The Music Industry and Digital Music

Disruptive Technology and the Value Network Effects on Industry Incumbents

A thesis written by Jens Peter Larsen

Cand. Merc., Master of Science, Management of Innovation & Business Development

Copenhagen Business School

Supervisor: Finn Valentin, Institut for innovation og organisationsøkonomi

Word Count: 170.245 digits – 75 standard pages

Table of Content

Appendix:

1. Survey Design and Results
2. Additional tertiary needs from survey results

1. Resume

This thesis carries out a value network analysis, which identifies characteristics of technology development in the recorded music industry, and explains how and why technology-related characteristics have weakened incumbent firms, defined as the four major record labels, in the music industry.

The analysis carries out a comprehensive Quality Function Deployment analysis, which hierarchially identifies the most important changes in customer needs. The analysis identifies four important customer needs as a result of the technological developments, namely convenience and quality as the two major customer needs, and pricing and social connectivity as two subsequent customer needs.

The data from the QFD analysis is applied in a product platform analysis, which identifies some major differences between competing product platforms. In general, illegal platforms deliver an efficient bundle of such complementary services, which can explain the initial popularity of such sites. Traditional product platforms are not linked with actual customer needs. Furthermore, new entrants such as Apple Itunes tend to deliver an efficient bundle of service characteristics, specifically based on convenience, which explains Apple's success in the music market.

The disruptive technology of digital music has occurred outside the industry's existing value network. This is the reason why the technology was initially not adopted by incumbents. Furthermore, the lower profit margins make digital music less attractive to incumbents, as their business models are based on high up-front investments, and high gross margins.

The value network of the music industry has remarkably changed because of digital music. Entry barriers are lowered, as new linkages between artist and consumer occur. The success of P2P technology has redefined customer needs in the entire market, which has severely weakened the incumbents. The old technology is not able to deliver the requested customer needs, which has placed the incumbents in a dilemma.

Furthermore, the Internet has become a major marketing channel, which has created opportunities for circumventing the former gatekeeper domination of the incumbents, where incumbents decided which artists to be marketed. Consequently, new entrants are competing with the major labels by introducing more flexible business models, which monetise on a number of revenue streams.

2. Introduction

In recent years, the music industry has undergone changes, which are turning the industry upside-down, and the entire foundation for music consumption and music sales has been remarkably re-defined. The reason for the music industry changing may be rationalised by two disruptive technologies: Digital Music and the Internet.

The music industry incumbents had previosly obtained monopoly-like leadership of the entire industry value chain, but are now facing severe pressure, decreasing turnovers, and higher competition.

These changes originated with the introduction of new technology, whereby digital music, combined with the Internet, transformed old value chain structures, redefining the entire concept of how consumers approach music and how they consume music. This led to a number of new entrants in the music industry, which are gradually increasing in size and turnover.

The changes have pressured the incumbents of the music industry, the four major music labels, which have been dominating the market for more than fifty years. However, it seems as if the incumbents of the music industry have experienced severe difficulties in strategically dominating and participating in the new market and technology development. While incumbents are dealing with the challenge of decreasing turnovers and decreasing market share, new entrants are capturing greater market share in the retail sector as well as in the distribution and production of music.

This thesis will analyse and identify some of the major reasons for the difficulties of incumbents in the music industry. The analysis contributes to answering how technology development results in a gradual weakening of incumbents.

3. Research Design

3.1 Research Question

Which characteristics of technological development in the music industry explains an increasing weakening of music industry incumbents?

3.2 Elaboration on Research Design

The problem statement of this analysis will be analysed and answered based on a number of methodological choices and pre-defined criteria. In this section, the methodological choices will be explained and elaborated upon.

3.2.1 Technological Development

The term 'characteristics of technological development' is based on a research design of the value system rigidities of the music industry. Value system rigidities can also be found in the works of Christensen (2000) and Chesbrough (2001). In short, Christensen's examination of the Hard Disk Drive industry identifies how architectural change (or in our term value network change), can endanger and displace incumbents in spite of efficient cognitive abilities to understand and react to technology change. Christensen identifies value network-related explanations as the most important reasons for incumbents' failure during periods of disruptive technological changes. In this analysis, the author will apply Christensen's value network approach in order to examine which characteristics of the technology change in the music industry has weakened the incumbents of the industry.

Technology development of the music industry is examined by the use of an untraditional approach. I apply a quality function deployment framework, which identifies important changes in customer needs. In this analysis, the most important development is directly linked to customer needs, and technology changes are only influential, if they have resulted in changed customer needs. For this reason, technological development is identified through examining the development in customer needs, and for methodological reasons, I regard technological development in the music industry as development in customer needs.

The first part of the analysis identifies which service complementaries (and hence product platform characteristics) are required by customer needs in the new platform value network, by examining customer needs and asssessing which existing product platforms deliver the most efficient bundles of service characteristics (customer needs). The key issue in the Quality Function Deployment analysis is to identify important changes in customer needs, and to examine firms' ability to develop new complementary services and bundle such services to the retail customer.

The Quality Function Deployment analysis is then applied to an industry-level platform and a value network analysis, which idenfies the changes in the value network as a result of technology changes and customer needs. This examines how complementors become gradually important in the new regime. This analysis examines new linkages in the value network, and identifies the implications for incumbents. It is examined why incumbents are experiencing difficulties in developing efficient business models in the new value network, and why the former platform leaders are gradually being weakened in terms of value network dominance and eventually in terms of revenue and market share.

The scope of the thesis does not make it possible to map s-curves or assess cognitive rigidities of the incumbents as such, and therefore, the analysis is a contribution to the ongoing debate about market-customer linkages of the music industry. This thesis is not centered on a technology-oriented analysis. Hence, other influential factors (such as cognitive rigidities) may further contribute to the findings of this thesis, and more research is needed to fully understand the implications for incumbents in terms of digital technology and the Internet as a new distribution channel.

3.2.2 Definitions

The Music Market: The recorded music industry, retail market for commercial music, a 40 billion dollar industry (ACM, 2003)

Incumbents / Major Music Labels: Sony, EMI, Warner Music, and Universal/Polygram. The four major music labels accounted for 80% of the music market in 2002 (ACM, 2003). Today, they account for approximately 70% of the music market (Bay, 2009).

Product platforms: Specific, firm-based music services and/or retail outlets, distributors of music to end-customers with specific service complementarities and products. Level of analysis in QFD-analysis (part 1 of this thesis).

Industry platforms: Industry-based value networks (or value chains) with defined technology and linkages between actors in the platform/ and or value chain. Level of analysis in part 2 of this thesis.

4. Methodology

The methodology of this thesis is deductive. The primary purpose is to examine value network rigidities of incumbents in the music industry. The purpose of the analysis is to confirm or disconfirm theoretical explanations for incumbent failure in an empirical case study.

The theoretical stand-point is derived from Christensen's (2000) analysis of the HDD industry, and the idenfication of the term he calls *"The Innovator's Dilemma"* (2002). The dilemma of the innovator, in Christensen's terminology, is shortly defined as the effects of disruptive technologies on incumbents. Even though incumbents, when facing disruptive technologies, are cognitively well prepared and strategically attempt to manage and assess these new technologies, they often fail. Especially if the disruptive technologies initially occur outside the existing value network of the given industries. The disruptive innovations are often not following the traditional s-curve upward trajectory, and often do not represent high potential value or a large customer basis. Therefore, incumbents are not concerned with such disruptive innovations which occur outside their value network, and which later on invade the current value network. This is represented by new market entrants (Christensen, 2000). In this thesis, the value network approach is defined by Christensen and applied in an analysis of the music industry, in order to identify the primary characteristics of technological change. Furthermore, I aspire to understand how these changes can explain incumbents' weakening positions in the new value network.

This analysis approaches the challenges of the music industry incumbents by identifying which market-customer linkages, and which value network explanations, are the reason for incumbents gradually being weakened by new entrants in the music industry. The analysis is

directly linked to a customer perspective by methodologically assuming that changes in customer needs are a direct result of technological change. The customer perspective is primarily based on the use of a comprehensive Quality Function Deployment framework. The framework contributes to identifying important changes in customer needs, and apply these data in order to assess the abilities of (product) platforms to implement customer needs in its services. Consequently, the use of the QFD-framework contributes empirically to conducting an (industry) platform leadership analysis.

Two major theoretical approaches have been selected, which each contributes to answering the problem statement - namely Quality Function Deployment and Platform Leadership theory. A succeeding discussion contributes with alternative explanations, and questions the findings of the primary analyses.

The conclusion collects the identified characteristics of technological change derived from the QFD analysis and the platform analysis. The conclusion outlines the reasons for incumbents' weakening, and outlines causal linkages between technological change (customer needs) and new product and service complementarities, new entrants, new market (value network) linkages, and new industry platforms linkages and requirements. This aspired to answer why incumbents experience failure in terms of value system rigidities, as a result of disruptive technology changes.

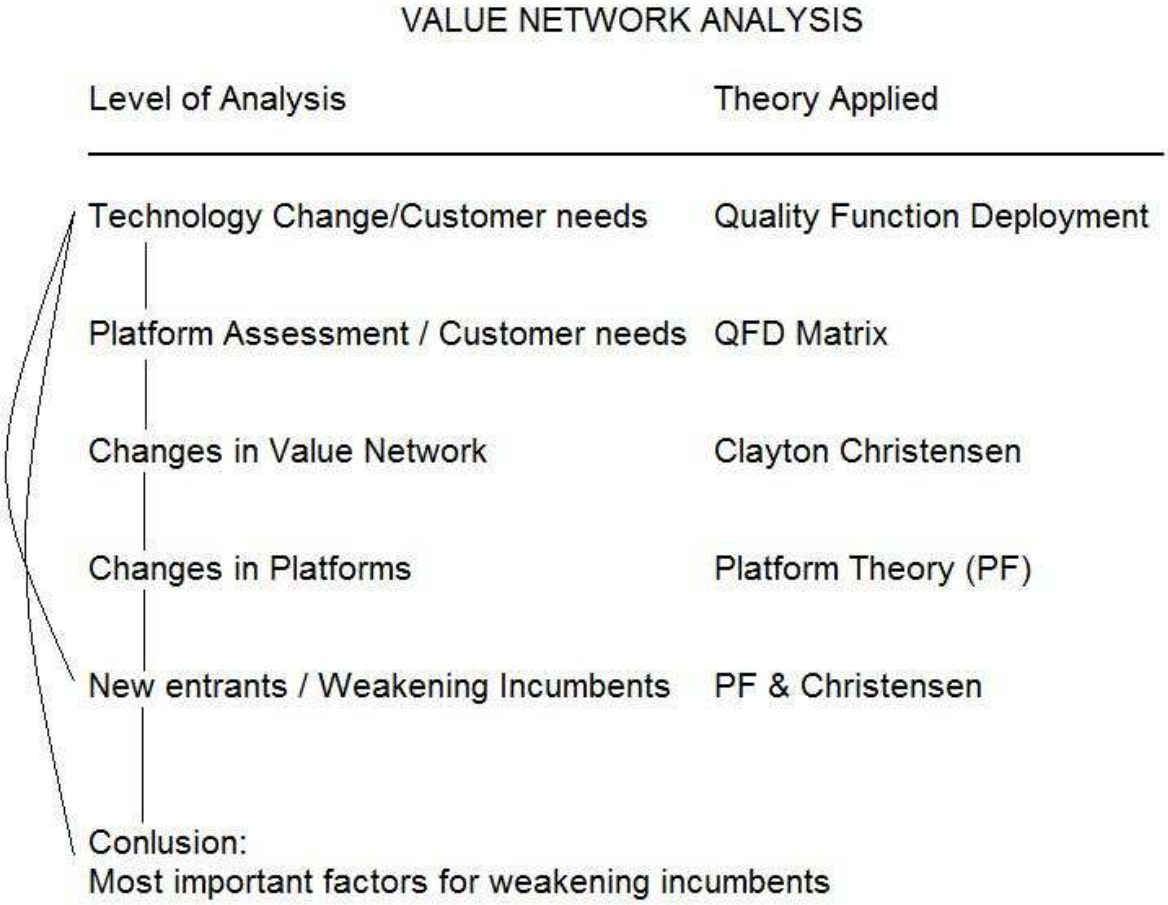
4.1 Project Outlook

This analysis initially carries out a comprehensive assessment of changes in customer needs, using the QFD framework. This framework identifies and bundles important customer needs in the digital music market. The data is then applied in an assessment of product platforms, which contributes to illustrating the major differences in product platforms' ability to bundle important service complementarities to product platforms. By carrying out such assessment, it is possible to draw conclusions on the incumbents' lack of ability to provide service complementarities, in opposition to other entrants, who accordingly perform remarkably higher on important customer needs, though not always by applying legal business models.
The conclusions of the QFD and product platform analysis is then applied in an industry platform analysis. The industry platform level analysis examines how technological change and changes in customer needs result in new value networks that illustrate how new linkages

throughout the value network create new market conditions, which have weakened the industry incumbents. The industry incumbents have historically based their business models on a gate keeper function due to dominance in the value network.

The findings of the analysis is then discussed in a broader context. Finally, the conclusion outlines the findings of the thesis, namely which characteristics of technology changes are the reason for the weakening of the incumbents, and also hierarchically determines the relative importance of each identifed characteristic.

Fig. 1. Research Design



Source: Author

4.2 Delimitation

For methodological reasons, some delimitations have been made in answering the problem statement. Firstly, the analysis has been delimitated to value network-related rigidities. It has not been possible to collect valid data concerning cognitive rigidities (such as lack of managerial competencies in specific firms, which may be an additional explanation for

incumbents' weakened position) as well as other influential rigidities and explanations, as found in Chesbrough's outline of the impact of technical change upon incumbent firms (Chesbrough, 2001).

Furthermore, technological change is examined and identified by identifying changes in customer needs. However, a supplemental technology analysis may alter the conclusion or contribute to expanding our knowledge of the music industry's technological dynamics.

The analysis does not examine competitive, firm-level outcomes of the ongoing changes of the music industry, and the conclusion does not provide specific answers as to whether incumbents will prosper or go out of business. It merely provides answers in terms of why incumbents experience decreasing business turnovers, and decreasing dominance in the music market, as a result of value network rigidities.

The music industry revenues stem from multiple sources, and not only music sold to retail customers. The analysis of this thesis does not consider opportunities in additional revenue streams such as mobile ring tones, film music royalties, etc.

The analysis of customer needs is delimited in terms of customer segments, and does not provide specific customer needs in specific segments. This delimitation is selected in order to keep the analysis level relatively basic, given the scope of the thesis.

4.3 Methodology Critique

The methodology is deductive, and in order to answer the problem statement, I have applied specific theoretical frameworks, which can contribute to answering the question. Hence, other theoretical frameworks and case-specific analyses may contribute or alter the conclusion of this analysis. In particular, cognitive rigidities and other technology-related rigidities may change the outcome of the findings, or contribute to explaining the causalities between technology changes and incumbents' weakening in the music industry.

This thesis should be considered as a contribution to the ongoing debate on the developing crisis facing the incumbents in the music industry. This approach can be applied to other technology based industries, where digitalisation of intellectual property material may endanger the business models of incumbents.

A more comprehensive customer survey could alter the findings of this thesis. The survey has been carried out in Denmark, and different findings may occur in other countries. Furthermore, the assessment of product platforms in terms of customer needs is carried out based on external empirical sources, and is not based on primary data. These findings may not be valid, as they are not empirically deducted from primary data. However, the findings work

as a basis for further discussion and contributes to illustrating how some product platforms fullfill actual customer needs, while other product platforms are clearly not linked to actual customer needs.

4.4 Validity Assessment

The findings of this thesis are validated through the use of secondary data. The primary data collected through a customer survey which is compared to external similar findings. In general, these findings correlate, which contributes to validating the results. However, the platform / value network analysis is primarily based on theoretical arguments, and validating these findings require further research in terms of case-specific analysis on firm level, both in terms of incumbent firms and new entrants. Further research is needed in order to fully understand the implications of technological changes in the music industry.

In general, the findings of this thesis are regarded as valid, given the scope of analysis, and the scope of the problem statement.

5. Theory and Empirical Data

5.1 Clayton Christensen's Value Network Approach

The problem statement and the focus of the analysis is derived from the theory of Clayton Christensen (2000), the Innovator's Dilemma. In his book, Christensen explains the reason for incumbent failure in a number of industries, and structures his findings in a theoretical framework. In particular, Christensen is concerned with value networks, which he defines as *"…the context within which a firm identifies and responds to customers' needs, solves problems, procures input, reacts to competitors, and strives for profit…"* (Christensen, 2000:36). One of Christensen's major arguments is that within a given value network, established firms manage their allocation of resources towards sustaining innovations because of their expected rewards. Consequently, disruptive innovations are typically not allocated with resources for development, because the potential profit margins initially seem lower than sustaining innovations within the existing value network (Ibid:36ff). Consequently, entrants can invade the existing value network, with a down-market focus, which is in opposition to incumbents' higher profit margins. The important distinguishing is between sustaining technologies (which are well perceived and dominated by incumbents), and disruptive technologies (which are hard for incumbents to exploit, as they are typically counter-productive to existing cost structures and value networks).

5.2 Quality Function Deployment

The QFD literature on linking design processes with actual customer requirements (Hauser & Clausing, 1988 and Griffin & Hauser, 1993) works as a foundation for carrying out an analysis to identify the most important customer attributes in consuming digital music. The QFD analysis structures empirical data in a theoretical framework, which identifies important keypoints in customer needs in order to create a structured basis for analysing the specific platforms in the music industry. Using the QFD framework, it is possible to identify the relative importance of customer needs, and consequently identify which platforms perform well in terms of delivering required customer needs, and which platforms do not deliver crucial needs. Finally, the performance of platforms are compared in order to identify possible scenarios of bundling platforms in order to achieve higher (perceived) customer requirements.
The identification of specific tertiary, secondary, and primary needs is based on primary data, a research survey conducted by the author. In addition, a number of secondary empirical data sources are applied, primarily external surveys collected from different market research organisations. The secondary data is applied for two reasons, partly to implement as many tertiary needs as possible, and partly in order to validate the primary data collected.

