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Internet Piracy and Entrepreneurial Growth

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Abstract

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Internet Piracy has become a phenomenon as a result of developed Internet technologies and file-sharing applications. With the growth of the Internet and the increased number of Internet users around the globe, the world is becoming ever more digitalized. Users are expecting digital information to be readily available at the touch of a button. This has caused an immense demand for digital goods, where piracy has been at the forefront of the file-sharing phenomena. Napster, KaZaA and Microsoft have all been negatively affected by Internet piracy. However, from the ashes of failed business ventures there has still been a demand by Internet users for accessible, cheap legal solutions in the realm of digital media. This has all spurred the advancement of new technological innovations, savvy entrepreneurship, and businesses that now reap the benefits of learning from others mistakes, re-organizing business models and changing the way business is done in the modern world even though Internet piracy remains rampant. This thesis proposes that Internet piracy is a main driver for Entrepreneurship in three ways: 1) through the creation of new ideas, 2) as a springboard for new businesses and 3) as a frontrunner of technological innovation.

By examining three major cases (Napster, KaZaA and Microsoft in China) with the case study method and the economic theory of Supply and Demand; supported by interviews and survey questionnaires this thesis aims to answer the research question:

Internet Piracy as a Steppingstone towards Technological Advancement and Entrepreneurial Growth?

and three sub-questions;

1. *Has the technology associated with Internet piracy supported the development of new technology used for legal business?*
2. *Does Internet piracy create new business models and business opportunities?*
3. *Is Internet piracy is becoming obsolete due to the availability of new legal versions of similar software and products?*

In short, the research proved that Internet piracy can be a steppingstone towards technological advancement and entrepreneurial growth. Sub-questions one and two proved to be true, while sub-question three left an open gap for further research and debate since there is not, in the foreseeable future, anyway to predict whether or not Internet piracy will devolve completely since what it offers is a *free* service, and it is hard to compete with *free*.

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"Piracy may not be a bad thing: it can get us more business at the end of the day." –Michael Hed CEO Rovio (Dredge, 2012)

1 Introduction

Internet piracy in the digital age has put great pressure on both the individual and the organization within the modern business world. Ethically and morally Internet piracy is regarded as a negative force on business and the way in which companies do business. Moreover, there is increasing pressure on governments and world leaders to set up, administer and enforce laws that minimize the use of Internet piracy for illegal and destructive behavior. As the Internet is expanding and opening up in new markets, aiding faster live online connection throughout the world, it increases accessibility to software and information (Balkin, 2008; De Castro & Shephard, 2008). In turn, this accessibility issue is one that many businesses may fail to address thereby leading to insufficiently protected and encrypted software. Internet piracy has arguably paved the path for software development demand, making it a very lucrative business (Balkin, 2008).

This paper proposes that, there actually could be a direct correlation between Internet piracy and the expansion and emergence of new business models and ideas. Three major themes (the creation of new ideas, Internet Piracy as a springboard and Technological innovation) were derived from three research cases within this thesis. One of the research cases that will be examined in greater detail is Microsoft's development in China. Bill Gates allowed the copying of Microsoft software on the Chinese market and later reaped the financial benefits thereof. Since there were so many people using this software in China, businesses and their personnel started adapting to the worldwide market, and started to buy the software legally. At the end of the day Bill Gates made a judgment call to let the copying of Microsoft's products continue, which has resulted in a majority of China's computers running his software and a great financial gain for the company as a whole – not to mention the priceless marketing that this tactic brought with it (Kirkpatrick, 2007).

Technical applications and use of the Internet has spurred the advancement of new technology that can be used for the purpose of file sharing and copying information. P2P (Peer-to-Peer) networks for example, allow applications to connect directly to each other, and BitTorrent technologies enable file sharing through Internet users computers. Both were developed by file sharers searching for better and easier ways of sharing information. (Roth, 2004).

Through the expansion of new technologies the Internet has contributed to increased numbers of users and increasingly accepting attitudes in relation to Internet piracy. There is however a new trend in the development of businesses and entrepreneurial activities. The use of the technologies involved is being adapted to legally accepted solutions offering the same services that the pirated alternatives do at a reduced commercial price. Unfortunately these legal alternatives are still not as readily available as their pirated counterparts. Spotify and Voddler amongst others are starting to offer cheap legal solutions to access the information and content that the user is looking for. These companies amongst others have adopted the same technologies that Internet piracy networks and distribution channels have used and are still using to start up their companies and base their business models on. (Choi & Perez, 2007)

Internet piracy now has a competitor on the market – a legal one – which may contribute to more people using these legal alternatives, thereby perhaps making Internet piracy obsolete in the future. While Internet piracy is not likely to completely disappear in the near future, the

number of legal opportunities and solutions are growing and will most likely continue to the point where Internet piracy might become obsolete for Internet users of the future (Balkin, 2008).

1.1 Background: The early history of digital media and file sharing

The original goal of file and intellectual property sharing was to produce as many identical copies as possible of the intended media. To start off with texts, images, sounds and video recordings were the main things that were copied and shared (Dahlstrom *et al*., 2006). Internet piracy as we know it today – in business – dates as far back as the late 60's. The Department of Defense (DoD) developed a program called Advanced Research Project Agency (ARPA) to serve as a method for researchers and scientists to "share" information between large supercomputers. The first connections were established in 1969 when ARPA connected computers between Stanford, UCLA (University of California, Los Angeles), UCSB (University of California, Santa Barbara) and the University of Utah. The system used was called Advanced Research Project Agency Network (ARPANET). In the mid 80's DOD released ARPANET for commercial enterprises which in turn created a base for the introduction of the Internet and network sharing on the mass market for ordinary people (Choi & Perez, 2007).

During the early stages of network sharing and the Internet most of the software that was used was "open source" (free) and spread all over the world. This made it possible for any user to make improvements to the software. Two of the main companies involved with computer and Internet usage (Microsoft and Novell) started to charge for their specific brand of software. A large number of consumers were dissatisfied with this evolution because they were used to software being free and available and in turn some of these consumers became the first software pirates (Choi & Perez, 2007).

Network sharing and the use of intellectual property spread like wildfire in the mid 90's with growing usage of the World Wide Web. One of the most renowned projects at this time was the open source operating system, GNU/Linux, and others soon followed suit. The significance of GNU/Linux and those that followed was that it was free and open source, available for anyone to modify (Linux.org, 2012).

In the mid 90’s a university student (Shawn Fanning) developed a program called Napster for the purpose of gaining easier access to music through P2P. This meant that Internet users with this software willingly could gain and give access to other users’ hard drives and share files. Napster became a cornerstone in the technological evolution of listening to music as well as the sharing and copying of information through the Internet (Choi & Perez, 2007). However, Napster was doomed to fail, due to stringent laws being passed in order to protect the media industries interests. The market for on demand entertainment had to think of legal ways to provide what Napster provided. Apple Inc. solved the free and illegal file sharing in its own way; by providing a legal solution. A music library was created and songs were sold at reasonable prices. They developed their own format that was limited to only Apple products; however, the goal was to provide music with the same quality as a normal CD (Compact Disc) not like the compromised quality format of mp3s (moving picture experts group-2 audio layer 3) (Choi & Perez, 2007).

Another new technology rose to fame in roughly the same period: BitTorrent. It was similar to Napster's P2P technology and became very popular (and still is). Today's technology is not

only based on sharing media, it has also become a community for like-minded consumers and users. Nowadays many of the old pirates are trying to find new ways of sharing information through developing new legal business solutions and ideas. (Choi & Perez, 2007)

There are a couple of successful businesses that have made a large impact on the technology and intellectual property market and have managed to establish legal solutions to gain accessibility to media. The most widely used technology within these companies is streaming technology. Streaming technology, which refers to the delivery method, is when the consumer gains access to media and can start displaying this without the whole file being downloaded. To legally gain access to the media libraries provided by these companies the consumer usually pays a small fee. (Choi & Perez, 2007)

Today these technologies are used by many different companies and the competition has become fierce. However, even though this is a competitive market and products are available at the click of a button many actors/players are trying to provide a legal option to Internet piracy. For example, Spotify uses streaming and BitTorrent technologies to stream music at a price people are prepared to pay, Voddler uses similar technology but streams movies as opposed to music (Aurelius, Kihl & Lagerstedt, 2011).

Internet piracy has created a shift in how entrepreneurs have started to think and ultimately adapt. Without Internet piracy, and the subsequent evolution of technology, it is doubtful that these new successful businesses (i.e Spotify or Voddler) would have started and been as successful as they are. (Choi & Perez, 2007)

1.2 Research question

Internet piracy is a common dilemma in today's world, and clearly a strain on many major companies and organizations wishing to protect their own interests; be it copyright material or new endeavors. As file sharing has become a way of life for many people, many of which are technologically skilled in their own right, and have in turn created new, or improved existing technologies, it is warranted to ask whether or not file sharing and Internet piracy have created new opportunities in the business arena. For example, was Napster a building block for new concepts like Spotify, KaZaA, Skype? Or was there a need for accessibility and availability that sparked entrepreneurs? By asking ourselves these questions and examining these thoughts during brainstorming sessions the research team derived the following research question:

Internet Piracy as a Steppingstone towards Technological Advancement and Entrepreneurial Growth?

While the research question gives the research a whole magnitude of information available, the research team understood that to narrow down the scope somewhat, sub-questions to the research question were appropriate:

Sub-question 1: Has the technology associated with Internet piracy supported the development of new technology used for legal business?

Sub-question 2: Does Internet piracy create new business models and business opportunities?

Sub-question 3: Is Internet piracy becoming obsolete due to the availability of new legal versions of similar software and products?

1.3 Purpose

The purpose of this study is twofold. First, it will add to the already existing academic literature on Internet piracy. Secondly, it examines how Internet piracy has created new business opportunities for entrepreneurs and companies through three case studies.

1.4 Limitations

As with any research question it is important to be able to limit the scope or the magnitude of the research as to not spin off topic or to stray from the boundaries of the research. While the three cases investigated in this thesis provide a solid base for understanding Internet piracy in relation to information system technology, the research does indeed face some constraints.

First of all, the laws that go hand in hand with intellectual property are of significant importance to this subject. They are on the other hand so extensive that they are beyond the scope of this thesis. However, a study of the laws regarding Internet piracy would be interesting to examine in a future study on this topic. (McDonald, 2011)

Secondly, it is challenging to find statistics regarding how many internet users are actually using the protocols, technology and equipment related to Internet piracy. (LoPiccolo, 2005)

Finally, it is difficult to obtain primary information and primary sources for a paper on Internet piracy simply because of its nature. Many people may feel uncomfortable answering questions regarding their use of illegally obtained information and technology – regardless of whether or not it is anonymous. Internet piracy is illegal and is as such an ethically taboo subject for many, which is also why some of the survey and interview participants have chosen to remain anonymous. (Bonner & O'Higgins, 2010)

2 Literature review

It is essential to have a literature review because of the importance to study existing literature about the researched subject. Previous and existing literature provide a foundation on which to base future studies; therefore this section will analyze and assess the most relevant literature regarding Internet Piracy, Entrepreneurship and Business. The revised literature has been critically selected by its importance and added value to the research topic. This literature review has been divided into five sections so as to clearly present the relevant literature.

There is extensive information available on the topics of Internet piracy, entrepreneurship and on how companies and official governments have decided to battle the issue of Internet piracy. The following literature review ties into the research of this thesis by examining the major themes that link the cases together. The review also focuses on the ways in which these studies have contributed to the subject of Internet piracy and entrepreneurship. As there is a vast amount of literature on the topic of Internet piracy and entrepreneurship, this literature review focuses on the three major themes of this paper; Entrepreneurship, Internet piracy as a springboard and Technological innovation. Newspaper articles, academic literature as well as text books have provided concrete information for this paper.

2.1 Internet Piracy and file sharing

Dahlstrom *et al*. (2006) discuss the technological Internet piracy phenomenon from the beginning of its presence on the Internet. Choi and Perez (2007) go a step further and take into account the fact that Internet piracy has existed since the Internet was chiefly used as a distribution tool for researchers at universities and government institutions. It is important to note however, that this copying and sharing of information was not originally referred to as 'Internet piracy'. It was an important way for academics and government officials to share important information. Choi and Perez (2007) state that due to software mainly being open source code it was free and easily distributed and only when software companies started putting a price tag on their products, did Internet piracy become a regularly used word in the IT vernacular. This in turn has made Internet piracy a large and worldwide phenomenon, which greatly affects us all and has greatly influenced the development of this thesis.

2.2 Implications of file sharing

Warner (2002), Picard (2005) and Roth (2004) all discuss the implications of new technologies and the widespread distribution of software, music and videos on the Internet. Specifically, they address the BitTorrent and P2P technologies. BitTorrent and P2P were of significant importance to the development of file sharing technology. Honigsberg (2002) discusses these two technologies in depth and explains the significance that the technologies (and the source code of the applications) have had on the emergence of file sharing applications and the Internet. At this point in time, a few key actors within the Internet file sharing industry emerged: Rimmer (2005) for instance, discusses the implications that the Napster application had on the multimedia industry and the way these organizations handled Internet piracy. Honigsberg (2002) also discusses the law suits and implications set forth by the multimedia companies who sued and won legal battles against Napster, KaZaA and other file sharing agents.

2.3 International Business and usage of Internet piracy

It has been of great importance in the business world to understand how Internet piracy works and how it can be tackled. The Microsoft case study explains how a company had to adjust their marketing approach to become country specific. Microsoft controversially chose a different approach than that of a regular business venture in a developing country. Shen (2005), Kirkpatrik (2007) and Swike (2008) all discuss how Microsoft took on China and almost failed as a result of not researching their new market enough to understand that a standard business model would not work in a country with a strong custom of Internet piracy. How else could Microsoft have battled Internet piracy, if not through restructuring their business model? As Shen (2005), Kirkpatrik (2007) and Swike (2008) state in their work, Microsoft resorted to diplomacy and the use of their own funds to invest heavily in research and development in China. This in turn gained them a favorable position in doing business in China. Though Internet piracy still remains a problem as Hamm, Kharif, Lacy (2006), and Swike (2008) note, allowing some Internet piracy has actually made Bill Gates a superstar in China and almost 90 % of all computers in China run Microsoft software (Kirkpatrick, 2007).

2.4 International Business Strategy and Internet piracy

Darity (2008), Krugman and Obstfeld (2007) provide solid literature on the economic theory of supply and demand. This economic theory is used to address how Internet piracy has created an arena where technological products are pirated and where there is both supply and demand for these products. Their books clearly explain supply and demand and how interest in a commodity can increase the demand for products. For the purpose of this thesis, digital products are the commodity, but supply is only great and rightly accessible within Internet pirate circles. However, legal options addressing this demand are now starting to create a vast supply for the consumer. This, as addressed in the cases, can be seen when companies need to re-strategize to be able to keep the business afloat.

