

- Master thesis SIM -

Modes of interaction between technological and social characteristics in digital music services



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Table of contents

Abstract	3
1. Introduction.....	4
2. Context of the digital music industry	7
2.1 Typology of the digital music industry	7
2.2 Actors in the digital music industry	9
3. Theoretical concepts	11
3.1 Technological characteristics	11
3.2 Social characteristics	14
3.3 Moments of New Media Development	16
3.4 Use of concepts in the research	18
4. Methods	18
4.1 Data collection	19
4.2 Data analysis	19
4.3 Research quality.....	20
5. Results	21
5.1 Concept information.....	21
5.2 Modes of interaction	41
5.3 Theoretical extension	47
6. Conclusion	49
6.1 Discussion	49
6.2 Theoretical and practical implications	53
6.3 Summary	54
7. References	56
Appendix A - Glossary of terms.....	60
Appendix B - Document analysis overview.....	63
Appendix C - Questionnaire users.....	67
Appendix D - Results of questionnaire.....	69

Abstract

This research aims to extend current theory on the diffusion of innovations by providing theory incorporating both technological and social characteristics of an innovation. Thereby, it intends to overcome problems of technological determinism, linearity and retrospective models, which can be found in current literature on the topic. To arrive at that point, an emergent industry with close interaction between technological and sociological features will be investigated, namely the digital music industry. The research goal is to unravel the technological and social characteristics of digital music services and the modes of interaction between both. In order to do so, the determination/contingency framework of Lievrouw (2002) serves as a heuristic. Theoretical concepts will be drawn from Rogers' (1995) Diffusion of Innovations for the technological characteristics and from the Social Shaping of Technology (Mackay & Gillespie, 1992; MacKenzie & Wajcman, 1999; Williams & Edge, 1996), User Innovation (von Hippel, 1976) and theory on virtual communities (Chiu et al, 2006; Dholakia et al, 2004; Hars & Ou, 2002; Jeppesen & Frederiksen, 2006; von Krogh & von Hippel, 2006) for the social characteristics. The on beforehand constructed theoretical concepts are tested by field research. The required data for this research are gathered by analysing relevant text documents and holding questionnaires among digital music users. These data are analysed using directed content analysis, in which statements are coded towards the concepts entered into the research; thereby confirming, adapting or rejecting these concepts. Of the total of 22 entered concepts, only three were not found to be present in the digital music industry. Next to that, five extra concepts were derived from the data analysis. Furthermore, the research found twelve modes of interaction, present in the digital music industry. These modes of interaction constitute collective action between two or more characteristics of the digital music industry, where one or more characteristics exert influence on the others. The existence of these modes of interaction could, to some extent, already be derived from general innovation science. However, for the most of them, their presence in the digital music industry was not yet underlined. The problem of vapourware and the time of entry discord, found in this research, are distinctively new features of the digital music industry, that have also not yet been described in general literature on the diffusion of innovations. These modes of interaction provide extension of current theory. Furthermore, this research has a theoretical contribution in proving the prevalence of certain technological characteristics, social characteristics and modes of interaction in the digital music industry; as well as presenting guidelines for future research. Finally, the practical contribution of this research is providing suppliers of digital music with tips and guidelines for strategic management.

1. Introduction

Within the field of innovation studies, a topic of much concern is how to introduce new technologies and services to the market in a proper way. Therefore, one needs to know what distinct features of a new innovation provide an advantage in comparison with previous innovations that are already on the market. More specifically, one needs to know how potential users of an innovation regard its merits. The study of innovation sciences has provided analytical tools for determining factors influencing the rate at which a certain new technology can be diffused amongst its potential users. Rogers' (1995) Diffusion of Innovations theory provides a useful tool for conductors of technological change to benefit from that change; by typifying those characteristics of a technology that provide an advantage (or disadvantage) for the people who are considered to be its future users. However, recent critiques have exposed some weaknesses of the theory. The two most important deficiencies of the traditional Diffusion of Innovations theory are that it is too technologically deterministic and that it has troubles transcending linearity (Lievrouw, 2002). *Technological determinism* views technology as an autonomous driver for societal change. Especially within Rogers' (1995) theory, the characteristics of technology are seen as being laid upon the users, assuming that the influence is a one-way effect. The linearity problem copes with the dynamics of the diffusion process, mistakenly seen as a linear line from invention to societal adoption. In reality, this process is often seen as a web of intertwined linkages (Lievrouw, 2002).

These critiques are counteracted by a movement, gathered under the umbrella term of Social Shaping of Technology (SST). SST focuses on the ability of societal actors to influence the characteristics of a technology. This process is defined as *social shaping* (Mackay & Gillespie, 1992; MacKenzie & Wajcman, 1999; Williams & Edge, 1996). SST overcomes the critique of technological determinism by providing theoretical concepts in which technological and social features co-operate (Williams & Edge, 1996). However, the reversal of the direction of causality from technology shaping society to vice versa does not relieve its linearity (MacKenzie & Wajcman, 1999). Another problem with the theory of SST is that it is merely retrospective, providing evidence for social shaping in technologies that have already emerged. To return to the notion of examining diffusion of technology, SST solely would not yield a useful model for the diffusion of emerging technologies. Hence, theory is required that includes both the technological determination characteristics of Diffusion of Innovations and the social shaping characteristics of SST.

In the process of combining the virtues of SST and Diffusion of Innovations, the most noteworthy contribution has been made by Lievrouw (2002). She presents a model that gives an overview of moments of New Media Development, in which *determination* and *contingency* each lead to different characteristics for the different moments. Here, determination is the coherent effort that leads to the achievement of goals, whereas contingency is the set of possible conditions in an uncertain situation. Determination resembles the technological deterministic view, whereas contingency is more tributary to the social shaping theory. In general, the model gives a clear overview of how the characteristics of both theories co-work at different moments in the evolution of new media. However, there are three deficiencies with the model, when using it to unravel both the technological, as well as the social influences upon the diffusion of an innovation. First of all, the model lacks consideration of the specific characteristics implied in both the technological and the social side, as they are explicitly mentioned in the respective theories of Diffusion of Innovation (Rogers, 1995) and SST (Mackay & Gillespie, 1992; MacKenzie & Wajcman, 1999;

Williams & Edge, 1996). Furthermore, the model of Lievrouw solely describes the effects that result from determination and contingency, at certain moments of New Media Development, without noting the interaction between both, which indisputably exists within new media (Bardoel & Deuze, 2001). Finally, it misses a general direction for the development process, which would make it a useful tool for the analysis of diffusion. Despite these problems, the determination/contingency framework of Lievrouw (2002) provides useful concepts to broaden theory on the interaction of technological and social characteristics in new media. Therefore, it will serve as a heuristic for this research. The aim of this research is to extend the theory on diffusion characteristics from both the technological, as well as the social side of the spectre, thereby overcoming the shortcomings of current literature, as they are mentioned above.

In order to arrive at such theory, this research will regard *new media*. An important reason therefore is that the framework used as a heuristic for this research also regards new media as industry of choice. The underlying reason for that is that new media are a specific case in which social factors and technological progress closely interact. It is an emergent field of technology, in which few scientific consensuses have been reached and future development is rather unpredictable (Hearn & Foth, 2005; Lievrouw, 2002; Peters, 2009). Therefore, new media provide an excellent field of choice for developing the theory as intended for this research. New media are defined as cultural objects of communication, whose distribution and exhibition is digitally driven (Manovich, 2001; Peters, 2009).

This research will regard one type of new media specifically, namely that of *digital music services*. Digital music services are online facilities through which people can purchase and/or play music (Peitz & Waelbroeck, 2005). The digital music industry is a very volatile one, highly dependent upon shifts in consumer preferences. Hence, it is prone to social shaping (Leyshon et al, 2005; Scott, 1999). Also, it is a very youthful industry, as the first legal digital music distributor was introduced in 2003 (Fogarty, 2008; Leyshon et al, 2005). Sterne (2006) typifies digital music as a cultural artefact. He describes it as a “crystallized set of social and material relations” (p.826), which follows the typology of a technological artefact (Pinch & Bijker, 1984; Winner, 1986). Furthermore, in the period 2003-2010, the percentage of revenue of the music industry, accounted for by digital music services, has risen to 29%. At the same time, the overall revenue of the music industry has dropped by 31% in that period (IFPI, 2011). This shows a clear discord between the rising potential of digital music services and a diminishing overall profit for the entire industry. Moreover, many digital music services lack the ability to properly reimburse made investments (Peitz & Waelbroeck, 2005; Ahn & Yoon, 2009). This calls for some guidance in making digital music services more profitable. Some literature exists on the social implications of digital music (Bockstedt et al, 2005; Lee & Downie, 2004; Sterne, 2006; Vaida et al, 2005) and some on the economic effects of it (Ahn & Yoon, 2009; Koh et al, 2010; Leyshon et al, 2005; Liebowitz & Watt, 2006; Peitz & Waelbroeck, 2005). However, what lacks is theory that combines both and informs about the interaction between technological and social characteristics of digital music services and how this interaction influences its evolution.

Hence, this research aims to typify and explain the interaction between the technological and social characteristics of digital music services. Technological and sociological features are in practice often intertwined (Lievrouw, 2002), but for analytical reasons, this research will be making a clear distinction between both. The probability of diffusion theory that precisely resembles reality will be reduced by distinguishing between technological characteristics on one hand and social characteristics on the other. However, doing so provides a much better opportunity to look at linkages between both and how they interact.

Interactions found in this research will in turn lead to future opportunities to examine more realistic models.

The distinction between both sides will be made by characterising concepts for both out of current literature and then testing whether these are present in the field of digital music services. This will in turn be compared to current knowledge, thereby extending and/or adapting current theory on the topic. In general, this research can provide useful information regarding technological change in the digital music industry from both the technological determinist and the social constructivist view. This can in turn be applicable to other industries. It can also provide guidelines for future scientific research. The central research question will be:

What modes of interaction take place between the technological and social characteristics of digital music services and how can they be explained?

A starting definition for *modes of interaction* is what Nelson and Nelson (2002) refer to as the overarching term for collective action between two parties. Hence, for this research, this can be behaviour from actors that influences the characteristics of the digital music industry. This behaviour can be either intentional or unintentional and can be seen as shaping behaviour (Williams & Edge, 1996).

A few steps have to be undertaken in order to answer the research question. First of all, the characteristics of both the technological as well as the social side will have to be unravelled. This will be done by, at first, distilling useful concepts out of current literature on the topic. When these characteristics are defined, their presence in the digital music industry will be examined.

As mentioned earlier, both sides are not as distinctive in practice as in theory; therefore a preliminary separation based on the actors involved in both sides should be made. Hence, in order to come to the technological and social characteristics, the first step is to determine the relevant actors in the digital music industry. These will be named in the next section on the digital music industry. The relevant actors will be split into two subgroups, one representing the technological determination or the supply side and one representing the social shaping or demand side. For the technological characteristics, Rogers' (1995) innovation characteristics will be used. These characteristics are commonly accepted as useful to unravel those technological elements of an artefact that influence its rate of diffusion. In order to find out in what manner these characteristics are present in digital music services, information on these characteristics will be distilled from the current literature on digital music services. The theoretical concepts that serve as a heuristic for the social characteristics will be fetched from different theories on social shaping behaviour. Some information will be drawn from SST's retrospective analysis of social shaping behaviour (Mackay & Gillespie, 1992; MacKenzie & Wajcman, 1999; Williams & Edge, 1996) and user innovation (Von Hippel, 1976). Specific theoretical concepts will be drawn from research in user participation in virtual communities (Chiu et al, 2006; Dholakia et al, 2004; Hars & Ou, 2002; Jeppesen & Frederiksen, 2006; von Krogh & von Hippel, 2006). As with the technological characteristics, information for the digital music industry will be added from research in that area.

With the theoretical baggage on technological and social characteristics in the digital music industry, the research will proceed towards the first empirical step: determining the actual presence of these characteristics amongst the actors representing both sides of the industry. In general, the theoretical and empirical research in the technological and social characteristics of digital music services can be guided by the following two sub-questions.

Sub-question 1:

Which technological characteristics are present in digital music services?

Sub-question 2:

Which social characteristics are present in digital music services?

After having determined which technological and social characteristics are present in digital music services, the next step will be to unravel the mutual influence both sides exert on each other. Hence, the modes of interaction between them should be uncovered. In order to do so, intentional or unintentional behaviour from actors from both sides will be mapped and linked to respective characteristics it exerts influence upon. Sub-question number three resembles this process.

Sub-question 3:

What are the modes of interaction between both sides of digital music services?

The final step in this research is to look upon the discovered modes of interaction in regard to the current theory on the digital music services and the diffusion of innovations. The modes of interaction, found in this research, that provide a contribution of new facts to the current literature need to be pointed out. In this way, current theory can be extended and/or adapted; thereby providing a useful addition to current literature on the influence of technological and social features on the evolution of a technology. Next to that, it also has relevance to society in determining interaction between both sides of digital music services. Furthermore, it can lead to new guidelines in market research, in order to make the product more profitable for its exploiters.

2. Context of the digital music industry

At the moment of writing, digital music services have become commonly accepted. Currently, there are over 400 licensed digital music services, representing 29% of the total revenues of the music industry (IFPI, 2011). Several authors proposed business models for the digital distribution of music (Dubosson-Torbay et al, 2005; Fogarty, 2008; Liebowitz & Watt, 2006; Premkumar, 2003; Rupp & Estier, 2002), but almost all of them focus on the economic and technological directions the music industry has to take, without involving consumer interaction. The emergence of the digital music format has nonetheless had a huge impact on the traditional way actors in the music industry interact (Bockstedt et al, 2005; Leyshon et al, 2005). This chapter aims to introduce the digital music industry by a typology of it and a presentation of the relevant actors in the industry.

2.1 Typology of the digital music industry

The digital music industry is a rather youthful industry. The first legal digital music service to emerge was Apple's iTunes in 2003 (Fogarty, 2008; Leyshon et al, 2005). The concept of digital music sharing was already introduced some years before that. The most applied digital music format, the MP3 (which stands for Motion Pictures Experts Group-1, Layer-3), was invented in the early 1990s, as a method of compressing large digital music files of master tapes and CDs. The original goal for the research in digital formats was to save storage space and make the transfer of music files over a long distance easier (Sterne, 2006). At that time, the commercial potential of digital music formats was greatly denied by many

actors in the music industry. Music consumers were the ones that first uncovered the deviating potential of the new format. In 1999, the user-originated website Napster came online. On this website, users could share their music in a digital form with pals from all over the world. Even though these actions were considered to be illegal according to the copyright act, Napster became an immediate success. This resulted in a string of services (most notably Gnutella and Kazaa), which also provided music file-sharing opportunities, arising in the next two years. The record companies and their associations responded with heavy legal actions against these services, still neglecting the commercial potential of the digital music format. Although these legal actions eventually stopped Napster in 2001, its successors were so widespread at that time, that the movement of digital music file-sharing could not be stopped. At the same time, the record companies' focus on litigation, gave way to an outsider like technology company Apple to be the first to introduce a legal digital music service. Apple's iTunes provided a service through which people paid for the music they downloaded from the website, instead of simply taking it for free (Leyshon et al, 2005; McCourt & Burkart, 2003; Sterne, 2006).

The current state of digital music generally exhibits two main types of digital music service: *downloading services* and *streaming services*. Downloading services are services in which music files can be downloaded from the internet onto someone's computer. This was the first form of digital music exchange over the internet (Mason & Wiercinski, 2010; Peitz & Waelbroeck, 2005). Within downloading services, users can either pay a price per unit (song or album) or a fixed timely fee for unlimited downloading (Fogarty, 2008; Peitz & Waelbroeck, 2005). Streaming services are more like customised internet radio stations, where users can listen to music online; per song, album or in pre-selected playlists. Remuneration is guaranteed by a fixed timely fee (Mason & Wiercinski, 2010; Peitz & Waelbroeck, 2005). Both types of services are popular and have some advantages over each other. Music downloads often have better sound quality, they provide users with the opportunity to store the files on their computer and transfer them to mobile devices and do not need a reliable internet connection. On the other hand, streaming services are relatively cheap and provide its users with a great possibility to try out new music, before purchasing it (*sampling*) (ibid). In fact, although there are some clear distinctions between both types of services, current digital music services increasingly blur the boundaries between downloading and streaming, incorporating features from both of them (Mason & Wiercinski, 2010). Therefore, they will not be regarded separately in this research.

In the future, a third type of digital music service has to be reckoned with, namely the *cloud player*. Cloud players are devices through which people can store their music files online, in a sort of data cloud. From there, they can play their music anywhere they like (Morris, 2010). However, at the moment of writing, cloud players have only very recently found their way to the market. Hence, they will also not be considered separately in this research.

As mentioned in the introduction of the chapter, currently there are over 400 legal digital music services, accounting for 29% of the music industry's total revenue. Hence, digital music services have become a common feature in the world of new media. While becoming a common good, digital music has had a certain impact on the music industry as a whole. First of all, there is the economic effect of digital music. When solely looking at the numbers, the emergence of digital music coincides with a steep decline in general music sales (IFPI, 2011). Whereas scholars tend to agree that for some part this fall in record sales is the responsibility of digital music piracy, the extent to which the effect of piracy is really malignant for the industry is doubted. Some sources underline the negative effect of illegal music sharing by pinpointing the share of the industry's profit taken away by it (Bhattacharjee et al, 2003; IFPI, 2011; Liebowitz & Watt, 2006). Others admit to digital music

sharing partially causing the decline in record sales, but also point to other features like overall decline in welfare and market saturation (Ahn & Yoon, 2009; Koh et al, 2010, Leyshon et al, 2005) as important causes for the profit diminution. Ahn & Yoon (2009) argue that although digital music sharing has led to decrease in record sales, the overall welfare has increased through digital music, mainly because of the consumer surplus gained by it. Koh et al (2010) go even further, by stating that the revenue from digital music services blunts the losses that the industry would have conceded anyway, due to market saturation. Many authors point to the merits of digital music, like: increased sampling opportunity; greater collection of music to pick from; ease of transfer; more effective promotion channel (especially for unknown bands); greater opportunity to retrieve user information; and reduction of overhead costs (Ahn & Yoon, 2009; Bockstedt et al, 2005; Dubosson-Torbay et al, 2005; Leyshon et al, 2005; Peitz & Waelbroeck, 2005). These merits provide business opportunities, rather than business threats, for actors in the music industry (Fogarty, 2008; Koh et al, 2010; Sterne, 2006). The features of digital music will be discussed further in the concept chapter on technological characteristics.

Next to the financial impact, digital music has also changed the social experience of music. First of all, as the digital music format is a compressed version of the traditional music format, it can change the quality of listening in a negative way (Sterne, 2006). On the other hand, the social aspect of sharing the experience of music has greatly widened thanks to the evolution of digital file-sharing. Users have many more opportunities to get recommendations from others, or provide their tips to pals (Bockstedt et al, 2005; Lee & Downie, 2004; Tepper & Hargittai, 2009), or even contribute to the development of the services (Jeppesen & Frederiksen, 2006; Volda et al, 2005). More information on the social aspects of digital music will be provided in the concept chapter on social characteristics.

Next to the financial, technological and social changes brought by the emergence of digital music, also the power distribution amongst the actors in the music industry has been transformed (Bockstedt et al, 2005; Leyshon, 2001; Leyshon et al, 2005). The next paragraph will shed light on the actors in the music industry and the shift in power distribution conducted by the emergence of digital music.