5.3 Platform Theory

Platform theory, primarily the works of Gawer & Cusumano (2002) and Pisano & Teece (2007), are applied in order to analyse how and why efficient platforms become dominating platforms, and which consequences this may have for incumbents as well as insufficient platforms. The platform perspective is applied in a value network context in order to examine how the dominance of a platform leader drives the market, and how technological change (or discontinuities) combined with changing user needs can dramatically change the market situation. Consequently, new companies can become dominant platforms leaders, if they approach Cusumano's levers of platform leadership (Gawer & Cusumano, 2002:40ff) in an appropriate way, while integrating user needs in all of its product and service deliveries.

5.4 Empirical Data

The theoretical frameworks are applied to empirical data, partly secondary data, collected through journals, articles, and reports from relevant music industry organisations, and related media sources. Furthermore, the author has collected primary data which has been applied in

the analysis, a survey of customer attributes and customer requirements in relation to music consumption in general, and in particular in relation to digital music services online.

6. Introduction to the Music Industry

This chapter will present the historical context of the music industry, and explain the major developments as well as the current market situation.
The commercial 'phonographic' industry was established around 1900. According to Tschmuck (2003), the industry has experienced three 'essential paradigmatic cultural changes' (Tschmuck, 2003:130ff). The first change came along with the invention of commercial radio. The phonographic industry was originally based on the strategy of selling home furniture (phonographs), and records were regarded as a supplement to the primary production. This is the reason why the industry in the 1920's regarded radio as a direct competitor to the phonographic industry. The industry simply ignored the commercial potential of radio as a promotion channel for record sales. As a result, the entire industry neglected radio. Radio broadcasting technology as an industry evolved in a different path than the traditional music industry, and was based on electrical recording using microphones. The phonographic industry also neglected the electrical recording based on microphones, as it was used by its rival industry. This negligence eventually resulted in major incumbents lagging behind technological development. Eventually, the major music companies were acquired by the large radio networks (Ibid:131-132).

The second wave of radical change came along in the 1950's with the advent of rock'n'roll (1948-1958). Before the rock'n'roll-based change, the music industry was based on three major companies, RCA, CBS, and Decca. These companies applied strategies to promote 'Tin-Pan-Alley pop' and 'Big Band Music' (Tschmuck, 2003:131), which were promoted through radio live shows. Sales of records were regarded as a secondary business, and more as an instrument to promote radio stars. Furthermore, radio stations were gatekeepers, and no artists could get famous without getting played in the radios. Finally, the major music/radio companies controlled the distribution channels, and no record companies could sell directly to retailers without going through one of the few major record companies. This controlled the entire market with capital-intensive logistics, and prevented new types of music to be marketed the the mainstream market.

A few years later, the 1948 oligopolistic domination with 89% market share controlled by three major companies, was entirely dismantled. By the early 1950's, more than 200 independent record companies had entered the market, which had become highly competitive (Tschmuck, 2003:132). The rapid turnover took place due to a few major reasons. First of all, the 'unbreakable' vinyl disc made capital-intensive logistics useless. Furthermore, the invention of the magnetophone made it possible to produce a record anywhere, and made the large studios of the record companies unnecessary. Finally, a number of new, independent radio stations were licensed by federal organisations, which broke the monopoly of the old radio stations (ibid:133).

The new, independent radio stations could not afford to broadcast live from large ballroom events like the traditional radio stations, and because of the lack of capital, they began playing vinyl records to attract listeners. Because the large radio stations refused to cooperate with the new, independent radio stations, they were not allowed to play the music licensed by the traditional radio stations/record companies. Hence, the independent radio stations began cooperating with smaller and independent record companies such as Sun, Chess, and Atlantic. The small independent record companies gave the music away for free to the radio stations in order to promote the music. The symbiose of the two resulted in a rapid increase in record sales of folk music, hillbilly, rhythm & blues, and especially rock'n'roll. In turn, the audience for independent radio stations grew dramatically, as the audience listening attributes were in accordance with the actual music played (Tschmuck, 2003: 133).

As the aforementioned illustration describes, both periods resulted in radical change in the music industry illustrating two important stages in time. In both cases, the market was characterised by oligopoly. Capital-intensive, vertical value chain integration was dominating the market, and incumbents' ignorance of new technologies and changes in user attributes, simply wiped out the incumbent players of the music industry within a few years.

As of today, Tschmuck argues, history is about to repeat itself in the music industry. The introduction of digital music, a digitally (copied) file - which is compressed in data size and therefore very easy to transfer between devices - may endanger the market domination of the four traditional record labels in the music industry. Since the 1980's, these major record labels have dominated the music market for sales of physical compact discs, and have vertically integrated with capital-intensive production, marketing, and distribution activities.

The music industry of today is dominated by four major music companies: Sony/BMG, Warner Music, EMI, and Universal/Polygram (ACM2, 2003:1 & Bay, 2009: 131). In recent years, acquisitions and consolidations have narrowed down the number of major music companies. This resulted in the four major record companies accounting for up to 80% of the music sold worldwide however with a decreasing market share in recent years. Rapid decline in CD-sales have resulted in decreasing turnovers for years.

Since 2000, album sales have dropped 45% (Nytimes, 2008), and even though digital music sales have experienced rapid growth, the profit margin generated from digital music sales is far from enough to compensate for the loss in traditional album sales (ibid.). In 2008, more than one billion digital songs were sold, and sales grew 27% from 2007 to 2008. According to the New York Times, record companies have stated that they are finally beginning to make profits from digital sales. However, analysts say that the profits are far from enough to compensate for the losses in physical album sales (Ibid.).

According to IFPI, the industry organisation for record labels, up to 95% of all downloaded music is illegal (IFPI, 2009). This has been the major focus of the music labels for years, and the industry has initiated legal actions world-wide to pursue 'the pirates' of the Internet (Duchene & Waelbroeck, 2006:567). In addition to legal action, record companies have spent years and large resources on creating DRM-systems, which are designed to protect copyrights when selling digital music (ibid.). However, these efforts may have been useless, since the major online music retailers the past couple of years have abandoned DRM-protected music files, as a result of negotiations with online retailers.

The four major record labels are gradually losing their dominant position, especially because of the Internet and the digital distribution channels. Previously, a small amount of artists signed large contracts with major record labels, and these artists accounted for the vast majority of world-wide popular music sales. Today, an increasing number of independent record labels have been enabled to market individual artists, partly because of cheaper production and distribution costs, but also because of the Internet and the opportunities for marketing musicians based on pull-oriented strategies. In 2008, The four major record labels accounted for a little more than 70% of music sales, which is a decline compared to 2000, where 85-90% of the world market were dominated by the (at that time five) major record companies (Bay, 2009:130). The new players are called 'indie' labels, independent record

companies, which sometimes contract with large record label owned distributors to contract its artists. Gradually, music is distributed digitally, leaving no reason for signing with a major label. According to Bay, indie labels are progressing in the conventional music markets. In 2009, six out of the top 20 musicians on the hitlists in Denmark were contracted by independent record companies (Bay, 2009:131). For the independent label, it has become possible to go around the traditional distribution channels of the value chain, and instead distribute directly to digital retailers on the internet. Some smaller indie-labels cooperate in order to distribute their music to digital retailers.

According to Tschmuck (2003), the technology of digitalisation combined with the increasing penetration and speed of the Internet, are symptoms of a third 'paradigmatic change'. This may be more severe and far-reaching than the previously mentioned changes of the 1920's and 1950's.

Tschmuck uses the term the 'old' cultural paradigm, which he defines as 'music as a product'. This paradigm was controlled by three factors, namely that record companies have been able to dominate and control publishing rights, marketing power, and distribution. The domination of all these areas, have resulted in record companies as gatekeepers: They have decided who to contract, market, and distribute, and only a small number of musicians and artists have been invested in and 'pushed' to the market, a result of the high investments needed to market a specific artist, in order to receive returns on the investment (Duchene & Waelbroeck, 2006:570).

In the new paradigm, the three dominating pillars are being challenged. Tschmuck underlines two important changes that endanger the entire competitive foundation of the old record companies. One is that *'[…]Music providers on the Internet circumvent copyright regulations and offer more favorable royalty agreements to the artists'* (Tschmuck, 2003:135) and secondly, smaller record labels are more flexible in their ways of thinking about distribution and marketing. This enables them to offer music catalogs directly the the consumers (Ibid.:135). In other words, the smaller record companies look upon their music more as a 'service' in opposition to music as a product. Tschmuck notes that the major labels are following a strategy of legal actions against piracy, combined with the acquiring of internet music companies. However, none of the acquired internet music companies have been very succesful. This is partly due to the fact that record labels have spent several years basing its new internet business models on DRM, copyright protections to inhibit their customers from transfering or copying a legally acquired product. This strategy, which shall later be

elaborated on, has been completely out of line with actual customer requirements, which may have resulted in large record companies actually encouraging the demand of illegal download sites - instead of moving customers away from these sites. This is partly due to *"…the decrease in the value of pre-recorded music"* (Duchene & Waelbroeck, 2006:568) because of DRM-protection, and partly because of increasing prices due to DRM-protection (ibid.).

Major labels have made large cutbacks in expenses in recent years, and have consolidated into four major music labels. Meanwhile, artists are earning more than ever, especially on concerts and merchandising (Nytimes 2008). Concert ticket sales have increased in most Western countries for years, and this is a direct effect of the increased consumption of music, which has never been higher in amount of hours.

Still, analysts claim that record companies will experience even more severe problems, as CD sales will continue to drop. In particular, large retailers such as Wal-Mart are continuously reducing the floor space for CD-sales as the revenues generated from CDs are decreasing. Since the so-called 'big-box' retailers such as Wal-Mart and Best Buy account for 65% of all physical album sales in the U.S., the reduction of sales space will severely hurt the record companies, also due to the fact that digital sales will not compensate for the losses (NyTimes, 2008).

Meanwhile, IT-company Apple, who initiated an online music store, selling digital music in 2002, has come to dominate the online music market. This technology is based on its Ipod MP3-player. In first half of 2009, Apple accounted for 69% of digital music sales, and Amazon.com, second runner up, only accounted for 8% (Cnet, 2009). In total, Apple has a 25% market share in the overall, worldwide music market (ibid.). This has resulted in a situation where Apple Computer Inc., an IT-based company, is the world's dominating music retailer. As a result, record labels are constantly experiencing difficulties negotiating with Apple on issues such as pricing. According to record labels, Apple's price is too low, but Apple's dominance prohibits the labels from influencing or changing price policies and hence profit distribution. In 2009, Apple removed its DRM-protection on most of its music, so music files can be transferred and copied between devices (Itunes.com, 2009). According to Apple, the distribution of digital music is not merely about making profits, but also about promoting sales of its electronic products such as the Ipod MP3-player and the Iphone. Two products which are gradually becoming integrated into one, a smartphone device (Iphone)

(ibid.). This platform approach is combined with usability, user need oriented strategies, and not least a platform where content is provided by external complementors. This may have been the reason for Apple's strong market domination, which has been achieved in a few years time. Analysts expect that digital music sales will be the same size as physical CD sales by the end of 2010 (Cnet, 2009).

One of the major dilemmas of the traditional music industry is that music consumption, measured as the amount of music being consumed, is bigger than ever. Easy access to digital music combined with huge MP3-players' sale success, have noticeably increased the amount of hours the average consumer is listening to music. At the same time, the physical compact disc, which is still the dominating music media, has experienced a rapid decline in sales. Even though an increase in legal music sites has increased digital music sales in recent years, it is far from enough to compensate for the huge losses. Only recently, the industry has begun to communicate that it has realised the need for monetising on access to music instead of actual music sales (IFPI, 2009).

Meanwhile, traditional music labels continue to suffer from the development of digital music, while IT-companies like Apple Computer are increasing their ability to dominate the digital music market in technology and pricing.

In this thesis, I will analyse the ongoing changes of the music industry. By doing so, I will attempt to clarify the nature of change in the music industry, and to illustrate the new 'paradigm' with regards to customer attributes, platform technologies, and linkages in the new value network.

7. Quality Function Deployment Analysis

This chapter will conduct a Quality Function Deployment (QFD) analysis as defined by the House of Quality, a theoretical framework developed John R. Hauser and Don Clausing (1988). The purpose of the analysis is to assess which customer attributes can be identified in relation to digital music. We will accordingly sort these attributes in bundles, and consequently clarify a hierarchical relationship between the different attributes. By developing the House of Quality Matrix, it is possible to identify which product platforms deliver which customer attributes. By undertaking this task it thereby identifies which product platforms deliver the most efficient bundles of complementary services. This analysis will provide the basis for a value network analysis, which will identify the technology characteristics that have weakened the incumbents.

The theoretical foundation of this analysis is the work of Hauser & Clausing (1988), "The House of Quality" and Griffin & Hauser (1993) "The Voice of the Customer". The two texts apply the view that all managerial planning processes such as R&D, production, and marketing should be managed as a result of carefully assessed customer requirements. This focus of the customer should always be the company's primary management focus, also in terms of an ongoing process. The House of Quality has been applied by many production based companies such as Toyota car manufacturer, electronics manufacturers, etc. (Hauser & Clausing, 1988:3).
The empirical foundation consists of primary as well as secondary literature. A number of different surveys carried out by different research agencies and market analysts identifying customer requirements, in relation to digital music, are applied in this anaysis. Furthermore, I have deducted a survey, where 36 respondents in the target group (15-39 years) have been interviewed in order to identify the most crucial (bundles of) customer attributes, both in relation to general consumption of music, and in particular in relation to consumption of digital music. According to Hauser & Clausing, assessments must be made for each segment. In relation to digital music, I have defined a target group based on age 15-39, which are the primary users of digital music.

According to Griffin & Hauser (1993), typical studies identifying customer needs contain interviews with between 10-30 customers (Griffin & Hauser, 1993:6). Based on this, I have

decided to perform interviews with 36 respondents, which should be a sufficient amount of data. However, Griffin & Hauser also describe the the qualitative research task of the interviews. This qualitative method has been simplified in this thesis, as respondents are provided with some (unhelped) questions to identify tertiary needs, and some questions which are pre-defined on the basis of the findings of secondary literature.

The analysis will form an empirical basis for carrying out an assessment of platforms in the music industry. In order to identify which sorts of music product platforms are likely to succeed in terms of customer requirements, and which developments of platform success/failure can be linked to specific fulfillments/failure of fulfilling desired customer needs.

7.1 The QFD Framework

The House of Quality, developed by Hauser & Clausing (1988), *"Is a kind of conceptual map that provides the means for interfunctional planning and communications"* (Hauser & Clausing, 1988). The primary argument is that an organisation should always at a starting point investigate customer requirements, and constantly keep updated on customers' wishes and demands through the use of matrices (the house). This knowledge should then be applied to interfunctional teams in marketing, manufacturing, engineering, and research & development, which will enable the firm to manage organisational functions on customers' premises, in order to deliver more quality in design, manufacturing, and service delivery (Griffin & Hauser 1993). Furthermore, it is a conceptual map which enables the company to enlist its features in a hierarchical and interdependent order through the use of a matrix, in order to identify which features are in line with customer requirements, and how important these features are, both in terms of a hierarchical order, but also in relation to competitors.

In this thesis, I will apply the QFD framework as a conceptual map in order to identify the most important customer attributes in consuming digital music, and sort these attributes in bundles. This analysis will later on function as a basis for assessing different competing product platforms and business models in the music industry. However, the framework has been simplified in order to deduct some specific conclusions on platforms vs. customer needs. I do not apply the full version of the framework, and the analysis does not consider the interdependencies between customer needs. Furthermore, the customer perception of service complementarities in specific product platforms has been carried out in a rather simple form, where it is generally assessed through the use of external data which platforms are likely to deliver efficient bundles of service complementarities.

To start with, the analysis lines up general attributes for listening and consuming music, gathered through a number of interviews.

7.1.1 General Considerations on Data Assembly

According to Griffin & Hauser, interviews with 20-30 customers in the target group is appropriate for identifying the most important customer needs (Griffin & Hauser, 1993:6). In my survey, I have questioned 36 in order to identify relevant customer needs. For the purpose of methodology, I have defined the target group as between 15-40 years. However, 64% of the interviewees are aged between 20 and 29 years. Some argue that the age group 18-25 years is problematic due to the fact that these customers are the main users of illegal download sites, and therefore not interesting for commercial digital music services such as Itunes (Vaccaro et al. 2004:54). For methodological reasons, I have decided not to distinguish between legal and illegal download services, as this QFD analysis has the purpose of reveiling the actual customer attributes, and not just attributes of paying customers.

7.2 Respondents' General Attributes

According to Hauser & Clausing (1988), a QFD analysis should first approach and identify a large number of tertiary needs, also defined as customer attributes (ibid.). In order to narrow down large numbers of specific needs into three hierarchies of primary, secondary, and tertiary needs, it is necessary to identify 5-10 top level primary needs. These top level needs each consists of a number of secondary needs, which in turn contain a larger number of tertiary needs. All these customer needs can be hierarchially placed into a matrix. This analysis will carry out such an assessment.

