance of these segments, as emerging younger generation is more demanding for access to content and accepting new platforms of music consumption.

2. Artists and labels that enjoy this service and feel that they have much to gain from it.

Other artists however enjoy their music exposure to wide audience, gain valuable insight about their fans and the payment model per play as an alternative to digital piracy where they receive

no income. Major hits, such as Avicii's "Wake Me Up" with hundreds of million streams gained millions of dollars in royalties, popular indie artists like Chvrches, Mumford & Sons and many others are also satisfied with the service and extra income via royalties.
Lorde's first hit 'Royals' gained much of an audience using Spotify in early stages of artist career. Word of mouth advertising along with Spotify users sharing their playlists contributed to Lorde's success and arguably helped her achieve worldwide fame.

It is important to note the fact that majority of artists have been struggling to make a living in traditional markets prior to digital piracy and streaming services (Swanson, 2013). As much as 97,9 percent of albums do not contribute any income to artists as all royalties end up financing initial investment in album's creation and distribution. Touring similarly is profitable to high paid artists, small acts however struggle to break even financially during tours. Therefore it can be said that while digital distribution gives new opportunities for artists to distribute and market their content, it should not be implied to bring significant profits and possibly not be the main source of income, rather a supplementary one. Highest paid artists nowadays are the ones who are giving world class tours, the album sales might just be the thing of the past. The digital distribution model helps grow fan base around the world, furthermore artists can easily use its data to know where they can successfully tour, what audience they can expect, even what songs they should play. The data is here, all that is needed is to use it.

The major labels such as Sony may use their vast amount of copyright owned content as leverage and negotiate higher share rate compared to independent studios and even attain company shares. Spotify is dependent on its vast amount of music available in order to attract its consumers and be a competitive streaming service. Major labels and copyright owners in these cases can retain their influence in this digitalized market, as opposed to overall perceived idea that digital distribution decentralizes and reduces the overall role of labels, as artists are less dependent on them. Furthermore labels keep their own royalty-payment system on how they pay their artists (Seabrook, 2014). While the new ways for consumers to find and legally listen to music have emerged, the ways artists are paid may still be very well underdeveloped, proving it difficult for them to be paid fairly. Artists may as well want to sign up with major labels in order to gain

higher share rate, even though certain artists have been created profitable distribution and marketing strategies on their own.