2.2 Actors in the digital music industry

In the traditional music industry, there are four key actors operating four key activities. The four key actors are the artists, the record companies, the retailers and the consumers. The four key activities are creation, production, distribution and consumption (Bockstedt et al, 2005; Leyshon, 2001; Leyshon et al, 2005). The creative process of coming up with new music, moderating it until a final product comes out and recording it is a business done by artists and their producers and guided by the record labels they are signed to. Next to providing guidance to artists and producers, these record companies are involved with the production process of coming from a recorded sample to a mass produced sound carrier (CD, LP or cassette) that can be sold. Their promotional activities initiate the distribution chain of these products, which normally ends with the product being exhibited on the shelves of the retailers. The retailers try to sell the musical products to consumers, who in turn consume the music. Here is where the network of the music industry ends (Leyshon, 2001).

When the first illegal music sharing websites emerged at the end of the 20th Century, the power distribution amongst actors was starting to change. First of all, the record companies, especially the four majors, envisioned a potential loss in profit through these file-sharing

networks. Therefore, together with the artists' association RIAA, they started extensive legal actions against the agents responsible for illegal file-sharing, instead of finding ways to incorporate this new opportunity into their businesses (Fogarty, 2008; Leyshon et al, 2005; McCourt & Burkart, 2003; Sterne, 2006). This process of litigation led to some success, by the shutting down of originator Napster in 2001. However, at that time, file-sharing had become so widespread that it could not possibly be wiped out. Hence, there was a new actor to reckon with: illegal file-sharing websites (Mccourt & Burkart, 2003; Sterne, 2006).

The emergence of the first legal digital music service in 2003 (Apple's iTunes), has even further shifted power in the music industry (Peitz & Waelbroeck, 2005). First of all, digital music retailers have put themselves on the market as alternative to the traditional retailers (Bockstedt et al, 2005). Digital music retailers undermine the power of traditional retailers, as digital music sale increases and physical music sale decreases (IFPI, 2011). Digital music services have also undermined the power of record companies, as digital music services are closer to the customer and can cooperate directly with artists. The record companies have to blunt their dramatic power decrease by either providing digital music services themselves or by out-licensing to external services (Bockstedt et al, 2005; Leyshon et al, 2005; Premkumar, 2003).

The power of artists and consumers has increased. Artists have gained power through their possibility to deliver music directly to their users, disintermediating the record companies and retailers. Several business models have been proposed for this (Bockstedt et al, 2005; Premkumar, 2003). In his dissertation on the digital music industry, Morris (2010) describes the case of the 1998 album 'Crystal Ball' by the artist Prince. He let his fans pre-order the album online, in order to get the album pressed and distributed. In this way, he ruled out the record companies. Since the introduction of the mp3, many more of such examples can be noticed (Morris, 2010). The customer has gained power in the enlarged range of options involved with digital music services and being closer to the source (Bockstedt et al, 2005; Hu & Liu, 2010; Premkumar, 2003), but also because music sharing devices provide online communities, in which users can participate in the process (Jeppesen & Frederiksen, 2006; Volda et al, 2005).

Two other actors need to be reckoned with: the still present illegal file-sharing sites and companies that provide technology applying digital music services. The first one consists of the group of illegal file-sharing websites that are still not shut down legally and take away a piece of the market share of digital market services (Beekhuyzen & von Hellens, 2008; IFPI, 2011; Morris, 2010). As this research is focused on legal digital music services, they will not be considered in the investigation of the power distribution amongst actors in the digital music services. The second type of actors consists of companies that were not traditionally involved with music distribution, but through the development of digital music, have introduced digital music to their product range. Most notable in this context are mobile phone manufacturers and providers, but also mp3 players, digital music weblogs and video games (Morris, 2010). They will be regarded in this research, as they often co-operate with digital music retailers or even provide digital music services themselves.

This research is interested in the interaction between digital music distribution and consumption. Hence, the relevant actors in this process are: artists directly distributing to users; record companies; digital music retailers, including those providing adjacent services; and music consumers participating actively (by providing content) or passively (by providing feedback or recommendations) in the process of digital music distribution.

3. Theoretical concepts

In this part, the theoretical concepts that are used as a heuristic for this research will be elucidated. As mentioned before, this research uses the determination/contingency framework of Lievrouw (2002) as a heuristic. However, this framework lacks contribution on the specific characteristics for the technological and social side of new media. In order to take those characteristics into account, concepts for them have been distilled from scientific literature. As these characteristics are intertwined in reality, they have to be disentangled into clear definitions, before they can be conceptualised. This research opts for two different heuristics for both sides, one from technological determinism for the technological characteristics and one from social shaping for the social characteristics. For the technological characteristics, this research will use Rogers' (1995) characteristics of innovation diffusion as a starting point. The concepts for the social characteristics will be derived from the theory of social shaping (Mackay & Gillespie, 1992; MacKenzie & Wajcman, 1999; Williams & Edge, 1996), user innovation (von Hippel, 1976) and virtual communities (Chiu et al, 2006; Dholakia et al, 2004; Hars & Ou, 2002; Jeppesen & Frederiksen, 2006; von Krogh & von Hippel, 2006). The useful concepts from these theories will be presented in this chapter, as far as possible underpinned by scientific literature on the digital music industry. To bridge the two sides of the digital music industry, the framework of the seven moments of new media development of Lievrouw (2002) will be presented and coupled to features of digital music services. The relevant concepts from this framework will serve as a heuristic to unravel interaction between technological and social characteristics and find a general direction of development in the digital music industry. Finally, these concepts will be graphically represented and described, in order to arrive at an overall directive for the research to be performed.

3.1 Technological characteristics

In order to determine the technological characteristics of digital music services, this research builds upon the characteristics of an innovation, as described by Rogers (1995). These characteristics all influence the rate of diffusion of a technology. They are: *relative advantage*; *compatibility*; *complexity*; *trialability*; and *observability*.

Relative advantage

Relative advantage is the degree to which an innovation is perceived as better than the technology it supersedes by its intended users. This benefit can be financial, functional, aesthetic or social (Rogers, 1995). An emerging body of literature has already contributed to the consensus on the advantages of digital music. An important factor in the relative advantage is its *price*. Thanks to the much lower production costs of mp3s, in comparison with traditional sound carriers, they are relatively cheap (Bockstedt et al, 2005; Peitz & Waelbroeck, 2005). This goes especially for streaming services (Mason & Wiercinski, 2010).

The results of a survey performed by Suki (2011) show that perceived *usefulness* and *playfulness* as factors influencing purchase intentions towards digital music. Here usefulness is defined as the degree to which digital music fulfils a certain purpose for the consumer and playfulness the degree to which enjoyment is derived from using digital music. They can be seen as respectively functional and aesthetic relative advantages of digital music. Scholars also point to the much greater *supply* of music for consumers, meaning that digital music

services provide the consumers with more music to choose from (Bockstedt et al, 2005; Mason & Wiercinski, 2010). Finally, digital music renders suppliers greater *control* over users' needs and demands (Beekhuyzen & von Hellens, 2008; Bockstedt et al, 2005; Peitz & Waelbroeck, 2005). These can also be seen as functional relative advantages.

Also some disadvantages of digital music have been spotted. First of all, the bit-rate of a mp3 is compressed ten times in comparison with that of a music file from a CD. To lower the bit-rate, some elements of the file have to be deleted (Sterne, 2006). This means that the *acoustic value* of a mp3 is much less than that of traditional music carriers. For the average listeners, this will not provoke less listening experience, but the trained ear will notice the difference in quality. Especially in streaming services, where people cannot choose the bit-rate of their music, the quality of the product can be remarkably lower (Mason & Wiercinski, 2010). Furthermore, mp3s lack the physical shell that traditional sound carriers do have. Some people really cherish the properties of records, like the cover art and liner notes, and thus they consider this problem of *dematerialisation* as a disadvantage (Brown et al, 2001; Sterne, 2006). Both disadvantages can be regarded as aesthetic.

As can be seen from this paragraph, there is already a substantial consensus on the relative advantages and disadvantages of digital music services. This research will aim to find out whether these theoretical concepts are actually present in the digital music industry and whether some new relative advantages can be discovered.

Compatibility

Compatibility is the degree to which an innovation is perceived to be compatible to the norms and values and the technological needs of its intended users (Rogers, 1995). Moreover, two specific technological characteristics fall under the category of compatibility: *piggybacking* and *co-bundled innovations*. Piggybacking constitutes the phenomenon that at the birth of new media, they tend to build heavily upon the technological and sociological characteristics of their predecessor (Lehman-Wilzig & Cohen-Avigdor, 2004). This means that when a new innovation comes about, it uses much of the technology of the product or service it supersedes, making it easier for its conductor to produce. Furthermore, many innovations keep more or less the same interface as the previous innovation, to make it easier for the users of the innovation to get acquainted with the product or service (ibid). In the music industry, one finds many digital music services, especially the download services, keeping the interface of traditional music retailers and selling music in its traditional form: per album. Also, many people listen to mp3s in the same way, by connecting their digital music library to their home sound system (Bockstedt et al, 2005; Peitz & Waelbroeck, 2005). Brown et al (2001) describe the idea of something called a 'music book', a CD-sized booklet with an electronic tag that downloads the albums and all its supplementary features when waved in front of a digital reading device. This shows how severely the music industry was busy trying to maintain its traditional interface in the new digital era. Nowadays, people can find all supplementary features for the music they purchase through information blocks, weblogs and other added digital forms, replacing the traditional booklet of a CD (Morris, 2010).

Co-bundled innovations form another part of the compatibility of innovations. These constitute innovations that co-develop with the central innovation, or that are needed for the central innovation to diffuse properly (Rogers, 1995). In the digital music industry, such compatibility processes can be seen in the influence of the increase in web servers'

bandwidth and speed and the possibilities of online banking on the development of digital music services (Peitz & Waelbroeck, 2005).

A final compatibility issue has been pointed out by Beekhuyzen and von Hellens (2008): the problem of *interoperability*. People demand flexibility of digital music they purchase, meaning that they can transfer it to mobile devices and can use it anywhere and any time they like. However, as much music has been restricted by Digital Rights Management (DRM) technology, it cannot be copied to and used limitlessly on all types of media player (Beekhuyzen & von Hellens, 2008; Peitz & Waelbroeck, 2005).

Complexity

Complexity concerns the difficulty intended users of a technology experience in dealing with it. It is the only innovation characteristic that negatively influences the diffusion process (Rogers, 1995). The complexity of the digital music industry is a bit ambiguous. At one hand, digital music files are easily transferable and people can purchase music in the comfort of their own homes (Bockstedt et al, 2005; Volda et al, 2005). In the research of Suki (2011), perceived *ease of use* came out as a significantly positive factor influencing the purchase intentions towards digital music. On the other hand, as digital music services have more features than traditional music distribution (Mason & Wiercinski, 2010; Volda et al, 2005), there is a possibility that the increased complexity can hinder the diffusion over music consumers, especially for people who are not that knowing of new technology. Beekhuyzen & von Hellens (2008) found the large amount of steps that need to be undertaken in order to access digital music a serious constraint in the development of digital music services. They call it the problem of *usability*. This research aims to further clarify this ambiguity on the complexity of digital music.

Trialability

Trialability is the degree to which an innovation can be experimented with by its intended users (Rogers, 1995). Within the digital music industry, there is one particular feature of digital music that can be linked to the concept of trialability. This feature of digital music is called *sampling*. The meaning of sampling is that consumers can try out new music against relatively low (or no) cost and effort. In this case, there is a clear distinction from traditional music carriers. The sampling of music, before the digital age, had to be done by going to a record store and hoping to be able to pre-hear the the music there. Sampling in digital music services, but also through sampling in illegal file-sharing websites, can increase users' demand for new music (Ahn & Yoon, 2009; Bockstedt et al, 2005; Liebowitz, 2005; Peitz & Waelbroeck, 2005). In this research, the commonly agreed digital music feature of sampling will be investigated further. Furthermore, there will be looked out for other concepts of trialability in digital music services.

Observability

Observability is the degree to which the results of an innovation are clearly visible to its intended users (Rogers, 1995). Little literature is available on this concept in digital music services. However, one could think of cases where observability could be a distinctive feature in opting for one music service or another. As reported by the IFPI (2011), there are currently many digital music services. Hence, if the merits of a service are clearly observable for a consumer hesitating about which service to choose, the chance that he or she will opt

for that service are bigger than for service with less observability. The goal of this research is to shed some more light on the role of observability in digital music services.

3.2 Social characteristics

The starting point for determining the social characteristics of digital music users is the theory of SST. SST intends to determine the ways in which social, institutional, economical and cultural factors influence: (1) the direction and rate of innovation; (2) the form of technology; and (3) the outcomes of the innovation for the relevant social groups (Williams & Edge, 1996). Hence, the influence of social factors on the impact of technology is measured. To come from a retrospective to a more prospective model, one can look at the manners in which participating users shape technology (Pinch & Bijker, 1984), in this case in the digital music industry. Therefore, concepts will be drawn from the theory of user innovation (von Hippel, 1976). The manners in which users shape technology will be labelled *shaping means*. Furthermore, it is interesting to see what users' *motivations* to participate are (Hars & Ou, 2002). A third social characteristic incorporated in the research is that of *opinion leadership*, which constitutes the influence of social pals and leading figures on a person's choice of technology (Rogers, 1995; Valente & Davis, 1999). In the following paragraph, these three characteristics will be enlightened, using examples from the literature on digital music services and comparable new media, like open source software.

Shaping means

SST is an umbrella term or all kinds of social shaping behaviour (Lievrouw, 2002). For this research, the social side of the digital music industry is standardised to the group of consumers participating in digital music services. Therefore, it is interesting to look at the manners in which digital music users influence the direction, form and outcome of innovations in that industry (Williams & Edge, 1996). However, as the digital music industry is a very juvenile one, most research to date has focused on the technological side. On the social side, most research in the digital music industry focused more on motivations (Brown et al, 2001; Jeppesen & Frederiksen, 2006; Lee & Downie, 2004; Volda et al, 2005) and opinion leadership (Tepper & Hargittai, 2009; Volda et al, 2005). The concept of shaping means will be defined as behavioural forms that shape technology (Williams & Edge, 1996). As digital music services are originally a user-driven innovation (Leyshon, 2001; McCourt & Burkart, 2003), to understand the concept of shaping means for users of digital music, one has to look into the theory of user innovation (von Hippel, 1976).

Von Hippel (1976) perceives the role of users in the innovation process as providing two methods of guidance for creating technology: the *need content* and the *solution content*. When users provide a need content, they provide a company information on problems with the current technology or on demand for new features. This can be done by giving feedback or by reporting problems with the technology they are currently using. The solution content is provided when users actually develop the knowledge or technology to solve a perceived problem. This can constitute anything from a basic solution up to a completely developed prototype (von Hippel, 1976). Little scientific theory is present on such user-innovator behaviour in the digital music industry. Jeppesen and Frederiksen (2006) regard how users operate in firm-hosted communities for computer-controlled music tools. Von Krogh and von Hippel (2006) point to the promising potential of user innovation in such virtual communities as the open source software communities. This matches Volda et al's (2005) statement that digital music users should be regarded more as part of virtual communities

that can deliver content, rather than single users who use digital music services as personal music listening utilities. In fact, one can see the need content in digital music as giving feedback through online communities; and the solution content by actually adding music, information on artists and playlists as content to digital music services (Dholakia et al, 2004; Mason & Wiercinski, 2010; Morris, 2010). However, these statements need theoretical underpinning and more clarification on the shaping role of users is needed for this research.

Motivations

The music industry is particularly interested in what the underlying reasons are for customers to get involved with digital music (Liebowitz & Watt, 2006). Quite some theory is already present on the motivations of users in virtual communities in general, and specifically for digital music services. Research in virtual communities illustrate that the two most common motivations for participating in them are *peer recognition* and *personal needs*. Peer recognition resembles the gratitude of other people in a community, the feeling of belonging to a group and social status. Personal needs constitute the process of observing that something is missing in a community or service and filling that gap; hoping that someone else will also contribute content, which might be needed in the future (Dholakia et al, 2004; Jeppesen & Frederiksen, 2006; Hars & Ou, 2002).

With a specific focus on digital music, a key motivation to participate in digital music services is *music discovery*. This means the opportunity to find out about new music, listen to it and eventually add it to a personal musical collection (Brown et al, 2001; Lee & Downie, 2004). A motivation, noted by both Hars & Ou (2002) and Brown et al (2001) is the *joy* of participating. In general, people find it pleasant to browse through digital libraries and in doing so, to expand their musical experience.

Hars & Ou's (2002) research results on motivations to participate in open source software can be used as a heuristic for motivations to participate in digital music communities in this research. They distinguish between *internal factors* and *external factors*. Internal factors comprise those rewards that are rooted in the individual, like intrinsic motivation, altruism and community identification. External factors constitute those rewards that stem from the individual's environment, like self-marketing, peer recognition and personal needs. For digital music services, joy and music discovery are internal factors, while peer recognition and personal needs can be seen as external factors. This research aims to confirm the presence of these key motivations and add other potentially abundant motivations.

Opinion leadership

In accepting a new technology, people tend to follow the opinion of a so-called *opinion leader*. An opinion leader is a person who has a special social status, which gives his opinion more importance for others. Opinion leaders are very useful in predicting the direction of diffusion (Rogers, 1995; Valente & Davis, 1999). Fine-tuning to the example of digital music, one can find two particular types of opinion leaders: *social pals* and *authorities*. Social pals are people in someone's neighbourhood to whom that person feels related to, either in a friendly relation or in a shared interest. These people can be either pals in real life, or in digital communities. In virtual communities, this can be a peer to whom members feel related in interest (Dholakia et al, 2004). Authorities are public figures who are in a position of having superior knowledge, or pretending to have superior knowledge, of a topic. For digital music, these can be music critics, journalists or artists (Lee & Downie, 2004; Tepper & Hargittai, 2009; Vaida et al, 2005).

In online music communities, opinion leadership is often expressed through musical recommendations or playlists (Volda et al, 2005). Research by Tepper and Hargittai (2009) underpins the important role opinion leaders play in people's musical experience. Therefore, it is an important social characteristic to be regarded in this research.

3.3 Moments of New Media Development

The determination/contingency framework of Lievrouw (2002) describes seven moments in new media development, in which technological determination and social contingency each play different roles. It builds upon Rogers' (1995) four key features involved with the process of diffusion, namely the *innovation* itself; the *communication channels* through which it is communicated; the period of *time* involved with the process; and the *social system* in which it will be diffused. Hereunder the concepts from the framework, which are useful for this study, will be enlightened.

Lievrouw (2002) combines the Diffusion of Innovations and SST theories into a framework describing different moments in new media development. Here, determination is the coherent effort that leads to the achievement of goals, whereas contingency resembles the set of possible conditions in an uncertain situation. The different moments are: origin; actors; dynamics; choice; formal properties; distributive mechanisms; and consequences. Of these concepts, only *actors*, *dynamics*, *choice* and *distributive mechanisms* will be incorporated into this research. They will be elaborated upon in this paragraph. The other moments of new media development are not of interest for this research and will thus not be investigated. The following reasons underpin that action. Although digital music services are originally a user-driven innovation, as their first emergence was through illegal file-sharing sites as Napster (Leyshon, 2001; McCourt & Burkart, 2003; Sterne, 2006), the origin will not be of influence on the modes of interaction between actors, so it will not be incorporated in this research. Formal properties are the physical characteristics as they appear to users in the process (Lievrouw, 2002). They are merely technological and since technological characteristics are already inserted as a concept, formal properties will not be used as a concept in this research. Finally, as this research is prospective, consequences cannot yet be encountered. Therefore, this research will use motivations to participate in the process as a concept, rather than consequences. They have been elaborated upon in the social characteristics. As mentioned above, the coming paragraph will shed light on the intermediary concepts of new media development and, where available, present examples from the digital music industry.