The respondents are equally split between men and women households. Income varies between less than 100.000 DKK to more than 300.00 DKK. However, most respondents either have an income between 100.00-200.000 or more than 300.000 DKK. This trend correlates with the occupational status, where a little less than half of the respondents are students, and more than half of the respondents are full-time employees. A majority of the respondents have a higher educational background.

The respondents' consumption of music varies some, but in general, most repondents have a relatively high amount of hours weekly to listen to music. The lowest stated consumption is 2-3 hours, while 36% listen to music more than 30 hours a week, which on average is more than 4 hours per day.

Most respondents listen to radio and MP3 files on computers and/or MP3-players. 75% of all respondents listen to music using an MP3-player, and more than half of these listen more than 20 hours per week to MP3-player based music. Almost the same amount of hours are spent listening to music on a computer. This is evidence that consumption of digital music is gradually changing from computer-files listened to through loud-speakers (on a laptop or stationary PC) to more flexible and mobile music devices and platforms. These are designed to play on the run, while travelling or working. In this field, much of the penetration is due to Apple's world success in building a universel mobile MP3 platform. The case of Apple will be further examined later in this thesis. However, it is worth noticing that music is also listened to via internet services such as streaming sites, internet radio stations, etc. 36% of respondents listen to music on the Internet on a weekly basis, while 27% state that they listen regularly to internet radio stations. More than 30% regularly use online streaming media when listening to music. Almost half of these listen more than 10 hours per week to online music streaming.

7.2.1 General Tertiary Needs: Music Listening

Each respondent in the survey was directly asked to identify specific needs in listening to music and consuming music.

The primary stated need is related to convenience. It is evident that most respondents evaluate convenience, stated either as easy-to-access, fast-to-access, and convenient in general, as the most important specification. Secondary, needs such as good sound quality, portability between different music devices, to listen to pre-defined desired music tastes (etc. when listening to radio stations) et al. are similarly noteworthy.

Notably, almost no respondents, when asked for their most important needs (unhelped memory), stated needs related to pricing. This could indicate that price is not a crucial factor for users, which valuate convenience much higher than other factors such as price.

Consequently, respondents were asked to indicate which needs were the most important for them. In this case, the vast majority of respondents answered that easy access was the most important.

7.2.2 Unhelped memory: Tertiary Needs

The following statements are replies which can be interpreted as tertiary needs by respondents. All respondents of the survey (conducted by the author) were asked to list up to

nine important needs they could think of when listening to music. See appendix 2 for additional tertiary needs.

1. Accessibility (66% stated as very important)
Examples:
"Access must be easy and fast"
"I must be able to listen to my music anytime and anywhere"
"When I buy music, it must be easy and fast"
"It is important that music is 'transportable', so I can bring it with me"
"I want to bring music with me all the time"

2. Variation/selection (47% stated as very important)
Examples:
"I need a large variation of music"
"I want to listen to music I like"
"I want to 'sing-along', so it must be songs I know"
"The music must fit to my mood"
"It has to be music that I like"
"I want to have influence on the music played"
"I must be able to 'shuffle' my playlist"
"I need a large variety"
"Wide offer"

3. Sound Quality (19% stated as very important)
Examples:
"The sound must be of an acceptable quality"
"Good sound"
"Good quality"

7.3 Digital music: Most Important Needs

This section will combine five studies from different market researchers with the primary data assembly. The different external studies originate from international market research organisations. In combination with the external studies, I have carried out a consumer survey in line with the external studies in order to combine the studies and to identify, which

customer requirements are most important. In this way, it is possible to build a hierarchical order in a House of Quality-inspired matrix.

7.3.1 IPSOS TEMPO

Ipsos is an international media research agency, which issues an annual report on digital music and consumer behaviour. It also investigates customers' evaluation of brand recognition. In its 2007 report, the top five service attributes were: *"Good sound quality"*, *"Easy to use"*, *"makes it easy to search for music"*, and *"good value for the money"*. The less important service attributes were evaluated as *"enables me to exhange ideas/recommendations with other users"* (however, this is increasing from year to year), *"offers music videos"*, and *"offers extras"*. Ipsos underlines that the same investigation carried out in 2002 indicated value, selection, flexibility, portability, and ease of use as the five core digital service attributes. A few months later, in 2002, Apple introduced Itunes which delivers excactly such service attributes. The five attributes are still critical, and range in top ten on the list in spite of dramatic market changes (Ipsos, 2007).

The IPSOS study confirms that there is a set of basic requirements which consumers continue to prioritise, as digital music market evolves - in particular convenience and pricing.

7.3.2 INDICARE

The Indicare project is a cooperation between a number of scientific institutions and universities in Europe. It is conducted with the purpose of focusing attention on the consumer side of DRM, defined as Digital Rights Management, protection of copy rights in digital files[1].

In this report, major preferences towards digital music are identified as: "important to transfer files between devices", "I want to share music with friends and family", and "Listening is more important than storing". Less important are "I am afraid that files will be unusable in the future", and "I want to resell purchased files" (INDICARE, 2005).

Even though the INDICARE project has been carried out with the purpose of investigating DRM-related customer preferences, it is still important to notice that convenience (such as

[1] According to Duchene et al, Digital Rights Management (DRM) is defined as: *"Copy control, watermarking (a digital identfication technology inserted in digital files, i.e. ex ante constraints), fingerprinting (which converts the files content into a unique identfication number, i.e. ex post control), authentification and access control. Technological protection can limit the uses of music files downloaded from online retailers. The most common restrictions consist of limiting the number of computers that the user can transfer his or her files to (typically between 3 and 5) as well as the number of times a playlist can be burned on a CD-R (typically between 7 and 9)"* (Duchene & Waelbroeck, 2006:2)

transfering of files and listening to music) and sharing with friends (social aspects) are the main attributes identified by INDICARE.

7.3.3 Jöckel et al. - DRM Analysis

Jöckel et al. (2007) carry out an identification of different customer segments in relation to digital music. Their primary argument is that the music industry has lacked customer focus in its efforts to prevent consumers from illegally downloading from the Internet. In particular, music labels have engaged in legal actions instead of rethinking its business models to monetise on the Internet as a new distribution channel. Consequently, the gaps between legal platforms available and customers' requirements are still huge.

Their primary findings for all consumer segments are: DRM copyright protection should be downsized, both in terms of size and complexibility. Furthermore, payment systems should be made easier and less complicated. Finally, greater flexibility in products and platforms should be launched, in order to attract more diverse customer segments, and not just the mainstream music consumer.

This survey is quite interesting in the sense that it documents a gap between music industry's offerings and actual customer requirements. Its primary identified customer requirement is convenience, in this way defined as no copyright restrictions and easy to use payment systems. Furthermore, flexibility of choice is important.

7.3.4 Survey by Author

The previous listed findings are all implemented in a survey conducted by the author of this thesis. The survey has been conducted for two reasons: To identify and correlate survey results as to give a broad and consistent analytical foundation for further analysis, and secondly, to validate and compare the other survey findings applied in the thesis.

Overall, the primary data indicates that there is a certain correlation between the external survey findings and the primary data. In particular, the evaluation of specific customer requirements clearly identifies four major customer preferences when consuming digital music, namely portability (to transfer music between devices), with more than 40% of the respondents stating that this is crucial for them, with a total score of 8.8 out of 10. Sound quality comes in second, and selection/variety of songs and security of the website/service are third and fourth, each evaluated around 8,5 points out of 10. The fifth most important preference is connection speed.

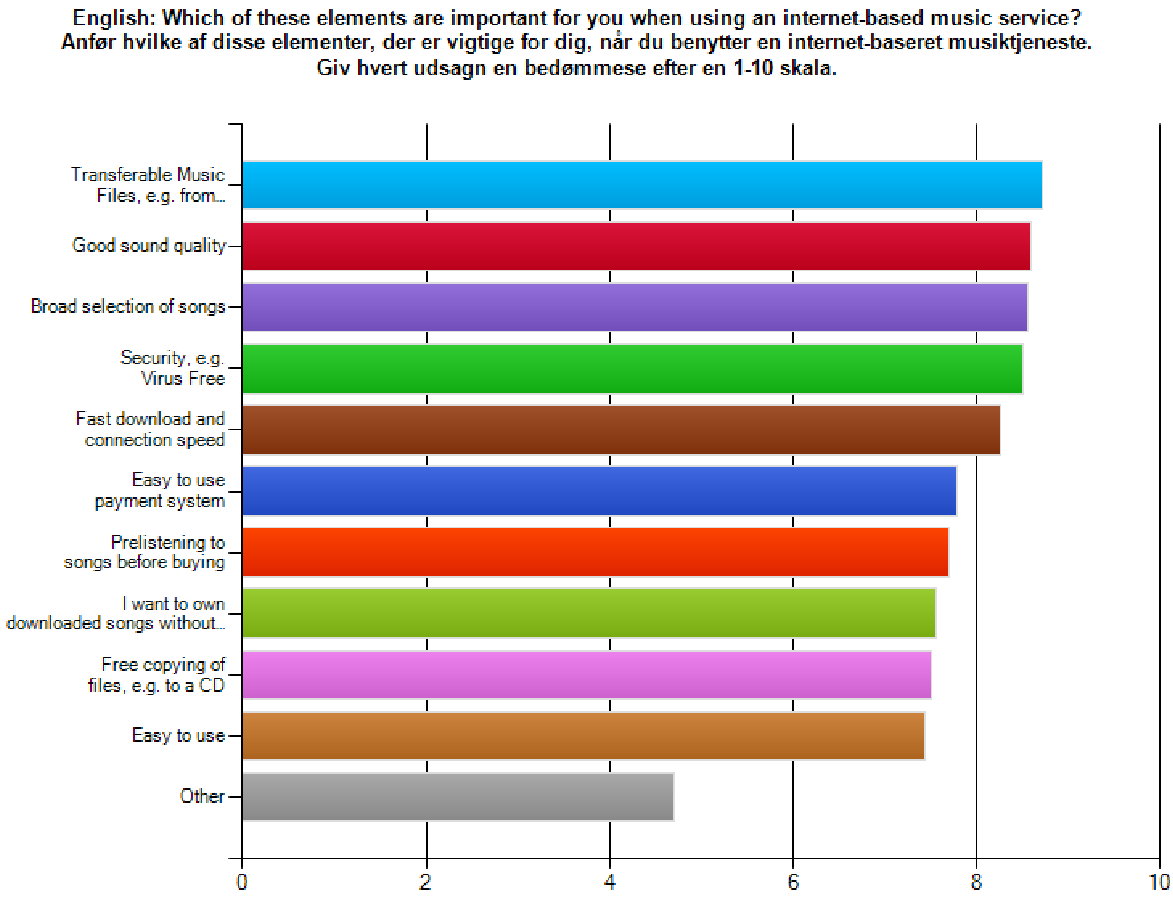


Figure 2. Highest evaluated preferences. Source: Survey by Author conducted September/October 2009

The three lowest evaluated preferences are social connectivity, such as meeting new friends and sharing playlists with other users. These findings correlate with the IPSOS findings, however, it has not been possible to identify whether these preferences are increasing in importance as IPSOS indicates.

Interestingly, cheap pricing is evaluated with a total score of 7,28 which, in this survey, is an average score. Furthermore, the preference defined as *"it has to be free of charge"* is rated 6,8, with 28% of respondents answering that this does not have large or small meaning to them. Furthermore, payment systems without credit cards are not necessary in the target group (15-40 years). 35% of all respondents reply that this has absolutely no importance to them.

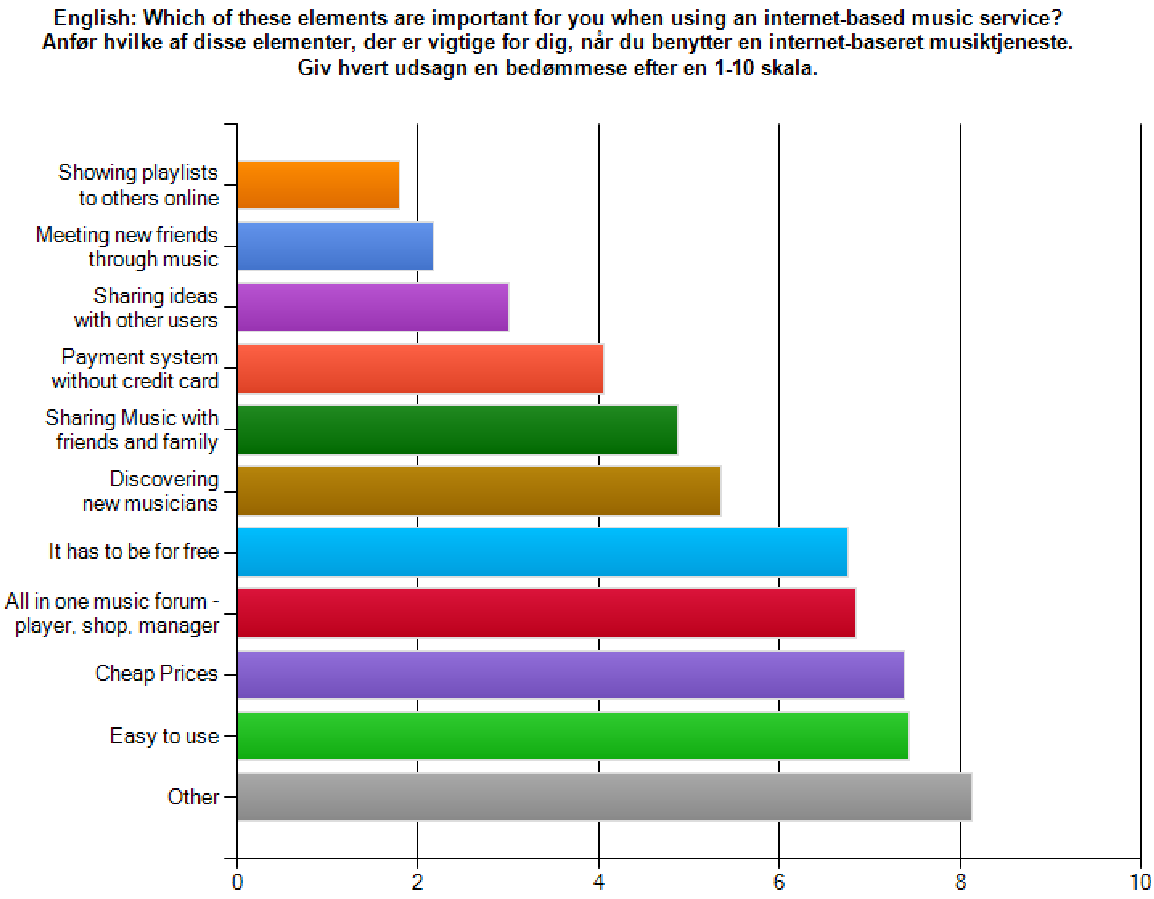


Figure 3. Lowest evaluated preferences. Source: Survey by Author conducted September/October 2009

Overall, this survey shows that there are some major preferences to be identified, and there are indications that these preferences are universal. The preferences can be defined as portability of songs, sound quality, broad selection, and security/virus-free. Price and social networks are, in contrast, of very little importance to the target group at this point.

The following matrix sum up the different findings of the surveys and identify correlations between preferences.

The surveys identified a large number of tertiary needs, and after having identified the hierarchical importance of these needs, it is possible to bundle these needs in order to identify primary and secondary needs.

Table 1. House of Quality Matrix

Customer Needs in Hierarchical Order:

PRIMARY	SECONDARY	TERTIARY
1. Convenience	Accessibility	Usability
		Ease-of-use
		Fast and Easy access
		Listen to before buy
		Listen to music anywhere
		Good search options
		Easy to use payment systems
		Fast download speed
	Variation/selection	Flexibility in song selection
		Finding niche music
		Finding music as the first
		Getting music before release
		Targeted to specific segments
	Transferability	DRM-free files
		Software to transfer music
		Downloadable music
		Must be able to copy files
2. Quality	Sound Quality	Good sound = acceptable
		No errors in files
	Security	Virus-free software
		Safety in downloading
		Legal sites

PRIMARY	SECONDARY	TERTIARY
3. Pricing	Transfer costs vs. price	Cheap prices
		Flat rate payments
		Free downloads
		It has to appear for free
		Low investment to start using
		Risk must be low
		Legal vs. illegal
		Subscription vs. variable costs
4. Social connectivity	Social features	Sharing music & playlists
		Networking through music
		Discovering new artists
		Getting inspired from friends

Source: Survey conducted by Author September/October 2009. Derived from Hauser & Clausing's model (1988), p. 5.

The primary needs are in the following sections discussed further and elaborated on. In particular, the views and analyses of Morten Bay, author of the book *'Homo Conexus'* (2009), are applied in this discussion.

7.4 General Considerations on Convenience

According to Morten Bay, convenience is the new, third parameter of the modern consumer, which can be compared to traditional values such as price and quality. According to Bay, the parameter of convenience is determined by the attributes of the product, but just as much by the network and the context which the product is part of (Bay, 2009:203). The same argument is found in Gawer & Cusumano's platform theory, where the complementarities and the innovating companies, around and embedded in the platform context, add value to the core (Gawer & Cusumano, 2002). According to Bay, convenience of a specific product is determined by its adaptation to present trends, its accessibility in the market, how the product is communicated, and how easy it is to use (Bay, 2009:203).

Bay elaborates on the fact that the increasing need of convenience often decreases other needs, such as quality. He specifically mentions the music industry, where sound quality and

the customers' need for sound quality has decreased remarkably as a result of increasing need for convenience. The digital MP3-format comprises the music with 90%, and thereby, removes much of the underlying sound features, and in general performs worse when it comes to sound quality. However, the consumers evaluate convenience in digital music remarkably higher than sound quality. Bay also argues that convenience is the reason for many of the present illegal downloads – to teenagers, it is simply more convenient to use an illegal download site than subscribing to an internet download site, where a credit card is needed (which requires to ask parents for permission) (Bay, 2009). Furthermore, it is important to keep in mind the accessibility of digital music where illegal download sites usually can provide new releases of digital music weeks before the legal download sites.