5.5 Consumers

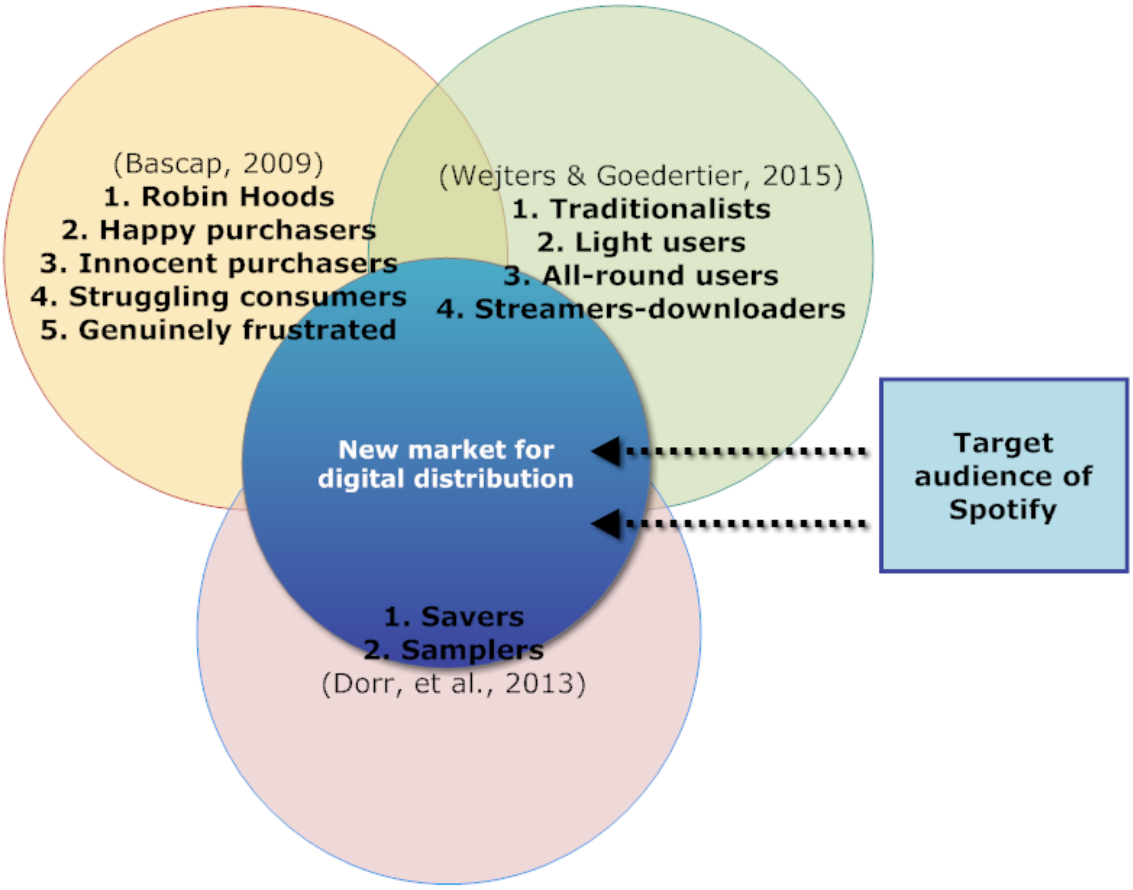


Figure 4: Spotify market table

Legitimate audio streaming business such as Spotify can support the fight in anti-piracy by providing legal viable alternatives to consumers who are used to freedom of access and vast amount of content available with the click of the button online. This service may not be for everyone, as consumers are eventually 'renting' the music by streaming as opposed to owning it indefinitely. B. Wejters and F. Goedertier (2015) study provided consumers' segments can help identify the possible targeted consumers for Spotify. 'Traditionalists' will likely prefer to own their desired music and use traditional consumption methods such as buying CDs. Other

segments, especially ‘streamers-downloaders’, are most likely to benefit from trying Spotify service. Freemium product can be interesting for all groups to try and/or use the service to meet their moderate music consumption demand. Both ‘all-round’ users, relatively insensitive to price, and ‘light’ users, more prone to legal acquisition, are possible future premium subscribers once/if they perceive service to be valuable enough for their specific needs. Many of ‘streamers-downloaders’ may not be willing to convert to premium and pay for services, however eventually a fair share of these of users are likely to perceive their music consumption and demand to be high enough for them to pay subscription fees for a superior to free (digital piracy and/or freemium) service.

An investigation executed in Sweden, 2009 about consumers’ audio file sharing and music consumption habits provided evidence to support this statement. 60% of interviewees stated that they have reduced or stopped altogether their illegal file sharing habits due to the law reform and the emergence of Spotify with other audio streaming services (Adermon & Liang, 2014). Sweden’s case provides a good example how government anti-piracy laws and new viable business models that manage to use the technology can successfully combat piracy and do not diminish social welfare.

Dorr (2013) provided study on potential MaaS users identified that the attitude of music consumers to try out these types of services is significantly influenced by provided recommendation engines and flat rate (or freemium, ad-financed fees). Users also positively react to reduced time and cost to search for wanted content as well as increased morality when using a legal service and therefore contributing to the industry compared to remaining digital piracy users.

5.6 Conclusions of the case study

"Imagine a world where music flows all around us, like water, or like electricity, and where access to music becomes a kind of 'utility Not for free, per se, but certainly for what feels like free." (Kusek & Leonhard, 2005)

The Daniel Ek and Sean Parker had a vision that separated the technology and digital piracy which traditional recording industry distributors may have had hard time in doing. Both of these programmers' made entrepreneurs have agreed that digital piracy has negative impact on industry and should be combatted. However they saw the radical new technologies, such as peer to peer revolution through Napster and later uTorrent, as an unexplored business opportunities rather than something to be banned and forgotten as music publishers have been trying to for over a decade. Daniel Ek developed a legitimate business model exploiting much of the very same technology that illegal online sharing is driven by (Seabrook, 2014).

The vision, that started Spotify, was not to make something entirely different from what piracy was doing, rather to make something better than it, taking the best practices, such as peer to peer technology and the already established and hungry for digital content demand, and provide them with service that eventually creates perceived value high enough for a consumer to be willing to pay for it, even knowing that alternatives, be it legal or not, are free. "For him [Sean Parker], Spotify was a do-over- a second chance to get Napster right." (Seabrook, 2014).