2.5 Academic Development: The Case Study Method

McDonald (2009), Remler and Ryzin (2011) and Goddard (2009) have helped create a common method (Case Study Method) for analyzing the common themes in the three cases used for analysis in this thesis. Their work enables a method to compare the three cases within this thesis and helps pinpoint the specific implications and common themes (the creation of new ideas, Internet piracy as a springboard and Technological innovation) of each case to this thesis.

The academics and field experts discussed above are very important to this paper due to their knowledge in the field of Internet piracy, entrepreneurship and economics. They all clearly address the topic and as such the literature has been instrumental in the research phases of this thesis, furthermore the literature and academic resources explored allow for a more comprehensive understanding of the subjects.

3 Theoretical Framework: Supply and demand

"…all businesses need to consider supply and demand in any business model…", "*IT is one of the biggest businesses in the world*" (Fassinotti, 2012, interviewee P8)

This theoretical framework aims to clarify the significance of Internet piracy in the actual business world. As such the framework is based on the economic theory of Supply and Demand. This theoretical framework allows for a solid understanding of Internet piracy in a business setting; additionally, it highlights the problems in the financial world that companies ultimately face. Practically, Internet piracy and entrepreneurship analyzed against the backdrop of the economic theory of supply and demand also highlights real managerial implications that directors of companies have to face when assessing the impact of Internet piracy on their companies.

The economic theory of supply and demand fundamentally assesses whether or not legal businesses can meet the demands of the consumer. Internet piracy has arguably transformed commodities through cause and effect as businesses drive prices down in order to meet the growing demand of products that normally feel the strain of Internet piracy (P8, 2012).

The economic theory of supply and demand is suitable for this research within the realm of informatics because of the connection between how entrepreneurship, economics and technology entwine. As information technology can be seen as a commodity, it simultaneously creates the possibility for demand. If there is a demand for a specific type of technology, and an entrepreneur or organization can capitalize on that need, they have the opportunity to create a supply by either reorganizing its business or starting a new one to fill the needs of the market (P8, 2012).

3.1 Supply

Basic economic theory states that supply is the relationship between the price of a product and the amount of units of one certain product that producers are willing to offer for sale at any given point, not including the price of a product which remains fixed. Therefore supply will be the correlation between price and quantity supplied. This representation is easily depicted using an x-y graph. (See Fig 3.1) (Krugman & Obstfeld, 2009)

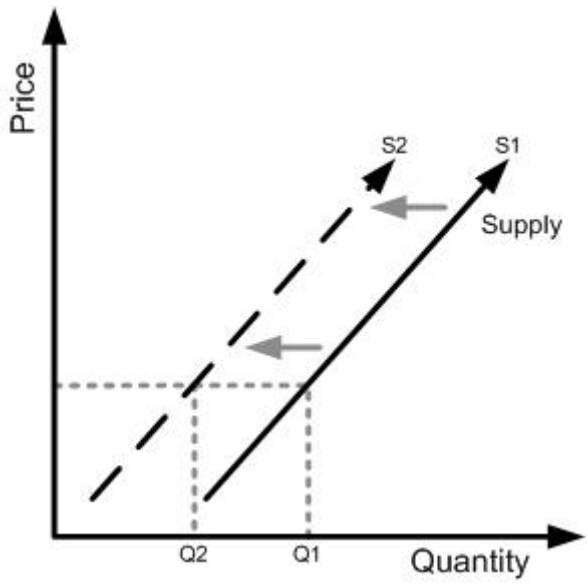

Fig 3.1 Price vs. Supply: *A shift in supply vs price.* Adopted from Krugman and Obstfeld, (2009).

This graph can be modified to suit any given setting where producers increase or decrease supply, while either keeping the price constant or fluctuating. Different aspects will also dictate how price is set and how supply is generated. Factors that can and will change supply include for example government intervention in Internet piracy, the use of various types of technologies, or simply consumer demands – which could be fads or enduring demands. (Darity, 2008)

3.2 Demand

Demand is when a consumer chooses a bundle of commodities, considers the price and the maximum amount that the individual can spend on obtaining these commodities. The assumption that an individual chooses the commodity that best fits his or her needs is called "rational" or "preference maximizing" behavior by economists. A central component in the demand theory is Marshallian demand of the individual, which states how much of each commodity the consumer demands, as a function of the prices on the market and amount of income the individual has. The Marshallian demand takes restrictions in income and price into account, which can be used to limit empirical estimations. If an observation is made on prices, incomes and demanded bundles, during which a certain bundle is obtained, a number of conclusions can be drawn. For example, if the consumer purchased bundle X instead of bundle Y, although bundle Y fit the consumers' preferences better, it could be concluded that bundle Y was not in the consumers' price range. (See Fig 3.2). (Darity, 2008) This can be specifically connected to the Internet piracy phenomenon due to a consumers willingness to buy or acquire a specific product.

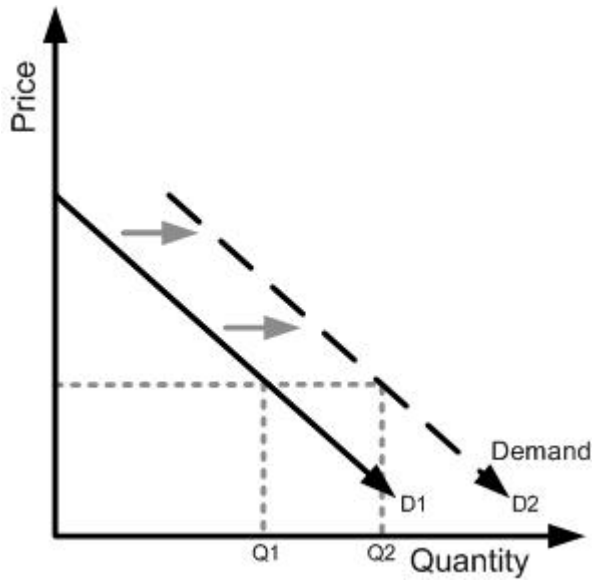

Fig 3.2 Price vs. Demand: *A shift in quantity vs price. Adopted from Krugman and Obstfeld, (2009).*

3.3 Supply and Demand

Technology is an intangible asset, and the value thereof may be difficult to measure. One way in which the real value of a certain technology can be valued is, if a company sells or buys it. It may be sold at a higher value than it is actually worth – due to goodwill and brand name from the selling company. The reverse however is also true, a technology may be sold at less than real value, and increase in value in a new company where the technology is optimally marketed. Technology has also improved over time, and as technology continues to develop and improve, it is possible to assume that profits will as well, thereby enabling future supply. This is under the supposition that technology will not devolve and therefore revenue and supply will not decrease either. (Darity, 2008)

Supply and demand is interesting as applied to technology and software because unlike the supply and demand for example of sugar, it is not finite. There is not a limited supply of technology (in the foreseeable future). The introduction of new players in this market will likely drive prices down, due to a corresponding increase in supply. In turn the industry may become less profitable and some actors in the market may need to 're-strategize' and focus on different markets and industries or specialize in a sector of the industry. The scope of supply is dictated by the demand and price. It is, perhaps, important to note that while it is possible to assume that technology is not finite – it is a product requiring skilled labor, arguably driving costs up. This implies that there is value in technology and while it is not limited in supply the price can similarly be manipulated to suit a demand. Supply summarizes the way producers behave, just as demand explains the consumers' wants and needs. (Darity, 2008)

Supply and demand reflects the volume of Internet piracy which has created the need for many users (who found that prices were too high) by creating a demand from the original owners of copyrighted material. Because piracy has been the preferred choice for Internet users due to the accessibility and ease of use, copyright owners and businesses are forced to re-strategize the way the business works. Though businesses like Napster and KaZaA faced the stringent legal ramifications when appearing on the market, innovation and the demand for businesses that could provide the same accessibility were further inspired, in which

businesses could provide an accessible, cheap and legal solution to Internet piracy, while at the same time making a profit. (Darity, 2008)

4 Method

In addition to exploring and analyzing key cases, this paper is supported by previous research and existing academic literature. The analysis identifies a new way to look at entrepreneurship and business through Internet piracy (i.e. the Music industry and Software industry). The paper uses existing literature for a broad explanation of the subject, and case studies for in-depth examples, all of which will be used to help answer the aforementioned research question. The three cases that will be analyzed are: How Microsoft conquered China, KaZaA to Skype and Napster. The cases have been thoroughly researched and put together by the research team and then analyzed in order to provide strong and clear explanations through primary information regarding the thoughts surrounding the *phenomenon* taking place. In order to further substantiate this thesis, a few experts have also been asked to answer surveys and participate in interviews.

4.1 Case study research

The purpose of using case studies is to provide comprehensive information on how Internet piracy has created new business opportunities for entrepreneurs and companies and by aiding in answering the research question (*Internet Piracy as a Steppingstone Towards Technological Advancement and Entrepreneurial Growth?*). McDonald (2009) describes six steps to completing a case study successfully; these steps are referred to as 'conceptual responsibilities'. The steps are listed below (McDonald, 2009):

1. Set contextual boundaries for the case study.
2. Emphasize the research question on themes, issues and phenomenon relevant to the case study.
3. Identifying and structuring the patterns seen in the data.
4. Dissever data so that important observations and interpretations can be made.
5. Be sure to include alternative interpretations.
6. Develop generalizations.

When selecting the cases it was important to contextualize the cases. Basing the research on important themes to make a thorough examination of the case, so that all relevant details are exposed and that the case explains and discusses the topic at hand. The relevant details include types of variables, patterns and mechanisms that can explain the outcomes of the study. (Remler & Ryzin, 2011) Therefore it was logical to do a collective case study to find three cases that help the research and the method in which to choose the appropriate cases. Explicitly due to the many various sources that have been gathered to combine the aforementioned cases, this in turn strengthens their validity.

The aforementioned steps of conceptual responsibilities combined with the collective case study method aims to derive a set of topics/denominators that were relevant and clear in the three cases selected for this study. This step could be explained as step six of the conceptual responsibilities, developing generalizations. By doing this the team could focus the research with the economic theory provided as well as pinpointing the connection to Internet piracy and entrepreneurship. For research purposes steps one and two were combined to focus on the supply and demand theory connection as well as deriving at the common denominators of the cases. Steps three and four played a key role by combining the main goal of the collective case study, by finding the key themes. When selecting the cases for the research it was important to find out as much as possible about the cases from as many different sources as

possible. This meant finding as many interpretations and views as possible to accurately explain the cases in line with step five. By modifying the method and tailoring them in this manner, the choice of cases became clearer and three clear cut themes could be extracted from the cases: Entrepreneurship; the creation of new ideas, Internet piracy as a springboard and Technological innovation.

4.1.1 Collective case study

Collective case studies are studies based on more than one case (normally three or more), in which the cases have a common denominator binding them together. The common denominator might be a central theme that all the cases share or an issue or a pattern (in this thesis: Entrepreneurship; the creation of new ideas, Internet piracy as a springboard and Technological innovation). The method for gathering data among the cases is also the same, and should be followed by all the researchers involved. Without using the same method or having a common theme among the examined cases a collective case study is not viable. Throughout history collective case studies have principally focused on quantitative research and have often been a part of bigger projects; however this has changed and now collective case studies are being used for projects of all sizes and in all domains. (Goddard, 2009)

What separates a collective case study from a single case study is the notion of cross-case comparisons, where common factors between the cases are the focus. In single case research the focus is on a single event or context, whereas in collective case study research it is on what binds the cases together. A single case study is still important to research because it can provide an exception to a norm or an in-depth understanding of a significant case. (Goddard, 2009)

The difference between selecting a case for a single case study and selecting cases for a collective cases study is that in the latter you can start by selecting a prototype case, which you base further selections on. It is also possible to select an extreme case, in other words a case where the factor that you are researching is clearly visible. (Remler & Ryzin, 2011) Possibly the most blatant and covered case which could be seen as the prototype case is the Microsoft case, and from here the KaZaA to Skype and Napster cases were identified:

1. "*How Microsoft Conquered China*" will focus on the strategies and business issues that had to be considered in order for Microsoft to get a foothold in the Chinese market. This case is important because it describes how a large multinational company had to change its whole marketing and business approach in order to become successful in an Internet piracy friendly nation like China.

2. The "*Napster*" case presents the development of a new business model. It was among one of the first programs in the Internet piracy phenomenon, making music quickly and easily accessible to millions of users. The Napster case is significant due to its impact on how modern multimedia businesses have had to change their accessibility rights for the everyday user as well as how program developers have had to rethink the development process of their file sharing software so as not to infringe on copyright laws.

3. "*From KaZaA to Skype*," will look into the protocol used first for file sharing illegally, but now, after a number of developments, has been accepted as a legal medium for internet communication. This case is noteworthy because it explains how an illegal application's protocol has now been introduced to legal businesses.

For this thesis the research team used the Microsoft case as the prototype case and directly used it to deduce the common themes that would in turn bind the future cases together as well as making the right choices when choosing the other two cases.

4.2 Interviews and Surveys

For the purpose of this study it was critical to gain important primary information. The primary information has been collected through questionnaires and interviews. The questionnaires were sent out by e-mail to persons whom were knowledgeable within the scope for this thesis. The interviewees were also chosen with the scope of the thesis in mind as well. Three interviews were conducted in person with experts on the topics of Internet piracy and entrepreneurship and one interview was specifically conducted by phone with an expert on international business and marketing. The business and marketing expert was asked particular questions to how an economic framework of supply and demand was applicable to this informatics thesis.

4.2.1 Semi Structured Interviews

For the purpose of this study, semi-structured interviews were the tool of choice for the interviews. Interviewees were personally contacted (by phone and e-mail) and asked if they would be willing to participate. Most of them wished to partake; however they all asked to have the interview questions beforehand. During the interview the participants were asked if the interview could be recorded; all agreed but one. The interview guide was followed with the added bonus of the possibility to ask extra questions that arose during the interview which added beneficial information from the interview.

When it comes to semi-structured interviews, key factors are to have open-ended questions that in turn should be adaptable to the interviewee. Another important thing is to adapt the interview depending on how the questions are answered; therefore it might be necessary to generate follow-up questions during the interview. The advantage of using a semi-structured interview is in situations where concepts and relationships with the research question are well known and understood between the two parties (interviewer and interviewee). (Lioness, 2008) Collecting data from the interviewee was done with prepared questions; however the answers ended up as more of an open discussion based on the answers. These types of interviews are flexible allowing for new questions to be asked during the interview. It is easier for the researcher to maintain control of the topics in a stricter and structured interview, but in a semi-structured the form of the answer is not limited to the questions and the answer derived can be more detailed and richer. Semi-structured interviews were beneficial and with the use of the questionnaires acting as an interview guide greatly increased the structure of the interview. It is important that the guide regardless of the configuration should contain the message of research question in the thesis because of its foundation behind the purpose of the research (Lioness, 2008).