7.5 General Considerations on Quality

In spite of convenience dominating quality as a customer need, sound quality is apparently an increasing customer requirement in digital music. This is evidence of technology related trends in the digital music market. Firstly, it is an indication of an increasing consumer awareness, that the digital music market is maturing, and that consolidation is taking place. The consumer requires good quality, and selects services and products which can give him this sound quality. Secondly, it is evidence that more consumers are switching to legal download sites, since illegal download sites by nature will have difficulties guaranteeing sound quality, as the peer-2-peer technology is based on users sharing their private music files with each other.

Furthermore, quality also means the quality of the website, which is security for the user, virus-free software, etc. Again, it is evident that the user is gradually changing attributes, and possesses needs, which suggests he would prefer legal download sites as in opposition to illegal download sites.

7.6 General Considerations on Pricing

Pricing is important in many markets. However, pricing in the digital music market is a problematic issue, which has troubled music labels for years. How will it ever be possible to give away music for free? In his book, Morten Bay argues that pricing is important, and that the modern consumer wants to access digital media, such as music, for free. However, his primary argument is that the modern consumer does not necessarily need to get things for free in the end. He calls it the need for the *'illusion of free'* (Bay, 2009:175ff).

The need of cheap (digital) music originates in the invention of (illegal) music sharing internet services, especially Napster[2]. However, it is important to notice that the digital music in combination with extremely low transactions costs has changed the way consumers perceive music and consume music.

Bay argues that pricing as a customer need should not be regarded as an actual customer 'ultimatum' for free music. It is evident, also in this thesis' primary and secondary survey results that consumers are willing to pay for music. However, they are not willing to pay for music as they did before the invention of illegal download sites and digital music. Today, the consumer is not willing to pay a high price for an entire album, but prefers to shop around and possess a large selection of music, combining the best from different albums. Previously, a consumer bought an album, paid a premium price, but listened perhaps to only a few of the tracks. The digital music and the internet as a distribution channel has made it possible to acquire only the tracks, that you want to hear, and not pay for the rest of the tracks. This is an important attribute to remember when creating users platforms in line with user attributes.

Finally, Bay argues of the phenomenon he defines as *'the illusion of free'*. The businesses, which will be competitive in future (online) markets, are the companies which understand to re-channel revenue streams, so the company can monetise on several revenue streams, and not primarily from the product itself. A good example of this is TDC Play, which is marketed for free, but in fact requires that the user pays a subscription fee to either TDC Internet subscription and/or TDC mobile phone subscription. These products are typically priced higher than competitors, and consequently, the user ultimately pays for services such as TDC Play. However, the major difference is that the user does not feel like paying for the service, as it is conceived as being free of charge (Bay, 2009). Still, TDC makes a considerable revenue stream from TDC Play, since its cancellations of subscriptions has decreased remarkably since the launch of TDC Play, and an increasing amount of new customers have subscribed to TDC services (IFPI, 2009).

7.7 General Considerations on Social Connectivity

At present, social elements of online music consumption are not highly important needs, but evidence suggests that this element is growing in importance. This argument is supported by Bay (2009). He argues, that a central part of the young modern consumer (Bay introduces the

[2] The Napster, an Peer-2-peer based file sharing network was launched by Shawn Fanning and other students at Boston University in 1999, and was later closed down by legal court action. It reached 25 million users in its first six months of operation (Bay, 2009). This will be elaborated on later in this thesis.

term ‘homo conexus’) is networking. The modern consumer defines himself based on the social connectivity and the network, he is a part of (Bay, 2009).

As online music services will gradually increase in size, the features of social connectivity will be more evident. Today, music services such as MySpace are a good example of how social features are combined with music products: At MySpace, artists have their own webpage, where music is streamed, and the artist can network with other users. Through the site, the artists can create their own personal space in order to illustrate their values and lifestyle. MySpace works as a way to share music experiences and knowledge of upcoming musicians, or music you listened to and you liked. Such internet forums combining social connectivity with music downloads, are important in the future digital music market, also as new marketing channels. Furthermore, sharing of playlists with friends and family is increasing in importance. Notice that sharing of playlists does not necessarily means illegal sharing of music, but merely just a way to share music experiences with friends and family. However, social connectivity has been a central part of the technology of illegal download sites for years, where file-sharing is based on users exchanging knowledge in order to find specific files, and it is dependent on premium users, which choose to share their files with other users.

7.8 Summing up

In this chapter, a QFD analysis based on primary and secondary data has been carried out. The analysis shows valid and correlating evidence that there are some general primary needs, which music consumers prioritise when listening to music. In particular, convenience is the most important need. The term ‘convenience’ contains a number of secondary needs such as ‘fast and easy access to music’, ‘usability’, ‘transferability’ etc.

Another important primary need is sound quality, which has been rated relatively high in all surveys applied in this analysis. Users’ requirements are evidently increasing with regards to music quality, and security on the internet.

Subsequently, this analysis has identifed two subsidary (primary) needs: Pricing, which some respondents mention as extremely important, however, cheap prices are only of some importance to the majority of users. This trend indicates that users are becoming aware of legal download sites, and are willing to pay a (small) price to download and listen to music.

Another subsidary (primary) need is social connectivity, which has a low relative importance. However, external annual surveys indicated that this need is gradually increasing in importance.

The four major primary needs indicate that consumers are gradually requiring an increasing amount of complementary services, when selecting a music provider. They regard music as a service product, which must be convenient, must be of some acceptable sound quality, must be priced fairly or cheap, and must contain some additional features apart from music downloads. It is evident that technology changes have resulted in music gradually becoming a service rather than a product, and technology development is gradually increasing customer requirements of service complementarities.

This chapter has identified most important customer needs, and has analysed the implications of customer needs in terms of service complementarities. The next chapter will apply this data in a product platform assessment, revealing which types of product platforms are delivering the most efficient bundle of required complementary services.

8. Quality Function Deployment – Platform Assessment

In the previous chapter, a number of customer needs were identified and sorted into bundles, which could be listed in a hierarchical order relative to their importance. This analysis will examine a number of different categories of music product platforms and examine which product platforms deliver the most efficient bundles of service complementarities.

For reasons of delimitation, this analysis will investigate types of product platforms, which each consists of several different competitive firms. This simplification has been applied for methodological reasons, in order to illustrate which types of product platforms and types of business models are most likely to be linked with actual customer needs, and which types of product platforms are not linked with customer needs. The customer perception of each product platform type is assessed, based on empirical data and previous analysis. The analysis does not carry out a full-scale customer perception analysis, due to the limitiations of this thesis. However, I believe it is important to illustrate which product platforms are likely to deliver the most efficient bundles of service complementarities, which contributes to illustrating how and why new entrants perform higher than industry incumbents.

8.1 Types of Product Platforms

The following types of product platforms are assessed. In the following, a short introduction to each product platform is presented.

8.1.1 Internet Streaming Services

Internet streaming is defined as listening to online music and/or online music videos, and does not contain a possibility of saving the music files on a physical disc. Online streaming is typically free, and examples of online streaming are YouTube and MySpace. However, these two sites have recently integrated online music stores in their sites, but their main functionality is streaming.

8.1.2 Online Radio Services

The internet contains thousands of internet radio stations, but one of the major players is Pandora, which is a customised radio station, automatically generating playlists based on the user's music preferences. Online radio stations are free of cost, and most of them are based on income from advertisers. Other examples are major internet sites, which offers the users thousands of internet radio stations, and allows the user to create his own internet radio station. Examples of such services are AOL radio online, Live365, and others.

8.1.3 Download Subscription Services

The largest player in this type of platform is Rhapsody (IPSOS 2007), which has in recent years experienced rapid growth in terms of users and user awareness. Rhapsody offers free download of a large catalogue of music files without any copyright or DRM restrictions (Rhapsody.com). However, due to difficulties negotiating with the four major labels, Rhapsody only offers music from independent music labels (Bay, 2009).

In the last couple of years, some online music services, based on legal downloads of songs with no direct subscription fees, have been launched. Two major types of these services are 1) Advertising-funded services, typically with a narrow selection of songs and/or DRM-protected material, which prohibits the user from transfering downloaded files to other devices. 2) ISP-provided download services, the best example being the Danish-based TDC Play.

8.1.4 Online Music Stores

Online music stores provide platforms, where users can browse through music, listen to pieces of the music files, and pay per download if the user wants to acquire the file. The world's largest online music store, and also the largest music provider in the world, is Apple's Itunes. Released in 2002, it was originally meant as a way of increasing the sales of Apple's MP3-player, Ipod. Today, Itunes is a gigantic player in the music industry, and provides

download of songs without DRM-restrictions at 99 cents per file. The most important feature of Itunes is that it is based on a downloadable program, which can manage all the users' MP3 files and other media files, both legal and illegal acquired. Furthermore, Itunes is a manager of all the user's music devices such as the computer hard drive, the Ipod / MP3-player, and the user's Iphone. Apple is still experiencing a two-digit annual growth (Apple.com).

8.1.5 Illegal Download Sites

One of the pioneers of illegal music downloads was the Napster, which was released in 1999 and closed down by legal actions from the music industry in 2001. Napster applied a new technology, which allowed users to search for music in a central database, but download took place directly between users, a technology also called peer-to-peer (P2P). The music was simply shared between users. After the Napster, a number of illegal download sites based on similar P2P technologies occurred such as Kazaa, The Pirate Bay, Limewire and Morpheus (Bay, 2009:182-183).

Today, many large P2P download services have been closed down due to legal actions, but new file-sharing services constantly occur on the internet. Sites with new, innovative technology in order to avoid legal actions. Currently, the largest (illegal) file-sharing internet sites are: Kazaa, Edonkey, Emule, LimeWire, CD++, Torrent, Bearshare, and Rapidshare (Computerworld, 2009). The major success of the download sites have evidently changed the way, music is consumed and the customer attributes in the music market. However, illegal download sites still exist and new sites are constantly launched. According to the music industry, more than 90% of all music downloads are still illegal, which presumably accounts for a loss of more than 45 billion dollars yearly world-wide (IFPI 2009).

8.1.6 CD-shops Offline and Online

Traditional music shops, which until a few years ago dominated the music market, are experiencing rapid declining turnovers. The traditional CD-shops, offline or online, are based on distribution of physical products, either music CDs, DVDs or other physical media. The distribution of CDs has historically been dominated by music label owned distributors. In a record shop, it is possible to browse through albums and listen to albums before buying. Traditional physical record shops have a limited space, which naturally sets a limit to the selection and variety of albums possible. Consequently, each CD album has a limited product life cycle, which decreases over time, when marketing efforts and hitlist rotation decline. The traditional logistics of music and CD production has been dominated by the music labels, and

is capital-intensive, which naturally sets limitations to how many musicians and albums to be marketed simoultaneously. This is also in sharp contrast to the digital music market, where production and logistics costs in theory are close to zero, once the product has been marketed.

8.2 Platforms vs. Customer Attributes

In this chapter, it will be examined which product platforms are most likely to deliver efficient bundles of service complementarities. The data from the previous QFD analysis is applied to each of the different types of product platforms. Consequently, it is discussed whether bundles of existing product platforms will increase the service offer in terms of expected user attributes. Each primary need wil be assessed according to the secondary needs, which will each be rated on a level from 1-5, based on how likely it is that the product platform delivers the specific customer need. The rating 1 is defined as low accordance with user needs, and the rating 5 is defined as high accordance with user needs.

8.2.1 Internet Streaming Services

Streaming services have a high degree of convenience in terms of accessibility. They require no subscription (they have instant access to all free available material), and they are easy to use with search functions on YouTube, and typically direct linking on MySpace (the artist links directly to music to listen to). However, at least in the free version, saving your choices is not possible, and the user must spend time and effort on searching for music and deciding what to search for, in order to play material. Accessibility is rated 3. Variation and selection are acceptable, due to the fact that there is a lot of material to access on streaming sites, since users typically upload material (such as YouTube). However, much of the accessible material is shorted in length, and it is typically not possible to find niche material. Variation/selection is rated 3. Transferability is close to 0, as no streaming sites allow users to download, copy and transfer music to other devices.

Sound quality is relatively low in streaming sites, mainly due to two reasons. Firstly, the quality in general is low, as the sites are streaming its material to the users on-the-run: Consequently, the data sizes must be low, in order to make streaming an acceptable experience. Secondly, sites such as YouTube consist of videos, and hence, the sound quality in music videos is lower than other sound media. Sound quality is rated 2, as it is important for streaming sites to improve its sound quality in order to make it acceptable as users' requirements for sound quality will further decrease, as illustrated in the preceding QFD analysis.

It has not been possible to identify keypoints which indicate that streaming sites are experiencing severe problems with security. Security is rated 3. Pricing is rated 5, as transfer costs for the user are low, and the material is usually free of charge. Streaming sites are usually legal, and still free.

In social connectivity, streaming sites have high ratings. This is mainly because they are mostly based on either user-to-user, or artist-to-user. All forums are optimal for musicians and artists to promote their music, and there are a number of examples of how artists become 'famous' because of media sites such as YouTube or MySpace. On MySpace, both users and artists can share playlists, and users can interact and network with each other. Social connectivity score: 5.

8.2.2 Online Radio Services

Online radio has a high degree of accessibility. All are available on the Internet, and can be accessed through computer or mobile phones with Internet access. Most require no subscriptions, however, users are encouraged to subscribe in order to fully exploit the features of the platforms. Accessibility is rated 5.

Variation/selection is relatively high on the customised online radio services, which typically contain an acceptable music cataloque, and the services automatically generate preferred playlists for the user. However, as online radio sites are obliged to make deals with record labels in order to include music in their service, it is quite common that online radios are not presenting all record labels. Hence, they are missing certain selection of music, or their services are not available outside the U.S. (as in the case of Pandora) due to difficulties in negotiating with music labels and copyright organisations. Variation/selection is rated 2. Transferability is rated 0, as it is not possible on any radio station to transfer and/or copy music that is listened to in the service.

Sound quality is acceptable, and is higher in most online radio services than in for example streaming sites (as they are based on the internet service's original music versions and not user uploads). However, it is still based on a streaming technique, which creates a natural restriction on sound quality because of the need for minimizing the data size to transfer. Sound Quality is rated 3. Security is acceptable for private users in major sites such as pandora.com (rated 4).

Online Radio services do not require user payments in order to listen to radio. Transfer costs for the users are low, as it it easy to use, and for free. Rated 5.

Social connectivity must be regarded as low, as the 'traditional' internet radios, such as AOL music (users' radio stations) are not social forums as such. Social connectivity is rated 1.

8.2.3 Download Subscription Services

In download subscription services, accessibility is relatively low. Accessing a download subscription, requires that the user registers, and in some cases pay the subscription fee by using a credit card. However, subscription services are still accessible online, which rates these services higher than traditional shops. Accessibility is rated 3.

Variation/selection is high when it comes to popular music, however, large sites have experienced severe problems in terms of negotiating deals with copyright owners, in order to distribute music world-wide. Hence, most subscription sites only offers limited music catalogues, or only offers its services in a limited number of countries. Variation/Selection is rated 3.

In general, download subscription sites are using DRM-protection in its music, which does not allow the users to transfer or copy the music files. Furthermore, most subscription sites, due to the DRM-protection, does not allow users to access the downloaded music once subscription period ends. However, a few download sites have recently introduced DRM-free music download (such as Rhapsody). However, these are typically not cooperating with the four major music labels, and they are only capable of providing music from independent labels. Transferability is rated 2+ (slowly increasing).

Sound quality is generally high, as the music is downloaded and listened to by the user, online and offline (rated 4). Security is high, as all download sites have virus filters and do not provide user-uploaded material (rated 5).

Pricing varies some in download subscription services, from TDC Play which is marketed as 'free' (if you pay an internet or mobile subscription fee at TDC, that is) or Qtrax and Spiralfrog. An increasing number of internet services are offering 'free' access financed either by ISP-payments, advertising, or the like. However, all available music services involve some transactions costs for the user, either in terms of restrictions and advertising, or in terms of an obligation to subscribe to for example a specific ISP. Rated 3.

Social connectivity is not an integrative part of download subscription services, to include features such as social connectivity. Rated 1.

8.2.4 Online Music Stores

This chapter is primarily based on studies of Apple's Itunes Service, as it dominates the majority of the digital music market with a 69% market share in 2007 (Computerworld, 2009). However, many new sites are constantly being launched in attempts to compete with the monopoly-like position of Apple in the digital music market. The competition in digital music stores are high, and many new entrants attempt to capture a part of the new emerging market, which is increasing with two-digits annual growth. Apple's Itunes was the first major service to illustrate and proof that it was possible to charge money for digital music.

Convenience is definitely one of the main reasons for the worldwide success of Itunes. Even though Itunes is a physical program which needs to be downloaded in order to use, it is the world's leading music storage software. The user can manage its entire media catalogue, and Itunes provides an easy software, which can manage all MP3-files of the user, legally or illegally downloaded. At the same time, it works as a device manager of all music devices such as an (Apple) MP3-player, computer harddrive, and Iphone (mobile telephone with software and harddrive). Finally, the Itunes software is an integrated music store, so the user can acquire songs while managing already acquired music. In addition, all album covers are integrated in the program, and the user can for free access album covers of the music, he is listening to. Accessibility is rated 4.