Spotify exercised methods of freemium models, recommendation engines and social options. These innovations managed to increase perceived value of Spotify service compared to digital piracy for its users (Sudler, 2013). The digital distribution streaming model is an example of how a legal content can make piracy perceived as inferior again in the eyes of consumers.

Spotify works similarly as internet itself with both legal and illegal platforms, a medium where music, an experience good, can be tried, listened, shared and discussed, leaving an option for fans to buy albums afterwards. The crucial difference is that artists are rewarded, even if insufficiently or unfairly at the moment, they still receive money from sampling, and can furthermore use the data to understand their audiences better. Even if Spotify business model would succumb to the fierce upcoming competition, needy labels and artists or even further evolution of digital piracy it still has showed the world that legal digital streaming businesses can

be created for the global markets that surfaced due to risen demand influenced by digital piracy. Furthermore these services can provide opportunities that traditional distribution models could never do. This however does not imply that artists will have an easier time of reaching their target audiences, or will be able to make a living out of streams. However, artists and labels that choose to ignore this trend will be more and more likely to be left at sidelines of this expanding, technology and consumption driven internet community.

6. Conclusions

This study aimed to analyze digital piracy as a means of innovating recording industry market. Digital piracy has caught a lot of attention as an increasingly growing threat to the sensitive industries. Many studies confirmed digital piracy to negatively impact legitimate sales and businesses (Chaudhry & Zimmerman, 2013). A number of articles however also identified a certain positive effects that digital piracy can bring in a sense of social welfare, new business opportunities and possible innovations (Choi & Perez, 2007) (Dorr, et al., 2013).
This study supports D. Y. Choi and A. Perez (Choi & Perez, 2007) findings and proceeds to show that digital piracy can act as an innovating factor in recording industry pushing new technology and eventually transforming previously stable and mature market into digital revolution.

The third chapter of paper has provided a more explicit insight into digital piracy and how it is perceived by users and producers. The findings state that, while being potentially damaging and definitely illegal, there are benefits to the existence of digital piracy either from social welfare or business related, as an unofficial price differentiation, sampling and introduction of new products, network extension and new market opportunities' insight gathering. The peer to peer driven digital piracy can be viewed as a byproduct created by revolutionary sharing technology that was not viable for legitimate businesses at the time of its emergence.
The direct damage to industries however must be addressed and controlled. Two main effective strategies can be defined:
1. Lowering consumer complicity towards free downloads. If users understand that they are eventually stealing and, furthermore, can be caught and hold accountable for their actions, they are more reluctant to pirate.

Furthermore, anti-piracy campaigns could educate consumers on the number of viable legitimate alternatives, such as Spotify, that can supplement their demand for music and support artists and labels altogether. Naturally government should not act as a marketing agency for these services but could find a way to educate consumers about viable emerging legal alternatives.

2. Increasing perceived value of legitimate product. The better legal alternatives to piracy can be a direct countermeasure as indicated by globally rising digital sales (Adermon & Liang, 2014), (Sudler, 2013). If users perceive that they can gain more from legitimate download, also they find it supporting the product, artist, studio they like, they would more likely purchase the product given the opportunity even if they have downloaded it illegally before.

The internet piracy history has showed that before enforcing the illegal distribution channels and content sharing platforms, firms should establish a supplementary comfortable legal ways for the users to get their products. The ever demand increasing culture of consumers will find and exercise a best way of getting the content, and in many cases they are willing to pay for the service as long as they perceive its value to be high enough.

The explicit overview of digital piracy in the third chapter helped to identify areas where digital piracy has acted as a possibly innovating factor and furthermore, where legitimate business could aim to exploit digital piracy developed opportunities.

The fourth chapter identified the key areas radical impact of digital piracy to the recording industry market. The suddenly emerged online piracy with its revolutionary peer to peer technology has shown a possible online distribution model with vast ecommerce abilities, as well as additional insight and knowledge gathering for both producers and consumers. The digital piracy provided a radical process innovation introducing a technology that can distribute content digitally in a cheap and effective way, globally and instantly. Consequently this new distribution model has radically affected the existing recording industry market, making it possible to target previously unapproachable segments of market. Furthermore entirely new types of consumers using the content via multiple platforms have emerged, providing opportunities for new business models.