4.2.2 Interview guide

Once the participant list had been established, meetings were planned and the questionnaires were sent out in advance (per the requests of the participants) acting as a guide for the interviewees. The questions were intended to work as guidelines to the interviewee, but also to establish a question-based guide to in turn be able to generate a more casual discussion regarding the subject. (Morgan & Guevara, 2008). We used a semi-structured interview approach to be able to maintain a controlled discussion and to be able to gain as much

relevant information as possible from the interviewee (Morgan & Guevara, 2008). Before the interview took place the interviewees were informed that their participation would contribute as primary source information to this thesis and supporting information to the cases presented in the thesis. The participants gave their consent to reference and quote them. Once the interviews were completed, notes and recordings were saved and copied, and the participants were thanked for their time and efforts.

4.2.3 Open-ended questions

Open-ended questions are useful because they allow for the participant to freely interpret and answer the questions as opposed to *yes* and *no* questions, which can be rather limiting. This similarly gives the researchers freedom when constructing the questions. They can gear them to be personal or neutral and they often allow the participant to think about what they want to say instead of just ticking a yes or no box. Sometimes the answer is not simple and requires an explanation. An answer to an open-ended question is not as predictable and predetermined as an answer of a normal question. A way to use this type of open-ended question is to start off with a more general question and later, depending on the answer join with sub-questions to get a more detailed response. The danger with the open-end questions is that the general questions could be too broad and the subject could sail away from the actual research question. Another problem that could occur is the amount of data to analyze after the interview regarding the freedom you have given to the interviewee and in particular, it may generate a difficulty to find the real and relevant facts of the broad overall information. (Roulston, 2008) The research team followed the previously stated open ended questions structure, and was able to keep the interviews on topic for most of the interview period.

4.2.4 Survey Questions and Significance

The survey questions are meant to aid the research by giving the research team particular primary information, to be able to substantiate the thesis. The questions were derived specifically within the scope of the thesis as to get concrete and reliable information form the persons answering them. The following text will introduce the questions and their significance for this thesis.

1. *Does the organization you work for try and manage the technologies used by Internet pirates, specifically Peer2Peer-technologies, such as Bittorrent?*

This question intends to investigate if the survey participant has any real experience with the technologies often expressed as being used by Internet Pirates. Also, the question can confirm whether or not legal businesses and other companies actually use this technology to help the organization they work for as it is primarily a file sharing tool. Lastly, should it become apparent that there has been use of these technologies it may be safe to say that there was a demand for these tools in the legal market place.

2. *Do you think that technology used by Internet pirates can be used (or should be used) by legal businesses to increase customer services?*

Though the discussed technology is commonly used by Internet Pirates it should not be taken for granted that it is only used by them. This question may help confirm whether or not people generally believe that, as technology, these programs are valid and could therefore contribute to business in one way or another.

3. *Do you know of businesses that have implemented any of these technologies? If so, how do you think the use of 'piracy tools' affects how the companies are perceived in the markets?*

This question trails question 2 in that it tries to estimate how the 'Internet pirate' technology is perceived legally or as a means of spreading information.

4. *If an organization or entrepreneur develops a product that was not intended for piracy, but is commonly used by pirates, should they be held responsible for the actions of the users?*

This question is trying to determine how the entrepreneur is perceived when implementing new technology into a market that might be in turmoil due to previous incidents. An example is the collapse of Napster and the rise of other tweaked or improved technologies that followed. Who is to blame for the way in which the technology is used? The question also tries to find out if the end user can contribute to entrepreneurs' technology.

5. *Piracy has commonly been described as a phenomenon in the internet era. Do you feel that it has helped entrepreneurs and organizations construct new business models or approaches to increase financial success?*

This question directly tries to find out what the participants think about new technology development in relation to Internet piracy. More specifically whether or not they think that Internet piracy has any positive aspects, like business development, entrepreneurship and consumer demand.

6. *A significant application that became very successful was Napster. After Napster was shut down, file sharing software was loathed by record/movie companies. Do you think that the prohibition of such applications stalled the development of entrepreneurs that could have found a way to legally use them?*

The technology used when developing Napster was innovative but ultimately broke numerous copyright laws. This question tries to understand if the participant can see the technological advancement that Napster brought with it separately from the court cases and as such shed positive light on the applications development.

7. *In your opinion, if some piracy is allowed, will it support the development of new businesses?*

This question tries to understand, from the participants' point of view how they feel about Internet piracy. This provides information to an in-depth discussion as to the ethical and moral standpoints of people and of course, if people think that something, anything, good, comes from Internet piracy.

8. *In order to become successful in China, Bill Gates famously tolerated the counterfeiting of Microsoft products. "Gates argued at the time that while it was terrible that people in China pirated so much software, if they were going to pirate anybody's software he'd certainly prefer it be Microsoft's". (Kirkpatrick, 2007)*

How do you think Microsoft handled this situation? Should they have accepted piracy to become the leading brand of software in the Chinese markets?

The question gives the interviewee the chance to critically think about and comment on one of the cases presented in this thesis. The question aims to find out what the participant thinks about the strategy Microsoft used in order to become cemented in the Chinese market.

Do you feel that this approach could work in Europe (or anywhere else in the world)?

This question aims to see whether or not the participant thinks about Internet piracy differently regarding the geographic location.

9. *Do you have any last comments on piracy as a building block for entrepreneurs?*

This final question aims to dig deeper into the mind if the Interviewee/surveyor to find out their opinions on Internet piracy as whole as well as determining if they think that Internet piracy actually can support legitimate business models and new ideas by addressing the supply and demands of users.

4.2.5 Survey Questions and Significance (Supply and Demand)

To strengthen why an economic framework was chosen for this thesis, a business and marketing expert was interviewed after the model was chosen by the research team. This was specifically done to give extra motivation to why an economic framework was suitable for this research within informatics.

1. Do you feel that Supply and Demand as an economic theory works well in conjunction with digital piracy and the emergence of entrepreneurial ideas? If yes, please explain.

This question specifically means to find out if supply and demand as an economic model is suitable for this specific thesis. It is meant to validate the choices made by the research team in choosing to use an economic model on an informatics thesis.

2. If Digital/Software products being pirated are seen as a commodity, can supply and demand be a driver for business to change their business models?

The question aims to figure out what the interviewee thinks about Internet piracy as a driver for change, and how businesses might have to adapt their strategies according to what is happening in the marketplace specifically with the supply and demand model in mind.

3. While Digital/Software products are being pirated, can this cause a demand in an entrepreneurial sense for a legal product that satisfies the demands of the consumer and creates a supply of these products?

This question relates to question two, however it is meant to define what the interviewee thinks and feels about pirated products being a driver for consumer demands and entrepreneurial shrewdness in creating legal products that can meet these demands.

4.2.6 Choice of Interviewees and Surveyors

It has been of utmost importance to find individuals who have a good understanding of the Internet piracy phenomenon and its implications, as well as a solid understanding of how new

businesses can be set up or developed. The main focus has been on finding participants that have either primary experience with the topic of the thesis or have worked in the technology arena for an extensive period of time. Their experience and knowledge in these areas are an incredible asset to the research and its findings. The following section will give a brief introduction to the persons that were interviewed and who answered the questionnaires.

4.2.7 Interviewees

Jonas Birgersson, (P1) Interviewed June 4, 2012

Title: Entrepreneur, CEO Labs2 and Brikks.

Motivation: Jonas Birgersson is one of the most respected IT entrepreneurs in Sweden. He is a famous entrepreneur in the Swedish IT market, where he started Framtidsfabriken/Framfab as CEO and founder. He is also known for his role in starting Bredbandsbolaget, a broadband (ISP) Internet service provider, where he was Chairman of the Board.

Lars Winther-Hansen, (P2) Interviewed June 4, 2012

Title: CCO (Chief Communications Officer) Labs2 and Brikks.

Motivation: Lars Wither Hansen has been Jonas Birgersson right hand man for the past 7 years at Labs 2. His primary focus has been on communication and ICT (Information and Communication Technology). As of August 2012 he will be the new CEO of SkåNets (Advancing Broadband technologies in Skåne).

Anonymous, (P3) Interviewed June 5, 2012

Title: (withheld).

Motivation: Per the requests and wishes of this interviewee all personal information is to be kept anonymous. His background is centered on technology and he has a master's degree in this field of study. His work experience is what makes his insight valuable. His work experience has been with a major international chemicals/drug company as well as with an ISP that has the aim of keeping all of their clients anonymous on the internet by not handing out information to outside sources.

4.2.8 Survey Participants

Fredrik Strandin, (P4) Survey answered May 17, 2012

Title: Communications Officer (Pirate Party (Political party)).

Motivation: As communications officer for the Pirate Party in Sweden, Mr. Strandin has first-hand information about everything regarding piracy. His expertise is invaluable because of the party's stance in both Sweden and the European Union.

Christer Wallin, (P5) Survey answered May 16, 2012

Title: Planning committee Chairman (Moderaterna Skåne (Political party)).

Motivation: Christer Wallins input is valuable to the focus of this thesis due his previous job as the second vice chairman within the parties' culture and leisure activities. His role in this job has given him insight into both Internet activities as well as a point of view representing the political parties standing on the issues within this thesis. Mr. Wallin has also had experience as CEO of a printing house for books and as Chairman of Lunds Energi AB.

Mathias Klang, (P6) Survey answered May 21, 2012

Title: LL.M, Ph.D, at Chalmers University of Technology and Project leader at Collective Commons.

Motivation: Mathias Klangs experience within the field of copyrights and licensing, as well as his research within the field of human rights and technology makes his input extremely valuable. Mr. Klang has proposed that the effect of Internet technology usage changes the way humans interact in social contexts, and that internet usage should be regulated. He has also been a member of the parliamentary public electronic committee, whose role was to decide how electronic documents and copies should be stored and publicized within legal scope.

4.2.9 E-mail exchange

Eric S. Raymond, (P7) E-mail exchange on May 15, 2012

Title: Author and co-founder of the Open Source Initiative, amongst other initiatives.

Motivation: Eric S. Raymond is a leading figure, advocate of and spokesman for open source software, with a background in programming. Mr. Raymond is a co-founder of the Open Source Initiative and author of "The Cathedral and the Bazaar" which explores software engineering methods and management of open-source projects. This makes his input important to this thesis because of his insights into technology, and its evolvement.

4.2.10 Telephone interview

Carlo Fassinotti, (P8) Telephone Interview on July 7, 2012

Title: Product Analyst at Nordea Asset Management in Luxembourg

Motivation: Mr. Fassinottis' position at Nordea Asset Management as well as his academic history (Master's degree in International Business, Professional diploma in Marketing, Bachelor of arts in History), greatly aid the research with specific ties to the economic framework of this thesis. Mr. Fassinottis' knowledge and understanding of the economic theory of supply and demand greatly aids the validation of using an economic framework model for this informatics thesis.

4.3 Ethics

When conducting research and interviews it usually means that you are treading into someone's privacy, which can pose an ethical dilemma of how to conduct the interviews. It is of grave importance to follow certain guidelines, which according to Jacobsen (2002), regards three major points. The first paragraph states that the person whom you are interviewing has

the right to be informed of, and fully understand, what the research is about, what the aims are to gain from the persons participation and what the eventual risks of participation is. It is also, of course, important that participation is voluntarily. The second paragraph is about the right to privacy that certain aspects of the participants' privacy are to be excluded. This involves for example questions about the participants' family. It is also important to consider whether the questions are too sensitive, or if the individuals wishing to remain anonymous are easily recognized. The third and final paragraph concerns the participants' answers, that the data is correctly reproduced. The information must be presented in context and correctly. (Jacobsen, 2002) It is also of importance to note that the research team followed these guidelines as proposed by Jacobsen when conducting the interviews.

4.4 Quality

Internal validity assesses if the results from the research are valid, and external validity assesses if the results from the research can be put into a larger context. (Jacobsen, 2002)

4.4.1 Internal validity

As mentioned above, internal validity concerns the accuracy of the results from the research. Inter-subjectivity means that the results are as close as you can come to a single truth, where multiple results points to the same thing or that multiple individuals agree that the description of something is accurate. The more people agree, the more likely it is that it is an accurate description. By comparing the research and results against others in the same field, and by critically examining the results, you can test the internal validity. (Jacobsen, 2002)

4.4.2 External validity

Qualitative research often focuses on bringing more qualified insight into certain concepts or phenomenon, whereas the external validity is to what extent that insight can be generalized. It is important to point out that there are two types of generalizations, one being smaller samples from for example interviews that can be generalized into a more theoretical level, and the second being a generalization that can be made from the frequency of an occurring phenomena. The theory in the first refers to what we might have observed, read or heard. Of the two, the first one applies the best for this purpose and the reason behind this is that interviews were done with a few people, chosen for their expertise in the area of IT, Business, Entrepreneurship and Internet piracy. (Jacobsen, 2002)

5 Cases

The following section examines and describes the three cases that will be used for the analysis. It is important to understand that the cases have been put together by the research team in order to gain a broader and greater understanding of what happened in the specific cases as well as supporting the validity of the cases by using plenty of reference material. The cases are based on academic literature, newspaper articles, academic books and input from our interviews and surveys.

5.1 Case 1: Microsoft in China

5.1.1 Background

Developing countries face many dilemmas when determining how to respond to globalization and intellectual property protection. Through mediation between countries, responsible government leaders as well as influential people of large companies there is a chance for a decrease in intellectual property theft (Shen, 2005). It might take many years of mediation and strenuous efforts between leaders to change the way people in developing countries think and use stolen or pirated intellectual property. This is one of the reasons many companies are unwilling or reluctant to invest in research and development in China. There is a risk of their information being copied and counterfeited and being sold on the streets. The following case tells the tale of how Bill Gates and Microsoft conquered the Chinese market by actually allowing Internet piracy to take place thereby making sure that Microsoft became the leading software brand being used on Chinese pc's (Kirkpatrick, 2007).