Variation is probably one of the best in the (legal) market, since Apple has made licensing agreements with the four major music labels, at the same time while licensing with a large number of independent labels and distributors, some which have not even published a physical CD to sell in shops. However, Apple is not offering the enourmous back catalogues of the four music labels to all countries, and only U.S.-customers are able to access the full music catalogues, where users outside the U.S. are offered a limited music catalogue (Computerworld2, 2009). Variation/selection is rated 4.

In early 2009, Apple removed its DRM-protection, which, according to the primary data of this thesis, seems to be a very clever move in accordance with actual customer needs. Transferability is possible in Itunes music store, and files can be copied and transferred between devices, however with some restrictions, such as devices need to be approved by Apple. This is a restriction on the platform which prevents it from being universal, but facilitates the sales of Apple's products. Transferability is rated 4.

Sound quality is acceptable in Itunes, both in terms of the software player, and the music to be sold in the music store. Sound quality is rated 4.

Security is high on the official Itunes website, and users are in general not concerned with the security of Itunes software, rated 5.

Pricing is, according to Apple Computer and the music industry, relatively low. The strategy of Apple since 2002 has been to keep prices below 1 dollar per song (99 cents), and this policy has been so important to Apple that the company threatened by closing down its entire music store after the music industry pressured to raise royalty payments through lobbying for changing legislation (NyTimes2, 2009). According to Apple, the company has not created Itunes to earn money on selling digital music, at least not in the short run, but rather to promote sales of its MP3-player Ipod.

Transfer costs for the user are in fact not low, due to the fact that the user needs an Apple-based device such as an Ipod, to fully exploit the features of Itunes. This is why pricing is rated 3 in Itunes.

Itunes is not based on principles of social connectivity, but there may be opportunities for the company to increase these features, as the Iphone is gradually become an integrated part of the platform. The Iphone is a fully integrated online access mobile phone with an integrated music player. However, it is not evident that this is a focus of Apple at the present time. Social connectivity is rated 1.

8.2.5 Illegal Download Sites

One of the major reasons for the tremendous success of the Napster, Kazaa, Limewire and other large illegal download services, is accessibility. It is easy to find, easy to download, requires no registration or subscriptions, and no credit card is needed to start downloading. According to Choi & Perez (2007), *"Napster was immensely popular because it offered a wide range of important features, such as wide selection, high quality sound, and convenience"* (Choi & Perez, 2007:171). Accessibility is rated 5 on initially launched illegal sites (such as Napster and Kazaa), however new dominating illegal sites such as Rapidshare have a slightly lower accessibility, as users need to spend time browsing external news feeds in order to find the specific files, and it can be time-consuming to find the correct download links. Today, accessibility is rated 4, with a tendency to be decreasing, as illegal sites create more complicated download technologies in order to circumvent legislation.

Variation/selection is also extremely high, since the systems are based on a peer-2-peer technology where users share their music collections with each other, and in this way, users are granted access to enormous amounts of music. The users are actually deciding what music to be available, which makes it very 'democratic' and in our context, very much in line with

actual customer needs. There are no limitations to the amount of music that is available, and especially niche products are a major strength of illegal sites since the large music stores such as Itunes do not strategically focus on providing niche music. Furthermore, releases of new albums are often available on illegal download sites weeks before they are introduced in the legal market. Variation/selection is rated 5.

Transferability is high, since all the original illegal download sites have free access to MP3-files which have no limitiations such a DRM-protection. This fact also increases convenience, and is rated 5.

Sound quality is traditionally one of the weakest parts of illegal download sites. Since users are providing the material, it is obvious that sound quality varies a lot. Some users may have experienced that a certain song needed to be downloaded in several versions before an acceptable quality could be found. However, new sites such as Rapidshare is evidently increasing sound quality, as all files are referred by users, who also evaluate the quality of the specific files, and share the information with each other. Sound quality is rated 3, possibly with a tendency to be increasing.

Security is rated 2 due to the problematic issues of many of the illegal download sites, since virus, spyware and other harmful software can flow freely between users. This has historically been one of the risks of installing the download software (Duchene & Waelbroeck, 2006:569).

Pricing is rated 5, since all download sites are for free. Some download sites offer users to subscribe to an extra service, which enables the user with extra features, faster download, and/or advertising free software. However, these are not mandatory features.

Transaction costs (opportunity cost) for the user are higher than legal services, since the user needs to invest time and effort (and perhaps risk) in searching, finding, and downloading the music (Duchene & Waelbroeck, 2006).

The foundation of illegal download sites is to share files between users, and naturally have some elements of social connectivity. New technologies such as Rapidshare are driven by users collaborating and sharing with each other, and the increasing amount of users is a direct result of social connectivity. However, in our meaning of the term social connectivity, features such as sharing of playlists with friends and family must be present, which is not the case of illegal download sites. Hence, social connectivity is rated 3.

8.2.6 CD-shops Offline and Online

Traditional retail stores are characterised by a low degree of convenience in the context of the modern consumer. It takes time and effort to go to a physical shop, and it takes time when ordering on the internet in order to wait for the arrival of the physical CD. This trend is also evident in actual CD-sales, which have decreased remarkably in the last 10 years. Accessibility, as a secondary need in the primary need 'convenience', is rated 1.

Variation/selection is also low, since physical CD retail stores have limited space floor and inventory to display CD titles. It is not cost-effective to display an album title, which does not have a certain scale in terms of sale. In terms of online CD stores, they have the ability to display a large number of titles. However, selling physical albums requires that the albums are available and logistics are efficient enough to keep delivery time low. Hence, even online retail stores distributing physical CDs have a natural limit of variation and selection. Variation/selection is rated 1.

Transferability is very low, even though users with an average PC software can copy a physical CD using standard software. But it is definitely not part of the business model of retail stores. Rated 1.

Sound quality is rated 5, since physical CDs are higher quality than the digital MP3-format (Duchene &Waelbroeck, 2006:567). Security is N/A, since it is not relevant for this thesis.

Prices of physical CDs are relatively high. In order for the customer to acquire a certain artist's production, it is necessary to acquire an entire album, and pay a premium price in order to receive the original album cover, the original CD, etc. Pricing is rated 1.

Transaction costs are high, as the customer needs to pay a premium price while spending time and effort in order to acquire a physical CD.

8.3 Re-introducing the House of Quality Matrix

The preceding analysis can be applied in the matrix of House of Quality. This matrix will contribute to identifying some important factors, which can explain why some product platforms have experienced early success, and why some platforms have lost its previous market dominance. Furthermore, it may also illustrate why some new platforms increase in dominance, all based on the argument of delivering efficient bundles of service complementarities.

The secondary needs have each been given a relative importance in the matrix. This calculation have been made on the basis on the primary data collection, and the respondents

valuation of their specific needs. The sum of the relative importance equals 100. However, the matrix is a simplified version of the House of Quality matrix, and some subsequent needs may not be represented in the matrix. In our context, the matrix is illustrated for the purpose of illustrating the most important needs, and identify the relative importance of the needs.

Each of the six examined product platforms, were in the preceding analysis evaluated based on the product platforms' ability to deliver efficient customer needs. In the matrix, each product platform's rating in each of the customer needs, is ilustrated using a 1-5 rating index.

The matrix enables us to analyse and illustrate which product platforms are strong in which customer needs, and the matrix can be used in order to further identify why some product platforms outperform other product platforms.

Figure 4. House of Quality Matrix

Bundles	Customer Attributes	Relative Importance	1 Relativity Score 5
Convenience	Accessibility	15%	F C A D E B
	Variation/Selection	16%	F B A E C D
	Transferability	15%	F A B C D E
Quality	Sound Quality	17%	A E B D C F
	Security	16%	E A B D C
Pricing	Transaction Costs, Low Price	14%	F D C E A B
Social Connectivity	Social Forum, Sharing Playlists	7%	D C B E A
TOTAL		100%	

A= Internet Streaming
B= Online Radio
C= Download Subscription Services
D= Online Music Stores
E= Illegal Download Sites
F= Traditional CD Retail Stores

Source: Author. Derived from Hauser & Clausing's model (1988), p. 7

8.4 Identifying Important Trends Using the House

Based on the findings in the House of Quality matrix, we will in this chapter analyse the findings and deduct some general considerations based on the findings.

8.4.1 Convenience

The three major needs identified in the category 'convenience', defined as accessibility, variation/selection, and transferability, are each rated relatively high by respondents. In total, 46% of identified needs are linked to convenience. The three secondary needs are evaluated with equally hierarchical importance, 15-16%.

In terms of accessibility, the preceding analysis of product platforms identifes some general positions of platforms. In particular, traditional CD stores are rated very low, while illegal download sites and online radio is rated high. This contributes to explaining the success of illegal download sites: They have been easily accessible, in comparison to download subscription sites, internet streaming, and especially in comparison to traditional retailers.

Variation/selection illustrates another axis, where the types of platforms are positioned differently. Again, traditional retailers are found in the low range of the axis, while illegal download sites are at the top. Download subscription sites and online music stores are placed in the middle. It is worth noticing that online radio is also placed in the lower end.

In terms of transferability, the axis is very split, with a number of platforms ranging close to 0, and a few platforms in the top. Traditional retailers, internet streaming, and online radio are in the bottom, while especially illegal download sites are in the top, but online music stores are also placed relatively high in the matrix.

The use of an axis ilustrates a customer-market linkage explanation as to why illegal download sites and online music stores (like Itunes) have captured most of the market for (digital) music world-wide. While convenience has been identifed as a crucial customer need, traditional retailers are not delivering any convenience, as defined by customers. However, illegal download sites are very much in line with the convenience needs, which are one of the reasons why services like napster could capture more than 25 million users in the first six months of operation. However, it is very important to underline, that online music stores are also exhibiting satisfactory results, which helps to explain why Itunes has become a world-wide success, it has simply considered convenience in its platform and its business plans. As for the other internet-based platforms, none exhibit excellence in providing convenience in its platforms, which also explains why they have not captured large market shares so far.

The findings are not to be seen as static results, and it is important to keep in mind that all platforms may develop its convenience-factors, and may, therefore, move up (or down) the axis in time.

8.4.2 Quality

It is quite noticiable that the need defined as 'quality' has been rated relatively high by respondents. There is a natural contradiction between 'convenience' and quality, at least in the early days of digital music. While convenience typically is preferred over quality (Bay, 2009), users gradually are prioritising quality more and more, as the digital music market develops. This is good news for legal music platforms, which may have a competitive advantage in delivering quality in comparison to illegal download sites.

In particular, customers prioritise 'sound quality' and 'security' as two important factors, which in total account for a relative importance of 33%. Initially, the digital music market was characterised by low quality, as most of the music was copied by private users, and the P2P networks were insecure and quality was varying from file to file. However, the indication that customers gradually perceive quality as an important factor, illustrates a maturing market with customers aware of quality. Possibly at the same time, a willingness to become 'legal' customers in legal download sites.

As we can see in the axis, traditional retail stores are likely to deliver high perceived sound quality (as the physical CD is delivering far better sound than the comprised MP3-format). Online music stores and download subscription sites are likely to deliver a relatively high sound quality, too. Lowest sound quality delivery is coming from internet streaming sites. In terms of illegal sites, it has been an obvious weakness for most illegal download sites. However, new file-sharing technologies with integrated user evaluations are increasing the sound quality, which we have rated average. Hence, legal download sites and online music stores deliver higher (perceived) sound quality when assessing the general value propositions. The difference between the value propositions in sound quality may be diminishing, as illegal sites change technologies and deliver higher sound quality.

However, it is important to keep in mind that convenience as a need still dominates quality, even though the gap may be diminishing as the market matures.

The same trend is found in terms of security. Illegal download sites are delivering the lowest quality, while top delivers are online music stores and download subscription sites.

8.4.3 Pricing

Pricing is a subsequent need, but still has a 14% relative importance. The concept of pricing is consisting of a number of different price considerations, which all have in common that (low) price is important, but also considers users' transactions costs. Many legal download sites are being introduced, which are not directly charging customers for accessing the music, but have established business models, which monetise on accessing music through different channels (as described in the previous platform chapter).

In pricing, we discover another argument as to why traditional retail stores are losing out to internet-based, legal and illegal download sites. While retail stores are in the bottom of the axis, both illegal download sites, online radio, and internet streaming are in the top of the axis. Online music stores and download subscription are placed in the middle, which can be explained by the fact that even though pricing is important, convenience and quality still dominate as the most important needs. In other words, customers consider pricing as a factor when acquiring music, but there is evidence that pricing is not crucial, and that many consumers are willing to consider paying for convenience and quality, directly or indirectly.

8.4.4 Social Connectivity

Social aspects of music downloading sites have a relative importance of 7%, which is rather low. However, external surveys indicate that this need is increasing in relative importance, and may become more important in the future. As concerns our assessment of need delivery, only internet streaming sites deliver social aspects in their platforms, while all other platforms have not integrated any consistent social features in their sites. However, as previous analysis has pointed out, it may be beneficial for some of the established platforms to introduce such features as an integrated part of the existing platform.

Illegal download sites are driven by social connectivity, and it is the sharing of information and data between users that enhance the penetration and the usage of illegal download sites.

8.5 Summing up

The use of House of Quality has contributed to understanding some important needs in the developing market of digital music. Primarily, convenience is a crucial part of consumer needs, and this is the reason for the success of illegal sites, and may help explain why 'traditional' product platforms and other subscription sites have experienced severe problems in the initial years after the introduction of large scale illegal download sites. However,

convenience is also the reason why companies like Apple has captured large market shares since 2002, it simply delivers convenience as defined by consumers.

Furthermore, quality is becoming an important customer need. This helps to explain why customers are gradually becoming (paying or non-paying) customers at legal sites; they simply deliver higher quality than illegal download sites. There is evidence that the market is maturing.

Finally, pricing is a consumer need, however it is not a crucial customer need, and the other needs dominate, as long as pricing is lower than traditional CD retail stores. This is evidence that price is not the most important reason for incumbents' failure to introduce popular music services in the new market. Rather, it is convenience which is the crucial customer need, a service complementarity which is directly in opposition to the strategy of the incumbents to introduce DRM-system, which provide lower convenience in terms of transferability.

Social connectivity is not an integrated part of most platforms, but may become so as the customer need increases in relative importance. Illegal download sites, however, are driven by social connectivity.

Two product platforms deliver efficient bundles of customer needs, however, they deliver different needs. Firstly, illegal download sites are in the top when delivering convenience and price, while they are average or low in terms of delivering quality. Secondly, internet music stores (such as the example of Apple) are in the top when delivering convenience and quality. However, price is not the cheapest in the market, but ranges in the middle of the axis.

The findings of this analysis illustrates a market, which has undergone remarkable changes because of disruptive technology. Customers are entirely changed, and awareness of the selection process in terms of music provider has entirely reversed the market, which has enabled new entrants to dominate. This has left incumbents with lower market shares and less influence to drive the market. In this QFD-analysis, I have identified a number of market-customer explanations of why incumbents may are weakening in the new digital music market. In order to identify the primary explanations of which technology characteristics have weakened the industry incumbents. It is necessary to perform a platform leadership analysis, which will apply the findings of the preceding analysis with platform leadership theory, in order to explain the weakening of incumbents.

Furthermore, there is an important lesson to be learned from the survey, we carried out. 24% of all respondents replied that it was of extreme importance to them that they can listen to the music before deciding to pay for it. In general 79% of all respondents replied that it had some

or a lot of importance to them, to pre-listen to music (Author's survey, 2009). This is an important trend to keep in mind, and explains some market developments. First, the 'need' of samples probably originates from illegal download sites. Secondly, it explains the reason for the existence of streaming sites and other music sites, where download is not possible. Finally, it indicates that the legal download sites, which have gained large market shares, have been inspired by illegal sites. These sites have realised the need for sampling on the Internet. At the same time, the traditional music industry, has not until recently, realised that illegal download sites have contributed to sampling music, and thereby increasing the consumption of music remarkably. The potential of sampling has also been recognised by literature. Peitz & Waelbroeck (2006) show how sampling from P2P services increase the potential market of the music industry as compared to a music market without sampling. The increasing potential occurs because buyers are able to make more informed purchasing decisions. Furthermore, sampling contributes to matching buyers' tastes and sellers' offer (Peitz & Waelbroeck, 2006). As described in the introduction to the music industry, customers 'consume' music more than ever. However, the traditional music labels have experienced severe problems monetising from this trend, and while music consumption has increased, actual revenues have decreased remarkably in the last years. This is an interesting dilemma, which deserves a further investigation. The music industry, however, has realised this dilemma, and as EMI executive Douglas Merrill state, *"We have to help fans find music wherever they are at the moment they want it. If we can do that, we will find ways to monetise it"* (IFPI, 2009:11).

Monetising on music may be possible for new entrants such as IT-companies and ISPs. However, the incumbents are likely to experience severe difficulties in reaping the fruits of access, as a result of its platform setup, its internal organisations, and its business models. In the next section, it will be examined which technology developments can be directly linked to the weakening of industry incumbents, by applying value network perspectives and platform theory.

9. Platform Leadership & Value Network Analysis

9.1 Introduction to Platform Leadership Theory

Gawer and Cusumano (2002) examine in their book some major companies and how they have obtained - and constantly retain - their platform leaderships in different industries. *"Platform leaderships refers to the common objective sought by the companies we talked to: to drive innovation in their industry"*. (Gawer & Cusumano, 2002:6). It is the theory of building one's company on a platform, that is universal and still central to the market, so as *"[…] To become the foundation on which other companies build their products or offer their services"* (ibid.). Platform leadership theory is based on a highly dynamic environment, where the platform is based on external complementors. The complementors add value to the core product and increases the value of the platform. Therefore, innovating companies offering complements are, under the right circumstances, a competitive advantage to the platform leader. In order to become a succesful platform leader, the platform leader must stimulate its surroundings in order to channel innovation and make sure that complementary products are developed that can complement the core platform (ibid:7).