The difficulties to monetize the system brought in by digital piracy however made it into an unsatisfactory innovation for artists and labels, launching a series of fights against illegal piracy by traditional labels and many artists. Certain companies and entrepreneurs however have found opportunities to develop a new business models monetizing and making a profit out of the digitally evolved market. Recording industry has been gradually shifting its services to appeal to changing demand and as a result it made 32% of their total income via digital distribution models (Dorr, et al., 2013). Furthermore, major labels and publishers have acknowledged the rise of new

digital distribution models and leveraged to attain shares of prominent companies, such as Spotify. This enables major labels to retain influence in the recording industry markets and diversify their markets and services with reasonable expectations of high growth in digital distribution to compensate traditional sales' declines.

The fifth chapter builds an instrumental case study of Spotify, one of the currently leading audio streaming business models today. The creators of company realized the potential brought in by digital piracy and used it as an opportunity to develop a new approach of selling music.
The interesting case here is that Spotify was created and developed by the very same people who have created and/or worked with the technology most widely known and used for piracy – peer to peer (Swanson, 2013). While the traditional audio industry players were reluctant to embrace new technology and adapt their business models the inventors took it upon themselves to carry their inventions into radical innovations for audio industry. This example shows how a radical technology that provides great social welfare service to the community will still be used, either by legal business models or by pirates.

Spotify has emerged as a company to fight digital piracy by bringing a portion of pirates and their consumptions to legitimate use of music via streams. This purpose has helped Spotify attract a number of artists and labels as well as consumers. Financially struggling records' owners were willing to sell their IPR in order to receive at least portion of sales lost due to digital piracy. Consumers that were conscious of piracy being illegal and potentially damaging the industry were satisfied to legitimately consume music as long as these services provided the same quantity and quality as illegal piracy does with reasonable perceived pricing structure.
It could be argued that Spotify would have had a more difficult time to emerge if the digital piracy were non-existing in the recording industry. The firm has targeted already established market of multiple platform using consumers and used peer to peer technology. Furthermore traditional records' publishers and artists possibly may have been either more reluctant to sell their IPR or demand higher royalties if digital piracy threat was not present. Supporting this claim is however beneath the scope of this paper and would possibly require a further analysis of recording industry including a comparative case study with a hypothetical digital piracy absent' recording industry market

This paper does not try to undermine the importance of educating consumers and protecting IPR, however it sheds additional light on certain positive factors that piracy can bring to the market for both consumers and industries themselves. The possibilities realized in business are eventually being exploited by innovative winners and ignored by incapable to transform conservative businesses.

6.1 Limitations

The main subject of analysis in this study is the digital piracy. Even though research area has been narrowed down to the recording industry market only this still leaves for a very broad area with many different approaches that could be exercised during study.

The instrumental case study was done for a single firm that could be interpreted as an innovative winner. The cross-sectional study analyzing multiple new companies emerging in a fragmented emerging digital distribution market could provide more insight on how these businesses interact with consumers and IPR owners, what challenges and difficulties they come across and possible future for this market.

This study however aimed to provide an insight about digital piracy and its influence as an innovating factor in the recording industry market making further studying of industry beneath the scope of this paper.

6.2 Implications for further research

The quantitative study can provide further and possibly more detailed overview of the new market emergence of digital consumers that are viable for business models such as Spotify. The data however should be treated carefully and with objective criticism (GAO, 2010), understanding the difficulties of its precise evaluation in terms of illegality and uncertainty. As mentioned, cross-sectional case studies can also be a viable option to identify digital distribution market and its emerging competitiveness to establish consumer base. Furthermore, study based on anti-piracy services and laws could shed more light on implications of consumer complicity and how potential pirate groups could be persuaded into becoming legitimate users.

7. Bibliography

Adermon, A. & Liang, C., 2014. Piracy and Music Sales: The Effects of An Anti-Piracy Law. *Journal of Economic Behavior and Organization,* pp. 90-106.

Alexander, P. J., 2002. Peer-to-Peer File Sharing: The Case of the Music Recording Industry. *Review of Industrial Organization,* Volume 20, pp. 151-161.

Al-Rafee, S. & Rouibah, K., 2010. The fight against digital piracy: An experiment. *Telematics and Informatics,* Volume 27, pp. 283-292.

BASCAP, 2009. *Research Report on Consumer Attitudes and Perceptions on Counterfeiting and Piracy,* s.l.: s.n.