5.1.2 Case

Microsoft entered the Chinese market in 1992 and had high hopes of achieving financial success with its products; specifically its Windows operating system and Office suite. The official strategy was to use the same business model as in any other country (Kirkpatrick, 2007). This strategy was a disaster. *"We were a naive American company" Bill Gates said* (Kirkpatrick, 2007). Microsoft thought that the original business model would work in China simply because it had worked elsewhere. However, they had not taken into account China's lenient stance regarding Internet piracy and intellectual property theft. China has a weak Intellectual property regime which is rooted in its institutional framework and its people, as well aslacking court system, administrative offices and the general attitudes of the persons involved in law and regulations enforcement (Shen, 2005). As such it was hard for Microsoft to gain a foothold in China, and hence they suffered great financial losses in the beginning. (Swike, Thompson & Vasquez., 2008). It is estimated that China's piracy rate is around 92%. Nevertheless, Microsoft still saw an opportunity to make money in the market. (Swike *et al*., 2008)

From the start of Microsoft's emergence on the Chinese market, the company diligently tried to combat piracy of their products, and it was not until 1998 that they finally gained some ground in the courts. They were successful in suing two Chinese companies that were infringing on copyright violations (Shen, 2005). However, since Microsoft was insisting that their products should be sold at the same price worldwide, it essentially made these judicial victories small, but still monumental considering they took place in the Chinese market. The company recognized that it would be difficult to stop an entire population, where most people could not afford the products, from counterfeiting them. (Shen, 2005)

To battle the piracy problem Bill Gates and Microsoft took another route and business model to achieve successful business in China. Focus was to be set on diplomatic relations with heads of state and local authorities and gain their confidence and approval as well as building business relationship that would bring consumer demand for the product in China. (Shen, 2005). Another reason for this diplomatic move was that some of the authorities in China were skeptical to American software being installed on their hardware, and were therefore starting to install the open source Operating System Linux – a competitor to Microsoft. This was definitely not what Microsoft wanted for their business and this is another reason why it was important to establish the diplomatic relations (Kirkpatrick, 2007). Microsoft even went one step further and gained the trust of the Chinese officials and opened up and signed a contract allowing controlled access of source code and technical information of their software (Shen, 2005).

Moreover, Microsoft has invested heavily in Chinese companies and educational systems, specifically in the information technology sectors. This has contributed to Microsoft's popularity in China. (Kirkpatrick, 2007)

It became clear that the normal way of doing business was doomed in China, and a more lenient stance on piracy entwined with a great deal of diplomacy could be the answer. And as P6 states, it was of great importance to Microsoft to become the dominant actor, and using this strategy allowed them to do so. By approaching China in this manner Microsoft gained a larger market share. Even if piracy is still an issue in China the relationship between Microsoft and China is good. (Hamm, Kharif & Lacy, 2006) For example, when China's president visited the United States he did not visit the white house first but instead he headed over to Microsoft chairman Bill Gates, and on the flip side of things, when Bill Gates visits China he's more known than any superstar. (Swike, Thompson & Vasquez, 2008)

By allowing piracy, Microsoft made sure that their products are being used. It has also allowed the company to understand that it is not always wise to use the same business model on all markets.

> *"Gates argued at the time that while it was terrible that people in China pirated so much software, if they were going to pirate anybody's software he'd certainly prefer it be Microsoft's".* (Kirkpatrick, 2007)

> *"…you can see it as if piracy has forced business to change their models…"* (P4).

5.1.3 Theoretical Significance

This case signifies an important shift in how a business should treat a new market. As Microsoft learned in China it is ill-advised not to do a significant amount of market research prior to entering the new country. The official leaders of China were not combatting piracy particularly severely, and therefore Microsoft's products were prone to illegal piracy in its entirety (Kirkpatrick, 2007).

The economic theory of supply and demand, clearly illustrates how a business model is adapted to demand – in this case increasing supply through allowing piracy –with the end result of being a market leader. While both demand and supply were high in China, there was

still the problem of Microsoft not making any revenue on their products. Of the estimated revenue that was supposed to be generated from the Chinese market ($1 billion) only a fraction of this was returning to the company ($100 million) (Swike *et al*., 2008). Consequently, supply was high but pirated, and demand was high but not generating a profit for the company, which in a legal setting is not ideal. However, it was more important for the product to be introduced into the market. It is important to understand that it would be beneficial for Microsoft to keep up the trend but of course with increased revenues. Suing the Chinese companies who were pirating their products didn't have a great impact on the consumers and as such the company needed to take new measures to counter the piracy trend (Shen, 2005). At the same time, they had to try to encourage people to keep using Microsoft products. This was clear when many official government institutions were opting to use the Linux operating system instead. This could have been disastrous.

How does one create a demand for a product which is either free or being sold on the street for as little as three dollars openly without the legal institutions stopping it? Well, to keep the demand high among both officials and the general public, Microsoft opted to make their source code available to the Chinese government, and invest heavily in research and development in the Chinese infrastructure and education (Shen, 2005). By creating an arena of trust between the company and China, Microsoft gained the hearts and trust of the Chinese.

As a result, supply and demand both remained high. Like Bill Gates said, it was better that it was his product being pirated than a competitor. The new business model and the new trust of the Chinese meant that in time they would start wanting to buy official versions of the product. By creating an arena of trust, Microsoft has kept their foothold on the Chinese market. The Chinese Government has signed deals for Microsoft's product, and in turn Microsoft continues to invest heavily in China's research and development infrastructure (Kirkpatrick, 2007).

5.1.4 Summary

In conclusion it is important to understand the most basic nature of how supply and demand works and how piracy increased demand for a legal product in China.
Technology as a supply is very unlikely to run out as long as there is electricity to run it and of course skilled labor, which Microsoft is contributing to via investment in Research and Development in the country. Therefore supply is always high, and as the world modernizes demand for technology can keep increasing. Following Microsoft's example in China, it is important for companies to think of ways that they can introduce their technology in less economically developed countries. If they do not reinvent their business models they may well not have learned anything from Microsoft experience in China and end up, like Microsoft with a 90% market share but only seeing 10% of the revenue in their financial statements. (Shen, 2005). China is also significant because as a rapidly developing economy and BRIC it may have been more agreeable in doing business with Microsoft than perhaps a less developed country would be. [1]

Microsoft's way of dealing with piracy through diplomacy should be a lesson that any major company can learn from. Instead of pushing western ideas on a population that has a lenient stance on piracy and relatively low wages; it would perhaps be wiser to adhere to diplomatic relations as a business model instead of just relying on the regular business model used by

[1] BRIC: Brazil, Russia, India and China are rapidly developing countries which have seen tremendous growth in the last few years challenging the most developed economies in the world.

companies. If Microsoft had not developed its old business model the customers would have used as P4 states *"…alternatives like Linux"*. But as a closing argument on the other hand P4 also argues that **"***People pirate software from Microsoft, and have done so for a long time, and Microsoft is a successful company*", which could imply that Microsoft could have become the leading actor on the Chinese market anyway.

5.2 Case 2, Napster

5.2.1 Background

"Napster was revolutionary. It was one of the most innovative applications to ever emerge on the Internet" (Honigsberg, 2002, p. 474).

19 year old college student Shawn Fanning became a pioneer when he created the software program Napster in his dorm room with the aim of the software being to find music from different computers and Internet users, which meant sharing your own music through the program using the Internet as a channel for copying and storage of music files. Napster became an instant success with other students due to the wide range of music available and the possibility to download single hit songs instead of whole albums. Napster had a big advantage at the time because music was not available for purchase on the Internet yet (Choi & Perez, 2007). Napster literally created a new music market. However they never reached their full potential due to court cases claiming infringement of copyright laws among other things.

In 2001 the Ninth Circuit (a United States federal court) found that Napster was breaking copyright laws. They found that the Napster software directly broke the copyright laws concerning files with musical and video content. (Kemp, 2004). After Napster's demise, numerous websites with similar technology emerged but a key difference was the central server (Honigsberg, 2002). It was relatively easy to trace the source of the music to the central server and as such this type of Internet piracy became instantly less popular. The sites that came directly after Napster were not very user friendly and as such not long lived, nor did they have the revolutionary technology that Napster brought with it. Over time, other (improved) sites appeared for instance KaZaA and MusicCity (but the idea was the same as Napster). This created anxiety among the major record labels concerning validation of the copyright-laws and in turn generated numerous lawsuits from the record industry. While the record labels managed to sue some of these illegal music providers new technology appeared and replaced the unsuccessful ones. (Honigsberg, 2002). However, the idea to make music available online was later adopted legally by Apple Inc. and its iTunes service. Here, the user was able to pay for a single song or an album, and due to successful marketing and making sure laws and regulations were followed, turned out to be a success. (Choi & Perez, 2007) iTunes has become more than just a music application. The software has become a gateway to Apple TV and downloading and renting movies legally, as well as being a predecessor to other modern successful businesses.

5.2.2 Case

Napster was the first application that became a powerful online bridge between the music industry and their customers. It became very popular and some reports showed that the there are no Internet sites in history that have grown as rapidly as Napster did (Honigsberg, 2002). Napster changed the way of distributing music, and did this for free; therefore Napster was not very popular to the music industry and later came to be known as a "dirty word" (Scharf,

2011). The problem with Napster's model was that it transferred music illegally and made copies to other users that requested the copied material. This resulted in violation and intrusion of copyright laws. (Kemp, 2004) In the beginning it was a very powerful and revolutionary tool for file-sharing. Before Napster the music industry possessed a monopoly and control over publishing and selling of music but this all changed due to the P2P technology. P2P technology used a central server that could provide online file-sharing, making files and intellectual property readily available. This worked very well at the time but as it turned out, the central server had limitations concerning accessibility to users' computers (Scharf, 2011).

When the Recording Industry Association of America (RIAA) filed suit against Napster because of copyright infringement, Napsters' counterargument was that they were just providing an online listing service. Nevertheless, after two years, Napster lost the battle (Hardesty, Kopp & Suter, 2006). After this, new applications (i.e. KaZaA) appeared as replacements to Napster and worked as a decent alternative to Napster as they used two main strategies to be able to maintain the file sharing; by placing servers and the technology outside U.S. borders, with the aim of minimizing traceability and secondly, eliminating the central server, and as it turned out this last strategy worked (Kemp, 2004). After the P2P success with Napster other developers used the same technology so that the users could communicate with each other and share the digital media but without the central server, this improvement became known as BitTorrent technology. The significance of BitTorrent technology is that the users have to upload at the same time as they download, the BitTorrent software includes tracking methods with the purpose of tracking users uploads so that other user could download (Dahlstrom *et al*., 2006).

Napster was based on a file-sharing program that connects to a central server that provides a search function for the users. (Honigsberg, 2002) The technology behind P2P assumes that the users have an application that can utilize other users hard disk drives and in turn make file-sharing possible with the option to share the files through the application (Li, Li & Zhao, P. 2010). With this, the applications can find names and locations of different types of music, and in turn the users can gain access to other users' music libraries (Honigsberg, 2002). With this type of accessibility anyone could download the music of their choice. Mostly, the music files available came from CD's, tapes and vinyl discs that had been copied and uploaded to an online server (Honigsberg, 2002). This type of digital architecture was typically how Napster used the P2P platform.

To be able to track media pirates, a company called Media Sentry developed software which the RIAA used as a *private investigator*. The software looked for music files on P2P communities and compared it to copyrighted materials of files in a database, the program could then find out if the copyrighted songs were used illegally. (Hofmeister, 2010) The software could also identify the Internet Protocol (IP) address to track the Internet user and this could lead to the users Internet service provider (ISP) and from there on find the user details and if needed the major companies would in turn sue the user of infringement of copyrighted materials. (Hofmeister, 2010)

In 2003 Apple Inc. started providing music to the users in a legal fashion. They developed a program that they called iTunes that contained a music library of over 200,000 songs. This made it possible for the user to preview 30 seconds of the song to decide if they should buy it or not. The difference between iTunes and Napster was not only that it was a lawful application that significantly increased the company's revenues. iTunes sold each song for

$0.99, And to prevent pirates from illegally copying songs that were purchased they incorporated a Digital Rights Management (DRM) which gave the user limitations, the user could only transfer the music to apple products and, could only make 10 CD copies of the music. (Choi & Perez, 2007) This breakthrough and excellent business thinking made iTunes an instant success. After this leap forward many pirates have actually started creating legitimate business models and companies for legal file-sharing. A great example of this is Shawn Fanning: he has become Chief Strategy Officer of Snocap Inc. which is a legal company that sells and distributes music from licensed record companies (Choi & Perez, 2007).

5.2.3 Theoretical Significance

Napster was an industry leader in the file sharing industry and one of the first challengers to the music industry (Scharf, 2011). It completely revolutionized the way that the music industry worked as well as the future of the industry. Shawn Fanning's programming skills brought the idea of sharing and distributing music to a whole new level (Mitten, 2002). Although Napster suffered serious losses through the legal system it can be stated that there was a distinctive need for Napster to exist due to the successful growth in this particular industry (i.e. Music/Movie industry).

What Shawn Fanning saw was that there was a significant demand for music to be readily available, but there was no easy and accessible way to achieve this. By creating Napster he sought out to feed the demands of (at first) college students, but as seen by the popularity of Napster, the general public (Honigsberg, 2002). The application made music available and made it possible for the students and future users to share single songs and albums through the Internet (Choi & Perez, 2007). Through addressing the demands of university students, Fanning actually stumbled upon a demand that was worldwide and created a supply of music for users around the world (Kemp, 2004). With the launch of Napster the supply of online music increased alongside the demand. While not generating a profit, Napster did address the accessibility issue that the music industry did not. (Kemp, 2004) Music was available at the touch of a button and you didn't have to pay for it, it was *free*.

With the use of the P2P file sharing technology, Napster created a new type of software application that could easily find the wanted songs, without the tiresome toll of searching through the normal search engines that existed at the time. The technology used for Napster started a trend that goes on today. (Li, Li & Zhao, 2010) Napster was a success and by the end of 1999, Napster had become the largest file-sharing network at the time and had millions of users (Dahlstrom *et al*., 2006).

When Napster was brought down by the music industry, yet another product was in demand: anti-piracy software. Media Sentry developed software that could track users of pirated material (Hofmeister, 2010). As such Napster created a demand for policing software. Taking this into account it is also clear to see why Apple Inc. developed the iTunes software with their embedded limitations (Choi & Perez, 2007). Napster created a supply of music for the demand of students, and turned it into a global phenomenon. Who knows where we would have been in the file sharing industry had Napster not been created, possibly as P6 said;

> "*The prohibition of Napster did have a stalling effect in one way. But on the other hand without the shutting down of Napster bittorrent systems and streaming technologies may not have become so widespread*".