9.2 Value Chain Analysis

In order to examine the platforms and understand the competitive situation of the music industry, it is necessary to understand the value chain of the music industry. Until recently, the five major music labels, all New York-based American companies, have dominated this value network, both in terms of intellectual property rights, production facilities, and capital, but also in terms of distribution and marketing.

9.2.1 The Traditional Value Chain

The value chain of the music industry in its traditional form has not changed remarkably since the beginning of commercial recording and distribution (Graham et al 2004:1093). The traditional value chain consists of three intermediaries between the artist and the consumer, namely the record company (music label), the distributor, and the retailer. The music label typically functions as a gatekeeper, because artists must write a contract with a music label in order to market its music. The music label decides which artists to invest in and to market. Consequently, the supply of music artists have historically been very limited (ibid.). To begin with, the music artist creates a composition which represents an initial value. Music labels

then *"provide the necessary initial capital as well as the marketing know-how to create, market, and distribute music on a large scale"* (ibid:1093). Furthermore, music labels provide a network in terms of access to press, radio stations, and music TV channels, and finally retail stores. Furthermore, the authors argue that music labels add value to the product by combining music composers and music artists. They organise all the practical activities such as producing the music, manufacturing the physical or digital media, marketing of the music, and distribution.

It is worth noticing that music labels in recent years have acquired the major distributors of physical music products (such as CDs), and are therefore dominating the distribution of music (ibid:1094).

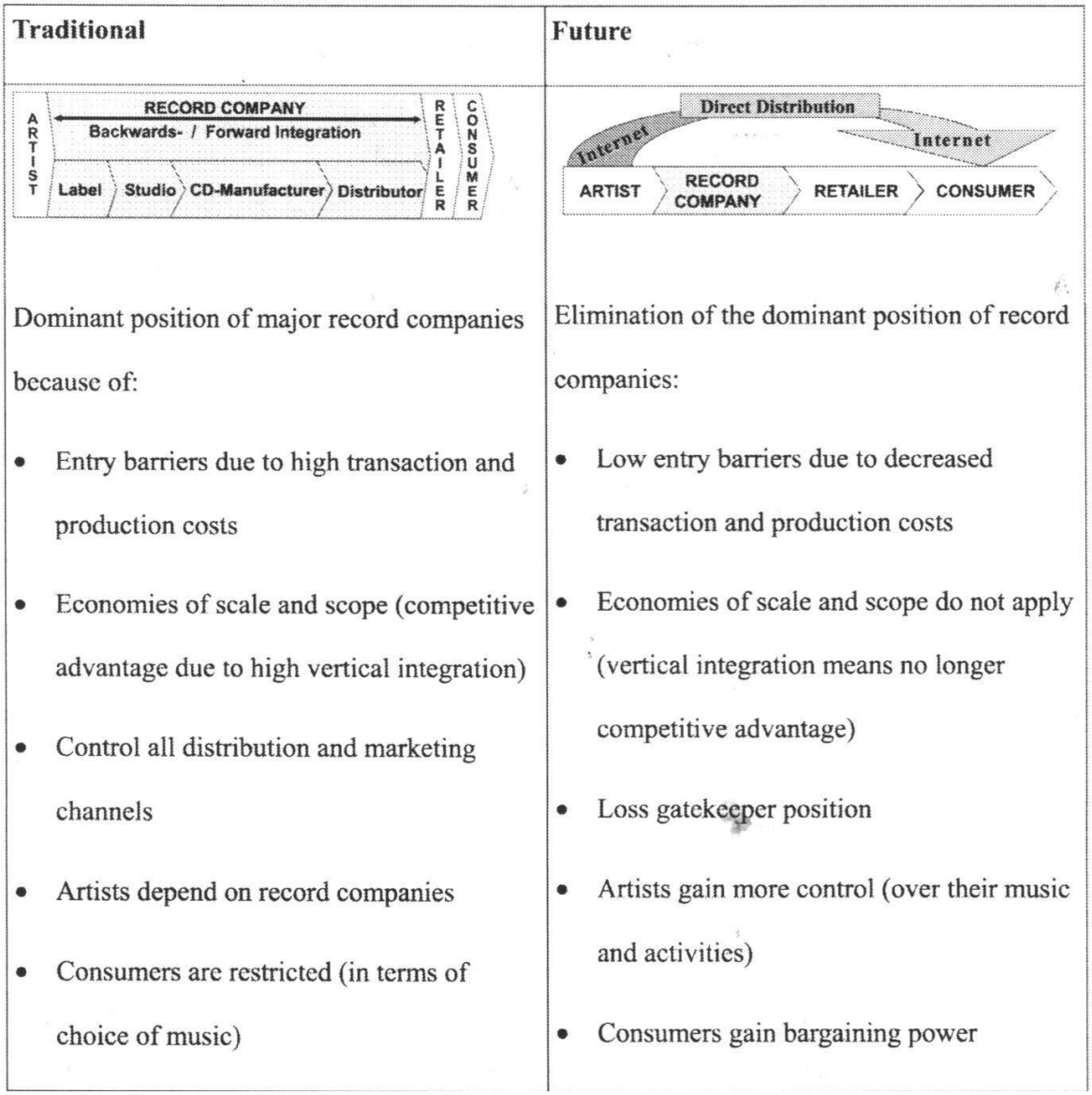
In general, the traditional value chain of the music industry is by large dominated by four major music labels, which have been applying a strategy of vertical integration in order to reach economies of scale, and they are very powerful gatekeepers. Traditionally, no artists could reach the mainstream music market without signing a contract with a music label. Because of the ownership of the distribution companies, music labels also control the platform, here defined as physical CDs, in the sense that they produce and distribute all physical music devices without any serious competitors or alternative distribution channels.

9.2.2 The Future Value Chain

According to Graham et al (2004), the future value chain of the music industry will diminish some of the major barriers of the value chain, and will create a new structure with new linkages between artist and consumer. These changes will primarily take place because of digital media and the internet as a new distribution channel (Graham et al, 2004:1094).

Most importantly, entry barriers to the music industry will be lowered as a result of new linkages between artist and consumer, and accordingly between new ways to reach the market. In particular, Graham et al. argue that new specialist companies, also mentioned as service companies, will enter the digital music market, and thereby create direct linkages between the artist and the consumer. This is possible, partly due to digital music and lower production costs, lower distribution costs and lower transactions costs in general, but also because of the Internet as a combined distribution and marketing channel. In the future music market, more musicians will be able to reach its end customers directly, by building up a fan base without signing marketing contracts with (major) music labels. This will eventually break down some of the former powerful dominance of the music labels (ibid:1094-1095).

Figure 5. The Old and New Value Chain



Source: Graham et. Al. 2004 p. 1096

9.3 Value Chain and Platform Leadership

The illustration of the changing structure of the value chain can be linked with platform theory. By applying a platform leadership perspective, one can argue that music labels historically have controlled the platform of the music industry, defined as the physical CD-platform, and hence the production of the media. This is bettwe described as the know-how and investments in marketing of the media, and the distribution of the media. Economies of scale and a strategy to vertically integrate have led to a gatekeeper position, where music labels control which artists to be marketed, and which to be invested in. To use another term, music labels have applied a push-strategy, where CD-sales have been dominated by music

labels which have decided when, where, and at what price to sell and distribute music, which has required large fixed costs (Duchene & Waelbroeck, 2006:567ff).

The platform leadership of the music labels in the 'old' value chain has led to enormous turnovers, and a dominating position of the music labels for the past many years.

So how can one argue that the platform is changing because of digital music? The new digital platform is decreasing production costs, is basically changing the distribution methods and channels, while the cost of marketing and distribution is decreasing remarkably. The new digital technology, combined with the Internet, are creating new ways of linking music artists with music consumers. The distribution platform is basically the internet, but can also be defined as the digital music platform (in contrast to the traditional record store/ Physical product platform).

9.4 The Break-down of the Old Value Network

The dominance of the four major music labels was a result of a stable market situation, which had not changed remarkably since the 1950's. The music industry had become a capital-intensive value network, where the music labels were able to dominate the value network due to a combination of knowledge, capital, and ownership. The production channels, the distribution channels, and the retail channels were dominated by the music labels, and musicians could not succeed in the mainstream music market without collaborating with these music labels. Because of the capital-intensive production, marketing, and distribution activities needed to market an artist, music labels carefully invested in a selected few artists. This was done in order to reap the benefits of increasing returns to scale. However, increasing returns to scale were essential in the 'old' value network, as incumbents were required to invest large sums in specific artists, in order to mass-market the music, and reach the end consumer. Furthermore, the value network was characterised by incumbents selecting between a large number of 'innovations' (or artists' music) in order to select a few artists to invest in. Hence, niche music has not been a beneficial investment for major labels, and experimenting with artists has not been possible, given the needed up-front investments to market an artist. According to Christensen, value networks are defined by its cost structures, which can explain the allocation of resources to given innovations, and it is the reason why companies in given value networks tend to move up-market in search for higher gross margins in new innovations. The cost structure perspective can contribute to explaining the incumbents' primary value network. The CD-technology, the production cost structure, the marketing structures, and the distribution channels all represent the need for a high gross

margin in each product. For major labels, there are major up-front investments associated with bringing an artist to market in the 'old' value network. Hence, major labels constantly focus on its existing customer base (customers buying albums at premium price) when searching for new innovations (artists) 'upmarket' that can increase returns to scale in terms of sales potential. Such search within the existing value network seem reasonable, as digital music as a technology (s-curve) did not occur within the existing value network, as we shall see in the next chapter.

9.5 A New Value Network

Christensen's argument of new disruptive technology occuring outside the current value network, and thereby explaining why incumbents do not invest or adopt the technology, is correlating with the situation of the music industry. Christensen (2000) argues that disruptive technology which occurs outside the existing value networks, are seldomly of interest to the incumbents in a different value network. This is because the disruptive technology initially has little commercial potential, and a very limited customer base. This argument can be transferred directly to the situation of digital music. Digital music as a (disruptive) technology occurred outside the existing value network, and initially, had no obvious commercial potential. The incumbents did not initially invest in digital music for a number of value network-related reasons:

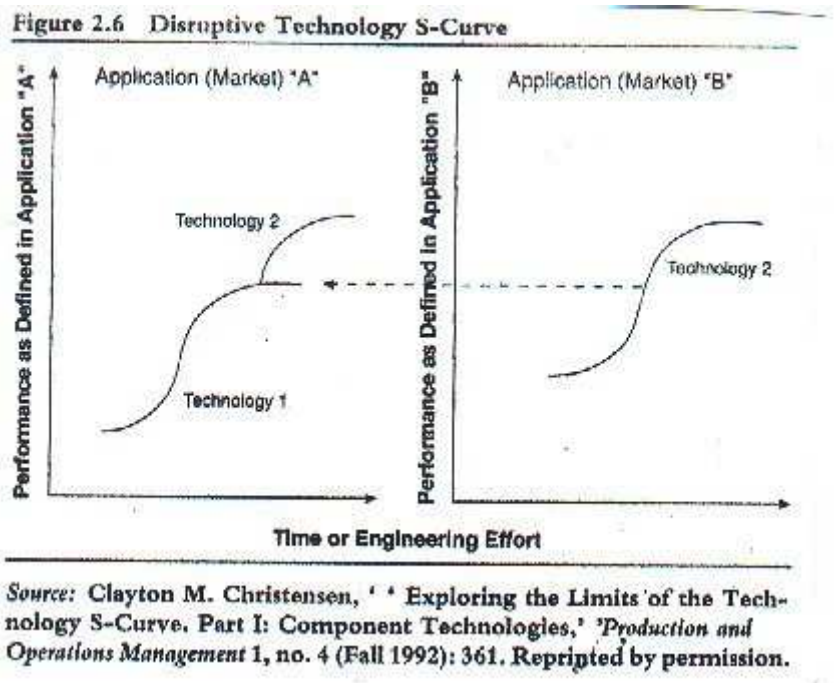
- The quality was poor, since the music was compressed 10 times
- The customer base of the incumbents requested high quality and original albums
- The customer base initially consisted of 'pirates', not retail customers of incumbents
- The perceived potential profit margins were close to zero, and had no commercial potential for the old value network, which was characterised by high gross margins

The new disruptive technology of digital music occurred with the invention of a technique to copy and compress digital music, in order to create a music file. These are low in data-size, and hence can be distributed without the use of physical storage media. However, it was the invention of the Internet, which facilitated the use of MP3-music. The Internet is a distribution channel, which facilitates users to acquire MP3-music fast and easy. Initially, only 'pirate' enthusiasts (a very small market share) adopted the new technology, and incumbents' primary customer base did not adopt the new technology, which was a remarkably lower quality than original albums.

The introduction of major file-sharing music sites such as Napster and Kazaa made the actual 'revolution' of digital music possible. With the introduction of a convenient user interface, average consumers rapidly adopted the new technology, which was free and easy to use. In the few years, Napster existed, the trend had become irreversible. Consumers had definitively adopted the new way to acquire and consume music, in large quantities and without any restrictions of transferability. After Napster, it has not been possible for the music industry to limit the amount of illegal downloads, even though the industry has spent fortunes on legal actions, in order to prosecute the illegal download sites.

At the same time while illegal downloads became the property of the majority of music consumers, the Internet was developed, so that speed and usage increased remarkably. It is evident that the introduction of P2P-technology (Napster and Kazaa), in combination with an increased Internet connection speed, caused the technology s-curve (to use Christensen's terminology), to move from the distant value network, and into the existing value network of the incumbents' music market.

Figure 6. Christensen's Disruptive Technology S-curve



Source: Christensen, 2000. P. 47.

In the figure, it is illustrated how the initially distant and non-commercial disruptive technology of 'digital music', could invade the 'old' value network. Incumbents had not invested in the technology, as it represented a down-market with low commercial opportunities, and was of little interest to incumbents. The Internet, combined with the first illegal download sites, facilitated the move of the s-curve from the distant value network into the existing music industry value network.

9.6 Disruptive Technology become Dominating Technology

Today, the Internet is not only a distribution channel for digital music, it has also become a major marketing channel, where artists can reach consumers directly, which has created new ways of getting to market. These new opportunities are exploited by a large number of new entrants in the market, the so-called 'indie-labels' which sign artists without investing large sums in marketing, and then use the new distribution and marketing channels to reach the mainstream market, in collaboration with the artists. They do not apply strategies in order to create scale economies, but rather apply niche differentation strategies, which are far more beneficial for the artist, and require less investments in marketing and production in comparison to the old labels' business models.

All of these developments have severely damaged the position of music labels. While CD sales have decreased more than 50% in recent years, music labels have not regained the lost profit margins in digital music. However, music labels own most 'back-catalogues' of music, which in practice means that music labels have the property rights to distribute most popular music produced and marketed in the last 50 years. This ownership of back-catalogues should, however, be a business opportunity for music labels: While the old value network and platforms did not made it possible to distribute its back-catalogues in large scale, due to the capital-intensive distribution and the natural limitations of traditional retailers, the new distribution channels have no natural limitations to selection and variety. In spite of this, only few online retailers have accomplished to provide the back-catalogues, however in a very limited amount, and often only to a limited geographic area, such as the U.S (Computerworld2, 2009).

To provide back-catalogues to customers requires contract agreements with the major music labels, but also with the country-specific organisations of intellectual property rights, such as KODA in Denmark. Therefore, the process is complicated, as each country-specific offering require a country-specific contract with IP-owners in order to legally provide the content (Bay, 2009). Such complicated legal systems work as barriers in the new digital music market. In the old market, the platforms are built in national contexts, and each country has its own IP- and royalty-system. This system worked as a way to protect IP-rights, both for major music labels and for the copyright owners. This system was reasonable in the old value network, as high investments needed high protection in terms of IP-rights.
Back catalogues have until recently only been a limited revenue stream for the major music labels. However, the dilemma is that with the new platform model and the digital distribution channels, back catalogues can be monetised in new ways. However, the major market has been captured by illegal download sites, which can avoid the complicated, country-specific negotiations, when providing content to users. This dilemma is, according to Christensen (2000), a natural part of disruptive technologies capturing existing value networks: As the 'old' value network's cost structures made it reasonable to protect IP-rights and limit access to market, the disruptive technology of digital music and the Internet as a distribution channel, in fact impede the incumbents, as their business models and existing setup are counterproductive when searching for ways to monetise the new market. At the same time, the existing market of CD-technology is gradually decreasing. This rapid decrease of CD-sales can be directly linked to the impact of the disruptive technology. The disruptive

technology has, in spite of occuring outside the existing value network, re-defined customer needs. As we saw in the previous QFD-analysis, the 'old' product platforms are not linked to new customer needs, while new entrants in the market have linked their product platforms to customer needs.

9.7 New Platform Leaders in a New Value Network

The preceding chapter examined how disruptive technology occuring outside the existing value network, can invade existing value networks, and re-define the market situation. This explanation clearly illustrates why incumbents are weakened in the new regime. In this chapter, I will further examine why entrants can become platform leaders, as incumbents become weakened.

As a consequence of the 'old' technology's diminishing influence and market share, new product platforms can become dominating under the new market conditions. In order to illustrate the new market situation and the new value network, it is important to identify the most important factors which characterise the new industry platforms.

The new factors are:

- Digital technology as a driver for music industry
- Changing intellectual property environment
- Music as a 'product' is changing to music as a 'service'
- New entrants with new technologies enhance competition
- Changing customer needs lead to new dominating platforms

This industry platform analysis will use the perspectives of Gawer and Cusumano's (2002) and Pisano & Teece (2007), in order to clarify how 'old' platform leaders' platform strategy may lose out to new entrants, and consequently create new platform leaders in the market.