BBC, 2001. *http://news.bbc.co.uk.* [Online]
Available at: http://news.bbc.co.uk/2/hi/business/1166651.stm
[Accessed 05 2015].

Bhattacharjee, S. et al., 2007. The Effect of Digital Sharing Technologies on Music Markets: A Survival Analysis of Albums on Ranking Charts. *Management Science,* Volume 53, pp. 1359-1374.

Bryman, A., 2012. *Social Research Methods.* 4th ed. s.l.:Oxford University Press.

Business Software Alliance, 2012. *Shadow Market: 2011 BSA Global Software Piracy Study,* s.l.: s.n.

Chaudhry, P. E., Chaudhry, S. S., Stumpf, S. A. & Sudler, H., 2011. Piracy in cyber sace: consumer complicity, pirates and enterprise enforcement. *Enterprise Information Systems,* Volume 5, pp. 255-271.

Chaudhry, P. & Zimmerman, A., 2013. *Protecting Your Intellectual Property Rights.* s.l.:Springer.

Choi, D. Y. & Perez, A., 2007. Online piracy, innovation, and legitimate business models. *Technovation,* Volume 27, pp. 168-178.

Cohen, D. & Crabtree, B., 2006. *Qualitative Research Guidelines Project.* [Online]
Available at: http://www.qualres.org/
[Accessed 05 2015].

Conner, K. R. & Rumelt, R. P., 1991. Software Piracy: An Analasys of Protection Strategies. *Management Science,* Volume 37, pp. 125-139.

Cox, J. & Collins, A., 2014. Sailing in the same ship? Differences in factors motivating piracy of music and movie content. *Journal of Behavioral and Experimental Economics,* Volume 50, pp. 70-76.

Cronin, M. J., 2014. *Top Down Innovation.* Chestnut Hill, MA, USA: Springer Briefs in Bsuiness.

Danaher, B., Smith, M. D., Telag, R. & Chen, S., 2014. The Effect of Graduate Response Anti-Piracy Laws on Music Sales: Evidence from an Event Study in France. *The Journal of Industrial Economics,* Volume LXII, pp. 541-553.

Dorr, J., Wagner, T. D. & Hess, T. B. A., 2013. Music as a Service as an Alternative to Music Piracy? An Empirical Investigation of the Intention to Use Music Streaming Services. *Business & information Systems Engineering,* pp. 383-396.

Dvorak, J. C., 2012. *http://www.pcmag.com.* [Online]
Available at: http://www.pcmag.com/article2/0,2817,2402005,00.asp
[Accessed 05 2015].

Evangelista, R., Sirilli, G. & Smith, K., 1998. Measuring Innovation in Services. *IDEA Paper Series.*

GAO, 2010. *Observations on efforts to quantify the economic effects of counterfeit and pirated goods,* s.l.: United States Government Accountability Office.

Garcia, R. & Calantone, R., 2002. A critical look at technological innovation typology and innovativeness terminology: a literature review. *The Journal of Product Innovation Management,* Volume 19, pp. 110-132.

Hastings, R., 2011. *blog.netflix.com.* [Online]
Available at: http://blog.netflix.com/2011/09/explanation-and-some-reflections.html
[Accessed 04 2015].

Jacobs, L., Samli, C. A. & Jedlink, T., 2001. The Nightmare of International Product Piracy. *Industrial Marketing Management,* pp. 499-509.

Kline, S. & Rosenberg, N., 1986. An Overview of Innovation. *The Positive Sum Strategy: Harnessing Technology for Economic Growth,* pp. 275-306.

Krawczyk, M., Tyrowicz, J., Kukla-Gryz, A. & Hardy, W., 2014. "Piracy is not theft!" Is it just students who think so?. *Journal of Behavioral and Experimental Economics,* Volume 54, pp. 32-39.

Kusek, D. & Leonhard, G., 2005. *The Future of Music: Manifesto for the Digital Music Revolution.* s.l.:Omnibus Press..

Lam, C. K. M. & Tan, B. C. Y., 2001. The Internet is Changing the Music Industry. *Communications of the ACM,* 44(8), pp. 62-68.

Lewis, L., 2009. *http://www.nme.com/blogs.* [Online]
Available at: http://www.nme.com/blogs/nme-blogs/spotify-and-the-14-best-online-music-services
[Accessed 05 2015].

Liebowitz, S. J., 2004. Will Mp3 Downloads Annihilate the Recored Industry? The Evidence so far. *Intellectual property and Entrepreneurship,* Volume 15, pp. 229-260.