5.2.4 Summary

Napster's success started with Fanning's vision to close the gap between supply and demand in the music industry. Napster generated a new era of file-sharing with modern technology via the Internet and in turn solved the indexing problem of searching for music through normal Internet search engines. (Oram, 2001). Napster arguably created a demand for the accessibility of shared digital media and the availability of it. The downside of this was the violation of the copyrighted material. Though Napster created a new type of technology for file sharing it did not come without its setbacks; Internet piracy has a negative connotation in the music business because they lose customers, revenue and it possibly also damages their reputation and brand name. (Gupta, Kamala & Srinivasan, 2005) As P4 mentions, the change that Napster brought made the record companies think and "*It will force the record-labels to adapt and satisfy the customers.*" The fight against Internet piracy is ongoing and it doesn't seem like Internet piracy sites and associated software will cease to exist any time soon due to the surplus file-sharers and the demand for readily accessible online products. As long as there is a demand and a supply that can be met through P2P and BitTorrent technologies and application there will be a chance for Internet piracy and its users to make the media available (Gibert, 2010). Napster saw an opportunity to decrease the demand by increasing the supply; unfortunately it did not take into account the legal ramifications that could follow. However, there are a couple of software companies that have revolutionized the markets with legal alternatives – Apple Inc. and Spotify for instance. As P6 states:

> *"Would we have developed solutions like iTunes & Spotify without the actions of pirates and the legal actions attempting to prevent piracy? I would argue that we have seen the development of software systems and economic models based on the social-technical-legal-political situation and therefore we could argue that piracy drives some forms of technological progress".*

In this case the development of Napsters' software application was a driver for innovation.

5.3 Case 3, KaZaA to Skype

5.3.1 Background

The environment for file-sharing software in the early twenty-first century was unforgiving. For instance, Napster was sued and a settlement of $26 million dollars was reached in September of 2001 (Harding, 2009). However, prior to the fall of Napster many other types of P2P software had appeared, one of them was KaZaA, released in the fall of 2000. It quickly became one of the most popular file sharing clients (Warner, 2002). KaZaA used a new type of technology, called FastTrack, for transferring files between clients. This technology allowed clients to connect to each other without going through a central server, creating a so called decentralized network. At the time of its release there was another similar decentralized network protocol called Gnutella. Although both protocols were newly established and not fully developed they both worked on the principle of a decentralized network but unlike KaZaA, Gnutella was an open source protocol (Picard, 2005).

5.3.2 Case

In 1997 Niklas Zennström (European telecom operator) was in Denmark to set up an ISP service for Tele2, a Swedish telecom company expanding abroad. The development of the service required the need for more personnel, at which time he met Janus Friis. Zennströms work required him to travel around Europe with Friis. In 1999 the duo thought that they were missing out on the dot-com boom, and made the decision to resign from Tele2 and start their own company. At the time Zennström was living with his wife in Amsterdam, and turned their apartment into an office where Friis moved into the guest room. They were not sure exactly what their company should do, but they knew it would come to them; and it did. Neither of the two were programmers, but they knew who to turn to. While still at Tele2 they had placed an ad in an Estonian newspaper, looking for people to create a portal for Tele2. Zennström hired four of those responding to the ad; these four had already formed a company called Bluemoon just prior to their contact. Together they created a new network protocol which was dubbed FastTrack, and also a desktop client for sharing files, utilizing the same protocol. The client was dubbed KaZaA. The name KaZaA comes from the name of a pub in Amsterdam which Zennström and Friis frequented. FastTrack and KaZaA like Napster were not intended to be used for Internet piracy. On the contrary, the plan was to license FastTrack, which they did, and then charge the different clients using the protocol, with a close co-operation with the music industry to make a pay-for-share service. However things turned out quite differently. (Roth, 2004)

KaZaA was launched online in the fall of 2000, mostly as an experiment to see if anyone would download and use it, which Zennström and Friis did not expect many to do (Warner, 2002). In the fall of 2001, just after Napster had fallen, Zennström and Friis traveled to the U.S. to sell their idea to the music and movie industry (Roth, 2004). Unfortunately, those industries were still scarred from the Napster case and saw all software using P2P technology as a threat to the business, some even saw it as a moral threat. (Rimmer, 2005). While waiting for the meeting that would take place the second week of their business trip, a 2000 page document was sent their way. In brief, the document detailed why the music and movie industry should sue Zennström and Friis. Instead of meeting the industry leaders themselves, Zennström and Friis sent their lawyers. This meeting ended with agreement between the MPAA (Motion Picture Association of America), RIAA (Recording Industry Association of America) and the KaZaA-lawyers, upon which the lawyers called Zennström and Friss, urging them to come to the meeting. The agreement was that KaZaA and FastTrack would stop their Internet piracy immediately and MPAA and RIAA would not sue, however Zennström and Friis refused to take part in that agreement due to the aggressive stance taken by the other companies, effectively ending the meeting. This was not the only setback, in early 2002 a Dutch court ordered KaZaA to shut down. (Roth, 2004)

KaZaA was now a liability, and Zennström and Friis started to look for ways to get rid of the business (Roth, 2004; Warner, 2002). They sold KaZaA to an Australian company called Sharman and started a new company, Joltid, which took over the source code and license of FastTrack (Roth, 2004; Warner, 2002). The duo started a new company together with a Los Angeles based software company, that they called Altnet. Altnet would be selling licensed digital files via KaZaA (Roth, 2004). Zennström and Friis were still vulnerable because of the FastTrack protocol, even though they tried to protect themselves from legal dilemmas. Both the MPAA and RIAA filed personal lawsuits against the two (Warner, 2002).

The FastTrack technology works by creating a two layer hierarchy in a network. The difference between FastTrack and other P2P protocols, like Napster, is that the FastTrack protocol creates mini hubs that connect to each other via super-nodes, (See Fig. 5.1). Each peer, or node, connects to a parent peer, or super-node, when the application is launched. (Liang, Kumar & Ross, 2006). Super-nodes are regular nodes, which become super-nodes based on available bandwidth, RAM and hard drive space (Picard, 2005). This connection is maintained throughout the session, i.e. as long as the application is running, when the application is started the next time another super-node might be chosen. When a stable connection is made, the node uploads Meta data regarding what files that node is sharing with the super-node. The file description contains tags, like for example the name of an artist, that makes searching easier. Each super-node keeps an index of IP-addresses of the local nodes that is connected to that super-node at any given time; these indexes are shared among the super-nodes. When a user wants to find a certain song or movie, that node sends the keywords to its parent super-node, which in turn searches its index and responds with the IP-addresses and server port numbers of those nodes and Meta data of files that match the search. If a search does not match the index of the parent super-node, the query is passed on to other super-nodes, which in turn searches their indexes and return the same results. (Liang *et al*., 2006). When a user starts to download a file, a direct connection is made between the two nodes (Picard, 2005). If a node is disconnected while transferring a file, the ContentHash is used to automatically search for another copy of the file without using the complete search query keywords (Liang *et al*., 2006).

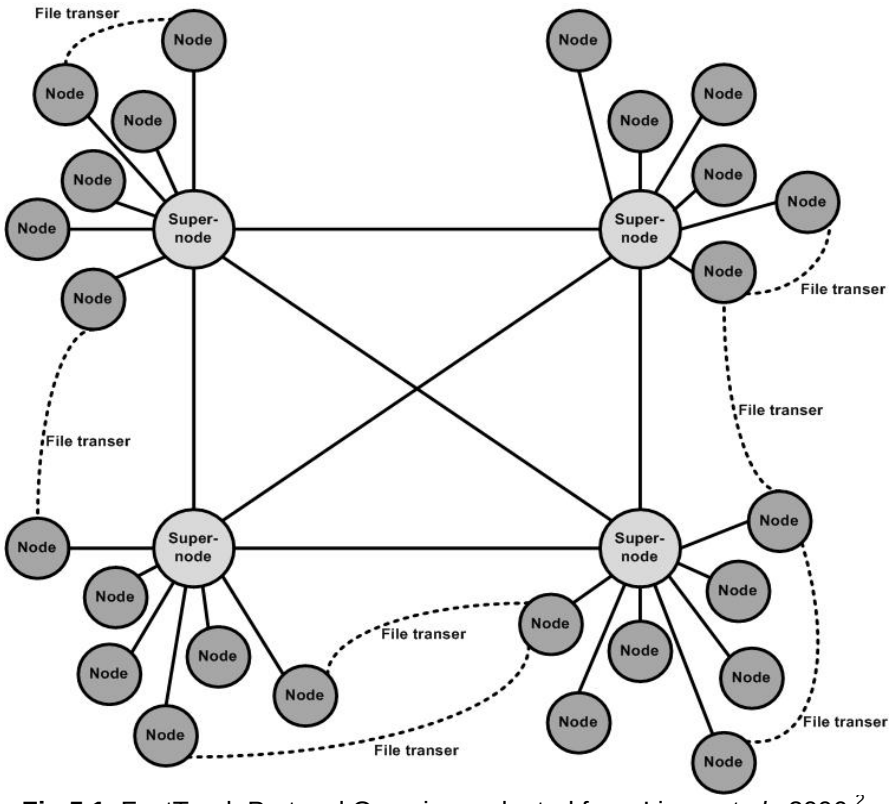

Fig 5.1: FastTrack Protocol Overview, adapted from Liang *et al*., 2006 [2].

[2] The changes made from Liang *et al*. (2006); ordinary nodes are called nodes for the sake of simplicity and file transfers have been added.

The FastTrack technology is entirely closed-source, and internal communication is encrypted, in contrast to that of Gnutella which is completely open-source. Due to the way this technology works, the need to invest in more servers as the users increase is non-existent. When more and more users connect to the network more super-nodes are automatically created, in contrast to networks that use one central server, like Napster. On the other hand this means that searches take slightly longer and that traffic increases between the super-nodes. The way that the FastTrack protocol makes use of super-nodes also means that there is no single server to take down or that any single person has control over what files exists in the network. (Picard, 2005)

After the KaZaA ordeal, Zennström and Friis started working on a new venture with Bluemoon, which they named Skype (Roth, 2004). Skype is an application for VoIP (Voice over IP), instant messaging and file transfers. VoIP is in short, two-way audio communication via P2P. (Daswani, Guha & Jain, 2006). The first beta of Skype was released on August 29 2003, and it became popular very quickly, about a year later Skype had one million users online simultaneously (Picard, 2005). Skype owed much of its popularity to, one, being a free of charge voice communication service (Picard, 2005), and two, it spread through word of mouth – a financially savvy marketing technique (whether it was intentional or not). (Roth, 2004)

As mentioned, the Skype application connects to others using P2P, and with a protocol that uses nodes and super-nodes. Like the FastTrack protocol, the super-nodes are ordinary nodes that become super-nodes based on available bandwidth, hardware capabilities and if the node has a public IP-address, which means that they are not behind a firewall or a NAT (Network Address Translation). Besides nodes and super-nodes, Skype uses a central server. The central server takes care of signing up new users and authenticating existing ones. (Picard, 2005)

Skype encrypts all internal traffic (Skype-to-Skype), using AES (Advanced Encryption Standard) 256-bit encryption, public user keys are encrypted with 1586 or 2048-bit RSA encryption (Skype, n.d.). RSA encryption, named after its inventors Ronald R. Rivest, Adi Shamir and Leonard M. Adleman, is a type of algorithm commonly used for public-key cryptography (Simmons, 2012). The Skype protocol is proprietary and closed-source, and also encrypted (Picard, 2005).

Since the launch in 2003 Skype has implemented support for video communication and the ability to communicate with regular phones (Mellia, Meo & Rossi, 2009). In 2005 Skype was sold to eBay, eBay in turn sold Skype to an investment group led by Silver Lake (Joltid Ltd. was one of the companies in that group) in 2009 and in October 2011 Microsoft bought Skype for 8,5 billion USD (Skype, 2011). By December 31st 2010, Skype had 663 million registered users, with average of 145 million monthly connected users (Rao, 2011). In March 2011 Skype had peaks of 30 million simultaneously connected users (Parker, 2011), by March 2012 that number was 35 million (Caukin, 2012).

5.3.3 Theoretical Significance

It is clear that Niklas Zennström and Janus Friis saw a demand to easily access music and movies through a convenient application on their own computers when they created KaZaA. There was however not a sufficient supply of digital files, only stores that sold physical products (Choi & Perez, 2007). The creation of the FastTrack technology was part of this in the way that it would make file transfer more effective, specifically that it would avoid the use

of a central server (Picard, 2005). KaZaA was not the first file sharing application, it was however one of the first real attempts to meet the demand to access licensed material. Unfortunately it turned sour just as quickly. (Roth, 2004). Part of the problem was that the design of FastTrack, as there was no central server there was no control over what files were being shared (Picard, 2005). KaZaA also met another demand, although not the intended one, namely that of easy and fast access to a large quantity of free (illegal) files. However, with the creation of legal alternatives the illegal users may choose to become legal users. (Choi & Perez, 2007)

The similarities between FastTrack and Skype are striking. First of all, both the Estonian programmers at Bluemoon and the company Joltid Ltd. (which owns the rights for FastTrack) were involved in the development of Skype. Secondly, both transfer protocols, uses nodes and super-nodes, although the Skype protocol differs slightly from FastTrack because it uses a central server. That is mostly because of its function to keep track of the creation of new users, as well as existing users, and enable the use of sufficient encryption. (Daswani *et al*., 2006; Picard, 2005)

Skype is similar to KaZaA in regards to meeting a demand where there is low supply. Another similarity is that Skype was not the first actor on the market using VoIP, similarly to the case with the KaZaA application (Raina, 2007). There have been other applications that were similar to Skype, the majority of them are however more cumbersome to use and do not have all the functions that Skype provides (Porter, 2006). Nevertheless, as P6 mentions "*A different position would be to charge very very low prices and lose money as an investment in order to become dominant*". In some way this is was Skype did at first by offering a free service to become popular with the customers.

Low supply does refer to regular phone services, because there are evidently a vast variety of companies providing such services. Now that Skype provides the service for users to call from a VoIP connected device to regular phones (Picard, 2005) the company is meeting another demand where there has been low supply (Eng, 2004). Due to their strategy as cheap and reliable as well as developing their business model they continue to be one of the largest VoIP providers in the world.

5.3.4 Summary

An insight into how Zennström and Friis created several quite successful entrepreneurial ventures can be done by reviewing the case with questions posed by Shane and Venkataraman (2000). The questions are: why, when and how the opportunity arose; why, when and how they and not anyone else exploited the opportunity; why, when and how different kinds of actions exploit these opportunities.