The changes in platforms and platform leaders can be explained by applying the views of Pisano and Teece (2007), where platform leadership can be obtained and retained by attempts to manage the business environment, both in terms of pushing technology into the public domain, but also by promoting modularity. Both can be dangerous for the company in opposition to keeping technology proprietary, but under the right circumstances, it can be beneficial in terms of capturing value from innovation (Pisano & Teece, 2007).

9.8 Incumbents and the New Value Network

According to Pisano & Teece (2007), few technological innovations provide considerable value on a stand-alone basis. *"To provide value to the users, every innovation requires complementary products, technologies, and services"* (Pisano & Teece, 2007:281). This is highly relevant for the music industry and the technological innovation of digital music. Digital music would not have become a success in terms of usability without digital music players, new distribution and marketing channels (such as the Internet), product platforms on the Internet, and so on. In terms of value capture, Pisano & Teece argue that the more elements controlled by other parties, the more difficult it becomes to harvest the value of a specific innovation.

Translated to the music industry, this illustrates the dilemma, which all major music labels have experienced. While digital music as an innovation represents major opportunities in terms of increasing consumption of music, it also represents a break-down of the old elements, which were traditionally controlled by the music industry. Capital-intensive production becomes useless (as technology for producing music becomes common technology), new marketing tools and new linkages between artists and consumers decreases the gatekeeper function of the music labels, and new online retailers either circumvent intellectual property rights, or deliver lower profit margins back to the music labels, as customers require cheap prices in order to pay for music. All these elements are important complementaries, which are natural parts of the digital music business environment.

The music labels were able to control the important elements in the old value chain. They had been vertically integrating, and few major music labels controlled music production, marketing, and distribution. In the new value chain, music labels have lost the gatekeeper function of the old value chain. At the same time, IT-companies, which monetise on complementary digital technologies, have been entering the market, and a company such as Apple is monetising on more than one element of the music, namely digital music retailing and selling hardware appliances. TDC is monetising on selling internet and mobile phone subscriptions, and they give away music for 'free'. Nokia is giving away music downloads, when customers buy a Nokia phone with an integrated MP3-player. For such IT-based music industry entrants, providing music access becomes a remedy to increase sales of complementary products and services. Or the other way around, music becomes a complementary service instead of a stand-alone product.

Pisano & Teece argue that unless the innovator (such as the music labels introducing new music) are protected by a strong natural protection against imitation or strong intellectual

property rights protection (as the music labels did in the old value network), it is likely that complementors will reap most of the fruits of innovation. This illustrates very well the situation of the music industry: While illegal download has weakened the natural protection of intellectual property rights of the music labels, incumbents are weakened, as it is the basis of their traditional business model. At the same time, complementors such as Apple yield the fruits of the innovation, even though the company does not have any intellectual property rights of the actual product, music. In the new innovation regime, it is not possible for music labels to impose strong natural protection, and hence, they gradually loose the domination of the platform and yield a smaller portion of the value of innovation. Other complementors are also likely to yield a higher portion of the innovation, such as musicians (which are provided with new opportunities for penetrating the market, and musicians are able to monetise on other activities, such as concerts and royalty fees). Independent labels are also able to monetise on several revenue streams, as they can apply more flexible business models which can create revenue streams from having a multiple number of (niche) artists, revenue streams from concerts, booking bureau activities, etc.

Furthermore, Pisano & Teece argue that the most important feature of reaping the fruits of an innovation is to either controlling the bottleneck assets (such as the music labels previously did), or to own critical complementary technologies (such as Apple does with Itunes). Whether it is the innovator which will yield the value of the innovation, depends on the natural protection to imitation and protection of intellectual property rights. In the music industry, the weakening of the intellectual property rights has led to complementary technologies reaping the benefits of the innovation, and this tendency will only increase in the future.

9.9 Incumbents' Reactions

In reacting to changing technology platforms, Pisano & Teece argue that the most important task of the management is to secure a strong protection of intellectual property. This is exactly what the music labels attempted to, by initiating legal actions againts pirates all over the world, and by lobbying political decisions in order to make national legislation work for protecting property rights of the owners of music. However, technology has moved much faster than legal systems, and the battle for legal protection has not been efficient enough to prevent illegal downloads. On the contrary, legal downloads still account for the majority of all music consumption. Furthermore, the authors argue that the innovating firm should also *"…Make the right decisions with respect to building or buying the critical co-specialized*

complementary technologies and/or assets"(Pisano & Teece, 2007:281). The music labels did invest in acquiring complementary technologies. After realising that digital music had become a competing technology, incumbents invested in digital music platforms in order to acquire the needed technological skills to distribute music online. However, none of these attempts have been very successful. Much of the failures can be explained in terms of music labels' focus on DRM-protection. DRM is, in Pisano & Teece's context, an attempt to create protection of intellectual property rights. However, we also have provided empirical evidence in this thesis that DRM-protection was never succesfully linked to actual customer needs. Once again, in an attempt to protect their innovations in the new digital market platforms, music labels have acted reasonably in accordance with the arguments of Pisano & Teece, however, the new technology and hence the new consumption patterns have erupted the appropriability regime of the music labels, resulting in complementors reaping the benefits of the digital music innovation.

9.10 A Transforming Appropriability Regime

It is possible to identify a transformation of the appropriability regime of the music industry. According to Pisano & Teece, *"The appropriability regime refers to the protection afford to innovators through both legal mechanisms (e.g. patents, trade secrecy, copyrights, and non-disclosure agreements) and "natural" barriers to imitation (e.g., degree of difficulty in reverse engineering, and tacitness of relevant technology)* (Pisano & Teece, 2007:282).

It is evident that the appropriability regime of the 'old' music industry was very strong. All mainstream music was produced, marketed, and distributed by signing contracts with a small number of artists, which were then distributed on a large scale basis, in order to create returns to scale. Pisano & Teece comment on such scenario, *"…Innovators at the component level face appropriability risks because the "owner" of the architecture has the power to set interface protocols and to decide which innovations are adopted and which ones are not"* (Pisano & Teece, 2007:284). In the music industry's 'old' value network, innovators at the component level can be defined as musicians and artists (and small music labels), while the owner of the architecture can be defined as the major music labels. The authors argue that such scenario can create quasi-rents for the owner, which is evident in the previous turnover of the major music labels. By dominating the architecture of the music system, they have been able to receive high returns on their investments.

The music labels enjoyed a high degree of control over copyrights for their music, and the labels controlled the distribution of the music which made reverse engineering very hard.

Legislation created high degree of intellectual property protection. All these factors created an appropriability regime, which did not leave space for new entrants or competition, and led to a situation, where four major labels controlled the majority of the world market.

As a result of digital music and the Internet, it has proved very hard for music labels to control the illegal distribution of its products. Even though legislation in most countries does not allow unauthorised downloads, it is simply impossible for music labels to fight illegal downloads through legal actions. Hence, they no longer possess high protection through legal mechanisms. Furthermore, the natural barriers to imitation have been erupted, reverse engineering of music files. This illegal copying and distribution is the dominating way of acquiring music. The appropriability regime of the music industry has become 'weak'.

A weak appropriability regime does not, according to Pisano & Teece, mean that innovators cannot reap the benefits of the innovation. However, it is not relevant to make a strategy of only reaping the benefits of the innovation itself, when operating in a weak appropriability regime. Moreover, it is important to develop 'complementary assets', which can provide returns if the innovation itself does not. This helps explaining why music labels are gradually loosing its profits in the current music market. The music labels have not succeeded to strategically change its business models by realising that their former strong appropriability regime is weakening, and that complementary technologies in the future will earn the returns of the innovation of music.

At the same time, technology complementors have entered the market, and by introducing new business models, they have exhibited how it is possible to monetise on digital music. A complementor such as Apple, now accounts for 70% of the digital music market, and monetise on selling Iphones and music.

Today, the music labels and the analysts claim that the core competence of the music labels is marketing – know-how and capital. In its yearly report, IFPI clearly admits that the previous domination is no longer present, but argues that music labels are still important in terms of bringing artists to market in a large scale (IFPI, 2009 & Fleming et al 2002). However, as this analysis show, the labels are not likely to regain its former gatekeeper domination, and complementary technologies will instead account for most of the value of music, as music labels gradually loose its dominant market position. It is highly unlikely that music labels should be able to retain a dominant position in the music market, simply by the core competence of 'marketing assets'.

9.11 Weakening the Appropriability Regime

The last chapter illustrated some theoretical explanations as to why music labels are decreasing in size and dominance. Even though music labels have reacted correspondently to the changes in the appropriability regime, they have attempted to create business models, which are not in accordance with actual customer needs. Furthermore, it has not been possible to prevent illegal downloads through legal actions.

While music labels have not changed its business models while facing a weakening appropriability regime, other complementary technologies are gradually taking over the market, and it is likely that complementary technologies will eventually dominate the platforms of digital music. Furthermore, new music labels are gradually increasing in size and turnover, as they are now able to circumvent the dominant position of the major music labels in terms of marketing and distribution, as a result of the new platform and value network.

According to Pisano & Teece, some companies may find it beneficial to weaken its appropriability regime, if they are able to benefit from such. However, in order to be beneficial, companies must possess *"Strong downstream complementary asset position"*(Pisano & Teece, 2007:288). If not, this may hurt the company. In terms of the major music labels, there is no evidence that the incumbents possess such downstream assets, especially not in the new value network of the industry. Basically, all revenue streams are created from selling copyrights to digital media, and the major labels are no longer generating revenue streams from owning distribution companies or retail shops. However, the situation is visa versa for complementary technologies, such as independent labels, musicians and internet music retailers. They do not have strong upstream assets, and they are interested in weakening the appropriability regime of the major music labels, in order to benefit from its downstream assets; musicians can benefit from more concert activities, smaller music labels are often monetising on more than just selling music (such as event bureau, booking bureaus, etc.), and internet music retailers are monetising on other services than merely selling music. This situation also helps us to clarify why major music labels are loosing their dominant positions. Most other actors in the value chain are likely to benefit much more from a weak appropriability regime, and therefore, they are not proactively working to protect the former dominance of the major music labels.

The major winners are customers. They secure increased bargaining power because of the new value network and the new distribution mechanisms that result in the "monopoly" of major music labels slowly disappearing. The new value network provides the customers with bargaining power, which makes distribution of a large number of artists possible, in contrast

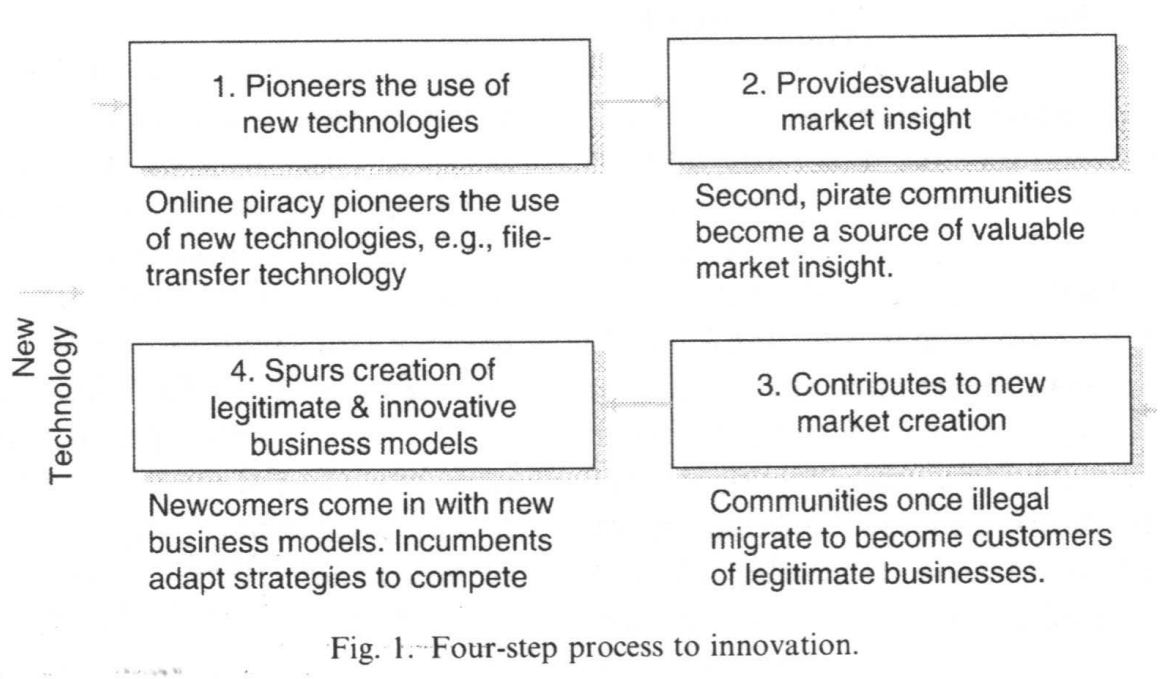
to the former strategy of major music labels, where only very few artists were brought to the market. Furthermore, prices of digital music are dropping, and customers are thereby better off, with cheaper prices, better selection and more influence on which artists succeed.

9.12 A New Approach to Innovation

While major music labels have regarded online piracy as a threat to their existing business models, other entrants have developed new, legitimate business models, which are based on innovative ideas, many which have originated from illegal download sites. According to Choi & Perez (2007), online piracy may be illegal, but it has contributed largely to developing new innovative ideas in the music market. It has been the driver of innovation, and illegal download sites are an important link in the new technology linkages of the industry. The 'weak' appropriability regime of the music industry opens up for such technology linkages, and underlines the situation, where major music labels loose dominance in the market, and innovative ideas from new entrants, legal as well as illegal business models, drive innovation in the market (Choi & Perez, 2007).

This exemplifies further how the new industry is highly competitive, and is driven by innovation on users' premises. It also illustrates why incumbents are not able to drive the market innovation, since innovations stem from (illegal) entrants, which are regarded as threats to incumbents' existing business models. As a result, new (legal) entrants adapt the market insights created by online piracy, also termed as the 'pioneers' of the new market and technology, and incumbents become adaptors of technology instead of frontrunners.

Figure 7. Pirate Communites as Source of Digital Music Innovation



Source: Choi & Perez , 2006. P. 173

The important argument of Choi & Perez is that initially illegal download sites and their business models are 'pioneers', and their ideas and insights are later adopted and developed into legitimate business models. The legal, innovative business models then enables customers to 'migrate' from illegal download sites to legal platforms, as a result of market innovation (ibid.). This point of view is rather controversial, as it underlines the fact that illegal platforms are market drivers in terms of innovation. However, it is new entrants which adapt the market insights of these pioneers, which eventually will reap the benefits of the innovation and the new technology. The authors argue that both entrants and incumbents should begin to *"…View online piracy as a source of innovation that has been lacking in the traditional media sector"* (Choi & Perez, 2007:177). The lesson learned from Choi & Perez is that illegal platforms can 1) Work as pioneers for developing and testing new technology 2) Function as providers of market insights to the existing businesses and new entrants, 3) Be contributors of developing new markets, and 4) Work as a source of development of new and legitimate business models (Ibid.:177).

9.13 Summing up

In this analysis, it has been examined why and how disruptive technology has weakened the incumbents of the music industry. In the following, the major conclusions will be shortly revisited.

The value chain of the music industry has remarkably changed because of digital music. Entry barriers are lowered, as new linkages between artist and consumer occur. The linkages are created by new entrants, called 'service' companies. The new linkages are severely weakening the incumbents, as their business models are built on a gatekeeper function because of the large fixed costs of bringing artists to the market in the old value chain.

The old value network of the music industry was characterised by high gross margins, and incumbents were focused on up-market investments as a result of large fixed costs, which forced incumbents to yield high profit margins in order to create returns on their investments.

The disruptive technology, defined as digital music, occurred outside the incumbents' existing value network. It had initially no obvious commercial potential, it was of poor quality, and it had a limited customer base of initial 'pirates'. Therefore, incumbents did not invest in the technology. With the introduction of P2P technology and the Internet as a distribution channel, the technology invaded the existing value network. The new disruptive technology existed in a down-market, and was of no commercial interest to incumbents. Consequently, entrants captured large market shares initally. The success of P2P technology has redefined customer needs in the entire market, which has severely weakened the incumbents. The old technology is not able to deliver the requested customer needs, which has placed the incumbents in a dilemma.

Furthermore, the Internet has become a major marketing channel, which has created opportunities for circumventing the former gatekeeper domination of the incumbents. Consequently, new entrants are competing with the major labels by introducing more flexible business models, which monetise on a number of revenue streams.

Another dilemma for incumbents is the ownership of back-catalogues, which should represent a major business opportunity, as the former natural limitations of the (retail) distribution channels are no longer an issue, and required investments are low. However, most of the market for distributing back-catalogue music is dominated by illegal download sites. This lack of control of digital distribution of back-catalogues is the consequence of 1) complicated and rigid national copyright legislation, which has been created by the industry in the old value network to protect intellectual property rights, but are counter-productive in the new

value network, and 2) consumers evidently search for convenient access to back-catalogues, which illegal download sites tend to deliver more efficiently.

Music is gradually becoming a service instead of a product. This will severely weaken the incumbents, and the need for monetising on complementary assets will be crucial for market actors. New entrants, especially IT-companies, are able to monetise on other products such as MP3-players and Internet subscriptions, however, incumbents are weakened by the shifting appropriability regime, where complementary innovators reap the benefits of the innovations, and protection of IP-rights are becoming very hard to control with legislation or legal actions. Furthermore, there is a natural conflict between the incumbents and the entrants, as entrants have a natural interest in weakening the appropriability regime and thereby removing rigidities of the value system, while incumbents are dedicated to protecting IP-rights, and thereby attempting to prevail the strong appropriability regime. However, it is evident that the ongoing weakening of the appropriability regime is impossible for incumbents to prevent.