Liu, H., Chen, G., Chen, Y. & Chen, Q., 2014. A trust-based P2P resource search method integrating with Q-learning for future Internet. pp. 532-542.

Lundvall, B.-A., 1985. Product Innovation and User-Producer Interaction. *Aalborg Universitetsforlag,* pp. 1-40.

Lundvall, B.-A. & Christensen, J. L., 2015. Introduction: Product Innovation - on Why and How It Matters for Firms and the Economy. *Product Inovation, Interactive Learning and Economic Performance,* pp. 1-18.

Magnusson, T., Lindstrom, G. & Berggren, C., 2003. Architectural or Modular Innovation? Managing Discontinuous Product Development in Response to Challenging Environmental Performance Targets. *International Journal of Innovation Management,* Volume 7, pp. 1-26.

Manyika, J. et al., 2013. *Disruptive technologies: Advances that will transform life, business, and the global economy,* s.l.: Mickinsey Global Institute.

Martin, J. A. & Eisenhardt, K. M., 2004. Coping with Decline in Dynamic Markets: Corporate Entrepreneurship and the Recombinative Organizational Form. *Advances in Strategic Management,* Volume 21, pp. 357-382.

Mcgahan, A. M., Argyres, N. & Baum, J. A. C., 2004. Context, Technology and Strategy: Forging New Perspectives on the Industry Life Cycle. *Advances in Strategic Management,* Volume 21, pp. 1-21.

Meisel, J. B. & Sullivan, S., 2002. The impact o the Internet on the law and economics of the music industry. 4(2).

Mukherjee, A., Mitchell, W. & B., T., 2004. Adaptation of a Focused Factory to New Objectives: the Influence of MAnufacturing Requirements and Capabilities. *Advances in Strategic Management,* Volume 21, pp. 167-198.

Murray, F. & Tripsas, M., 2004. The Exploratory Processes of Entrepreneurial Firms: The Role of Purposeful Experimentation. *Advances in Strategic Management,* Volume 21, pp. 45-75.

Navarro, J. N., Marcum, C. D., Higgins, G. E. & Ricketts, M. L., 2014. Addicted to pillaging in cyberspace: Investigating the role of itnernet addiction to diital piracy. *Computers in Human Behavior,* Volume 37, pp. 101-106.

Nill, A. & Shultz, C. J., 2009. Global software piracy: Trends and strategic considerations. *Business Horizons,* Volume 52, pp. 289-298.

OECD, 2007. The Economic Pimact of Counterfeiting and Piracy. pp. 1-29.

Patton, M. Q. & Cochran, M., 2002. *http://evaluation.msf.at.* [Online]
Available at:
http://evaluation.msf.at/fileadmin/evaluation/files/documents/resources_MSF/MSF_Qualitative_Methods.pdf
[Accessed 05 2015].

Peitz, M. & Waelbroeck, P., 2006. Piracy of digital products: A critical review of the theoretical literature. *Information Economics and Policy,* Volume 18, pp. 449-476.

Rogers, E. M., 1985. *Diffusion of Innovations.* 3rd ed. London: A Division of Macmilan Publishing Co., Inc..

Roy, R. & Mcevily, S. K., 2004. Incumbent Survival During Market Fusion in Matured Industries: The Influence of Component and Architectural Capabilities on te Survival of U.S. Machine Tool Manufacturers During 1975-1995. *Advances in Strategic Management,* Volume 21, pp. 199-224.

Sandovai, G., 2011. *http://www.cnet.com.* [Online]
Available at: http://www.cnet.com/news/exclusive-top-isps-poised-to-adopt-graduated-response-to-piracy/
[Accessed 06 2015].

Sang, Y., Lee, J., Kim, Y. & Woo, H., 2014. Understanding the inentions behind illegal downloading: A comparative study of American and Korean college students. *Telematics and Informatics,* Volume 32, pp. 333-343.

Seabrook, J., 2014. Revenue streams. *The New Yorker,* Volume 90.

Sengupta, J., 2014. *Theory of Innovation: A New Paradigm of Growth.* Santa Barbara, CA, USA: Springer.

Siwek, S. E., 2007. *The True Cost of Sound Recording Piracy to the U.S. Economy,* s.l.: Institute for Policy innovation.