Actors

Actors in this framework constitute anyone who makes choices, which influence the development of a technology. Herein, technological determinism has a tendency to decrease and centralise the number of actors; whereas contingency, on the contrary, leads to a lot of new entering actors and a lack of a single interest for all actors (Lievrouw, 2002). Paragraph 2 has already shed light on the most important actors in the digital music industry. As mentioned in that paragraph, the emergence of digital music has induced a power shift amongst those actors. In general, this power shift headed towards contingency, as suppliers lost control to users; new entrants came to the market; and traditional actors lost control (Bockstedt et al, 2005; Leyshon et al, 2005; Premkumar, 2003). To regard the future interaction between the technological and social side of the digital music industry, it is

interesting to see what the power distribution is currently like amongst actors in that industry and how this will transfigure in the future.

Dynamics

Dynamics resemble the overarching movement and momentum of the development of new media. Technological determinism provides a slow, stable development; whereas contingency leads to rapid, volatile movement (Lievrouw, 2002). The digital music industry has experienced more contingent dynamics in the past decade (Bockstedt et al, 2005; Leyshon et al, 2005), although the pace is seemingly slowing and network relations are starting to clarify (Morris, 2010). It is valuable to typify the dynamics of the digital music industry, in order to arrive at a possible prediction for the future. This research will define the dynamics of development as the direction in which the interactive and shaping process between technological and social characteristics advances.

Another concept within dynamics is that which von Krogh and von Hippel (2006) name the problem of *competitive dynamics* in their research in open source software. Here, companies have to compromise between their own, priced product and the voluntary product provided by users. This is a problem that, to some extent, is also existent in the digital music industry, through the discord for consumers of going for the paid legal services on one hand and the free illegal services on the other. This is still a pending problem in the music industry. Therefore, it is interesting to see how this will develop in the future.

Choice

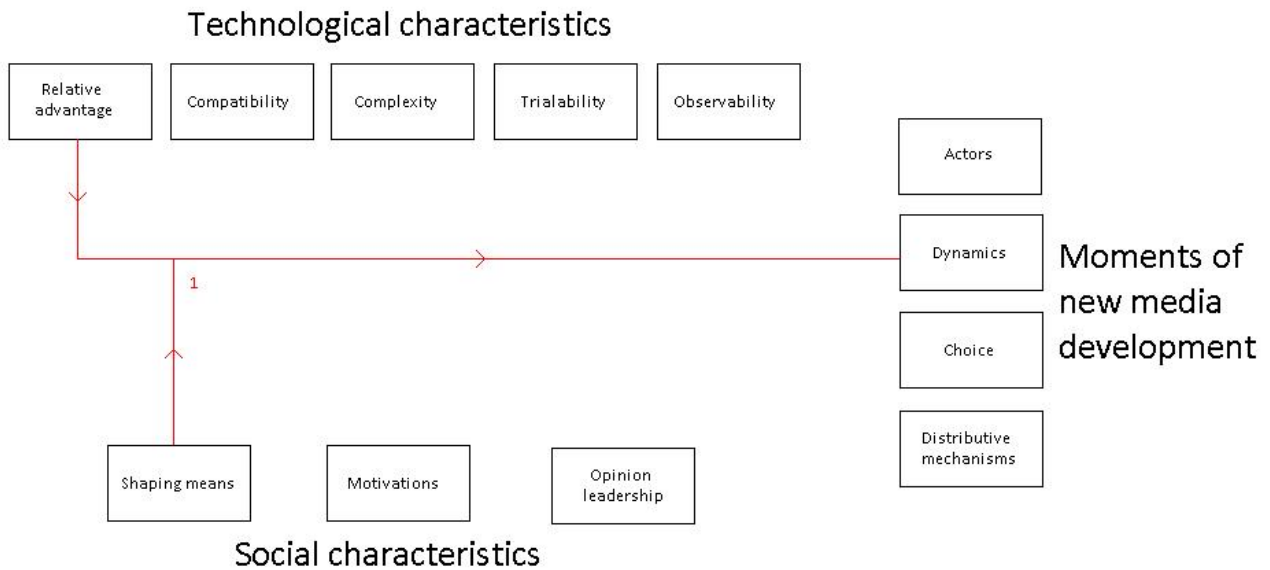
Choice implies the options that are open for directing the further development of the technology. Choice is closely related to dynamics. Like dynamics it bridges between technological determination, tending to limit the range of choice available, and social contingency, aiming to keep as many options open as possible (Lievrouw, 2002). In the music industry, the number of digital music services is still growing (IFPI, 2011), which indicates a tendency towards contingency. However, at the same time, only few of these services actually gain a substantial market share (Morris, 2010). This discord should be studied in this research. In general, choice will be inserted as the total amount of options for digital music users at a given moment of time.

Distributive mechanisms

Distributive mechanisms resemble the communication channels through which an innovation diffuses, as described by Rogers (1995). They include interpersonal relations, media technology and institutional structures (Lievrouw, 2002). Little is known about the use of such communication channels in the digital music industry, although the information sharing between suppliers and users through virtual communities (Jeppesen & Frederiksen, 2006; Volda et al, 2005) can be regarded as part of the distributive mechanisms. Nevertheless, distributive mechanisms can prove essential conductors of interaction between both sides. Therefore, in this research, they will be operationalised as a means of information exchange between distributors and consumers of digital music. The aim is to find out if and how they are being used by both types of actors in the digital music industry.

3.4 Use of concepts in the research

This research will investigate to what extent the before mentioned concepts are prevalent in digital music services. Thereafter the modes of interaction between technological and social characteristics and between both and the moments of new media development will be determined. Hereunder, the characteristics of the digital music industry with a possible mode of interaction are presented graphically.



1 Example

Graph 1: proposed mode of interaction between the theoretical concepts

In the graph the concepts are divided as they are in the research: technological characteristics; social characteristics; and the moments of new media development as intermediary between both. In the graph, the red line with number one represents an example of a possible mode of interaction. In this case, the interaction would consist of relative advantage and shaping means influencing dynamics. With the results from the data analysis, the concepts will be confirmed or removed from the graph; and any interesting links between concepts will be added. This will result in new theory for the diffusion of digital music services, extending and/or contradicting current knowledge on the topic.

4. Methods

This research has based its findings upon qualitative data collection and analysis. This is necessary, because the concepts used in this research for a great part constitute social phenomena like communication and intentional behaviour. Quantifying the concepts would diminish the explanatory power of some of the concepts (Sofaer, 1999). Hence, the analysis is performed on a qualitative base. More specific, this research uses qualitative content analysis to come to its results (Hsieh & Shannon, 2005; Mayring, 2000). The characteristics of qualitative content analysis will be described in second paragraph of this chapter.

In order to come to a proper data analysis, sufficient data were collected. In order to come to adequate information, the key source of data is document analysis. The documents used for analysis are news articles, weblogs, annual reports and such. After the data had been derived from the document analysis, the information on some concepts were not yet totally clarified, mainly on those concepts from the social side. In order to fine-tune the data for the concepts and support discovered modes of interaction, an open questionnaire was made, which was sent to a group of users.

4.1 Data collection

The required data for this research have been collected by searching for qualitative statements of actors in both verbal and textual interaction. The premier source of data collection was documents. These constitute newspaper articles, magazine articles, annual reports of companies and music associations, websites, blogs and music forums. For this research, a total of six different document types have been used. These are: annual reports; weblogs; news articles; informative texts; interviews; and book excerpts. The documents used for analysis provide statements from both the supply side and the demand side. The data derived from these documents render information on the concepts and possible modes of interaction between them. Next to the document analysis, the websites of all digital music services listed by the IFPI (2011) have been visited in order to check for relevant information. Appendix B provides an overview of all documents used, including the document code; title; type of document; source; and link to the website where it can be found, whenever the document is digitally available.

After the document analysis was finished, a questionnaire has been developed, in order to fill in holes in the information on the concepts and underpin modes of interaction derived from the document analysis. The questionnaire that was constructed for the research can be found in appendix C. These questionnaires were held among actors from the demand side of the industry only. This is because document analysis provided sufficient information on the technological characteristics of digital music. Respondents were found by seeking through the digital media (websites, forums, communities) in which active users of digital music services unite. Active users from these digital media were approached for answering the questionnaire. All the answers to the questionnaires, provided by the respondents, are shown in appendix D. Please note that due the fact that only Dutch users were approached, the answers are in Dutch. Whenever quotes from the questionnaire responses are used in the results chapter, they have been translated by the researcher.

4.2 Data analysis

Qualitative content analysis is a method of data analysis specifically fit for determining models of communication. Hence, the data for this analysis comes from communicative devices, whether those are verbal (open-ended interviews, recordings) or textual (articles, discourses, websites, other documents) (Kondracki & Wellman, 2002; Mayring, 2000). What distinguishes qualitative content analysis from other qualitative research methods is that it goes beyond mere word counting and really provides insight in the phenomenon under study, especially for causal and intentional behaviour (Hsieh & Shannon, 2005; Mayring, 2000). The key actions in qualitative content analysis are: (1) carefully analysing the data; (2) deriving important statements from the data; (3) linking them to central concepts; (4) comparing these concepts to similar concepts from scientific literature; and (5) interpreting

the differences and similarities between these concepts and building, adapting or extending theory from that.

Hsieh and Shannon (2005) distinguish between conventional and directive content analysis. This distinction is also made by Mayring (2000), although he names the two categories inductive and deductive content analysis. The main difference between both types is that directed content analysis uses pre-determined concepts of analysis, derived from previous theory; whereas conventional content analysis starts from blank with only a research goal, as existing theory is too limited to construct concepts on beforehand (Hsieh & Shannon, 2005; Kondracki & Wellman, 2002; Mayring, 2000). As this research had constructed theoretical concepts on beforehand, directed content analysis is used. The methodological steps that have been taken in the data analysis of this research are described hereafter.

The first step in the analysis was analysing all data from the documents gathered. In these texts, all statements that provide information on technological characteristics, social characteristics or modes of interaction between them have been highlighted and coded. These coded statements have then been linked to the theoretical concepts proposed in the previous chapter. Those statements that could not be coded into existing concepts have been categorised into new concepts. At the same time, a notion has been made of those concepts that are non-prevalent in the data. Based on the data, the new set of concepts will be analysed and compared, and finally built into theory.

4.3 Research quality

Using directed content analysis presents some pitfalls regarding the quality of the research. First of all, there is a strong emphasis on and bias towards the pre-determined concepts. Moreover, using a questionnaire with questions guided by those concepts might lead to people giving favourable answers, while not really thinking that way (Hsieh & Shannon, 2005). The bias towards the pre-determined concepts has been relieved by not using the pre-determined concepts in the first coding step. Here, relevant information was first coded using a description of the actual behaviour or feature as it was presented in the data. Afterwards, these descriptions were attached to the pre-determined concepts. In case it could not be put under one of the pre-entered concepts, it was coded as a new concept. In order to relieve the problem of favourable answers, some introductory, open-ended questions will be asked, before going deeper into specific questions. Also, tendentious questions will be avoided.

To improve the objectivity and reliability of this research, it is important that every step in the coding process is made clear (Mayring, 2000). In order to improve the objectivity and reliability, the steps in the coding process have been followed strictly. Furthermore, the coding process has been rerun two times, in order to correct possible flaws in the first coding round. Here, the first rerun is done to check whether the data are coded similarly to the first time; while the second time the coded data have been checked, possible discrepancies between the first coding round and the first rerun have been corrected. This research comprises qualitative information on social phenomena. In order to demonstrate its internal validity, one has to rely on logic, rather than statistics. The internal validity of this research is thus improved by undertaking logical steps from statements found in the data to conclusive statements, without reasoning the other way round. Furthermore, the research's validity is improved by comparing the results to relevant theory on digital

music services for internal validity and theory on comparable new media sectors for external validity.

5. Results

In this chapter, the results from the data analysis will be presented. The results are derived from coding the texts of the document analysis and the answers to the open questions of the questionnaire. Both types of data collection have led to information on the concepts entered in this research and the modes of interaction between them. First of all, the relevant gathered information on all concepts is presented. Afterwards, light will be shed on the modes of interaction, derived from the data analysis. Finally, those results that can add new features to current literature are discussed in the theoretical extension paragraph.

5.1 Concept information

In this paragraph, all twelve concepts that were entered into the research will be handled, starting with those of the technological characteristics, then the social characteristics and, finally, the moments of new media development. For each concept, the relevant information derived from the data analysis will be presented, underpinned by quotations from the found sources. Each quotation has been coded. The quotations derived from document analysis have been coded with a letter and a number. Here, the letter stands for the type of document (A = annual report; B = blog; E = book excerpt; F = feature or informative text; I = interview; and N = news article) and the number is the consecutive document order. Quotations derived from questionnaires will be coded with a #-sign and a number, showing the consecutive respondents. In appendix B, an overview of the document analysis with codes can be found. Appendix C reveals the questionnaire that was used for this research and appendix D shows an overview of the respondents' answers to the questionnaire.

Relative advantage

On beforehand, theory had presented five clear relative advantages and two clear relative disadvantages of digital music. These are price, supply, control, playfulness and usefulness, as advantages; and acoustic value and dematerialisation as disadvantages. All concepts have been mentioned, to some extent, in the data; except for playfulness.

The most noted concept is *price*. Generally, digital music is perceived as being cheaper than traditional music carriers. As one critic puts it:

“As the last decade has abundantly proved, freeing music from discs also drives down the price of recorded music.” [B10]

Also in the questionnaires, price was often mentioned as advantage of digital music. The price of music is quite an objective indicator, as it can be measured. For instance, a certain blog [B13] has compared the average price of a digital album of six digital music services to that of a CD bought on the digital shop Amazon.com. The results from the comparison show that digital albums are at average 19% cheaper than CDs. However, big differences exist in the price of the various services. According to the comparison on the blog, the most

expensive digital music service (Zune) is one and a half times as expensive as the cheapest service (eMusic).

Another indication of the importance of price is the ubiquity of “great offers” and “free downloads”, noticeable when making a round past the various digital music services. These services continually try to lure customers by offering them discount or free items. A clear example is this promotional action of Amazon:

“Amazon has launched the costcutting promotion to end all costcutting promotions, selling Lady Gaga’s new Born This Way album for a mere 99 cents in the US. For that price, fans get 14 tracks, a digital booklet and a free upgrade from 5GB to 20GB of storage on the Amazon cloud music service. That’s the key – Amazon is taking the financial hit on selling the album way below its wholesale price in order to promote its cloud offering.” [B1]

Some counterarguments could also be found in the document analysis. One critic pinpoints the discord between suppliers’ and consumers’ view on the price of songs in download services like iTunes:

“But what price is “fair”? Apple says it is 99 cents a song. [...] Even though record companies earn more per track from downloads than CD sales, industry execs have been pushing for more. One option is a tiered pricing model, with the most popular tunes selling for as much as \$3. [...] From the buyer’s perspective, however, Apple’s 99-cents-for-everything model isn’t perfect. Isn’t 99 cents too much to pay for music that appeals to just a few people?” [B20]

He suggests a model in which music’s popularity regulates its price. Hence, a popular song would go up in price, where an obscure song’s fee could drop to near to nothing. This model has never been introduced in the music industry, but clearly shows two things. First of all, that although digital music prices are lower than traditional music prices, not everyone observes the relative advantage of price in digital music. Furthermore, within digital music, the consumers’ ability to control price has increased. More on the latter topic will be discussed in the paragraph of shaping means. Regardless of the discord about whether price is a clear relative advantage to all consumers, in general, price is seen as a relative advantage of digital music.

Next to price, another relative advantage often mentioned is that of the extensive musical offer of digital music services. Almost all respondents name *supply* as an important advantage of digital music. Like price, the music catalogues differ per service. A comparison of the seven most prominent digital music services in the United States [F3] shows that the supply of music in them varies between very broad (iTunes) to much smaller and mainly music from independent labels (eMusic).

Regarding control on customers’ information, one music critic points towards the opportunity file-sharing sites provide for retrieving information on consumers’ preferences and demands. He uses the case of Napster as an example:

“The P2P file-sharing service revealed the massive demand for online, digital music. It proved that there was a desire to have access to digital high quality recordings, a wide selection of music, and a service that was easy to use. [...] Napster turned out to be a valuable source to get insight in the potential market for online music and revealed the desires of the music consumer.” [F7]

This corresponds with the notion some scholars provide on the advantage of digital music.

The usefulness of digital music is expressed as a relative advantage in two ways: it saves storage space and it provides people with the opportunity to discover much more new music. Storage space is saved, because the digital files only need a few centimetres of hard disc (or in the future: a cloud), instead of shelves full of CDs and LPs. As this music critic speaks:

“But I have, as they say, special needs. In three decades as a critic I have amassed more vinyl, CDs and digital files than I know what to do with. Periodic weeding can’t keep up with the 20 to 30 discs that arrive in the daily mailbag; the overfull floor-to-ceiling shelves are already straining under thousands of CDs and LPs. Any affection I had for physical packaging, no matter how elegant or unique, has long since vanished; it’s a reference library, not an art collection. And it grows, and grows, because I never know what I’ll need: the limited-edition 45, the home-burned debut CD. Yet I’d much rather have it in the cloud than in my apartment.” [B10]

Ripping CDs could provide a solution to the packed shelves, but as mp3 are ten times compressed versions of CD files, using them would also save space on one’s hard disc. Another music aficionado puts it like this:

“I currently have over 23,000 songs in my music collection. If I were to copy all of this music digitally from the CDs and place it on my computer, it would require over 1.5 TB of storage space. However, when encoded as a high quality MP3, the storage space requirement drops to approximately 120 GB.” [F10]

Next to storage space, another relevant advantage of digital music that fits within usefulness is *music discovery*. Almost all respondents admitted that this was much easier in digital music services than in the traditional manner. As one respondent puts it:

“I have more opportunities to discover music, which resulted in me discovering more good music and in the end buying more records and going to more concerts.” [#9]

This goes along with the finding that music discovery is an important motivation for users to participate in digital music services. Next to that, it proves usefulness is an important advantage of digital music. The underlying response of an interviewee summarises the two important notions of perceived usefulness: storage space saving and music discovery.

“Finding tracks used to be a day out at the record store. Getting a cup of coffee and spend half a day listening to records. [...] Now you can listen to more tracks through digital channels, which is positive. No more lugging with records, which is something that I like.” [#7]

As mentioned in the beginning of this paragraph, there were no such statements in the data that could be coded as playfulness. Furthermore, another clear advantage of digital music could be derived from the data analysis. This advantage is the increase in social experience of music, through the social features of websites. This is clearly a social relative advantage. The DiMA online music report [A2] has revealed that participation in digital music services has led to an increase in music listening, the social experience of music, expansion of musical taste and concert attendances. A music blogger has pinpointed the necessity of social features for digital music services, as can be seen from the following fragment:

“New features -- such as recommendation, sharing and Internet radio, all of which Apple competitors have already hinted at providing in the near future -- will become necessary to keep users engaged and interested in a cloud service. And Apple isn't exactly known for its prowess in adding social features to iTunes.” [B6]

Looking at the disadvantages of digital music services, the most commonly mentioned are: the sound quality; the trivialisation of the music product; long upload time; lack of transferability; and lack of accessibility. The latter two will be handled in the respective paragraphs of compatibility and complexity, as they resemble concepts that have been named for these characteristics.