Zennström and Friis created their opportunities by making something that they thought there was a market for, a simple supply and demand issue, namely a file transfer protocol (FastTrack) and a client (KaZaA) that utilized that protocol. The same goes for their later venture, Skype. They already had a protocol for transferring data between clients, they used that idea for the creation of the Skype protocol which they consequently thought there was a market for (Roth, 2004). To answer why no one else exploited the 'opportunities' that Zennström and Friis did is simply that, others did exploit the same opportunities, Zennström and Friis were just able to structure their business better. Zennström and Friis were neither first with creating a file transferring client, Napster came before KaZaA, nor were they first to

create a network protocol that is decentralized, Gnutella worked in a similar way to FastTrack and was released slightly earlier (Picard, 2005). Zennström and Friis were not first with utilizing VoIP with Skype either, VoIP has been around since the mid 70's (Gray, 2005), but started to gain popularity in the mid-nineties; but not without resistance, P1 comments "*…in '96, efforts were made to stop voice over ip by passing laws, which was before many even used voice calls over the Internet, with the intention of stopping future competition with regular telephony*". Zennström and Friis arguably made the right decisions and actions to leave Tele2 and start the KaZaA venture. They also made the right choices to sell KaZaA, when the application had become a liability and when they still could sell it. Both P1 and P7 comment about the liability a software developer has by creating parables for explaining their stance, first P1;

> "*In my world technology is neutral, a bread knife for example, you can cut bread with it and you can stab people in the stomach with it, one thing legal and one thing illegal, what is the bread knifes responsibility?*".

P7 agrees "*Are people who manufacture cars to be held responsible for hit-and-run driving? Are people who manufacture hunting rifles to be held responsible for shootings of people?*" With these statements in mind, one could argue that Zennström and Friis should not have been chased in the manner they were because they were not the ones actually using the application for an illegal reason.

P3 comments "*Skype's company structure was impressive and adapted just right, with the help of good lawyers […] their entrepreneurship was impressive*". By taking advantage of the KaZaA protocol Skype used the opportunity to set up their business and offered their customers a new and improved service. Why these actions were made is in relation to the demands that Zennström and Friis saw, as P3 states:

> "*Other break through [sic!] in other fields always give new opportunities if they get implemented and are better than old technology. This usually benefits the consumer a lot with more options at a lower cost"*

and P4:

> *"You can't force customers to stay with old technology when they see modern technology rise. You need to be one step ahead and show the customers where to go and how to use modern technology".*

Other companies offered the same services at the time, but, in spite of this Skype became the largest player in the market, which have made the duo billionaires (Nocera, 2009).

6 In-depth analysis

"A long habit of not thinking a thing wrong gives it a superficial appearance of being right…" Thomas Paine, 1776.

To fully understand the implications of the three cases it is important to analyze and compare them. All three cases present a unique way in which entrepreneurs were affected by Internet piracy. It is also important to understand that the three cases concern gifted software pioneers, that each saw a demand in a market that had left the consumers resorting to Internet piracy. Through understanding this phenomenon, these entrepreneurs have taken measures to try and eliminate piracy by starting their own businesses or changing the way the in which business was previously done. Each of the entrepreneurs has been faced with a new business environment based on intellectual property. This, mixed with the lawsuits they all faced, challenged their ideas, but ultimately they each succeeded, in their own way. Some have been able to meet the demands and criticisms of the market and some have not (Johannessen & Olsen, 2009).

Microsoft, Napster and Skype all faced Internet piracy (in one way or another –intentionally or not), and all three have arguably used Internet piracy as a springboard to achieve some kind of market success. It has been fundamental to the businesses to think outside the box and to use new information that might aid in the development of new ideas (Johannessen & Olsen, 2009).

For the purpose of this study, and the method chosen, the following chapters will be in depth analysis of the common denominators that link the cases:

- Entrepreneurship; creating new ideas.
- Internet Piracy as a springboard.
- Technological innovation.

6.1 Entrepreneurship

Turbulence and an ever changing business environment challenge the way companies and entrepreneurs do business and create new ideas. Market competition and innovation have become keys to success (Johannessen & Olsen, 2009). Technology is a tool that is used to create counterfeit and pirated products, especially in the information technology market, and with well-known effects on the multimedia industry. These effects range from losses in both revenue and branding. Take for example Microsoft's expected revenue of $1 billion dollars in China – where the company only realized a gain of $100 million (Shen, 2005). Napster was never meant to be a revenue generating product, it was originally developed to easily find and locate files of other Internet users (Suter, Kopp, Hardesty, 2006). KaZaA emerged while Napster was in the midst of a legal mess with the music industry and as explained in the KaZaA case, was never meant to be a tool that would enable Internet piracy (it just happened to be a useful tool for Internet piracy, like Napster). However, the new P2P technology was suitable for file sharing (Picard, 2005).

One of the things that explain Napsters' success was that consumers did not grasp the negative aspects of Internet piracy and what they were doing. This could be true for the KaZaA case as well. A number of people probably did not even realize they were contributing to Internet piracy through using these applications. (Chin, Khalifa & Limayem, 2004). In essence Internet piracy is a social issue, defined by human morale and the basic understanding of what right and wrong is (Chin *et al*., 2004). This was true for Shawn Fanning and Napster; he did not realize that what he was doing was illegal (or so he claims), to him it was technological advancement in file sharing. (Choi & Perez, 2007).

The KaZaA inventors never meant for their application to be used for Internet piracy, however when Napster collapsed, there was a demand for a new application that could do the same job that Napster did, and this is the gap that KaZaA filled (Hardesty *et al*., 2006). By uploading the KaZaA application on the Internet it became available to a huge consumer market and it fulfilled a demand that was growing (Warner, 2002). There was clearly still a market for cheap/free products online. In any business, if demand is there someone will come up with a way to fill this demand. Note that the key word here is *free*, consumers want free products; this is clear in each of the cases.

As entrepreneurs scan the surrounding market or arena in which they plan to work in it is paramount to see where and if there is a need for a new product of service. Internet piracy can ultimately benefit these entrepreneurs in creating a new idea or a new venture that might become successful (Castro, 2008). However, embarking into a venture concerning intellectual property raises further questions as to how to start a successful business without running into the same legal ordeals that previous companies have faced. It appears to be rather bold of for example KaZaA to move into an industry where Napster has just faced serious legal problems from the RIAA and the MPAA. (Hardesty *et al*., 2006) Though the KaZaA developers did manage to avoid these legal actions the RIAA and MPAA had made their point: any application using P2P technology would likely be faced with a rough legal battle. (Roth, 2004).

KaZaA moved on from this and kept their FastTrack protocol but sold off the client, this rendered them more or less untouchable to legal action. However, looking forward the two brains behind KaZaA continued to look for other demands in the IT market. FastTrack was perfect for use in digital communication, and consequently Skype was created (Roth, 2004).

Bill Gates had to rethink Microsoft's' business model when entering the Chinese market in 1992. Unfortunately, Microsoft had not forecasted or planned on China's lenient piracy and counterfeiting policies (or as some would argue, done enough market research) (Shen, 2005). As any company would have, they tried suing and attempted to force changes on the Chinese market. However, this just had a negative effect on the way Microsoft was viewed in China. Even with a small legal victory in 1998 (by winning a case with against two Chinese companies) they still did not receive the support needed from the Chinese government to stop Internet piracy (Hamm, Kharif & Lacy, 2006). Microsoft radically needed to rethink the way they did business there. "Gates argued at the time that while it was terrible that people in China pirated so much software, if they were going to pirate anybody's software he'd certainly prefer it be Microsoft's"(Kirkpatrick, 2007). This statement can be seen as an eye opener. Microsoft had realized that to make their business successful in China, they needed to invest in the people of China. This is exactly what they did; with heavy investments in research and development in Chinese education and opening up source code to the Chinese government, the company had used their innovative way of thinking to convince the people

that their product was the right one for them (Shen, 2005). As a result Microsoft and Bill Gates became superstars in China.

The results from the surveys and interviews (see Appendix 2 and 3) all point in the same direction as the case studies. P1-P6 all agreed that the technology used within all cases should be used for legal causes (i.e. online subscription music and video), such as starting a legitimate business. However, some of the thoughts surrounding this phenomenon were that if the entrepreneur were to start a business with a new model they needed to make sure that the company could provide the same functionality as the pirated uses (P4). As well as providing the functionality at a price that would entice a consumer to be willing to pay for the service or product (P3).

One theme that raised various ideas and thoughts among the participants was that if an organization or entrepreneur develops a product that was not intended for piracy, but is commonly used by pirates, were they to be held responsible for the actions of the. While P3 and P5 insisted that the one who uses the software should be held responsible, P2 and P6 were more vague in their answers. They believed that it should depend on the situation and considered on a case by case basis. Understandably, if the entrepreneurs use the product and sell it 'legally' and simultaneously recognize that it is being used for illegal purposes, then again, all things considered, maybe the entrepreneur should be held responsible. P1 and P4 find the answer to be more in terms of relation to other products,

> "*…the question becomes a classic question in professional ethics for engineers. Was Alfred Nobel responsible for all the (dynamite-based) bombs used in wars? Who is responsible for nuclear weapons, Marie Curie? German scientists? American scientists? Questions almost impossible to find a single answer to*" (P4).

As a generalization, all participants seem to agree that Internet piracy can ultimately lead to the development new technology and business models. While two participants say that it most certainly will, two suggest that it depends on the situation and what type of things are being pirated; one could for example argue that if it is single files versus software, software entrepreneurs would most definitely be able to benefit from Internet piracy in the long run. This correlates directly to how Microsoft entered the Chinese market, how Skype has become a leading actor in VoIP and why Napster became so popular.

6.2 Internet Piracy as a springboard

"If you're in the market of content distribution: look at what the pirates do, improve it, remix it, and people will pay you for your services." (P4)

KaZaA and Napster became popular because of their ability to understand that there was something missing in the multimedia industry. As the Internet expanded there had become a demand for the availability of music and files to be easily shared (Warner 2002; Honigsberg, 2002). People wanted music at the touch of a button, and as discussed in the Napster case, indexing issues on the normal search engines at the time was very slow. (Mitten, 2002). Fanning solved this with Napster, and made accessibility to music files simple, unfortunately the success was short-lived.

Unfortunately, KaZaA arrived in the midst of Napsters' demise. Since the multimedia industry was still shaken by the incident, they could and would not accept any kind of P2P

technology, as they thought it would be bad for business (Rimmer, 2005). This may have been true, but these companies did not take into consideration what the consumers wanted from them: Accessibility. KaZaA was an instant hit when it was released, but unfortunately it did not last in its original form for long either. (Roth, 2004; Warner, 2002).

Internet piracy as a springboard might be somewhat misleading. As seen with Napster and KaZaA, both of which were developed on the premise that their programs were not to be used as copyright infringement platforms, they ended up being used that way. The two cases clearly explain that even under the most honest of intentions; piracy can take you by surprise. Due to the protocols of the programs, both of the companies' executives have moved on to start new business ventures that have become very successful. (Dahlstrom *et al*, 2006; Warner, 2002). Shawn Fanning is as mentioned now a successful Chief Strategy Officer (Roth, 2004; Choi & Perez, 2007). Even though both Napster and KaZaA suffered at the hands of the multimedia industry, the use of their application for Internet piracy, catapulted them into other successful ventures. This is not to say that it was only thanks to Internet piracy, it was also their ability to use the developed protocols and software for another purpose.

In the Microsoft in China case, it is clear to see that if piracy had not driven the company to change strategy Microsoft would not have been able to create a demand for its products legally (Kirkpatrick, 2007). Reverting back to Thomas Paine's quote at the beginning of this chapter, "*A long habit of not thinking a thing wrong gives it a superficial appearance of being right…*" it is clear to see that the Chinese people did not really perceive piracy and copyright as wrong because of the fact that nobody had enforced anti-piracy laws and regulations. (Shen, 2005). If compared to Sweden per se, after the Ipred law was passed, the government estimated that there would be around 400-800 yearly court cases concerning copyrighted material, however since 2009 when that law was passed only 11 cases have gone to court (Kulturnyheterna, 2012). Does this in turn mean that the law passed was useless and didn't have any impact, considering that while it seems the legal alternatives like Spotify and Viaplay are on the rise people still pirate digital material. In this case one could actually presume that as Swedes have pirated material for a long time, they just do not see it as immoral; just like the Chinese.

As proven by Microsoft, piracy was used as a springboard to actually make sure that their product became the number one used software program in China. Even if the company battled strenuously against piracy, they finally embraced it, and changed their business model to fit the Chinese market (Shen, 2005). Though piracy is still a problem in the Chinese market, and even though the Chinese people still produce counterfeit copies of all kind of products, Microsoft showed that if one sees the benefits of piracy and it is managed optimally, it can ultimately springboard your business to success on that market.

By ultimately seeing how pirates are using technology, entrepreneurs have taken into account what has been done before by modifying either business models or the technology itself to fit a legal and proper business. "*looking at others and copying and improving the tweeking other and your own business models are the way of the entrepreneur in my opinion*" (P3). P5 has agreed to an extent. He maintains that, if you take parts of the ideas but modify them you can probably achieve greater success on a market dictated by rules and guidelines.

As P5 states, Internet piracy has most likely opened new doors for entrepreneurs and new businesses. It is literally learning from others mistakes. By watching others fail, new actors

can take advantage of newly spun ideas that have been modified to suit the market. However P5 does mention that new ideas have probably been stalled due to lengthy lawsuits against for example Napster.

6.3 Technology innovation

> "*The internet era has changed society, and both piracy and changed business-models are a result of this. You can see it as if piracy has forced business to change their models, but you can also see it as if business have been slow and conservative to adapt, exploit and use the technological advances of the last 1-1,5 decade. I see it as the later. You can't force customers to stay with old technology when they see modern technology rise. You need to be one step ahead and show the customers where to go and how to use modern technology. The customers will follow the most advanced and cool distributor, be it business or piracy*". (P4)

The technological advancement in the last two decades has moved at an astonishingly fast pace. The cases discussed show that technology used unlawfully can be improved and become legally used. Though still used for the spread of pirated material, it can now be seen that legal businesses are adopting the technology behind the Napster and KaZaA clients. Take Skype for example, from humble beginnings of KaZaA and the FastTrack protocol, used to try to gain the approval of the multimedia industry (Warner, 2002). Skype is now a multibillion dollar business. An interesting phenomenon, and one that proves that even though the technology was used for piracy (however unintentional), it is today used as a legal tool for software that millions of people around the world use (Parker, 2011).

P2P technologies such as BitTorrent technologies have spurred on technological advancement which has created opportunities for new businesses. If these technologies would not have been created would companies have realized that this is something that consumers wanted? It is possible, but the change towards the streaming technologies that we have today might not have come so quickly. Napster and KaZaA's protocols and foresight into what was lacking on a market supported the demand for accessibility and change from the major multimedia industries. From initially being used as pirate tools they are now used by many large and successful companies providing online music and video files.