Finally, it has been illustrated how illegal download sites, which incumbents have been fighting, actually work as the providers of innovation and market insights to the music industry. The innovators, which manage to transfer valuable market insights from these 'pioneers', are able to provide product platforms which are linked to actual customer needs.

10. Discussion

The preceding analysis has identified a number of explanations as to why incumbents are experiencing problems adapting and monetising on its business models in the new value network. In this final chapter, the findings will be discussed.

The preceding analysis has examined how incumbents are weakened because of a disruptive technology. The analysis is a value system analysis, and has not examined managerial issues within the incumbent firms. It is important to underline that even though it seems as if incumbents are loosing out to new entrants, incumbents still possess 70% of the legal music market. We cannot deduct whether labels will be able to strategically change and adapt its business models to align to the new market, even though the findings of this thesis indicate that they will lose out regardless of their managerial reactions, due to their historical background, their mindset, their business models, and the disaligment between incumbents old value network and the nature of the disruptive technology.

According to Duchene & Waelbroeck's analysis of implications for consumers and businesses on copyright protection versus free P2P downloads, the solution is somewhere between the

two. In order to maximise consumer gains while saving advertising efforts, an optimum solution could be platforms, which work as informational intermediaries, where users can discover new music through promotion and recommendation, termed cross-platforms. They argue that record labels are being decreased to simple distributors, as online platforms gradually take over the role of the advertiser (Duchene & Waelbroeck, 2006:577). This is in direct contrast to the industry's own point of view: according to IFPI (2009), *"Music companies, large and small, believe that their primary role in all these new business partnerships is to remain the main investors in new talent and developers of artists' carriers. The skills, expertise, investment capacity, creative understanding, and above all, the ability to connect the artists' work with their audience will remain the music company's role well into the future"* (IFPI, 2009:5). It is possible that incumbents in the future can retain a part of the mainstream music market, but it is highly unlikely that they will be able to keep the former market shares and earnings. This analysis is evidence that incumbents are likely to fail as market and platform leaders in the new value network.

According to Choi & Perez, incumbents should adapt business models, and experiment with a couple of initiatives, and thereby learning and adapting. This may be hard for major music labels, as they are not efficient learning organisations, but old dominating businesses. This leaves opportunities for new entrants (Choi & Perez, 2007:178).

Moreover, companies like Apple will increase their dominance in the market, as they have developed a product platform, which has an element of modularity, and works as a foundation for obtaining platform leadership, however without owning the copyrights of a single song. This represent the dilemma of the music labels: The future market is not about owning copyrights, but is all about providing service to customer linked with customer needs. And customers do not regard music as a product, rather, they regard music as a service, something that should be accessed.

Therefore, this analysis is not able to provide a golden solution to how incumbents should manage their companies in order to keep their positions in the new digital market. On the contrary, the analysis shows that there is a natural conflict so deep and fundamental that it is highly unlikely that incumbents were able to or will be able to successfully apply strategies in the new value network that will result in yielding high benefits of the innovation. The incumbents have already been weakened, and the competition is just getting started. However, this time, it is not the incumbents which are driving the innovation.

11. Conclusion

Which characteristics of technological development in the music industry explains an increasing weakening of music industry incumbents?

The value chain of the music industry has remarkably changed because of digital music. Entry barriers are lowered, as new linkages between artist and consumer occur. The linkages are created by new entrants, called 'service' companies. The new linkages are severely weakening the incumbents, as their business models are built on a gatekeeper function because of the large fixed costs of bringing artists to the market in the old value network.
The disruptive technology, defined as digital music, occurred outside the incumbents' existing value network. It had initially no obvious commercial potential, it was of poor quality, and it had a limited customer base of initial 'pirates'. Therefore, incumbents did not invest in the technology. With the introduction of P2P technology and the Internet as a distribution channel, the technology invaded the existing value network. The new disruptive technology existed in a down-market, and was of no commercial interest to incumbents. Consequently, entrants captured large market shares initally. The success of P2P technology has redefined customer needs in the entire market, which has severely weakened the incumbents. The old technology is not able to deliver the requested customer needs, which has placed the incumbents in a dilemma.
Furthermore, the Internet has become a major marketing channel, which has created opportunities for circumventing the former gatekeeper domination of the incumbents. Consequently, new entrants are competing with the major labels by introducing more flexible business models, which monetise on a number of revenue streams.
Music is gradually becoming a service instead of a product. This will severely weaken the incumbents, and the need for monetising on complementary assets will be crucial for market actors. New entrants, especially IT-companies, are able to monetise on other products such as MP3-players and Internet subscriptions, however, incumbents are weakened by the shifting appropriability regime, where complementary innovators reap the benefits of the innovations, and protection of IP-rights are becoming very hard to control with legislation or legal actions. Furthermore, there is a natural conflict between the incumbents and the entrants, as entrants have a natural interest in weakening the appropriability regime and removing rigidities of the value network, while incumbents are dedicated to protecting IP-rights, and thereby attempting

to prevail the strong appropriability regime. However, it is evident that the ongoing weakening of the appropriability regime is impossible for incumbents to prevent.

Illegal download sites, which incumbents have been fighting, actually work as the providers of innovation and market insights to the music industry. The innovators, which manage to transfer valuable market insights from these 'pioneers', are able to provide product platforms which are linked to actual customer needs. This is the case of Apple's Itunes, while incumbents have not been able to create such linkages to 'pioneers' of the technology.

This thesis has identified four major customer needs, which all have been defined as a result of technology changes. 1. **Convenience** - contains a number of secondary needs such as 'fast and easy access to music', 'usability', 'transferability' etc. 2. **Quality** - Users' requirements are evidently increasing with regards to music quality, and security on the internet. 3. **Pricing** - which some respondents mention as extremely important, however, cheap prices are only of some importance to the majority of users. 4. **Social connectivity** - which has a low relative importance. However, external annual surveys indicated that this need is gradually increasing in importance.

The four major primary needs indicate that consumers are gradually requiring an increasing amount of complementary services as a bundle, when selecting a music provider. They regard music as a service, which must contain the four service attributes in an efficient bundle.

It is evident that technology changes have resulted in music gradually becoming a service rather than a product, and technology development is gradually increasing customer requirements of service complementarities.

The findings of this thesis illustrate a market, which has undergone remarkable changes because of disruptive technology. Customer needs have entirely changed, and awareness of the selection process in terms of possible music providers has entirely reversed the market. This has enabled new entrants to dominate the market, and has left incumbents with lower market shares and less influence to drive the market.

12. Bibliography

ACM, 2003: Zhu, Kevin & Macquarrie, Bryan: *"The Economics of digital bundling: The impact of digitization and bundling on the music industry"* In: Communications of the ACM, Vol. 46, No. 9, 2003, p. 264-270

Authors Survey, 2009: Survey of Consumption of Digital Music, carried out September-October 2009. See Appendix 1 for results.

Bay, 2009: Bay, Morten (2009), *"Homo Conexus – Netværksmennesket"*, Gyldendal Business, Nordisk Forlag A/S, 2009.

Chesbrough 2001: Chesbrough, Henry: *"Assembling the elephant: A review of impirical studies on the impact of technical change upon incumbent firms"* In: Research on technological innovation, management and policy, volume 7, Comparative Studies of Technological Evolution, Vol. 7, JAI Elsevier Science 2001, p. 1-17.

Choi & Perez, 2007: Choi, David Y. & Perez, Arturo: *"Online Piracy, innovation, and legitimate business models"* In: Technovation 27, Elsevier 2007, p. 168-178.

Cnet, 2009: Whitney, Lance: *"Itunes reps 1 in every 4 songs sold in U.S."* Cnet.com, August 18, 2009. Downloaded november 2009 from: http://news.cnet.com/8301-13579_3-10311907-37.html

ComputerWorld, 2009: Lai, Eric: *"Piraterne dropper torrents – ny metode vinder indpas"* In: Computerworld Danmark, October 13th, 2009. Downloaded November 2009 from: http://www.computerworld.dk/art/53434/?page=1

Computerworld2, 2009: Elkær, Mads: *"Hvorfor kan man ikke bare købe al musik på nettet?"* In: Computerworld Danmark, May 15th, 2009. Downloaded November 2009 from: http://www.computerworld.dk/art/51512?cid=4&q=itunes&sm=search&a=cid&i=4&o=31&pos=6

Christensen, 2000: Christensen, Clayton M.: *"The Innovator's Dilemma – the revolutionary national bestseller that changed the way we do business"* Harperbusiness, 2000, Collins Business Essentials, edition published 2006.

Duchene & Waelbroeck 2007: Duchene, Anne & Waelbroeck, Patrick: *„The legal and technological Battle in the music industry: Information-push versis information-pull technologies"* In: International Review of Law and Economics 26 (2006) p. 565-580.

Fleming & Hughes, 2002: Fleming, Richard G. & Hughes, Edward G.: *"New Technologies and the Music Industry – What will be the next dominant Business Model?"* MBA Stage Two Business Research Project, downloaded from: www.flexibility.com/documents/technology-and-music.pdf

Gawer & Cusumano 2002: Gawer, Annabelle & Cusumano, Michael A., *"Platform Leadership – How Intel, Microsoft, and Cisco drive industry innovation"* Harvard Business School Press, 2002.

Graham et al, 2004: Graham, Gary, Burnes, Bernard, Lewis, Gerard J. & Langer, Janet: *"The Transformation of the music industry supply chain"* In: International Journal of Operations & Production Management, Vol. 24, No. 11, 2004, p. 1087-1103.

Griffin & Hauser, 1993: Griffin, Abbie & Hauser, John R.: *„The Voice of the Customer"* In: Marketing Science, Vol. 12, No. 1., Winter, 1993, p. 1-27

Hauser & Clausing 1988: Hauser, John R. & Clausing, Don: *"The House of Quality"*, Harvard Business Review, May-June 1988, p. 1-13.

IFPI, 2009: IFPI: *"Digital Music Report 2009 – New Business Models for a Changing Environment"*, Downloaded from IFPI.org, January 2009.

Indicare, 2005: Dufft, Nicole, Stiehler, Andreas, Vogeley, Danny & Wichmann, Thorsten: *"Digital Music Usage and DRM – Results from a European Consumer Survey"* INDICARE, May, 2005, downloaded from Indicare.org.

Ipsos, 2008: Ipsos MediaCT: *"Amazon and Rhapsody Show Strong Gains in Digital Music Market While Itunes Remains Dominant"* IpsosMedia CT, October 2007, downloaded from ipsos.com, October 2009.
Itunes.com, 2009: Itunes.com Website, www.itunes.com, last revisited November 2009.

Jöckel et al, 2007: Jöckel, Sven, Will, Andreas & Nawrath, Ulrike: *"Consumer Preferences towards Commercial Music Downloads"* In: Journal of Media Business Studies, 2007, p. 1-19.

NyTimes, 2008: Sisario, Ben: *"Music Sales fell in 2008, but climbed on the Web"* In: The New York Times, January 1st, 2009, p. C1, New York Edition. Downloaded november 2009 from nytimes.com

NyTimes, 2009: Arango, Tim: *"Despite Itunes Accord, Music Labels Still Fret"* In: New York Times, February 1st, 2009. Downloaded November 2009 from: http://www.nytimes.com/2009/02/02/business/media/02apple.html?_r=1&ref=technology

Peitz & Waelbroeck, 2006: Peitz, Martin & Waelbroeck, Patrick: *"Why the music industry may gain from free downloading – The role of sampling"* In: International Journal of Industrial Organisation, 24, 2006, 907-913

Pisano & Teece 2007: Pisano, Gary P. & Teece, David J.: *"How to Capture Value from Innovation: Shaping Intellectual Property and Industry Architecture"* In: California Management Review, Vol. 50, No. 1, Fall 2007, p. 278-296.

Rapidshare.com: Website www.rapidshare.com, last revisited November 2009

Rhapsody.com: Website www.rhapsody.com, last revisited November 2009

Tschmuck 2003: Tschmuck, Peter: *"How Creative are the Creative Industries? A Case of the Music Industry"* In: The Journal of Arts Management, Law, and Society, Vol. 33, No. 2, 2003 p. 127-141.

Vaccaro & Cohn, 2004: Vaccaro, Valerie L. & Cohn, Deborah Y.: *"The Evolution of Business Models and Marketing Strategies in the Music Industry"* In: The International Journal on Media Management, 6 (1&2), 2004, p. 46-58.

Wikipedia, 2009: Wikipedia Free Encyclopedia, *"The concept of Safe Harbour"*, last visited November 2009, Downloaded from: http://en.wikipedia.org/wiki/Safe_harbor

Appendix 1. Survey Design and Results

Appendix 1. Survey Design and Survey Results

Q1. Hvor gammel er du?

Answer Options	Response Percent	Response Count
10-15 år	0.0%	0
16-19 år	2.8%	1
20-29 år	63.9%	23
30-39 år	33.3%	12
40-49 år	0.0%	0
50 år +	0.0%	0
	answered question	36
	skipped question	0

Q2. Køn:

Answer Options	Response Percent	Response Count
Mand	50.0%	18
Kvinde	50.0%	18
	answered question	36
	skipped question	0

Q3. Indkomst pr. år i danske kroner

Answer Options	Response Percent	Response Count
Under 100.000 kr.	22.2%	8
100.000-200.000 kr.	33.3%	12
200.000-300.000 kr.	11.1%	4
Over 300.000 kr.	33.3%	12
	answered question	36
	skipped question	0

Q4. Uddannelse, højeste trin opnået:

Answer Options	Response Percent	Response Count
Faglært	2.8%	1
Gymnasie-uddannelse	25.0%	9
Kortere videregående	16.7%	6
Længere videregående	55.6%	20
	answered question	36
	skipped question	0

Q5. Nuværende beskæftigelse

Answer Options	Response Percent	Response Count
Fuldtidsansat	52.8%	19
Studerende	47.2%	17
	answered question	36
	skipped question	0

Q6. Hvor mange timer pr. uge lytter du til musik?

Answer Options	Response Count
	34
answered question	34
skipped question	2

Q7. Hvilke medier lytter du til i %

Answer Options	Response Percent	Response Count
Radio	80.0%	28
Internet	54.3%	19
Computer (MP3)	77.1%	27
MP3-afspiller	77.1%	27
Internetradiotjenester	40.0%	14
Streaming online	45.7%	16
Andre medier	37.1%	13
	answered question	35
	skipped question	1

Q8. Anfør hvilke elemeter/behov, der er vigtige for dig, når du lytter til musik. Skyd frit fra hoften - i tilfældig rækkefølg

Answer Options	Response Percent	Response Count
1	100.0%	32
2	90.6%	29
3	53.1%	17
4	28.1%	9
5	12.5%	4
6	12.5%	4
7	6.3%	2
8	6.3%	2
9	6.3%	2
	answered question	32
	skipped question	4

Q9. Hvilke af de ovenfor nævnte elementer/behov er vigtigst for dig? Start med den vigtigste, og anfør de fem vigtigste (i tallene 1-9):

Answer Options	Response Count
	28
answered question	28
skipped question	8

Q11. SVAR: ja eller nej til følgende udsagn

Answer Options	JA	NEJ	Rating Average	Response Count
Jeg vil hellere lytte til musik gratis end at betale	23	11	1,32	34
Det er vigtigere at lytte til musikken end at gemme den	22	12	1,35	34
Er bekymret for at mine musikfiler ikke kan bruges fremover	11	23	1,68	34
Jeg vil gerne kunne sælge musikfiler som jeg har købt	3	31	1,91	34
Jeg vil hellere betale et fast abonnement end pr. download	13	19	1,59	32
Jeg vil heller betale pr. sang end et fast abonnement	15	18	1,55	33
Jeg vil slet ikke betale for online musik	14	20	1,59	34
			answered question	34
			skipped question	2

Q12. Hvilken online musiktjeneste foretrækker du?

Answer Options	Response Count
	32
answered question	32
skipped question	4

Q13. Hvilke andre online musiktjenester kan du godt lide?

Answer Options	Response Percent	Response Count
1	100.0%	18
2	44.4%	8
3	27.8%	5
4	16.7%	3
	answered question	18
	skipped question	18

Appendix 2. Additional Tertiary Needs

Secondary Tertiary Needs – Author's Survey

Other secondary needs were listed by respondents. All respondents were asked to state up to nine needs. Almost all respondents stated two needs, only 53% stated three needs, and only 28% percent could think of four needs. Five needs or more were only stated by less than 13% of respondents. The following is a list of secondary needs stated, however very few thought of these needs when asked.

1. Mood

Some respondents prioritised that music should reflect their state of mind, and indicated that they use music as a therapeutical tool. Some replied that they use music to relax. However, only three respondents mentioned this as very important, and four respondents thought of this need as priority 3-9.

2. Cheap music

Very few respondents stated the need of getting music cheap or for free, only two out of 36 respondents thought of this as very important. In all, only four respondents out of 36 thought of the need for cheap music when asked, and two of those were rated as priority number 4-6. This is evidence that it is not an urgent need that music is cheap or for free. However, such conclusions must be made with carefulness, as the specific question were meant as unhelped memory of needs. Later in the questionary, respondents were asked specifically with regards to pricing of music.

Other less important needs

Few respondents mentioned the following needs as subsidiary priorities, and each has only been mentioned 1-3 times each out of all respondents:

Try before buy
Not to bother others while listening to music
Likes to go to live concerts
'Stile' (lifestyle)
Killing time

It must be legal (one respondent answered priority 6)

It must be possible to find niche music on the internet (related to accessibility)

I need a physical copy of my music

A radio host must not be too irritating

No commercials

No bad connection