The sound quality, or *acoustic value*, of digital music is, due to its compressed nature, often less than that of traditional recordings. This has been extensively discussed in scientific literature and has been proven by this data analysis. Especially streaming services encounter this problem. In short, this critic sums it up:

“The most obvious disadvantage of using MP3s versus traditional CD files is the sacrifice of audio quality. MP3 uses a type of compression algorithm, which is known as “lossy”. This means that in order to compress the data into a smaller file size, the computer must drop some parts of the sound.” [F10]

The questionnaires held amongst users also proved that some of them had troubles with the sound quality of digital files. As one of them puts forward:

“The quality of streams is questionable. For normal use and not so complicated songs this is not very noticeable; however, most services use a (MP3)-bit rate of 128-190 kb/s for audio streams, while this really is too low. It would be nicer if music was offered at a bit rate of at least 265 kb/s (CBR) and eventually lossless streams for a (higher) fee.” [#4]

Another respondent put it more bluntly:

“I don't need super quality, as long as it sounds normal.” [#3]

Hence, the importance consumers adhere to the sound quality differs, but in general, one can say that the sound quality of digital music spurs a relative disadvantage for digital music.

The intangibility of digital music and the possibility to go past a lot of it in a short period of time leads to customers having less feeling with the musical product. Therefore, many people feel that digital music has made music more trivial. This corresponds to the theoretic problem of dematerialisation. One user typified this problem of dematerialisation as follows:

“The ritual of placing an LP on a turntable and cranking up a hi-fi home stereo disappeared.” [B10]

Finally, a disadvantage of the new cloud players is that they are not yet fully equipped, mainly because of a lack of licenses from record companies. Therefore, it can take days for people with large music collections to upload it all. A comparison of the three key players in the new cloud player market (Amazon, Google and Apple), resulted in the following conclusion on the Google cloud player:

“Also much like Amazon, the upload process is terribly slow. For a music library of thousands of songs, expect it to take several days, if not a whole week, to upload your entire library.” [F8]

This is a problem resulting from a typical discord in the relative importance of a service's features, provoked by the introduction of the new cloud players. A statement from a news article indicates the problem:

“Look what Amazon started. Now, a frustrated Google has opted to push forward with its much-anticipated cloud music launch - without major label approval” [N3]

This can be labelled as the *time of entry* discord. It comprises the question for suppliers which is better: offering services with the best features possible, or bringing it on the market as soon as possible. Google and Amazon tried to make a fast move by already putting their services on the market, while they are not yet fully equipped. For instance, the lack of licensing deals with record companies makes the upload speed for both very low. On the other hand, Apple will not present its cloud player until the fall of 2011, but is expected to offer a much completer package than its competitors. The outcome of the rivalry between the three competitors cannot be known on beforehand, however, this discord is something that needs to be reckoned with when regarding the digital music industry.

Compatibility

The two proposed dimensions of compatibility are clearly present in current digital music services. First of all, actors in the digital music industry build upon their customer familiarity derived from the traditional music industry. When regarding the current offer of digital music services, one can see many record stores, but also magazines and newspapers linked to music, incorporating digital music services. This is something that can be labelled as *piggybacking*. Also most interfaces from digital music services resemble the shelves of music in traditional record stores.

Next to that, the innovation in the digital music industry comes along with a bundle of co-innovations. Especially the emergence of smartphones has opened up a new market for digital music, through phone applications and mobile internet. This also makes the digital music market interesting for mobile providers. Some providers (e.g. Vodafone, O2, and Tele2) already have digital music services, while research in the UK showed that the digital music market provides a huge revenue potential for these ISPs [N13]. Other co-innovations are mp3-players; the Sonos home music system; music boxes; and storage hard-discs. A director of Universal Music Group, one of the major record labels, describes this compatibility issue as a ‘seamless consumer experience’:

“So the consumer of a BMW playing the track via his Bang & Olufsen system, gets out of his car, walks into his house and turns on a Sony amplifier and walks into his kitchen where he has a Sonos machine, and have the same track playing throughout.” [I1]

Compatibility in the digital music market has also created a typical situation; namely that of the *lock-in effect*. This means that music that is purchased through one service can only be played in devices compatible with that service. This is the main reason why Apple managed to get such a big market share, because the music formats downloaded from iTunes were only playable in iTunes media player and on iPods. Therefore, people tend to continue buying products from Apple. This lock-in effect is beneficial for certain suppliers, but is also

creates a problem of *transferability*. This means that people with different brands of musical devices cannot play all their music on all their devices; music purchased through one service is not playable on an incompatible device. The Electronic Frontier Foundation presents a guide [F11] in which the restrictions upon music purchased through Apple's iTunes are explained. Although other download services impose more or less the same restrictions, Apple, as market leader, is the main receiver of criticism. It even led to a lawsuit, compelled by consumers, against Apple:

"In the suit, consumers allege that Apple runs a monopoly with iTunes and iPods, thanks to the Fairplay DRM that blocks music purchased on iTunes from being used on any device not sold by Apple." [N6]

This supposed monopoly is something that other companies in the digital music market want to break through, as can be noted from the following news article:

"Reports claim Amazon is being tempted into the digital music market by EMI's agreement to sell tracks free from digital rights management (DRM) restrictions. The retailer is believed to be interested in offering a completely DRM-free store for customers, selling music in the MP3 format. [...] Of course, there's nothing official just yet, but if Amazon's music store becomes a reality, it could pose a threat to Apple's dominance of the market. iTunes currently accounts for about 80 per cent of the digital music market. Its recent deal with EMI to sell MP3 tracks instead of the digitally locked AAC files was considered a ground breaking move, with some analysts speculating that it meant the beginning of the end for restrictive copyright protection tools such as DRM." [N5]

However, an online digital service comparison [F3] still points to the disadvantageous fact that many services provide different formats of digital music, which in turn are not compatible with all types of music players. The above mentioned lock-in effect also has another side to it. Consumers tend to be very loyal to the brand of digital music services they are familiar with. This can be called the *stick-to-a-side principle*. This stick-to-a-side principle is expected to be even more present in the future, with the entrance of big brands like Amazon and Google into the arena of digital music. As one technology reviewer puts it:

"Amazon's service will win out for users who already make a significant amount of purchases in the Amazon MP3 store. Google's Music Beta will most likely get a large number of Android users [...] If Apple does things right, it could definitely win out in the grand scheme of things because iTunes is already the preferred digital music store for most Apple users." [F8]

This research has shown that there are a lot of compatibility issues in the digital music industry. On one hand, companies rely on consumers' compatibility through modes of interaction like piggybacking and the stick-to-a-side principle. On the other hand, there appears a lock-in effect for certain products, which results in a problem of transferability. Finally, there are the co-bundled innovations, on which more light will be shed in the results for the concept actors. In the end, although customers are loyal, they do want one service through which they can browse, purchase, play and store music. As soon as a service is able to provide all this, it will take a lot for a competitive service to take customers away.

Complexity

Theory has presented an ambiguity about the complexity of digital music. In general, the findings of this research show that digital music services provide an easy way of accessing

new music, compared to traditional music carriers. The commonly accepted notion is that the ease of use has been improved sharply over the past few years. Especially a company like Apple did some pioneer's work in simplifying the process of digital music, as this book on Apple's business in the music industry revealed:

"The secret is that they understood that the core problem was not just the design of the product: it was to simplify the entire system of finding, buying, getting, and playing music, and also to overcome the legal issues." [E1]

In the compatibility part, the need for a uniform service through which people can buy, play and store music was highlighted. This compatibility issue is also a complexity issue: one service serving all needs leads to a decline in complexity for the users. As this is not yet the case, there is still a need for an easier method of use. Especially with many services using different formats, interfaces and ways of acquiring, it can be confusing for customers, especially those who are not familiar with modern technologies. Concorde and AARP's plans to come up with a digital music service for seniors, which promotes ease of use as a key feature, is a good example of the need for less complexity. As explained by an employee of AARP:

"We've always been trying to reach this audience, because we know that boomers are so passionate about music. We also feel that because of changes in format and whatnot, a lot of them have gotten lost in terms of how to find their music." [N18]

A pending problem, related to complexity, is that of *accessibility*: only very few services are available worldwide. Some services have managed to obtain a good market position in certain regions, while they are absent in other regions. A clear example of this is Spotify, which is big in Western Europe, but not on the market yet in the USA. For Pandora, this goes the other way around. In some parts of the world, especially in Asia, many of the big services are not even accessible, due to governmental regulations or other problems. A simple, but firm, statement from the director of Universal Music Group underpins this point:

"Accessibility is definitely holding people back." [I1]

Trialability

In the theoretical part, the focus for this characteristic was put upon sampling, which means that music can be tried out at little cost. Data analysis has proven that sampling is indeed a big advantage of digital music. Especially with the rise of streaming websites and cloud players, sampling is available at the cost of near to nothing. This seems to indicate that there is little to win for the actors. Once streaming and cloud players are fully established, sampling will be such a common good that it will be of little to no influence in the choice of digital music service. However, the ease of trying out new music differs per website. For instance, a person wrote the underlying, in criticism of mp3tunes:

"The final deficiency in mp3tunes is the music discovery aspect that any music collector needs. The perfect streaming services will play music that I do not own along with the music that is already in my collection. Even better if the user can control the number of recommended songs to get. For example, every fifth song will be a song recommendation." [B2]

Another point that does underline the importance of sampling is the feature of personal playlists on websites and social media. This actually combines the principle of sampling with that of opinion leadership. The paragraph on opinion leadership will go more into depth on the social side of playlists. From the industry side, playlists provide a good example of increased trialability. However, the ease with which this feature can be used amongst different services varies, as can be noted from the case of the following news article.

“Scandinavian music streaming service WiMP by Aspiro today launched an update that includes a beta version of the most requested feature in the client – import of playlists from other streaming services. At the same time, Aspiro also enables export of playlists from WiMP, and urges the industry to use open standards in order to further develop complete import and export functionality to encourage increased music consumption.” [N22]

Hence, the feature within trialability that distinguishes digital music from traditional music is the ease of sampling. However, within digital music, sampling seems to lose its position as distinctive feature. For digital music services, playlists form an area where there is something to gain in the future.

Observability

On beforehand, little scientific literature was present on this characteristic in digital music. However, this research has shed light on two important topics that have to do with the lack of clarity on the merits of new innovations in the digital music industry. First of all, there is the problem of *vapourware*. This constitutes that people cannot see the benefit of a new innovation, in comparison with an earlier version. Therefore, they just wait until an even newer version is available, which does provide clear benefits for them. The two quotations below underline the stated problem:

“Technology is moving so fast that a phenomenon has come from the game industry, called vaporware, where people resist new products and services because they think something else is going to replace it very quickly. I think we're in danger of having a bit of vaporware problem with everyone talking about cloud-based services.” [I1]

“But in an already crowded and well-established market, is there a consumer need for another digital music service?” [B17]

This can mean two things: either, digital music suppliers fail to convince their customers of the beneficial aspect of their newest market introduction; or, they are so busy to keep up with the rapid pace of the volatile digital market, that their focus is too much on a quick entry on the market and too little on developing better features for their service. In either case, this is something for digital music companies to take into consideration. Information from the questionnaires also underlines the pending problem of vapourware, as most interviewees admit that they are not very accurately following the latest innovations in digital music. Some reactions are:

“I kind of follow it, but not intensely [...] I'll see how the market evolves.” [#2]

“[I am following it] Not very accurately. As soon as something breaks through, I'll notice.” [#3]

“I find it interesting to see/follow new trends, however, I am critical about them and do not directly jump onto each new hype.” [#4]

This underlines the first reason mentioned above; consumers react timidly to new innovations on the market. Therefore, there is a task for the suppliers to convince customers of the benefits of their new innovations. On the other hand, keeping up the pace with competitors, with regard to market entry of new innovations, is a recurrent problem that was already pinpointed in the relative advantage part under time of entry. Hence, a company cannot wait too long to introduce a new product, which makes the problem of vapourware a real dilemma for the digital music industry.

Furthermore, the newly introduced cloud player puts forth another problem with observability, both for consumers and suppliers. For the customer, the problem is that he loses control over his music files, as soon as they are stored online. This disadvantageous issue will be called *music expropriation*. For all a customer knows, his or her files can disappear all of a sudden, or be leached by other users. For the industry, cloud players provoke the problem that the source (legal or illegal) of the uploaded files cannot be retrieved. For instance, iTunes Match, incorporated in the new cloud player of Apple, replaces every uploaded file that is not purchased through iTunes with a copy from the iTunes library. This way, illegal files can be legalised and piracy will be rewarded, as can be noted from the following remark:

“Apple does not appear to check whether users’ versions of matched items had been pirated.” [B11]

Shaping means

An imminent result from the data analysis is that there is little proof of people providing *solution content* to distributors of digital music services. None of the interrogated users mentioned doing so in their answers and neither the document analysis pointed towards people doing so. This can mean that either digital music suppliers overlook the potential of solutions provided by users or that users simply do not provide the solutions that suppliers demand.

There is more evidence for people providing the *need content*. However, it became apparent that, although users indicated that they do give feedback; most of them do not deliver feedback directly to the suppliers. As one respondent answered:

“Sometimes, I do give feedback through forums, but never to the music services themselves.” [#4]

Only one respondent admitted to giving feedback to a supplier. However, many digital music services do have feedback forms on their websites. Here, it is questionable as to how far these are actually being used. Many users do provide the need content in the form of feedback on blogs, forums and social media. The underlying passages are examples of users providing feedback on what they need in the perfect digital music service. Here, two music aficionados express their distress about current digital music features, in this case the lack of supply [B7] and the lack of opportunity to mix streaming music with that of the person’s own collection [B2].

“This is exactly why I could never get on board with any music offering from any company so far. Up until now, my favorite was MOG, for a variety of reasons: you can stream to most any device, the MP3 quality is 320 kbps (the highest possible), the collection is strong and the company really feels like its made up of music lovers.”

But then I started searching for some of my favorite songs and albums and artists, and turned up empty-handed. What could I do? The best option would be to keep everything on my computer and phone that MOG didn't have, and then use the service for everything else.

That's fragmentation, though. That's not an awesome user experience." [B7]

"I want a backup company such as Carbonite or mp3tunes.com to either support streaming with recommendation or a streaming company such as Pandora or Slacker to offer the ability to upload my collection. If Pandora needs a killer feature to compete with Slacker or vice-versa, this is it! How great would it be to keep enjoying Pandora or Slacker as we have always done, but with the ability to throw in music from our own collection? Great isn't? These streaming services will also enjoy the benefit of the added revenue stream. The same price that I was willing to pay mp3tunes, I am willing to pay to Pandora or Slacker – \$99.99/year for the added ability to upload all my music collection and stream from their existing interfaces.

I have my wallet out for any company ready to offer me all of these features all wrapped up in one perfect music streaming service." [B2]

The last sentence of the passage above pinpoints another important type of shaping means, hitherto unravelled: the consumer's *willingness-to-pay*. Where different digital music services specialise in different features, there is also a distinction between user preferences. Not only does the willingness-to-pay vary individually, people are also different in what features they are willing to pay for. Here are some features that prove to be essential for customers: good sound quality; an extensive musical catalogue; the ability to transfer their music to mp3 players, phones or CDs; a clear interface and ease of use; and so on. Companies have greatly misunderstood the shaping potential of consumer's willingness-to-pay, as can be understood from the underlying two statements.

"The introduction of the CD in the mid 1980s provoked a surge in music sales, through people rebuilding their vinyl libraries with CDs. Therefore, the prosperity of the music industry has been misconceived by the actors of the industry. The introduction of the digital format has not and will not provoke such a surge, as CDs can easily be digitalised." [F4]

"The simple fact is that current music products do not meet consumer demand, and the divergence between emerging consumer behavior and legitimate music products is widening at an alarming rate. Current digital music products are essentially transition technologies that were useful for bridging the gap between the analogue and digital worlds, but now it's time to start the digital journey in earnest. The current portfolio of digital products will not get us there. Consumer behavior, as disruptive as it may be, is rapidly outpacing the evolution of digital music products. This means a complete new wave of music products that embrace access and experience, instead of trying to replicate analogue-era distribution business models in a digital context." [B12]

Moreover, as already mentioned in the relative advantage part, one blogger suggested a method in which the unit price for download services was entirely regulated by consumer demand. He explains the method in the following way:

"Here's how it would work: Songs would be priced strictly on demand. The more people who download the latest Eminem single, the higher the price will go. The same is true in reverse—the fewer people who buy a song, the lower the price goes." [B20]

Here, the consumer's demand, which is in some way equivalent to his or her willingness-to-pay, actually determines the price he or she is paying. As mentioned before, this system has not become reality, however it indicates the increasing power consumers have on the supply side of digital music. The overall criticism, which can be found in the data, is that digital music services should thus cater more to the individual users' demands. A more recent example shows the expectation that this will indeed happen in the future:

"At the moment Spotify or similar services will become de facto standard, there will come a point where the frequency of streaming by consumers will influence the subscription fee and revenues will rise." [B21]

Coupled to that statement, an interesting result of the data analysis is the fact that a clear distinction can be made between the amount of music people own and the part of it they actually listen to. This situation further establishes the shaping power of consumers, as a report from Music WithMe presented the following result:

"We ran some analysis on our anonymous user data and discovered that, on average, 81% of a user's library has never been played in iTunes. Ever." [B3]

Moreover, the following statement was released by Apple:

"But by Apple's own admission, only 3 percent of the music stored in the average iTunes user's digital library was purchased from the Apple music store." [B6]

Numbers like these led one Digital Music Forum panelist to conclude:

"People play what they don't buy and buy what they don't play." [B4]

This discord between the music people own and the music people actually play can influence the evolution of digital music. For download services, this discord would make little difference, as people only pay for the purchase of music. However, cloud players and streaming services can adjust to this distinction by their pay-per-play principle, which rewards the artists whose music is actually listened to most. Moreover, this stresses the increasing importance of opinion leadership, and hence, social media, because they influence people's listening habits even more than their purchasing habits. More on this will be put forth in the opinion leadership paragraph.

Motivations

In general, people partake in digital music services, because they profit from them. Of the four key motivations, distilled from theory, three are found in the digital music industry. Only the motivation of personal needs was not found in the data. Moreover, for some motivations, the evidence is more apparent than for others. The results from the questionnaire clearly show that internal factors are the most important for the respondents; in this case, these are *music discovery* (finding and collecting new music) and *joy* (pleasure, passion and hobby-ism). The following two responses on the question what motivated them to partake in digital music underline these two motivations:

"Purely listening to music. I find it very easy to listen to new things and, for instance, also be able to listen to my favourite music at work." [#2]

“Passion for music.” [#9]

External factors like *personal needs* and *peer recognition* have not been mentioned explicitly as an answer to the motivational question, however, almost all respondents admitted to being part of a virtual community and giving recommendations to social peers. Hence, implicitly this means that peer recognition can be regarded as an important motivation for people to partake in digital music. Document analysis also found proof for the presence of peer recognition as a motivation or digital music participation, next to proof for the earlier underlined motivations music discovery and joy. The following statements pinpoint how peer recognition motivates people.