Microsoft's hand in the advancement of technology, through the China case, presents itself in a different manner. Because of the way they dealt with piracy, by changing their business tactics from battling piracy head on, to investing heavily in both diplomacy and research and development, they used human interaction as a new model (Shen, 2005). By gaining the trust of the Chinese, especially with the diplomatic approach and funding research they advanced new technologies and arguably business strategies within informatics (Kirkpatrick, 2007).

The answers received from the interviews and the surveys correspond well to the analysis about "pirate" technology. In the use of BitTorrent technology, P3, P5 and P6 state that they don't use this in their company but P4 and P6 mean that modern technology could be a practical way of distributing legal content if there is a working business model. P4 on the other hand uses BitTorrent technology to share videos from different events. P4 even points out that pirates use modern technology to speed up and increase quality and are normally one step ahead of regular businesses. P4 also claims that Spotify is an example of a company that

has used a new modified version of the BitTorrent-protocol to transfer music, in this case storing content locally on computers but in a legal manner. *"New business models are linked by using new technology to reduce costs or get other advantages, preferably of scale or in a niche"* (P3) Meaning that if the new technology is better than the old, this usually benefits the consumer with more options at a lower cost. Pirate technology used primarily by pirates is now being used to provide online video and music files in many modern and successful companies legally. Two examples that P6 mentions is that of Apples iTunes and Spotify, these companies have developed new applications as an alternative to piracy, and argues that due to this, piracy could drive some form of technology progress or innovation.

> *"Piracy may help you spread the product but the effect will be one of establishing the idea that software should be free…I would argue that we have seen the development of software systems and economic models based on the social-technical-legal-political situation and therefore we could argue that piracy drives some forms of technological progress."*(P6)

6.4 Supply and Demand

As presented in the cases, there is a great deal of thought behind moves that the companies have made to successfully compete on the world market. Clearly Supply and Demand was and still is a great driving factor to what businesses do and how they function. As stated by P8 *"…all businesses need to consider supply and demand in any business model…*", "*IT is one of the biggest businesses in the world*", and arguably one might say that piracy and file-sharing is not a business, but then you would be wrong, take Kim Dotcom for example who started Megaupload. He provided a file sharing service and instantly became one of the wealthiest men in IT (Hill, 2012). The previous cases presented prove that when piracy strikes and effects ones' business, the leaders or decision makers have needed to understand why this is happening. Be it due to the fact that there is a demand, and a supply, but still no sales. The reason for not selling might be as apparent as it being difficult to compete with something that is *free* such as file-sharing. This is where decision makers need to understand that if they have the supply and want to make a profit they might need to shift their models as to provide some sales of the stock they have (see Fig 3.1). In other words by decreasing the price and having a readily available quantity of goods, businesses can be able to compete with file-sharing. By providing legal and easily accessible services these companies can compete and will in turn gain benefits of the market shares that were lost to piracy in the past, this is clearly seen in the cases. Customers are willing to pay for services if the price is right.

In retrospect, it is easily seen by following the supply and demand models that if your organization scopes the surrounding market and fully understands the implications of piracy and the human behavior behind this, it is shown that by simply shifting the organizations focus a little you can actually benefit from file-sharing. As shown in the Microsoft case it might not be wise to stick to the old business model, but once understanding how the Chinese market worked, they easily made a few changes to their structure and in turn were able to receive economic gains. It would seem as if Thomas Pains statement *"A long habit of not thinking a thing wrong gives it a superficial appearance of being right…"* is true for organizations as well, especially as it seems many are stuck in old habits of using the same economic models and not seeing that a small shift or change might actually increase profitability of the organization.

7 Discussion

Reverting back to the research question "Internet Piracy as a Steppingstone Towards Technological Advancement and Entrepreneurial Growth?" and using the information gained from the case study research it has been possible to confirm that Internet piracy has created some groundbreaking ideas, technological, managerial and entrepreneurial. Many of the successful persons involved in the cases have faced adversity, but have later reaped the benefits of their innovations. Indeed Internet piracy has helped some of these actors to fine tune their ideas and their technology to create successful business ventures. These individuals have not always been the first to uncork the ideas that finally developed into multimillion dollar business owners or successful in their own right, but they have been able to seize to the opportunities and capitalize on the ideas and technology available to them. Internet piracy has been both positive (as a springboard) and negative (morally and ethically) in these respects.

By using the economic theory of supply and demand it has been interesting to examine why the actors in these cases have made the decisions to develop and capitalize on the ideas. From Napsters' Shawn Fanning seeing a demand in availability and sharing of music, to KaZaAs' founders understanding that after the fall of Napster there would still be a demand for accessibility to files on the Internet. Microsoft's case differed from the other two in a way that saw the company struggling to understand the market even if there was a demand for the products they were offering. What ties them together is the fact that they all did something that would satisfy the consumers demand for the products. Demands that have risen over time and have seen many new businesses emerge and deliver a product or service to the consumer. Strictly speaking, the supply of goods that consumers wanted has not always been readily available, but with the major advancements in technology and the will of the consumer, the major companies and leaders have had to bow down to the will of the consumer in one way or another. By adhering to the will of the consumer content availability has risen and become more accessible and available, especially on the Internet. In this case it is clear that if not technology had evolved to where it is today we might not have seen these large companies starting to offer subscription services to the consumer and thereby feeding the demand. In other words one can state that the supply has now reached a point where it is starting to feed the demand in such a way so the consumer is actually willing to pay for a service that ultimately works, is available and accessible.

Internet piracy has been a superior driver for change in the business arena, many people still do use the Internet for acquiring their goods for free, but there is a risk that the goods will be faulty and of a poorer quality than the goods real businesses may offer. However, many are still willing to accept the fact that a downloaded product might not work, just because it is free. As stated earlier, it is hard to compete with *free.* The research and cases in this thesis to support the fact that Internet piracy has been a driver for some of the most successful businesses today, but it is hard to determine if Internet piracy will continue to be a driving force in the future due to the new developments in business and technology. Especially due to businesses actually starting to adapt and offer services and goods to the consumer in a fashion that suits the consumers' needs. The results may have been different if other cases were studied, or maybe if other individuals would have been interviewed. Also the results might have varied from our findings if companies who deal with anti-piracy were interviewed, but the chance of them actually saying anything positive about Internet piracy would be slim.

Microsoft had to change their business strategy and business model, KaZaA had a business model that could have worked (if not challenged by the ruin of Napster and various record companies' opposition to file sharing at the time). While Napster was at the forefront of file

sharing, Fanning had missed out on the lawfulness of the venture. What he saw as an easy way for users to share files, which was actually illegal, and resulted in the company being sued for millions of dollars on infringement and copyright laws.

Sub-question 1: Has the technology associated with Internet piracy has supported the development of new technology used for legal business?

Sub-question 1 cannot be rejected based on the research undertaken. While for example Napster did not seem to realize the full scope of the legal actions that could be taken against it, the P2P technology behind its client is still used in many applications today. There are still Internet piracy applications that use the technology but today there exists legal alternatives. Had the technology not been developed at all, it is impossible to know what type of file sharing software would be used today. Improvements have been made to the technology so as to fit the increased bandwidth of the Internet, and with this, new businesses are popping up all the time – legal and illegal.

The FastTrack protocol created by the KaZaA founders was an improvement in itself for file sharing technology. Though not meant to be used as an Internet piracy tool from the beginning, it became popular, and one can assume that it was because consumers demanded an accessible way to find music that was not provided by multimedia companies after Napsters downfall. FastTrack lived on even after KaZaA was abandoned by its original founders; they kept the protocol and started Skype. Skype has since then grown into the largest and most commonly used communication tool in the world. It may be fair to assume that this might not have been the case if multimedia companies would have welcomed KaZaA after the fall of Napster.

Without the technology used by counterfeiters and pirates, copies of Microsoft software would likely not have been as readily available. If Microsoft had not changed their strategy in dealing with piracy in China – it would probably not have become as popular as it is. Considering that they opted to invest in Chinese research and development and educational institutions it has not only become the most used software but also embraced software in China.

Sub-question 2: Does Internet piracy create new business models and business opportunities?

The second sub-question cannot be rejected based on the evidence provided in this paper. If Internet piracy had not existed there would not have been such great efforts to undertake new business ventures that involved restructuring old business models so as to fit a legal framework, and the modern business community. If Internet piracy had not existed, would the information technology sector have seen equally great advances in security measures being taken to stop piracy? Entire industry's took actions to prevent Internet piracy and as such developed new technology. An example was Media Sentry in the Napster case. From this case a demand for tracking software was created, and it was done in order to provide support to the companies being affected by piracy.

By charging into China and conducting their business without properly understanding the business environment, Microsoft could have suffered severe consequences. However, after exploring the way things really worked in China they changed their business model to better fit this market. If Microsoft would have kept its original business model they would likely not have reached the success and the fame they see in China now.

Skype exemplifies piracy fundamentally forcing new ideas from the entrepreneurs to create a new business model and venture. Without the preexisting cases of Internet piracy and the non-conformity of the multimedia organizations, Skype might not have been where it is today or might not even have been created.

As seen in the research and the answers provided, Internet piracy does in many ways support creation of new business models and new opportunities for entrepreneurs. This is still a topic for heated debate as different opinions, some very strong, on the subject and not just from those who have historically opposed, such as the music and movie industry, but from people that are not in that type of mainstream industry. P7 comments *“"Piracy" can no more be a building block for entrepreneurs than rape can be a building block for lovers*”. With this in mind and with opinions like this, the Internet piracy debate will continue, even if the research from this thesis provides new information that Internet piracy actually can aid in the development of new ideas.

Sub-question 3: Is Internet Piracy is becoming obsolete due to the availability of new legal versions of similar software and products?

Based on the research, there is not enough evidence to answer this sub-question. There may be a decline in Internet piracy as new companies are addressing the consumer needs and wants legally, but there is no way of confirming that Internet piracy will become obsolete as a result of this. What is certain however is that as long as price tags are high there will be people who do not want to pay for the products and will develop ways of accessing the products illegally. This also relates to issues of accountability – to be able to stop piracy completely governments and global leaders must play a greater role in its elimination. As long as there are corrupt governments and leaders – piracy is unlikely to disappear.

8 Conclusion

Interestingly, Internet piracy does support the development of new technology and aid in entrepreneurial growth. As well as aiding organizational growth but at the same time setting major obstacles in the way for them. The world needs to find equilibrium where pirates are not hunted as witches, but some common ground needs to be set specifically by governments and lawmakers in order to address the Internet piracy phenomenon. Through the analysis of the case studies, it is clear that even if technology is not intentionally meant for piracy it can and will if possible be used for that purpose. Internet Piracy however, has also allowed for technological advancements that we may otherwise not have seen. In conclusion, piracy has in a number of cases opened new doors for entrepreneurs whom have been able to use the new technology for legal and successful business ventures.

Appendix 1: Survey Questions

1. Does the organization you work for try and manage the technologies used by Internet pirates, specifically Peer2Peer-technologies, such as Bittorrent?

2. Do you think that technology used by Internet pirates can be used (or should be used) by legal businesses to increase customer services?

3. Do you know of businesses that have implemented any of these technologies? If so, how do you think the use of 'piracy tools' affects how the companies are perceived in the markets?

4. If an organization or entrepreneur develops a product that was not intended for piracy, but is commonly used by pirates, should they be held responsible for the actions of the users?

5. Piracy has commonly been described as a phenomenon in the internet era. Do you feel that it has helped entrepreneurs and organizations construct new business models or approaches to increase financial success?

6. A significant application that became very successful was Napster. After Napster was shut down, file sharing software was loathed by record/movie companies. Do you think that the prohibition of such applications stalled the development of entrepreneurs that could have found a way to legally used them?

7. In your opinion, if some piracy is allowed, will it support the development of new businesses?

8. In order to become successful in China, Bill Gates famously tolerated the counterfeiting of Microsoft products. "Gates argued at the time that while it was terrible that people in China pirated so much software, if they were going to pirate anybody's software he'd certainly prefer it be Microsoft's". (Kirkpatrick, 2007)

How do you think Microsoft handled this situation? Should they have accepted piracy to become the leading brand of software in the Chinese markets?

Do you feel that this approach could work in Europe (or anywhere else in the world)?

9. Do you have any last comments on piracy as a building block for entrepreneurs?

Appendix 2: Interview transcriptions

Since the interviews are rather long, we have only transcribed the most important details of the interviews.

Jonas Birgersson (P1)

Jonas: Om man tar exemplet här, spanjorerna då de hade ju inkvisitionen, inkvisitionen var ju en spännande historia, de gjorde ju till exempel sådana här som saker som att det var för lite folk som klev fram och rapporterade in häxor, då gjorde man lite beslut och det var ingen normbaserad lag, utan det var en beslutad lag. Då sa man: om ni anger en granne och han eller hon blir skyldig till svartkonst, då får ni deras gård. Man fyllde en del kvoter så att säga. Men det var ju då inget beteende som var liksom utan det här var ju då något man bara bestämde för att man ville att ni ska ändra er, gör ni inte som vi vill så får ni pisk, medans den sortens bra lagar det är ju såhär brukar vi göra men låt oss skriva ner det så att det blir lättare att förstå. Så med det här som bakgrund kan man ju då säga att eh, VoIP då, voice over IP, när man satte igång med internet från början, då var det ju så att redan 96 så försökte man få förbud mot att köra röstsamtal över internet, men det var ju innan så många använde voice over ip, så att det var ju en sådan här lag, man gjorde en lagändring för att man skulle skydda mot framtida konkurrens, och det här blir väldigt roligt, för det här blir en sådan grej där allting då kommer ihopa, då finns så... det är ju klart starka intressen här uppe precis som spanjorerna var starka, väldigt starka intressen här, de vill ju försöka skydda sig med sådan här lagstiftning, de ska få bort konkurrens. Alltså det är egentligen konkurrenshämmande lagstiftning, men det som blir väldigt intressant då det är ju att samtidigt som tekniken skapar nya möjligheter, så finns det då helt stort lagligt paket som är ju då det här kartell, som är till för att hindra skydd mot konkurrens.

Further in the interview.

Jonas: I min värld så är tekniken neutral, va. Det är ju samma sak som det här med brödkniv, man kan skära bröd med den, man kan sticka den i magen på någon. Det ena lagligt, det andra olagligt. Men vad är knivens ansvar? Tillverkaren av kniven? Så att det här är ju en sådan grej som återkommer vi olika tillfällen.

Lars Winther-Hansen (P2)

Lars: If an organization or entrepreneur develops a product that was not intended for piracy, but is commonly used by pirates, should they be held responsible for the actions of the users? Nej, det är svaret på den frågan.