Smith, K., 2005. Measuring Innovation. *The Oxford Handbook of Innovation,* pp. 148-177.

Spotify Ltd, 2013. *http://www.spotifyartists.com.* [Online]
Available at: http://www.spotifyartists.com/spotify-explained/
[Accessed 05 2015].

Stake, R. E., 1995. The Art of Case Study Research. *Thousand Oaks: CA: Sage.*

Stanislav, D. D., Kim, T. & Solari, L., 2004. The Two Sides of the Coin: Core Competence as Capability and Obsolescence. *Advances in Strategic Management,* Volume 21, pp. 255-285.

Statista Inc., 2014. *http://www.statista.com.* [Online]
Available at: http://www.statista.com/statistics/273018/number-of-internet-users-worldwide/
[Accessed 03 2015].

Stefano, G. D., Gambardella, A. & Verona, G., 2012. Technology push and demand pull perspectives in innovation studies: current findings and future research directions. *Research Policy,* Volume 41, pp. 1283-1295.

Sudler, H., 2013. Effectiveness of anti-piracy technology: Finding appropriate solutions for evolving online piracy. *Business Horizons,* Volume 56, pp. 149-157.

Swanson, K., 2013. A Case Study on Spotify: Exploring Perceptions of the Music Streaming Service. *MEIEA Journal,* 13(1), pp. 207-230.

Szulanski, G. & Ovetzky, Y. D. Y., 2004. Incumbents' Framing: Three Established Companies Respond to the Internet. *Advances in Strategic Management,* Volume 21, pp. 77-106.

Takeyama, L. N., 1994. The Welare Implications of Unauthorized Reproduction of Intellectual Property in the Presence o Demand Network Externalities. *The Journal of Industrial Economics,* Volume XLII, pp. 155-166.

Tola, A. & Contini, M. V., 2015. From the diffusion of innovation to tech parks, business incubators as a model of economic development: the case of "Sardegna Ricerche". *Social and Behavioral Sciences,* Volume 176, pp. 494-503.

Tom., G., Garibaldi, B., Zeng, Y. & Pilcher, J., 1998. Consumer Demand for Counterfeit Goods. *Psychology & Marketing,* p. 405.

Tschmuck, P. & Pearce, P. L., 2012. *Music Business and the Experience Economy.* London: Springer.

Tsui, H. & Wang, T., 2012. Piracy and social norm of anti-piracy. *International Journal of Social Economics,* Volume 39, pp. 922-932.

Tyragniel, J., 2007. *content.time.com.* [Online]
Available at: http://content.time.com/time/arts/article/0,8599,1666973,00.html
[Accessed 05 2015].

Tyson, J., 2000. *http://computer.howstuffworks.com.* [Online]
Available at: http://computer.howstuffworks.com/napster.htm
[Accessed 04 2015].

Warr, R. & Goode, M. H., 2011. Is the music industry stuck between rock and a hard place? The role of the Internet and three possible scenarios. *Journal of Retailing and Consumer Services,* Volume 18, pp. 126-131.

Wee, C., Tan, S. & Cheok, K., 1995. Non-price determinants of intention to purchase counterfeit goods. *International Marketing Review,* Volume 12, pp. 19-46.

Wejters, B. & Goedertier, F., 2015. Understanding today's music acquisition mix: a latent class analysis o consumers' combined use of music platforms. *Springer Science.*

Yanggratoke, R. et al., 2013. On the Performance of the Spotify Backend. *J Netw syst Manage,* Volume 23, pp. 210-237.

Yin, R. K., 1984. Case study research - Design ad Methods. *SAGE Publications.*

Yin, R. K., 2002. Case Study Research: Design and Methods 3rd edition. *London: Sage.*

Yin, R. K., 2008. Case Study Research: Design and Methods 4rd edition. *London: Sage.*

Yoon, K., 2002. The optimal level of copyright protection. *Information Economics and Policy,* Volume 14, pp. 327-348.

Zaidah, Z., 2007. Case study as a research method. *Journal Kemanusiaan; University Teknologi Malaysia.*

Zhang, J., Zhao, W., Xie, G. & Chen, H., 2011. Ontology-Based Knowledge Management System and Application. *Procedia Engineering,* Volume 15, pp. 1021-1029.

Zhang, M. X., 2002. *http://web.mit.edu.* [Online]
Available at: http://web.mit.edu/zxq/www/mit/15575/p2p.html
[Accessed 04 2015].