“That old manners and pleasures do not disappear with the introduction of new media, can be noticed from the popularity of playlists and personal compilation albums. Like the self-composed cassettes and CDs in the past, these are now made and shared within streaming services, but also outside of them: on the Dutch Playlistify.org, for instance.” [N16]

“Many music lovers spend huge amounts of time building up a collection of playlists, favorite artists and albums, and shows off what they like through social media.” [N22]

Personal needs have been mentioned explicitly in neither the questionnaires, nor the document analysis. Doubts can be raised as to whether this motivation really counts for digital music users.

Next to the three present motivations from the theory, some other motivations were found repeatedly in the data. These are: *ease of use*; *practicality*; and *price*. Ease of use was considered by respondents from the questionnaire as they could easily listen to their music in all kinds of places (in the car, at work) and continue to listen at home [#2] [#8]. Practicality constitutes the fact that it saves a lot of space in comparison with traditional records and is a lot easier to take with you, through mobile phones and mp3 players. Finally, digital music is considered as cheaper than traditional music, which is also a motivation for people to use digital music. These motivations were also found in the document analysis, and correspond to the perceived relative advantages of digital music.

Opinion leadership

Within digital music, opinion leadership is an important source for users in deciding which music to listen to. Two types of opinion leadership can be discerned: that by an *authority* in music (a music journalist, blogger or an artist), or by a *social pal* (in real life or on the internet) who is regarded as someone with a similar taste and/or musical knowledge. Opinion leadership is regarded as an important feature within the digital music industry, as explained by this music critic:

“[M]ake it visible for example who is coming to your show, who has bought your record or who likes your music. If you can convince those who rely on the actions of others that your shows are really popular, or that your new release is selling really well, you might be able to sell more tickets and music.” [F6]

The data analysis showed that both types of opinion leadership are abundant in the digital music industry, as both the results from the questionnaires and the document analysis confirm these findings. Below, there are some examples of music critics typifying the influence of authorities and social pals.

"[W]e see that every genre and every scene has its influencers, whether these are celebrities, artists or bloggers. If you can show that the influencer of your scene likes or even recommends your music, many will rely on the judgement of this person." [F6]

"[W]hen we are unsure, we are most likely to look to the actions of others and accept them as correct. Because we don't have time to weigh every decision in our lives, we often rely on the choices of others. We rely on what our friends do or on the judgement of the masses." [F6]

"Blogging's easy to start, and easy to do — but can I direct your attention towards MOG? It's an online community — a bit like MySpace, only good — and all about the discussion of music. Becoming an authority in that environment, I'm told, can be a smart way to sell records." [B8]

"Why I think Rdio's social model is so important is because of the access it provides. It's not just access to any impressively large library of music but it's also access to a network of audiophiles interacting around common music tastes." [B15]

The last two comments pinpointed an interesting trend in the power distribution amongst opinion leadership in the music industry. With the emergence of internet and new media, the range of media, through which opinion leadership is expressed, has shifted. Traditionally, media like radio, printed press and television were the key media for discovering new music. However, their influence has declined; whereas media like websites, blogs and social media have become more determining. This process has been described by a blogger as follows:

"Often this will take the form of a press review or column — or some sort of radio feature. Occasionally, it'll come from the telly. [...] But what has changed online is the proliferation of opinion sources. There are internet-only publications with readerships in the tens of thousands, whose writers may wish to say nice things about your music." [B8]

Not only the range of online authorities has sharply increased over the past years, also the influence of online pals has risen. Experts in the field expect the influence of these new media, especially social media, to keep growing, as can be seen from this statement of Universal Music Group's director:

"I think we're only just started seeing the true integration and impact of social networks on the music business." [I1]

Some services have already anticipated on this power shift, by incorporating social media and personal recommendations into their websites. The option to make personal playlists and show them to others is the most commonly used expression of opinion leadership. Another hint at the increasing importance of social media is the interest of social media mogul Facebook in the digital music industry. In fact, they are already planning on incorporating digital music in their services. The following quote from a news article brought that news to the world.

"Facebook is gearing up to launch a music area with Spotify, a European digital music service, and perhaps other music-streaming programs" [N19]

Actors

The current situation in the digital music industry incorporates some important power shifts. There are a lot of *new entrants* to the market, most of them focusing on the new cloud player market. On the other hand, a contraction of the market is expected to establish in the future, where the big services expel the smaller ones. Actors like record labels, artists and consumers experience some power changes too, but to lesser extent.

First of all, an important thing to notice is the ever-growing number of digital music services. The IFPI reported on over 400 services at the end of 2010, while the first half of 2011 has seen a share of new entrants. Most of the new entrants focus on the early establishing cloud player market. Moreover, what can be seen is that a lot of internet and technology moguls like Apple, Google, Amazon and Sony are trying to get a share of the new cloud player market. Some of them were already involved with digital music (Apple & Amazon), while others (like Google, Sony and Facebook) are new to the market. A concluding remark from Digital Music Forum East stated:

“There are quite a few companies beyond the music companies themselves with major stakes in how the reshaped industry looks in a few years. In addition to private companies like Pandora, Spotify, and SoundCloud we know that Apple, Google, Amazon and Microsoft will all be vying for a piece of this market.” [B4]

Hence, one can conclude that these large companies expect to obtain a profit from the digital music market. This assumption goes well along the common idea that large companies are in favour in this industry. Because of their bargaining power they can make better deals with the record companies and their brand strength makes it easier for them to reach customers. In a news feature on Apple’s new iCloud, the case of *mogul advantage* was summarised as follows:

“But though these sites provide services distinct from those of the big players, they cannot match the big companies in brand power, reach and cash flow, key elements required to win over both users and record labels.”

Apple’s biggest advantage in the digital music race is, well, being Apple. As the largest music retailer in the country, with near 70 percent of the digital music market, the company has established its brand as the go-to source for finding, buying, storing and playing music on a computer. Apple’s iTunes store has around 200 million credit cards on file. Startups -- as well as web giants Amazon and Google -- face the challenge of changing users’ habits and convincing them to abandon one music library for another.” [N10]

No one is able to predict the future, but there is a common consensus that due to their assets, large companies like Apple and Google will dominate the digital music market in the future. The following statements underline that expectation.

“Still, experts say that even if Apple’s service arrives late, it will be its competitors who will be left playing catch-up.” [N11]

“Apple has the power. They can drop something on a marketplace and have a huge impact the next day. If you talk to someone on the street they’re not following this race but they are taking a lot of cues from Apple,” said Resnikoff *“Apple said songs are 99 cents. They gave you*

the smartphone. The herd has been following Apple. They can heavily influence how people listen to music going forward.” [N11]

“It's going to sound like a cop-out, but we think that each of these services will have a pretty solid niche of users to work with. They all have pros and cons, but each service also appeals to different users. Amazon's service will win out for users who already make a significant amount of purchases in the Amazon MP3 store. Google's Music Beta will most likely get a large number of Android users and people who simply want mobile and flexible access to their entire music library.” [F8]

The advantages big companies have, except for the before mentioned bargaining power, can be linked to concepts described in the compatibility part: lock-in effect on the company side and stick-to-a-side principle on the consumer side. In fact, the first case of a digital music service forced out of the market is that of Walmart, which provided downloads at bargain prices. While Walmart is a big company itself, it was not able to compete with the market leaders in digital music and thus decided to pull the plugs, as can be read in the underlying statement from a news article.

“Walmart has made the decision to end its music downloads service as it found it was unable to compete with the likes of iTunes and Amazon.” [N23]

Moreover, more external technological entrants can be expected in the music industry, as the development of co-innovations continues to proceed. Producers of home entertainment systems and ISPs are also expected to be able to make a profit from the digital music industry, as can be seen from the following items:

“By using home-theater applications and in-home entertainment devices like the PlayStation®3, Music Unlimited puts a new spin on cloud-based music services,” [N1]

“Digital music services could generate more than £100m of potential direct revenue for UK ISPs by 2013 according to a new study conducted by global industry analyst Ovum, commissioned on behalf of the BPI has found.” [N13]

For record labels, the evolutions in digital music mean certain changes. Their original tactic of litigation has been heavily criticised:

“One panelist noted astutely that suing your customers is not a viable long term strategy.” [B4]

“Digital music has failed to [...] compete effectively with piracy.” [B12]

The industry has learned from past mistakes. Currently, they are focusing more on making more profit out of licensing deals and steer away from developing digital music services themselves. The boss of Universal, one of the industry majors, sees it that way:

“The revenues are significantly growing and I fundamentally believe that streaming and subscription models with unlimited access on all devices are the future of our business.” [N7]

As a countermovement to the earlier mentioned mogul advantage, one music blogger recommends that major record labels should not solely focus on licensing deals with the big technology companies, as the risk of becoming over-dependent on them and losing too much power to them is present.

“From the Majors’ point of view, streaming deals with mighty players such as Google and itunes may still be seen as the path to digital salvation (a survival need). However, it remains to be seen whether this is really the case. So far, take up of subscription services has been slow, and by focusing on deals with only the bigger players such as itunes, Google and Amazon, the Majors put themselves in negotiations with parties who are much bigger than they are, and wield a lot of negotiating clout. This has not always worked for them in the physical world (think for example of the tough terms a major player like Tesco is able to impose on them).

Maybe a better route to salvation would be to spread it around a bit and license many smaller services as well, to encourage faster growth in the market and make sure that the Record industry is not over-dependent on only a few deals with major distributors who are able to impose harsh terms...” [B5]

Where the record labels are steering away from developing music services themselves, a hole is created for artists to deliver music to their fans directly. The theoretical introduction brought the example of Prince's album Crystal Ball, while the data analysis showed more examples of this power shift. The most evident case of artists choosing their own path and keeping the power to themselves and to their fans is the release of Radiohead album ‘In Rainbows’. It was provided as a digital download on the band’s website, and customers could pay whatever they liked. It is a revolutionary example of power increase for both artists and consumers.

“In Rainbows will be released as a digital download available only via the band's web site, Radiohead.com. There's no label or distribution partner to cut into the band's profits — but then there may not be any profits. Drop In Rainbows' 15 songs into the online checkout basket and a question mark pops up where the price would normally be. Click it, and the prompt "It's Up To You" appears. Click again and it refreshes with the words "It's Really Up To You" — and really, it is. It's the first major album whose price is determined by what individual consumers want to pay for it. And it's perfectly acceptable to pay nothing at all.” [N20]

For the customers, the evolution of the music industry does not constitute too big a power shift; at least not as big a change as for the industry side. As has been noted by a music critic:

“Seen through the eyes of a music fan, Apple's new iCloud feature is hardly a groundbreaking digital music experience. But stared through the eyes of the music industry, it's revolutionary.” [B6]

However, some power shift for consumers has been established. The ever-growing competition between services and their features also imply that the consumer’s demands have become more important in the digital music industry, as can be noted from the following statement:

“The simple fact is that current music products do not meet consumer demand, and the divergence between emerging consumer behavior and legitimate music products is widening at an alarming rate.” [B12]

Dynamics

A general consensus in the music industry exists about the direction in which the digital music market will be evolving. The percentage of download services will be declining, because the system resembles the analogue-era distributional system that has become inapt for the current situation in the music industry:

“Legal digital downloads at \$0.99 or \$1.29 is not a panacea, as once thought.” [B4]

“Selling units of “stuff” is not the future. The slowdown in digital music growth is rock-solid evidence of this fact.” [B12]

What the music industry is moving to, are streaming services and cloud players, especially combinations of both. Cloud players are a sort of online music lockers. They provide users the possibility to store their music online and listen to it anywhere they want, through a streaming service. This can be done on any device with internet access. Below some statements from the document analysis that emphasise the consensus on the dynamics of digital music are presented.

“Cloud computing is gradually revolutionizing the music industry and the way digital music is being consumed. Instead of buying and downloading (digital download) songs over the internet, consumers are accessing to them via the cloud in the form of on-demand streaming services.” [F12]

“David Joseph, the boss of the largest music label in Britain, Universal Music, reckons that streaming music services are the future,” [N7]

“Digital music service based on cloud computing is one of the biggest technological trends in 2011, and is expected to take the digital music market to the next level.” [F5]

An apparent problem with digital music services is its profitability. At the moment, digital music is not yet profitable: piracy still lingers; record sales keep declining; and the overall return to interest for digital music (especially streaming) is low. Experts doubt whether the profitability of digital music will increase greatly in the near future.

“There is also a wider debate as to whether the rise of digital music services, whether paid for or free, really benefit the artists. Years ago bands used to go on tour to promote their albums, but with digital realm pricing albums at less than £5 a pop, artists are now producing albums to promote their tours.

Last year it was claimed that Lady Gaga earned just £108 for 1 million plays of her seminal hit Poker Face on Spotify. Although that figure has since been disputed, and it must be mentioned that plays on digital services do not equate to record sales (they are more equivalent to radio plays), it is unlikely that artists are seeing the advent of digital music as an appropriate way to gain revenue from their wares.” [B17]

Journalist and musician Hans Hulst goes even further, by stating that a streaming service like Spotify heavily harms artists' income.

“Musicians stand at the cleanout drain with the new business models. In the first quarter of 2011, Spotify paid artists less than a quarter cent per stream. The exact payment structure is

nontransparent, but it is clear that a song has to be streamed at least 400 times before an artist obtains 1 Euro.” [F12]

In the same article, there is implied that Spotify is not yet profitable, as they are trying to get a monopoly in the music streaming market by providing their product below the cost price. The author claims that this is a reason to adapt the payment structure of Spotify. Blogger Ivar Zantinge reacts on this article, by stating that it is logical that Spotify is not yet profitable, but that these investments need to be made, in order to become profitable in the future.

“That the costs go ahead of the profits is surely a fact. [...] Already a few years ago, research agency Forrester has calculated that until 2014, the decline of income of the music industry will proceed. From 2014 on, the income will increase due to the emergence of new business models, like Spotify. In the second quarter of 2011, the payment per stream by Spotify has risen to 0.4 cent. Almost a doubling in regard to the first quarter of 2011.” [B21]

One thing that can be stated with certainty is that the digital music industry at this moment has a low profitability, especially for artists. As can be seen from the passages above, experts doubt if the profitability will increase enough to make digital music profitable for all actors. Cloud players could already relieve some of the problems; as they obtain money for both the purchasing and the playing of music. Music downloads (purchase) and streaming (plays) only get revenue for one of either.

“All of the content in Apple's iCloud is going to be paid for by acquisition, or paid for by consumption,” a source at a major label says.

The \$25 annual fee is collected into a pool, from which Apple takes its 30 percent cut. From there, sources say, 58 percent is set aside for labels and 12 percent for publishers. How those portions are distributed within the labels and publishers is entirely based on consumption. Apple monitors which songs users are accessing through iTunes Match, and identifies which rights-holders are then owed what portion of the pool. That same data is provided to the label or publisher to determine what portion of the cut is then owed each individual artist.” [B6]

This pending problem resembles the problem of *competitive dynamics*, as described in the theory. In order to lure customers away from illegal sharing sites, digital music services need to keep their prices down, which indirectly lowers their profitability. A round past the answers from the questionnaires shows that consumers agree on two important actions for digital music services to overcome piracy. First there is severe litigation, something which has been done extensively and does not fit in the scope of this research. Moreover, consumers expect digital music services to simply overpower illegal file-sharing by offering the maximum in features and the minimum in restrictions. As one respondent wrote down:

“I would like a sort of super VIP membership. Based on the trust of physical (real) limitless reuse of music, but with a realness certificate that is not transmissible/multipliable. And off course for ALL music, not only for that of the majors. If it were only for the restricted group of major labels, I will never be interested. Next to that, off course, user-friendliness (no computer-dependent ID, usable on all platforms and just playable with every player and every type of software) with, from time to time, non-digital advantages like pre-sale of concert tickets, promotional material, CDs and vinyls. I would be willing to pay 1000 euro a year for a subscription service of that kind. Actually, I would like to pay for emitting all trouble for all music that I am humanly able to consume; an ‘I can do anything’ card, with a

product in return that has a customer orientation as Amazon has, with advantages that really mean something. A kind of 'platinum' music card, so to say." [#1]

What can be learned from the past decade of digital music is that it is not fit to simply duplicate the traditional system of music distribution. Consensus exists on the necessity to focus on customer experience and access more, in order to gain momentum for digital music.

Two more things are noticeable, when regarding the future of digital music. First of all, several sources point towards the increasing importance of social media for future music consumption. This point has already been explained in the opinion leadership part. Furthermore, a daunting situation that is present in the current digital music market, and is expected to be in the near future, is that of 'vapourware'. The problem of vapourware constitutes that customers tend to ignore new technological innovations, as they expect it to be replaced by a better version soon. This is a serious backlash for suppliers, trying to bring newer innovations to market as soon as possible. This issue has been discussed further in the paragraphs of relative advantage and observability.

Choice

The current state of the digital music market is that, although there are a lot of digital music services and their numbers keep growing, the lion share of the digital music revenue is captured by a few big players. A round past the digital music services teaches us that there are a few big international digital music services. The crumbs are left for parties that operate on a national or regional at best (especially Asia and South America) basis. Some services are big in certain regions, for instance Spotify in Europe and Pandora and Slacker in the USA, but are not international yet.

The expectation is that the digital music market will be narrowed down further to a few big players, as can be seen from the following statement:

"John Boyle stated that he thought 2011 would be the year when companies in many of the music verticals that have emerged over the past several years would begin to gain traction in the market. John didn't volunteer any names regarding who might be the key companies to watch in each vertical." [B4]

Especially a company like Apple extends its growth by relying on earlier achievements in the digital music industry:

"iTunes' closed system is the reason why it became the world's most popular digital music service. Other music service start-ups have paled in comparison because Apple produces its downloads in such a way that songs can only be played on its own products." [B17]

The newly entered technology moguls are trying to obtain a part of the market share, in order to belong to the elite group of services that retain substantial revenue. For the smaller companies, the strategy for survival is *niche marketing*. This means that small services should find a gap in the market, where specific needs or specific consumers are being served; or providing such an outstanding feature that people are willing to opt for that service, instead of the comfort of an industry big shot. Current examples of niche marketing are focussing on specific music genres, for instance Beatport (dance music) or Classical

Archives (classical music); or providing extraordinary actions like Fairsharemusic, which donates a part of its earnings to charity.

Distributive mechanisms

When regarding the different music services, one thing is clearly discernible: most of them lack an open communication channel between the service providers and users. Most of them only have a web form or email address for technical support. Only a few of them explicitly ask for feedback through a form; or have a communication channel like a forum or a chat. As was already mentioned in the shaping means paragraph, hardly any consumers deliver feedback in the form of need content or solution content directly to suppliers of digital music. This is an area where there is something to win for the providers of digital music.

Outside the digital music suppliers, the organisation Pro Music tries to educate digital music users from a top-down perspective, by informing them on the problems and possibilities of legal digital music.

“The updated and redesigned www.pro-music.org site was launched in April with the strap line: “All you need to know about music online”. The site is an authoritative information source that promotes positive, educational messages about music online. Its unique selling point remains its links to a comprehensive directory of legal music sites worldwide.” [F4]

Any other form of distributive mechanisms are user-to-user initiatives, where music users develop websites and blogs that inform about digital music services and compare them to each other. An example is the website Digital Trends [F3], which compares the seven most important music services in the United States. In this way, feedback on digital music services is also provided. However, the technological side of the digital music spectre has got nothing to do with it.