Victor: Tanken bakom det är att det handlar om just användningen av KaZaA, eftersom de blev ju jagade ganska mycket efteråt.

Lars: Nämen så är det ju, det… ehm… nämen jag tycker inte det va, för det… saker och ting… det är ju lite grann utvecklingen också i ett nötskal, man utvecklar någonting som man tror ska användas till en sak, sen visar det sig att folk använder det till något helt annat, och

det är väl samma diskussion här kan jag tycka, det var inte min intention men det var så det blev, men visst sen är det väl egentligen en diskussion om situationen och om fallet i sig.

Anonymous interviewee (P3)

Anonymous: Digitaliseringen var ett gigantiskt genombrott, ett teknologiskt genombrott. Piraterna satt med en överlägsen distributionskedja och ett överlägset distributionspris. Värdet av en låt var mycket lägre jämfört med en skiva, konkurrensen mellan skivbolagen. En jämförelse är Ostindiska kompaniet, när det seglade själva till Kina och köpte sina krukor och dylikt och helt enkelt sket i sidenvägen och alla skatter som skulle betalas på den vägen till araber och annat. Gemene man har fått en oändligt mycket bättre produkt till oändligt mycket bättre pris. I slutändan är det konsumenten som ska övertygas. Började med DC++, sen torrent och sen Spotify, exempel datorn kraschar, då är det bökigt att börja om, att tanka ner sina 65000 låtar igen, då är det enklare med Spotify. Betala ett visst pris sen tuta och köra.

Further in the interview.

Anonymous: Patent kan vara oerhört hindrande och resurskrävande i fel bransch, tänk liknande med Kellogsflingor, eller jämförelse med förbränningsmotorn eller transistorn i datorer? Patent 70 år efter uppfinnarens död, hade de industrierna varit samma idag? Reglerade industrier har ofta stora problem, banker och läkemedelsindustrin, och patent är oftast inte lösningen. Viktigt för en entreprenör att förstå den befintliga marknaden och varför den inte fungerar och sedan komma med lösningar på att förbättra.

Further in the interview.

Anonymous: Skypes bolagskonstruktion var imponerande och anpassade sig på rätt sätt, med hjälp av duktiga jurister. Samtidigt som rättvisans kvarnar malde långsamt, men entreprenörskapet var imponerande. Nu motarbetas de av Telia som tycker att Skype inkräktar på deras område.

Appendix 3: Survey Answers

Fredrik Strandin (P4)

1. Yes, we do. We have for example put up videos on The Pirate Bay from different events and used it to share campaign material.

2. Yes, of course! Pirates often use modern technology to improve speeds and quality, and are often one step ahead of regular business.

3. One example is Spotify. To be satisfactory for the customers their software needs to react as-if the content was stored locally on the computer, as is the case for mp3-files used with piracy. To fulfill this requirement they use a modified version of the BitTorrent-protocol to transfer content.

Most customers aren't aware of the exact technologies used under the hood, they mostly look at the result. But you can see one thing, customers tend to dislike technologies that locks them in. DRM used in early digital stores (and in some cases still used) was very bad for the customer experience, and people went to piracy to solve this problem. Today mp3 tends to be more popular, and with this comes the customers. Pirates use free formats that doesn't lock the customer in, and customers tend to like this.

4. You make it sound like piracy is bad. But my short answer is no.

If you still see piracy as something bad, the question becomes a classic question in professional ethics for engineers. Was Alfred Nobel responsible for all the (dynamite-based) bombs used in wars? Who is responsible for nuclear weapons, Marie Curie? German scientists? American scientists? Questions almost impossible to find a single answer to.

5. The internet era has changed society, and both piracy and changed business-models are a result of this. You can see it as if piracy has forced business to change their models, but you can also see it as if business have been slow and conservative to adapt, exploit and use the technological advances of the last 1-1,5 decade. I see it as the later. You can't force customers to stay with old technology when they see modern technology rise. You need to be one step ahead and show the customers where to go and how to use modern technology. The customers will follow the most advanced and cool distributor, bee it business or piracy.

6. Yes, it really did. I'm studying computer science, and when we discussed the technology pre-Spotify-era, record labels where seen as big, evil, conservative monsters that would be infinitely hard to convince to advance. Spotify succeeded to convince the record-labels, with the artists paying the price (they get almost nothing out of it). Spotify showed the way for technology, now we just need to change the business-model so the artists get their fair share of the money.

7. Yes, it will. It will force the record-labels to adapt and satisfy the customers.

8. I have little knowledge of how it looks for Microsoft in China now, so it's hard to say. But I would guess it was good for them. China was/is a country where the people are relatively poor, and if they were forced to pay, they would just have searched for alternatives like Linux.

No, I don't think so. There is a big difference between selling piracy goods, and sharing them for free. If people pay for stuff, the money should go to the people who have earned it. This also holds for companies using their software in their business.

I wouldn't argue it would, I would argue it does. People pirate software from Microsoft, and have done so for a long time, and Microsoft is a successful company.

9. If you're in the market of content distribution: look at what the pirates do, improve it, remix it, and people will pay you for your services.

Christer Wallin (P5)

1. I don´t think that they actually is of concern for Lunds Kommun. We have a variety of open source-software for our public and for our daily operations. However, 99% of our internal and a big part of our external use of data are of highly security-type so there is, today, not any kind of other available or proofed software that we can or are allowed to use.

2. Yes, if they can find a working businessmodel, why not?

3. Interesting question. I actually don´t know. In my old business was the result the only messurement if you got payed or not. I guess that it´s ok in a lot of differnet businesses but not possible in a lot of others.

4. Are the selling it as normal software or files to illegal users, - in that case yes, probably. Otherwise it is actually the user who does the illegal act.

5. Yes, but piracy is definitely not new. Aldus Manutius, who was learned to be a printe by Johannes Gutenberg (himself) in the end of the 1560s, later moved to Italy (Venice I think). He was acused of using another writers material without paying royalty for the printing……

6. Probably not, others did get a chance to make a new business-model and therefore made another attempt on the market.

7. Maybe, maybe not. That depense on what kind of piracy we deal with. If it is filesharing (the most common an simpiest way of piracy….), the you have a problem on giving the writer or artist his share to be able to survive (you risk that they won´t be able to make new masterpieces….). If it is parts of program, that can be a new product, maybe.

8. Nice story. I think they did the only think they could do.

Probably not, we can actually pay for the use, we can all afford it. There is open source software for they who don´t want to pay…..But I guess a lot actually make an extra installation in an extra computer at home or at work, so it is maybe quite often this is done….

9. Best is probably to get a unique idea, and not steal anything. On the other hand, most ideas is done on old inventions so some parts is in most inventions are for most cases, old….and borrowed.

Maybe we have to find a way to do it, like the musicians, you can always borrow three lines, but at the fourth is it a forgery….

Mathias Klang (P6)

1. I am aware that the university monitors traffic am unsure if they prohibit bittorrent outright.

2. Of course it can. The technology is very efficient for downloading legal content.

3. Many software downloads (such as gnu-linux) use bittorrent. As do certain video distributors.

4. That's a tricky question and the boring answer is "it depends". If the technology primarily is used for piracy and there are alternatives to provide for any legal uses, and the legal uses are provided for by other means, and the creators are aware of the uses their software is being put to. Then I think a certain level of responsibility must be discussed. By this I mean a moral responsibility in the same way as those corporations who legally make landmines are also responsible for their products. However we must be careful with legal responsibility so that we do not discourage software development. On the whole I see that legal responsibility can, under certain conditions, apply.

5. Again, a difficult question. Would we have developed solutions like iTunes & Spotify without the actions of pirates and the legal actions attempting to prevent piracy? I would argue that we have seen the development of software systems and economic models based on the social-technical-legal-political situation and therefore we could argue that piracy drives some forms of technological progress.

6. The prohibition of Napster did have a stalling effect in one way. But on the other hand without the shutting down of Napster bittorrent systems and streaming technologies may not have become so widespread.

7. Yes, but it is a difficult balance.

8. At the stage in which the Microsoft "tolerance" was occurring it was important for Microsoft to become the dominant actor. Hence Gates' argument. This is probably not a position that Microsoft would have maintained once it became the self-evident dominant actor. It's difficult to evaluate Microsoft's actions because we do not know what the alternatives would have created.

They may have achieved domination without acceptance, but then we must also ask what the cost (economic, political...) of policing the Chinese market would have entailed. Also see answer to previous question.

It all depends on the goals of the corporation - see answers to the two previous questions.

9. It is important to be pragmatic and not take fixed positions (piracy good/bad). Apple is famously intolerant to piracy and has done very well... Piracy may help you spread the product but the effect will be one of establishing the idea that software should be free. A different position would be to charge very very low prices and lose money as an investment in order to become dominant. However, even this latter approach may be illegal (abuse of

dominant position) in certain situations. Smaller companies may not be able to survive the economic cost of piracy or low pricing.

Anonymous (P3)

1. We don't use torrent techniques, we supply internet. We do have a VPN: solution for our users.

2. Torrent techniques should be a good way to spread products and information in a cheap way.

Vpn and crypting your information is good security, and securing information is a key element for companies.

3. Most companies don't use the torrent techniques since they want to get payed for the business. Payment is tricky. I've seen a comedian that released his works for free and then you pay what it's worth to the comedians paypal account. He got a nice donation for his job, he said it was about the same. The distribution channel for torrents are very cost effective and thus it allows for cutting out the middle men a lot. But this is not torrent specific, you can get a lot from direct download sites like source forge. In some cases companies have used their workforce to help out with create public domain properties like Linux.

On of the main interesting possibilities of the new economy is in my opinion is to not have all the experts inhouse, but to state a problem and a price to who ever solves the problem best. I heard about a gold mine company that put all its data of drilling a geological examinations of their ore fields in order for people in the world to use that information and come in with suggestions of next drilling spots. They got overloaded by answers, many of them not in their own line of thought and there where experts from a very wide field of expertise. This allowed for mining company to get inputs from vary valuable minds.

4. No, you should be accountable for your own deeds.

5. Piracy and copying has always been a business model and will always be one. Cross continental implementation of success stories on one continent can be copied and introduce on other continents. Or introducing a "generic" product from Sweden into another country is probably a very profitable business. This benefits all customers that they want for the lowest price.

It's called competition and satisfying customer needs, at a lower cost.

New business models are linked by using new technology to reduce costs or get other advantages, preferable of scale or in a niche. Internet has changed the marketing of customers goods totally. The customers are not all reading the same magazine and watch the same television, this cost opportunity that is very good for those that can use it.

Other break through in other fields always give new opportunities if they get implemented and are better than old technology. This usually benefit the customer a lot with more options at a lower cost.

6. The new technology was very bad for the consumer and in time new services got introduced to the consumers that also gave a cut to the record companies. This changed the

music industry in the core. No longer was the distribution chain the limiting force for mass consumerism, the sending of plastic pieces with music on. Now the limiting or profitable part for this industry is the holder of the market site, and the holder of the intellectual property right to the song.

Since the marketing site could in principle be very cheap to run, this should with an efficient site give a lot more of its profits to the artists, that thus could cut its overhead costs that is represented by the music industry They add very little value to a musician. Currently their value is marketing, and giving out start capital, access to studios.

With new technology studies are cheap to run, the experts of sampling etc are not though.

The marketing could be much cheaper and the distribution chain should be dirt cheap if it wasn't for intellectual property right holders.
The legal route delayed and stopped a lot of potential companies and gave control of the distribution channel to record companies, since they held the majority of the "rights" to the popular songs. Without the majority of the popular songs the distribution channel could not compete.

7. This will in the long term reduce the costs for cunsumers and increase competition since the entry barriers are much lower. This also slims out waste in the production line.

Piracy is allowed in the majority of the business life. Everyone is allowed to make their own coca-cola, or their own Kellogg's copycat cereal. This makes for very efficient companies that give a lot of value to the consumer. This is great for consumers and for innovation. People will always have ideas and there will always be plenty of money to be had for these ideas.

If you compare to the medical industry these companies don't even improve their production line of their medicines even if they would reduce the production cost by hundreds of millions. This is the main problem when their patent runs out, their production costs are to large and they got this huge overhead cost of inefficient coworkers that don't deliver value. I've worked in producing medicine and it's only Sanofi avensis that actively try to improve their production efficiency on their patented medicines. When a patent runs out they keep the price much higher despite competition since they try to linger on old people buying the same medicine as always. Thus should instead reduce their price dramatically and use their market position to get economy of scale thus being the long term supplier of the medicine through time.

8. When it comes to computer interface you use the peoples habitual preferences to build a loyal customer base. Microsoft has always worked with cheap programs for students since this allows them to sell expensive software to companies since their employees are more efficient with an environment they are accustomed to. Also Microsoft understands the economy and the marketing value of scale.

9. looking at others and copying and improving the tweeking other and your own business models are the way of the entrepreneur in my opinion. It's like never read since you might pirate someones views or ideas on general issues.

Eric S. Raymond (P7)

1. I don't work for an organization.

2. This is a silly question. It's like asking "Should chefs use the kind of knives that are also used to stab people?"

3. I have no knowledge relevant to this question.

4. This question is not just silly, it is idiotic. Are people who manufacture cars to be held responsible for hit-and-run driving? Are people who manufacture hunting rifles to be held responsible for shootings of people? Anyone who can even ask these sorts of questions seriously has lost the concepts of individual choice and responsibility, is an utter moral imbecile, and therefore probably has a bright future in politics.

5. I have no knowledge relevant to this question.

6. Probably.

7. This question is also idiotic, for a different reason: the concepts of "piracy" and "allowed" are definitionally exclusive. You need to define your terms better so you're not uttering a contradiction; this would probably involve using a different word than "piracy".

8. That wasn't my choice to make. I'm not a Microsoft stockholder, so my opinion about how Microsoft should dispose of its property is irrelevant.

It might work in any situation where you're seeding a market that has strong network externalities leading to a lock-in effect.

9. "Piracy" can no more be a building block for entrepreneurs than rape can be a building block for lovers. Again, your terminology (and probably the thinking behind it) is confused.

Appendix 4: Terminology

Peer2Peer: peers, meaning computers, connecting directly to one another and establishing a network without going through a centralized server or similar.

BitTorrent: a Peer2peer technology, where users download bits and pieces of a file from multiple peers at the same time, the bits and pieces are later assembled into a complete file on the user's computer.

Internet Piracy: in the context of this thesis, to illegally download and distribute copyrighted material that you do not own the copyright of, specifically via means of the Internet. Is used synonymously with piracy and digital piracy.

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