Summary of results

The following table gives an overview of the pre-entered concepts in this research. The first column shows the technological and social characteristics and moments of new media development as derived from literature. In the second column, specific dimensions of those characteristics can be found. Column three reveals whether those dimensions had a positive or negative influence on the diffusion of innovations. Finally, the last column shows whether or not they were found present in the research.

Concept	Dimension	Influence	Present
Relative advantage	Price	+	Y
	Usefulness	+	Y
	Playfulness	+	N
	Supply	+	Y
	Control	+	Y
	Acoustic value	-	Y
	Dematerialisation	-	Y
Compatibility	Piggybacking	+	Y
	Co-bundled innovations	+	Y
	Problem of interoperability	-	Y
Complexity	Ease of use	+	Y

	Problem of usability	-	Y
Trialability	Sampling	+	Y
Observability	-	0	0
Shaping means	Need content	+	Y
	Solution content	+	N
Motivations	Music discovery	+	Y
	Joy	+	Y
	Personal needs	+	Y
	Peer recognition	+	Y
Opinion leadership	Authorities	+	Y
	Social pals	+	Y
Actors	-	0	0
Dynamics	Competitive dynamics	-	Y
Choice	-	0	0
Distributive mechanisms	-	0	0

Table 1: the pre-determined concepts and their presence in the results

Next to the pre-entered concepts, some extra dimensions of the characteristics were discovered in the data analysis. The increased social value of music was found to be a relative advantage of digital music. Furthermore, ease of use, practicality and price were unravelled as motivations for digital music use. These four dimensions all have a positive influence on the diffusion of digital music. A negative aspect of digital music, derived from the data analysis, was the problem of music expropriation, which diminishes the observability of digital music.

5.2 Modes of interaction

Next to the typical characteristics, derived from theoretical concepts, the data analysis has shown some interesting linkages between characteristics in the digital music industry. When these links involve behaviour of an actor that influences other characteristics of digital music, they can be labelled as modes of interaction. The coming paragraph will shed light on the modes of interaction that were distilled from the data analysis. They constitute typical situations, in which one or more characteristics exert influence on other characteristics. Twelve of such modes of interaction were found. All these modes of interaction have already been named in paragraph 5.1, where they were presented in italic. In the subsequent text, all twelve modes of interaction will be named and explained. Below the title of each mode of interaction, the characteristics involved are presented with an arrow indicating which characteristics exert the influence and which characteristics are influenced. In the end, all modes of interaction will be inserted into the graphical situation of the digital music industry, as is presented in paragraph 3.4

Time of entry

Concepts involved: *relative advantage* → *dynamics*

An interesting discord within the digital music industry is that of time of entry. This constitutes the strife between companies trying to get their product on the market as quick as possible and those that try to get their products on the market as fully equipped as possible. Especially in the new cloud player market, where competition is very emergent and

volatile, this discord is noticeable. This is caused by different views upon what is more beneficial for the company, quick entry to the market or fully functional services. The economic first-mover principle would agree with those companies providing their services on the shortest possible term. However, keeping the problem of vapourware in mind (which will be discussed later on in this chapter), it might turn out to be advantageous to provide a new service with the best features possible. Either way, it leads to different timing of the implementation of innovations. Hence, the time of entry discord influences the dynamics of the digital music industry. Time will learn whether it also has influence on the distribution of market share. Until that knowledge is present, the time of entry discord is a linkage in the digital music industry that can be interesting topic to perform further research in.

Vapourware

Concepts involved: *observability & shaping means* → *dynamics*

A mode of interaction related to the previous one is the problem of vapourware. This constitutes the situation, in which people tend to ignore new innovations, as they expect that a better version will be available soon. The term was taken from the software industry, where such problems happen more often. It is a clear example where the characteristics from both the technological as the social side are intertwined; in this case observability and shaping means. The problem of vapourware is created by, on one hand, a lack of clearly visible merits of introduced innovations and, on the other hand, by reluctance of customers to pick up the newest versions as soon as it is available. The problem of vapourware influences the dynamics of the digital music industry, because it diminishes the profitability of new innovations and also the timing of market implementation.

Piggybacking

Concepts involved: *compatibility & actors* → *relative advantage & dynamics*

The term was already coined in the theoretical framework of this research and constitutes the phenomenon in new media development that new innovations rely heavily upon the technological and social characteristics of its predecessor. Within the digital music industry, actors from the traditional music industry participate in the cycle of digital music innovation, mainly thanks to their compatibility with the traditional product. Moreover, the results show that especially the big companies in the industry rely on their assets to achieve a bigger part of the market share. A good example is the cloud player of Apple, whose potential success is partly dependent on customers' familiarity with the iTunes system. In any case, piggybacking on earlier assets already proved a relative advantage for Apple's music services, providing them with a large market share. As these assets seem to become even more important with the entrance to the digital music market of other big technology companies, it will certainly influence the dynamics of the industry.

Stick-to-a-side principle

Concepts involved: *compatibility & shaping means* → *relative advantage & dynamics*

The stick-to-a-side principle constitutes consumers' tendency to stick to a service they are already used to. On one hand, this is caused by the compatibility of certain services with earlier forms of music distribution, as is described in the phenomenon of piggybacking. On

the other hand, consumers' general intention to go along with familiar concepts and products is a key factor in this principle. This is an example of social shaping behaviour. In fact, the stick-to-a-side principle is the social counterpart of the technological principle of piggybacking. Both modes of interaction are based on compatibility with earlier innovations, and influence the dynamics of the market.

The stick-to-a-side principle influences the number of users a service attracts; once actors from the supply side have gained the trust of their users, they will not quickly stop using that company's service. This is again a relative advantage for the company involved.

Transferability

Concepts involved: *compatibility* → *choice*

The problem of transferability constitutes that music purchased through one service, cannot be used in players or software from competitors. The most ideal situation for customers is that there is one service through which they can browse, purchase, play and store music. One could expect that a service, which fulfils those consumers' demands, would attract a lot of customers. In this case, overcoming of the problem of transferability would change the proportions of the market share and, hence, influence the dynamics of the music industry. However, at the moment, such a service does not yet exist. Therefore, claiming that the compatibility problem of transferability interacts with dynamics is not justified. What can be noticed is the change in the number of services caused by companies' intention to overcome this problem. This can be caused by either mergers or joint ventures between companies, or the emergence or death of companies. Hence, the problem of transferability constitutes a mode of interaction between compatibility and choice.

Accessibility

Concepts involved: *complexity* → *choice*

The problem of accessibility comprises that consumers are limited in their ability to use digital music services. This problem has two sides to it. On one hand, people can only opt for digital music services that are accessible in their home country or region. For those services that are international, this will not become a problem. However, for regional and national services, lack of access limits the choice of users. On the other hand, consumers can have access to certain services, but are restricted in the use of them, due to those services' complexity. Again this can be linked to the credo that people want one service, through which they can find, buy, listen to and hoard music. Like the problem of transferability, the choice is also influenced by companies trying to overcome the problem of accessibility. In both sides of the accessibility problem, complexity is influencing the overall choice of the digital music industry.

Willingness-to-pay

Concepts involved: *shaping means* → *relative advantage*

People can only spend so much money on certain things. The extent to which consumers are willing to pay for digital music differs extensively. This phenomenon is called willingness-to-pay. Moreover, every digital music service has got different features, which make them outstanding in comparison with other services. The trick is here, that not every consumer wants the same features. For some, sound quality is the most important; whereas others

want a broad musical catalogue; and so on. So whether or not some features prove to be a relative advantage to users, depends on their willingness to pay for those features. Moreover, in digital music services consumers have more power in determining the eventual price of the product, as has been explained in the shaping means part of 5.1. Through this way, consumer popularity influences the financial relative advantage of digital music services. Eventually, digital music services will adapt to what the most consumers want, or specify in providing those features that a specific group of users demand.

Social media

Concepts involved: *shaping means, motivations & opinion leadership* → *dynamics*

If there is one mode of interaction that demonstrates the social shaping effects within the digital music industry, it is the increasing influence of social media. Social media incorporate all social characteristics of digital music. First of all, social media are often used as a mean of opinion leadership amongst social pals. Furthermore, they provide a social value for people, as peer recognition through social media can be a motivation for people to get involved with digital music. Finally, social media provide consumers a platform to influence the frequency of and the approach towards digital music use. Also, as people seldom deliver feedback directly to suppliers, but do so on internet communities, social media can provide a good need content for suppliers. Hence, all three social characteristics exert influence in this mode of interaction. In turn, the market shares and overall direction of development is influenced by these characteristics. With the future opportunity to incorporate digital music services into social media, or vice versa, the influence of social media on the dynamics of the music industry will only increase.

Playlists

Concepts involved: *opinion leadership* → *trialability*

Playlists are lists with songs or albums, provided digitally by people to introduce new music to others. They can be provided by either authorities or social pals and are often used in above mentioned social media. In fact, playlists are the most explicit form of opinion leadership, because not only do playlists recommend certain music, they also give people the opportunity to listen to that music right away. This is a form of sampling and therefore playlists represent a big part of the trialability of digital music services. Hence, playlists can provide a major advantage for the industry side of digital music. As can be seen from the case of Aspiro (see the trialability part of 5.1), widening the playlist options of a service enhances its popularity among users. In any case, playlists constitute a mode of interaction between opinion leadership and trialability.

New technological entrants

Concepts involved: *actors & compatibility* → *dynamics & choice*

Some big internet and technology companies recently entered, or are about to enter, the digital music market. Their ability to succeed in the music industry is largely dependent on the fact that they are compatible with the consumers' standards. This is either because of their brand strength; or because their current products can co-evolve with digital music (e.g. social media or mobile phone providers); or a combination of both. Their entrance can

chance the direction or the pace in which digital music will develop. They also widen (or in time, possibly narrow down) the options in digital music services.

Mogul advantage

Concepts involved: *actors & relative advantage* → *dynamics & choice*

Mogul advantage comprises the relative advantage that large companies have over smaller companies. This is because of their bargaining power and brand strength. Mogul advantage is both noticeable within companies that are already present in the music industry, as within companies that are new in the music industry, like the above mentioned new technological entrants. Over time, the relative advantage of big companies will diminish the power of smaller companies, influencing the dynamics of the industry and eventually narrowing down the choice.

Niche marketing

Concepts involved: *shaping means & motivations* → *relative advantage & choice*

Niche marketing involves finding a part of the music industry that is not yet being served. Niche marketing can be a way for smaller services to obtain their piece of the market share. The gaps in the market are created by people’s demands and motivations. What people want in a digital music services and their motivations to use them differ. In general, most of them want to discover and access new music. However, there are also those consumers who look for something specific in their service, for instance a specific musical genre. For those consumers, a service that fulfils those demands has a relative advantage in comparison with other services. Because of companies playing on to those different demands and motivations, niche marketing eventually affects the overall choice in the music industry.

Summary of results

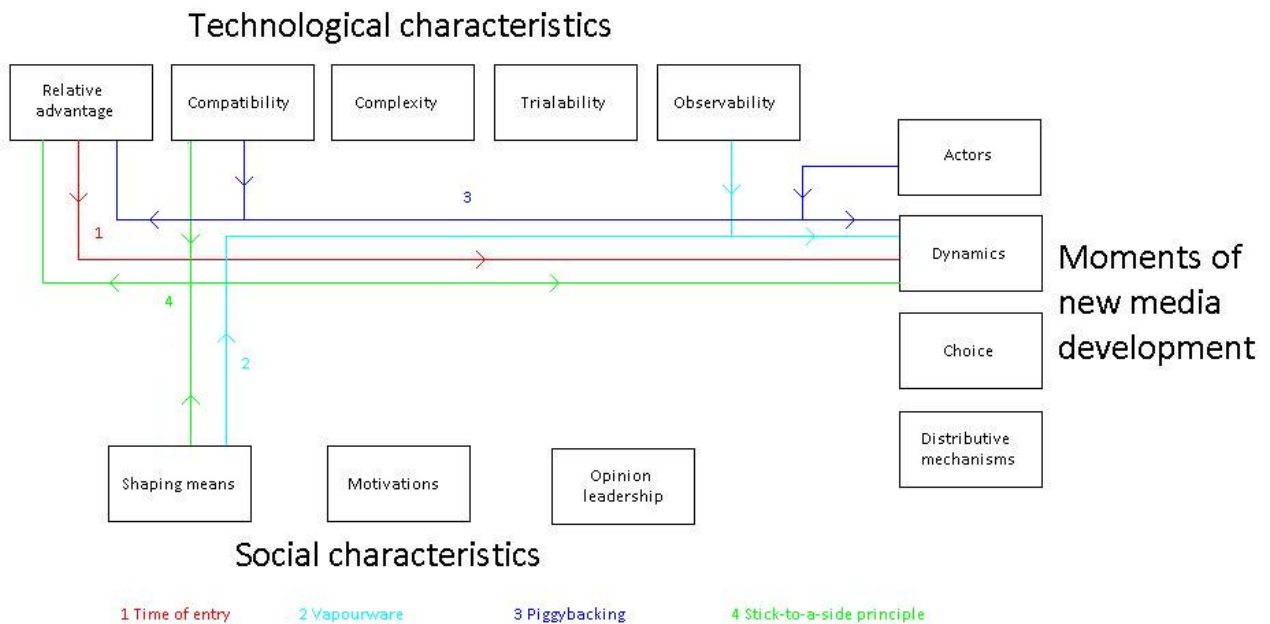
The modes of interaction, found in this research, are presented in table 2. Column two of the table shows the characteristics that exert the influence in this particular mode of interaction; whereas the third column represents the characteristics that are influenced by the mode of interaction.

Mode of interaction	Influencing variables	Influenced variables
Time of entry	Relative advantage	Dynamics
Vapourware	Observability	Dynamics
	Shaping means	
Piggybacking	Compatibility	Relative advantage
	Actors	Dynamics
Stick-to-a-side principle	Compatibility	Relative advantage
	Shaping means	Dynamics
Transferability	Compatibility	Choice
Accessibility	Complexity	Choice
Willingness-to-pay	Shaping means	Relative advantage
Social media	Shaping means	Dynamics
	Motivations	
	Opinion leadership	
Playlists	Opinion leadership	Trialability

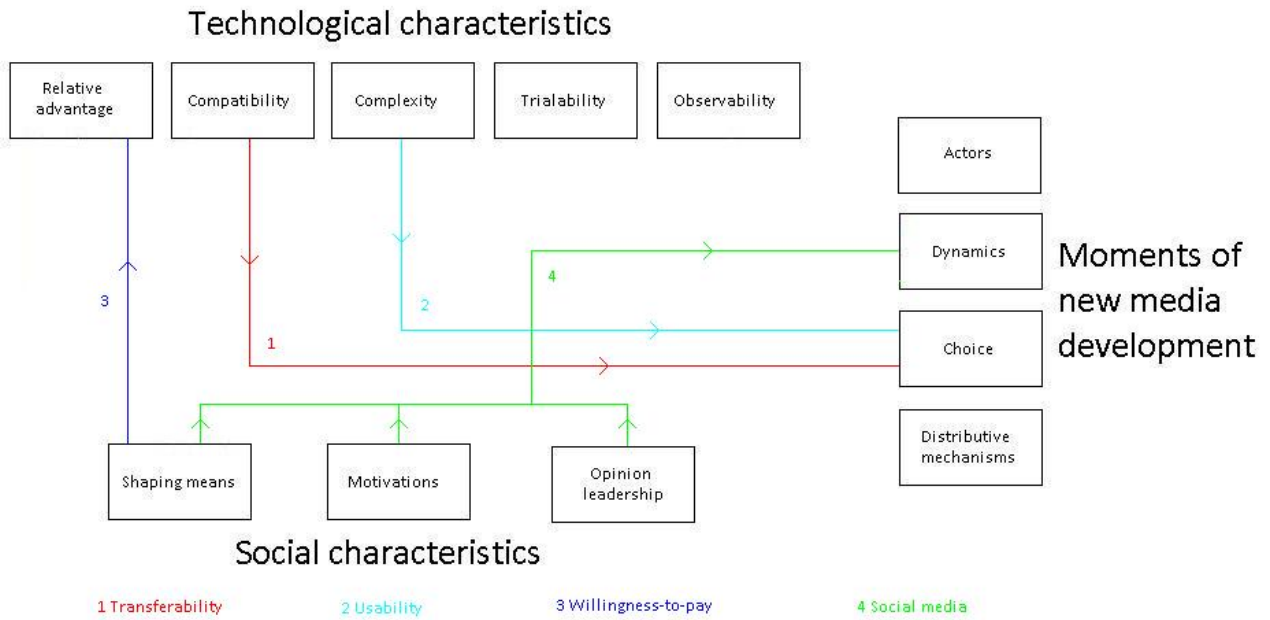
New technological entrants	Actors	Dynamics
	Compatibility	Choice
Mogul advantage	Actors	Dynamics
	Relative advantage	Choice
Niche marketing	Shaping means	Relative advantage
	Motivations	Choice

Table 2: the modes of interaction found in this research

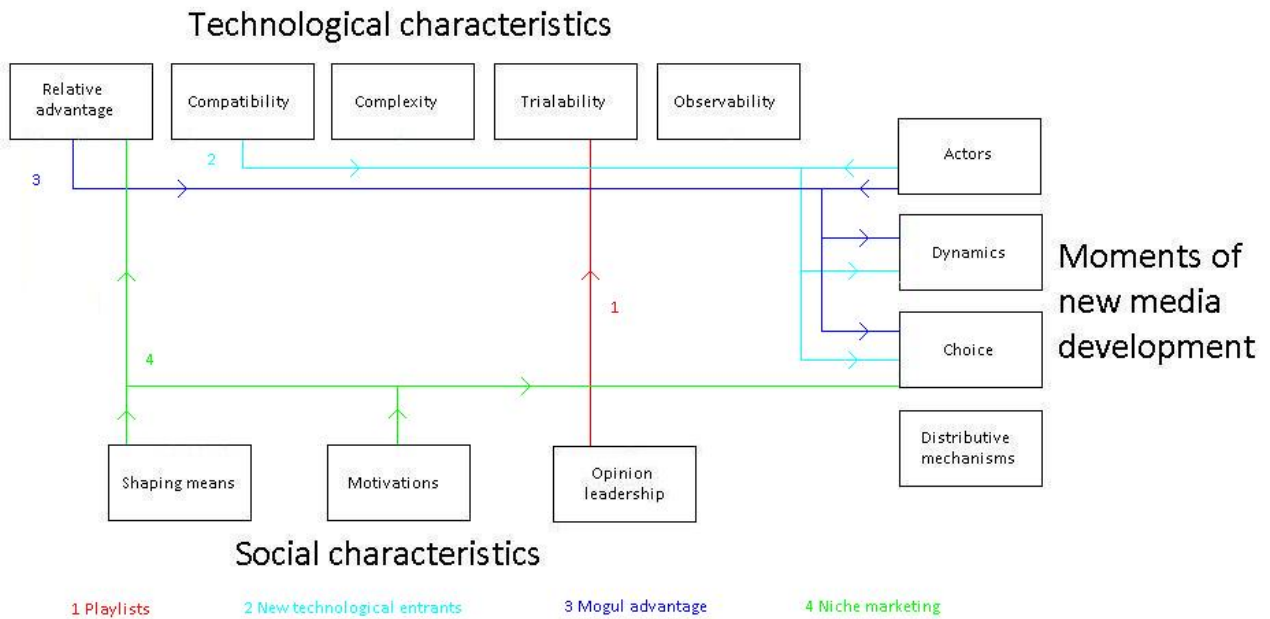
The modes of interaction found in the data analysis are presented in the following three graphs. The graph is divided into three parts in order to improve the readability and the overall clarity. The modes of interaction are split in the order in which they are presented in this paragraph, and evenly distributed with four modes of interaction per graph. For every graph, each of the four modes of interaction is coloured and numbered differently. At the bottom of each graph stands which line is which mode of interaction. The arrows on the lines represent the direction of influence of the mode of interaction. When an arrow is pointing away from a characteristic, this characteristic exerts the influence; whereas an arrow pointing towards a characteristic indicates that it is influenced by the respective mode of interaction. Please note that for the modes of interaction *piggybacking*; *stick-to-a-side principle*; *new technological entrants*; and *mogul advantage* it seems that influence is exerted in two directions. However, this is not the case. For these modes of interactions, the graphs should be read as follows: the arrows pointing towards the point where the lines intersect indicate characteristics that exert influence; whereas those pointing away from the intersection point show the influenced characteristics.



Graph 2: Graphical overview of the modes of interaction in the digital music industry, part 1



Graph 3: Graphical overview of the modes of interaction in the digital music industry, part 2



Graph 4: Graphical overview of the modes of interaction in the digital music industry, part 3

5.3 Theoretical extension

In this paragraph, those modes of interaction that are found to provide distinctively new features to the theory are presented. These features extend current literature on the diffusion of innovations in general; and particularly on the diffusion of innovations in the digital music industry. Of those modes of interaction, which have been found in this research, the problem of vapourware and the time of entry discord are entirely new to the

literature on the music industry and to great extent also new to the literature on diffusions of innovations. All other modes of interaction are either only new to the theory on the digital music industry or not new at all. These modes of interactions will be handled in the concluding chapter.

The problem of vapourware is a daunting feature of the digital music industry that was found in this research. The term of vapourware is derived from a similar situation in the software industry. There, it constitutes software suppliers who persist in announcing the market introduction of a new product, while in reality this product will either be introduced a long time after the announced deadline or will never be brought to the market at all. In this way, companies manoeuvre customers away from buying products from their competitors, until they have a product ready that is capable of competing technologically with the products from competitors (Bayus et al, 2001). Hence, the problem of vapourware is not really industry-specific, although the actual content of the problem is a little different in the digital music industry. Here, the problem of vapourware is referred to as suppliers providing new innovations, which are perceived to have too little relative advantage over their predecessors. This results in consumers' reluctance to pick up these new products. To date, the problem of vapourware has not been described in the scientific literature on the digital music industry and sparsely in any industry at all.

Another interesting mode of interaction, which is coupled to the problem of vapourware, is the time of entry discord. In this research, the time of entry discord is defined as the ambiguity between bringing a product to the market as soon as possible and bringing it to the market as fully equipped as possible. Within the literature on the digital music industry, this discord has not yet been brought to the attention. More generally, some economic theory exists on the first-mover principle and the advantages of quick entry to the market; for instance the seminal work of Lieberman and Montgomery (1988) on first-mover advantages. However, the first-mover advantage, digital music companies intend to achieve by putting their product on the market as quick as possible, does resemble the underlying motivation for providing vapourware, as it is provided in the software industry (Bayus et al, 2001). This motivation is keeping customers away from purchasing a competitors' product. This is clearly the case in the new cloud player market, where Amazon and Google have entered their cloud player on the market rapidly, in order to achieve a first-mover advantage and take away a piece of the market share from market leader Apple. However, the problem of vapourware, as stated in this research, constitutes that consumers lack the willingness to adopt new innovations, when they are brought to the market in a too rapid pace. Hence, the intended first-mover principle is annulled by the reluctance of users to pick up the new product.

The problem of vapourware and the adherent time of entry discord are two cases where the technological and social characteristics of the digital music industry closely interact. In turn, these matters exert an influence on the dynamics of the digital music industry and the profitability of the firms competing in it. At the moment, the potential outcome for these issues has yet to be unravelled and, hence, no real solution to the problem can be presented. In any case, the problem of vapourware and the time of entry discord provide serious issues for the digital music industry. Moreover, these issues can be present in any volatile industry, where new innovations rapidly supersede each other. This research has extended the theory on the diffusion of innovations in these industries by pointing these problems out.

6. Conclusion

This conclusive chapter consists of three parts. First of all, the results of this research will be discussed, in light of current literature on the topic. This is followed by an overview of the theoretical and practical implications of this research. Finally, an overall summary of the goals and results of this research will be given.

6.1 Discussion

In this paragraph, the results of the data analysis will be discussed. First of all, the results for the social and technological characteristics will be discussed, accordingly to sub-questions 1 and 2. Thereafter, light will be shed on the results for the discovered modes of interaction, as was stated in sub-question 3.

Results for characteristics

This research has used concepts for technological characteristics, social characteristics and moments of new media development. For each concept, relevant features were distilled from scientific theory. The first goal of this research was to find out which of these characteristics are present in the digital music industry.

First of all, for relative advantage, compatibility and trialability, most of the features mentioned in the theory were found to be actually present in the digital music industry. Off the relative advantages and disadvantages of digital music, only playfulness was not found in the data. Price, supply, control and usefulness (advantage); and acoustic value and dematerialisation (disadvantage) are to some extent present in the digital music industry. Playfulness has not been found as a relative advantage of digital music. However, this research has found joy as a distinct motivation for digital music participation. This would imply that playfulness is indeed a relative advantage of digital music, but that due to the nature of the sources used, it was not found in this research. Next to the pre-entered concepts, this research found one clearly distinctive relative advantage that has not been mentioned in the previous literature; namely that of the increased social value of digital music use, compared to traditional music use.

For compatibility, data analysis showed that digital music services rely heavily upon the phenomenon of piggybacking. The entrance of many ISPs, mobile phone manufacturers and other developers of co-bundled innovations also shows that these co-bundled innovations play a role in the development of the digital music industry. Furthermore, although sampling, as described in the theory, seems to play a declining role in the trialability of digital music, sampling through playlists still maintains an important utility in the digital music industry. All these findings are more or less coherent to current literature, thereby underpinning this literature.

A different story can be told on behalf of the complexity issue. On beforehand, no clear consensus could be found in scientific literature on the role of complexity in the digital music industry. This research has failed to take away this discrepancy, because indicators were found for both the argument that digital music facilitated the experience of music, as well as for the argument that it complicated music experience. The reason for this lack of consensus might be the variety of sources. As can be seen from the complexity paragraph in 5.1, for

people that are well-informed on new media technology, digital music services prove to be easier in use than traditional music. However, for people that have problems with new media technology (for instance seniors), the use of digital music services can be harsh.

Theoretical contribution to the literature on technological characteristics of the digital music industry was found in the concept of observability. At the start of the research, no clear features for observability in digital music could be distinguished. However, this research elucidated two problems with the observability of digital music. The most appalling is that of vapourware, on which light has been shed in the theoretical extension chapter. Furthermore, the newly introduced cloud player brings forth the problem for users that they lose control over their music files, which can be labelled as the problem of music expropriation.

On the social side of the digital music industry, this research found that social shaping does not really occur through the principles of user innovation. Little evidence was found for people providing the need content to suppliers and none was found for people providing the solution content. The use of the theory of user innovation for social shaping means was not ignited by evidence from literature on the digital music industry. The use of concepts of user innovation was derived from theory on other types of new media, like open source software, and the fact that digital music services are originally a user-driven innovation. Apparently, there is little proof for social shaping behaviour through the original concepts of user innovation in the digital music industry. However, this research confirmed that consumers' power has increased through the emergence of digital music. Most noticeable, people's willingness-to-pay imposes social shaping upon the technological characteristics of digital music. This is because not only the amount of money people are willing to pay for digital music varies widely, but also the features they are willing to pay for. Moreover, there is a discrepancy between the music people buy and the music people play. Thanks to the volatile pricing structure in digital music services, the influence of people's willingness-to-pay upon the price of digital music is imminent. This is a clear case of social shaping behaviour.

For the motivations of people to partake in digital music services, three of the four pre-determined motivations were found to be present in the digital music industry. These were: music discovery, joy and peer recognition. No evidence was found for the presence of personal needs as motivation for digital music participation. Like the user innovation concepts for shaping means, the motivation of personal needs was borrowed from literature on other types of new media. Hence, this could mean two things. Either, personal needs is a motivation that plays no role in the digital music industry, or this motivation was not found, due to the fact that little information on motivations could be derived from the document analysis and among the interviewed persons there was coincidentally no-one who perceived personal needs an important reason to partake in digital music. In the latter case, performing more interviews could clarify this ambiguity.

Next to the three pre-determined motivations, price, practicality and ease of use were discovered as motivations for digital music use. Especially ease of use is a particular finding, as the results for the technological characteristic of complexity still present an ambiguity on this topic. The fact that ease of use was named as motivation indicates that the overall balance for usability could fall out in favour of digital music.

Moreover, this research showed that many motivations can be linked to relative advantages of digital music. Of course, price is an obvious one; but practicality can be linked to usefulness; peer recognition to social value; music discovery to supply; and joy to playfulness. As mentioned earlier, the latter link can indicate that playfulness is indeed a

relative advantage of digital music, although this was not found in this research. Furthermore, data showed that both opinion leadership from authorities as from social pals are important in the digital music industry. Moreover, many sources point towards the increasing value of opinion leadership, through playlists and especially social media.

When regarding the moments of new media development in the digital music industry, some consensuses and some ambiguities were found in data analysis. First of all, there seems to be an overall consensus that the dynamics of the digital music industry are moving away from the download services and towards the cloud players and streaming services. Furthermore, the digital music market seems attractive for big technological companies entering the market, as can be seen from the recent entering of such internet and technology moguls as Google and Sony onto the digital music market.

The power distribution seems to develop further in the direction described in the literature. Digital music retailers gain power. Artists have gained power through the increased opportunities for direct music distribution to fans and consumers have also seen the influence they exert upon the industry increased. Record labels see their power declining, which is making them opt for maximising licensing deals with digital music providers and steering away from creating digital music services themselves.

The division of the market share and the overall choice in the industry are points on which the data analysis still is ambiguous. On one hand, the number of digital music services is ever-growing; on the other hand, experts expect the number of digital music services to decline, as a few big players will take the lion's share of the market. Smaller companies are left with crumbs of the market or have to focus on niche marketing. There is also no consensus within the digital music upon the profitability of digital music. At the moment, digital music does not make enough money to cover the losses in traditional music sale. Hence, there is a need for higher profits. The new cloud player market could relieve some of the problems. Moreover, this problem resembles the problem of competitive dynamics, borrowed from literature on open source software. In the digital music industry, this means that companies have to keep their prices relatively low, in order to keep customers away from free illegal file-sharing. At the same time, lowering the prices means diminishing their own profitability.

Finally, little evidence has been found for the importance of distributive mechanisms in the digital music industry. Many digital music services do use some form of distributive mechanisms, like a web form or a forum. However, in practice, it does not induce any modes of interaction. This can mean two things: either, the importance of distributive mechanisms is overestimated in scientific literature; or it is underestimated by the digital music industry.

Results for modes of interaction

Next to unravelling the presence of certain technological and social characteristics, another goal of this research was to discover the modes of interaction between both sides that are present in the digital music industry. In total, this research found twelve key modes of interaction within digital music. Some of them are already to some extent present in the literature and some of them are entirely new. Furthermore, the degree to which these modes of interaction are industry-specific differs.

The most noteworthy modes of interaction, discovered in this research, are the problem of vapourware and the time of entry discord. As these two modes of interaction present

novelties to current theory; they provide theory extension and are thus discussed separately in the paragraph on theoretical extension.

This research has further enhanced the notion of piggybacking, which was mentioned as a feature of new media development in the literature. It has done so in two ways. First of all, by providing evidence for the phenomenon in the digital music industry, thereby confirming the importance of it in new media development. Furthermore, it has shown that the phenomenon is a two-faced mode of interaction in the digital music industry. On one side, technological characteristics interact with the future prosperity of an innovation, by integrating the features of the predecessor into the new product (piggybacking). On the other side, people's tendency to go along with products that they are familiar with interacts with the product's future prosperity (stick-to-a-side-principle). These results add to the literature on compatibility in new media development.

The research also put forth two interactional problems of digital music; namely the problem of transferability and the problem of accessibility. To some extent these modes of interaction correspond with the problems of interoperability and usability, derived from the theory on compatibility and complexity in the digital music industry. This research has thus confirmed that those two problems are present within digital music.

The results from this research also add to the theory of social shaping, because it exhibits some social shaping means that can be used in prospective methods and not solely in retrospective ones. The two most noticeable modes of interaction herein are willingness-to-pay and social media. Willingness-to-pay is an often coined economic term that comprises the amount of money a consumer is willing to pay for a certain good or service. It is a consumer characteristic that scholars advise entrepreneurs to take into account when trying to sell their product. However, no scientific literature has yet displayed such a close relationship between consumers' willingness-to-pay and its social shaping potential, as has been found in the digital music industry. What can be learned from this result is that future diffusion models, regarding different characteristics of an innovation, should also incorporate fluctuations in the amount consumers are willing to pay for these distinct characteristics.

Opinion leadership is a concept on which a lot of literature is present, and especially opinion leadership through social media has also caught some scientific attention, since the emergence of social media last decade. This research has pinpointed the importance of opinion leadership through social media in the digital music industry. This is a mode of interaction where social characteristics can exert an influence on the development of the industry and even on the technological characteristics of it. This is something that should be taken into account in future research. Moreover, the concept of playlists is adherent to that of social media. It can be regarded as the follow-up to the sampling effect, derived from the literature on digital music, and resembles a feature where the social characteristic of opinion leadership corresponds with the technological characteristic of trialability.

Finally, the research found some modes of interaction that have to do with the behaviour of companies in the digital music industry. These are new technological entrants, mogul advantage and niche marketing. These are not really new features, as all three modes of interaction can be seen in literature on other industries. For new technological entrants, there is theory on companies entering other markets than those that they are currently in, due to their compatibility with the products on those markets. For mogul advantage, an extensive body of literature exists on the advantages of big companies in markets. Finally, niche marketing is not a new concept in scientific literature as well. What this research has

contributed to the theory is proving that all these modes of interaction are present in the digital music industry as well.

6.2 Theoretical and practical implications

In this paragraph, the theoretical and practical implications of this research will be presented. Theoretical implications comprise guidelines for future research. Practical implications comprise tips and guidelines for managers of companies, especially in the digital music industry, to improve the diffusion of their innovations.

Theoretical implications

This research has confirmed a lot of scientific concepts for the digital music industry. Moreover, it has pinpointed some distinctively new characteristics of and modes of interaction in the digital music industry. However, there are also some concepts for which ambiguity on the contribution or direction in the digital music industry still exists. This research did not underline the presence of the relative advantage playfulness; social shaping through providing solution content and the motivation personal needs. Also, unclarity still exists on whether digital music is in fact easier or harder to use than traditional music. Here, further research is needed to take these ambiguities away.

Furthermore, the unravelled modes of interaction can provide guidelines for further research. Especially for those modes of interaction that have not yet obtained a lot of attention in scientific research, like the problem of vapourware and the time of entry discord, further research is needed to investigate the properties of and possible solutions to these problems. For other stated problems, like the problems of transferability and accessibility, further research is needed on how to relieve their negative influence.

Finally, this research has provided qualitative evidence for the presence of certain characteristics and modes of interaction that influence the diffusion of innovations in the digital music industry. A starting point for future research could be quantifying all concepts and determining statistically whether these influences are significant, and whether correlation between concepts is present.

Practical implications

Next to theoretical implications, this research has practical implications as well. Actors in the digital music industry can use this research to make strategic choices. In this paragraph these practical contribution will be highlighted.

First of all, this research has presented an overview of which technological and social characteristics are present in the digital music industry. For executives of digital music services, these characteristics are important when determining the strategic route of their product. This research can serve as a guideline for them.

Furthermore, this research has singled out some modes of interaction that can influence the profitability and the direction of development of digital music services. The problems of vapourware, transferability and accessibility are all problems that need to be overcome by digital music suppliers, in order to obtain the highest relative advantage for their products.

Regarding the time of entry discord, a company in the digital music industry must decide for itself whether they opt for quick market entry or market delivery of fully equipped services.

Suppliers also have to take the social side of the industry into account. Investing in social media and playlists seems a sound action for digital music firms. Furthermore, they should consider the consumers' willingness-to-pay and how they are going to attract the consumers' budget to their services. Especially for emergent services, this can be done by niche marketing. In any case, this research can offer digital music companies information on how to choose distinctive features that enhance their profitability. The other modes of interaction discovered in this research are not of influence for strategic management of companies, as they are influenced by either consumers or by the overarching movement in the industry.

6.3 Summary

This research aimed to unravel the various modes of interaction that take place between social and technological characteristics of the digital music industry. In order to do so, the social and technological characteristics present in digital music were determined first and afterwards, the modes of interaction were searched. The results of the data analysis were used for theoretical extension and theoretical and practical implications.

In order to come to those results, data was gathered through document analysis and questionnaires. The document analysis consisted of information gathered from news articles, weblogs, informative articles, annual reports and interviews on digital music. To fill eventual gaps in the results, a questionnaire was designed and sent to several active digital music users. The gathered information was analysed using directed qualitative content analysis. For this directed qualitative content analysis, a couple of pre-determined concepts were used for technological characteristics, social characteristics and moments of new media development. These concepts were derived from theory on Diffusion of Innovations, SST, User Innovation, the determination/contingency framework and literature on virtual communities and the digital music industry.

The research resulted in confirmation for most of the pre-determined concepts. Of the twenty-two entered features of digital music, only playfulness, solution content and personal needs were not found to be present in the digital music industry. Next to those concepts and features that had been derived from theory, this research unravelled some more features of the digital music industry. Some of those features are incorporated in the modes of interaction, which will be presented later on. New dimensions of characteristics, found in the data analysis, are social value for relative advantage; music expropriation for observability; and ease of use, practicality and price for motivations.

Some of the found characteristics can be linked to each other. As soon as these linkages include intentional or unintentional behavioural forms, these can be labelled as modes of interaction. A total of twelve of such modes of interaction were found in this research. These modes of interaction are: vapourware; time of entry; piggybacking; stick-to-a-side-principle; transferability; usability; willingness-to-pay; social media; playlists; new technological entrants; mogul advantage; and niche marketing.

The results of the data analysis have a theoretical, as well as a practical contribution. First of all, theoretical contribution consists of confirmation of the presence in the digital music

industry of pre-determined concepts, as can be seen from table 1. Also, some new dimensions were added to the theory on technological and social characteristics in the digital music industry. Furthermore, the unravelled modes of interaction yield a contribution to the current literature. Some of the modes of interaction, like piggybacking and the problems of transferability and usability, were already to some extent covered in the current literature. Some modes of interaction, like willingness-to-pay and niche marketing, can be found in general innovation theory, but were not yet traceable in literature on digital music. Finally, modes of interactions like vapourware and time of entry imposed relatively new issues for both the digital music industry, as well as innovations studies as a whole. Especially for emergent and volatile industries, these problems constitute an interesting topic for further research.

For the supply side of the digital music industry, this research has some practical implications. For instance, on one hand, they should overcome the problems of vapourware, transferability and usability. On the other hand, they should regard the shaping potential of social media and consumers' willingness-to-pay.

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Appendix A – Glossary of terms

Term	Definition
Accessibility	The problem that very few digital music services are available worldwide
Acoustic value	Sound quality of a digital music file, related to its bit-rate
Actors	Anyone that makes choices, which influence the development of a technology
Authorities	Public figures who are in a position that they have superior knowledge, or pretend to have superior knowledge, of a topic
Choice	The total amount of options for digital music users at a given moment of time
Cloud player	A device through which people can store and play their music files online
Co-bundled innovations	Innovations that co-develop with the central innovation, or that are needed for the central innovation to diffuse properly
Compatibility	The degree to which an innovation is perceived to be compatible to the norms and values and the technological needs of its intended users
Competitive dynamics	Discord for consumers to choose between paid legal services and illegal file-sharing sites
Complexity	The difficulty intended users of a technology experience in dealing with it
Contingency	Set of possible conditions in an uncertain situation
Dematerialisation	The lack of a physical shell for music
Determination	The coherent effort that leads to the achievement of goals
Determination/contingency framework	Framework incorporating the influence of determination and contingency upon moments of new media development
Digital music services	Online facilities through which people can purchase and/or play music
Distributive mechanisms	Means of information exchange between distributors and consumers of digital music
Download(ing) service	A service in which music files can be downloaded from the internet onto someone's computer
DRM technology	A sort of watermark for digital music that restricts it from being used limitlessly on all devices (Digital Rights Management)
Dynamics	The direction in which the interactive and shaping process between technological and social characteristics advances
External factors	Rewards rooted in the individual's environment
Internal factors	Rewards that are rooted in the individual
Interoperability	Restriction of limitless digital music use over all devices
iTunes	First legal music download service, introduced by Apple

Lock-in effect	The effect that music that is purchased through one service can only be played in devices compatible with that service
Mode of interaction	collective action between two parties
Mogul advantage	The advantage of bigger companies over smaller companies in the digital music market
Motivations	Underlying reasons for behaviour
MP3	Most common format of digital music (Motion Pictures Experts Group-1, Layer-3)
Music discovery	The opportunity to find out about new music, listen to it and eventually add it to a personal musical collection
Music expropriation	The loss of control over music files as soon as they are stored online
Napster	First (illegal) music file-sharing site
Need content	Information on problems with the current technology or on demand for new features, provided by users
New media	Cultural objects of communication, whose distribution and exhibition is digitally driven
Niche marketing	Companies aiming to serve a specific consumer needs or demands that have not yet been served
Observability	The degree to which the results of an innovation are clearly visible to its intended users
Opinion leadership	The influence of social pals and leading figures on a person's choice of technology
Peer recognition	The gratitude of other people in a community, the feeling of belonging to a group and social status
Personal needs	The process of observing that something is missing in a community or service and filling that gap; hoping that someone else will also contribute content, which might be needed in the future
Piggybacking	The phenomenon that at the birth of new media, they tend to build heavily upon the technological and sociological characteristics of their predecessor
Playfulness	The degree to which enjoyment is derived from using digital music
Playlists	Lists with songs or albums, provided digitally by people to introduce new music to others
Practicality	Participating in digital music because of its ease of use
Relative advantage	The degree to which an innovation is perceived as better than the technology it supersedes by its intended users
Sampling	Trying out new music, before purchasing it
Shaping means	Behavioural forms that shape technology
Social pals	People in a someone's neighbourhood to which that person feels related to
Social shaping	Behaviour from societal actors that influences technology
Solution content	The knowledge or technology to solve a perceived problem, provided by users

Spotify	The biggest music streaming service of Europe
SST	Social Shaping of Technology
Stick-to-a-side principle	Customers' loyalty to certain brands that they are already familiar with
Streaming service	A service through which music can be listened to online
Technological determinism	The view that technology is an autonomous driver for societal change
Time of entry	Discord among suppliers over which is better: bringing their product to the market as soon as possible or as fully equipped as possible
Transferability	The inability to play music purchased through one service on devices from other companies
Trialability	The degree to which an innovation can be experimented with by its intended users
Usability	The constraint of undertaking a large amount of steps in order to access digital music
Usefulness	The degree to which digital music fulfils a certain purpose for the consumer
Vapourware	The reluctance of consumers to pick up new innovations, due to the fact they do not see the benefits of it

Appendix B – Document analysis overview

Code	Title	Type of document	Source
A1	IFPI Digital Music Report	year report	IFPI Insight
A2	DiMA Online Music Report	year report	Express Music Industry Report
A3	Eastern Europe Digital Music Forecast	industry report	Music Ally
B1	Amazon sells new Gaga album...	blog	The Ledger
B10	The Cloud That Ate Your Music	blog	The Economist
B11	Musical Absolution	blog	
B12	Why And How Digital Music Products Have Indeed Failed	blog	Forrester
B13	iTunes alternatives: how do Amazon and other digital music services compare?	blog	ZD Net
B14	Digital music services a boon to music aficionados	blog	Technology Headlines
B15	The state of digital music (as I see it)	blog	Jason Paul
B16	Revealed: Facebook's Music Plans Taps Spotify, Others	blog	Gigaom Marketing Week
B17	Do digital music services need another encore?	blog	
B18	Get Ready: Grooveshark Promises a Fight to the Finish...	blog	Digital Music News
B19	(untitled)	blog	Reinolt Duursma Digital Music Collector
B2	The perfect music streaming service	blog	Slate
B20	The Right Price for Digital Music	blog	Ivar Zantinge
B21	Spotify is de redding voor de betaalde muziek	blog	Music Ally
B3	81% of iTunes libraries are never played	blog	Research 2.0
B4	Steady Beats from Digital Music Forum East	blog	
B5	Potential Digital Music Deals Highlight Motivations of Big Players	blog	Clive Rich
B6	For Music Industry, iCloud poised to be revolutionary	blog	Reuters
B7	Hardcore music lovers: isn't this cloud nine?	blog	Vator News New Music Strategies
B8	Opinion leaders rule	blog	
B9	Is Possession Nine-Tenths of the Digital Music Law?	blog	Technorati
E1	Living with Complexity: How Apple Reinvented Music Distribution	book excerpt	Gizmodo Chime Interactive
F1	The dynamics of music distribution	feature	
F10	Advantages and disadvantages of mp3 technology	feature	Helium Electronic Frontier Foundation
F11	The Customer Is Always Wrong: A User's Guide to DRM in Online Music	feature	
F12	'Spotify lijkt geweldig, maar popartiesten staan weer bij het afvoerputje'	feature	Volkskrant

F2	Evolution of Music Distribution	informative	Digital Discovery
F3	Music Services Compared	informative	Digital Trends
F4	The Digital Music Market - Educating Users	feature	Wipo
F5	Major players in cloud based service	feature	Xinhuanet
F6	5 Psychological Principles To Help You Sell More Music	feature	Music Think Tank
F7	Why piracy is good for innovation	feature	Hypebot
F8	Apple iCloud vs. Google Music vs. Amazon Cloud	feature	KPTV
F9	Your Digital Music Guide	feature	GeekSugar
I1	Taking digital Music Universal	interview	ZDNet Asia
N1	BMI partners with digital music service	news article	Nashville Business Journal
N10	Apple iCloud Release Puts Music Streaming Startups In Spotlight	news article	Huffington Post
N11	Apple's Cloud Music Service Could Win, Despite Its Lateness	news article	Huffington Post
N12	Is the future of Digital Music in the Cloud	news article	Fox Business
N13	Digital Music Services Could Earn UK ISPs £100m By 2013	news article	BPI Future of Music Coalition
N14	Rhapsody goes its own way	news article	Billboard
N15	Is HP launching its own cloud service?	news article	NRC Next
N16	Herinneringen delen in een wolk van data	news article	Broadband TV News
N17	Virgin strikes right chord with Spotify	news article	
N18	New Internet Radio Station Aims to Introduce Digital Music to Seniors	news article	about.com
N19	Facebook music is coming	news article	CBS News
N2	Sony starts up digital music service	news article	UPI
N20	Radiohead Says: Pay What You Want	news article	Time
N21	Global digital music sales slowing despite piracy crackdown	news article	The Guardian
N22	Aspiro calls for the use of open standards in digital music; introduces playlist import and export functionality	news article	CisionWire
N23	Walmart Music Downloads	news article	Digital Music Future
N3	Google Is Now Launching, Without Label Licensing...	news article	Digital Music News
N4	Universal Music is geeking out on open source...	news article	Digital Music News
N5	Amazon flows into digital music sales	news article	The Register
N6	Steve Jobs ordered to answer questions...	news article	Afterdawn
N7	Universal Music boss: 'Streaming is the future	news article	wired.co.uk
N8	Google to launch online music service	news article	Helium Fierce
N9	Report: HP plotting cloud-based digital music service	news article	Mobile Content

Code	Link
A1	
A2	
A3	http://musicindustryreport.org/?p=27235
B1	http://musically.com/blog/2011/05/24/amazon-sells-new-lady-gaga-album-for-0-99-but-servers-struggle-to-cope/
B10	http://www.theledger.com/article/20110626/ZNYT05/106263000?Title=The-Cloud-That-Ate-Your-Music
B11	http://www.economist.com/blogs/babbage/2011/06/digital-music
B12	http://blogs.forrester.com/mark_mulligan/11-01-26-why_and_how_digital_music_products_have_indeed_failed
B13	http://www.zdnet.com/blog/bott/itunes-alternatives-how-do-amazon-and-other-digital-music-services-compare/2750
B14	http://technology-headlines.com/2011/08/02/digital-services-a-boon-to-music-aficionados/
B15	http://jasonpaul.net/2011/07/the-state-of-digital-music-as-i-see-it/
B16	http://www.cbsnews.com/8301-501465_162-20073004-501465.html
B17	http://www.marketingweek.co.uk/disciplines/digital/do-digital-music-services-need-another-encore?/3023639.article
B18	http://www.digitalmusicnews.com/stories/041811grooveshark#ZTtxvhfP0q1JL2tRi90NUw
B19	
B2	http://digitalmusiccollector.wordpress.com/2010/07/07/the-perfect-music-streaming-service/
B20	http://www.slate.com/id/2131573/
B21	http://www.ivarzantinge.com/2011/09/01/spotify-is-de-redding-voor-betaalde-muziek/
B3	http://musically.com/blog/2011/05/25/81-of-itunes-libraries-are-never-played-says-music-withme/
B4	http://blog.research2zero.com/2011/03/steady-beats-from-dmfe/
B5	http://cliverich.com/blog/potential-digital-music-deals-highlight-motivations-of-big-players/
B6	http://www.reuters.com/article/2011/06/10/industry-us-icloud-idUSTRE7596TK20110610
B7	http://vator.tv/news/2011-06-07-hardcore-music-lovers-isnt-this-cloud-nine
B8	http://newmusicstrategies.com/2007/03/21/thing-3-opinion-leaders-rule/
B9	http://technorati.com/technology/article/is-possession-nine-tenths-of-the/
E1	http://gizmodo.com/5713447/living-with-complexity-how-apple-reinvented-music-distribution
F1	http://www.chime.com/about/press/iris_online-9501.shtml
F10	http://www.helium.com/items/819811-advantages-and-disadvantages-of-mp3-technology?page=2
F11	http://www.eff.org/pages/customer-always-wrong-users-guide-drm-online-music
F12	http://www.volkskrant.nl/vk/nl/3184/opinie/article/detail/2880163/2011/09/01/Spotify-lijkt-geweldig-maar-popartiesten-staan-weer-bij-het-afvoerputje.dhtml
F2	http://mydigitaldiscovery.wordpress.com/2011/05/10/theoretical-framework-evolution-of-music-distribution/
F3	http://www.digitaltrends.com/how-to/music-services-compared/
F4	http://www.wipo.int/wipo_magazine/en/2008/02/article_0005.html
F5	http://news.xinhuanet.com/english2010/sci/2011-06/07/c_13913888.htm
F6	http://www.musicthinktank.com/blog/5-psychological-principles-to-help-you-sell-more-music.html
F7	http://www.hypebot.com/hypebot/2010/11/why-piracy-is-good-for-innovation.html
F8	http://www.kptv.com/story/14957601/apple-icloud-vs-google-music-vs-amazon-cloud
F9	http://www.geeksugar.com/Online-Music-Websites-18105786
I1	http://www.zdnetasia.com/taking-digital-music-universal-62300561.htm
N1	http://www.bizjournals.com/nashville/news/2011/04/15/bmi-partners-with-digital-music-service.html
N10	http://www.huffingtonpost.com/2011/06/04/apple-icloud-cloud-music_n_871186.html
N11	http://www.huffingtonpost.com/2011/05/20/apple-cloud-music-service_n_864829.html
N12	http://www.foxbusiness.com/technology/2011/05/19/future-digital-music-cloud-mossberg-weighs/
N13	http://www.bpi.co.uk/press-area/news-amp3b-press-release/article/digital-music-services-could-earn-uk-isps-c2a3100m-by-2013.aspx
N14	http://futureofmusic.org/blog/2010/04/08/rhapsody-goes-its-own-way
N15	http://www.billboard.biz/bbbiz/industry/digital-and-mobile/is-hewlett-packard-launching-its-own-cloud-1005227102.story
N16	
N17	http://www.broadbandtvnews.com/2011/07/06/virgin-strikes-right-chord-with-spotify/

- N18 <http://mp3.about.com/b/2011/07/05/new-internet-radio-service-aims-to-introduce-digital-music-to-seniors.htm>
- N19 http://www.cbsnews.com/8301-501465_162-20073004-501465.html
- N2 http://www.upi.com/Entertainment_News/Music/2010/12/22/Sony-starts-up-digital-music-service/UPI-75161293061854/
- N20 <http://www.time.com/time/arts/article/0,8599,1666973,00.html>
- N21 <http://www.guardian.co.uk/business/2011/jan/20/ifpi-world-music-sales-2010>
- N22 <http://www.cisionwire.com/aspiro-music/r/aspiro-calls-for-the-use-of-open-standards-in-digital-music--introduces-playlist-import-and-export-functionality.c9120724>
- N23 http://www.digitalmusicfuture.com/63650367/walmart_music_downloads.php
- N3 <http://www.digitalmusicnews.com/stories/050911google>
- N4 <http://www.digitalmusicnews.com/stories/050911umg#pVwj15ZMvNEUFUyFj04GTg>
- N5 http://www.theregister.co.uk/2007/04/26/amazon_digital_music/
- N6 http://www.afterdawn.com/news/article.cfm/2011/03/23/steve_jobs_ordered_to_answer_questions_about_possible_monopoly_itunes
- N7 <http://www.wired.co.uk/news/archive/2011-02/16/universal-music-streaming>
- N8 <http://www.helium.com/items/2154101-google-to-launch-online-music-service>
- N9 <http://www.fiercemobilecontent.com/story/report-hp-plotting-cloud-based-digital-music-service/2011-06-14>

Appendix C – Questionnaire users

General questions

1. Age: _____
2. Sex: _____
3. Occupation: _____
4. Which digital music services do you use?

Questions on digital music services

5. What is your opinion on the current state of the digital music industry? What could be improved?

6. What features of digital music services (price, sound quality, music catalogue, etc.) are the most important for you?

7. How have digital music services changed your musical experience?

8. Do you use one digital music service most often, or does that differ from time to time?

9. How do you keep in touch with the evolutions in the digital music market?

10. How closely do you follow the newest trends in digital music?

Questions on participation in digital music

11. What are your motivations to get involved with digital music services?

12. Next to using digital music services, do you also contribute to them (e.g. by providing content or feedback)? If so, in what manner?

13. Are you member of an online community, linked to (digital) music? If so, what do you do there?

14. Do you provide musical recommendations to other (e.g. by means of playlists, blogs, etc.)?

15. What do you think would be incentives to choose for paid digital music services over free access (illegal downloading)?

Concluding question

16. Are there any other things you want to tell about the subject?

Appendix D – Results of questionnaire

Statistieken voor vraag 1:	
Leeftijd	
<i>Respondent</i>	<i>Antwoord</i>
#1	49
#2	32
#3	17
#4	20
#5	55
#6	50
#7	26
#8	54
#9	18

Statistieken voor vraag 2:	
Geslacht	
<i>Respondent</i>	<i>Antwoord</i>
#1	m
#2	man
#3	Man
#4	man
#5	M
#6	man
#7	Man
#8	man
#9	man

Statistieken voor vraag 3:	
Beroep	
<i>Respondent</i>	<i>Antwoord</i>
#1	cijferneuker
#2	assistent-onderzoeker
#3	Student
#4	student
#5	Zelfstandig adviseur
#6	Proces engineer
#7	Aandelenhandelaar
#8	Accountmanager
#9	student

Statistieken voor vraag 4:	
Van welke digitale muziekdiensten maakt u gebruik?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Amazon, Soulseek, Youtube, Bearshare

#2	youtube, spotify, 22tracks, de luisterpaal van 3voor12
#3	Spotify, iTunes en soms YouTube
#4	Bandcamp, soundcloud, last.fm, youtube
#5	Spotify Check indie labels: gratis streaming van nieuwe releases YouTube
#6	Spotify
#7	Beatport, Itunes, Dance-tunes, Spotify, Shazam
#8	Spotify, Itunes
#9	Spotify, YouTube, Grooveshark, Soundcloud, Bandcamp

Statistieken voor vraag 5:	
Wat is uw mening over de huidige staat van digitale muziekdiensten? Wat kan er verbeterd worden?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Prijs, Identificatie, beperkingen t.a.v. gebruik en repertoire (allemaal liever niet)
#2	Ik ben erg tevreden over Spotify, al mis ik daar nog wel een hoop muziek. Desalniettemin gebruik ik het erg vaak. De rest zie ik als leuk extraatje en gebruik ik veel minder.
#3	Muziek is tegenwoordig veel te duur, maar met Spotify heb ik nu (bijna) alle muziek voor weinig geld.
#4	<p>Ik denk dat de "digitale muziekindustrie" (om een makkelijke aanduiding te gebruiken) zich in een groeifase bevindt en dat vooral diensten die streaming audio aanbieden nog in een groeifase zitten. Niet alleen omdat deze techniek eigenlijk pas de laatste 2 jaar zich echt stevig in de schoenen is gaan zetten en is gegroeid maar ook omdat de muziekindustrie enorm verdeeld is en er nogal een ontwikkeling nodig is om deze onder een of twee diensten onder te brengen, alhoewel spotify wel goed bezig is. Er zijn in mijn inziens 2 items die echt verbeterd zouden kunnen worden bij digitale muziekdiensten. De eerste gaat over streaming audio en dat is dat de kwaliteit van de streams vaak te wensen over laten. Voor normaal gebruik en niet al te lastige liedjes valt het niet zo op, maar de meeste diensten gebruiken voor de audiostreams een (MP3)-bitrate van 128~190kb/s, terwijl dit toch echt aan de lage kant zou zijn. Het zou fijner zijn als muziek in minstens 265 kb/s (CBR) zou kunnen worden aangeboden, en dan eventueel tegen (een hogere) betaling lossles streams.</p> <p>Het tweede item houdt zich bezig met de downloads en dat is dat muziek die bij digitale diensten kan worden gedownload af en toe ontbeert goed artwork bij zich te hebben, terwijl je toch ook hoort bij de integrale beleving van de muziek. De oplossing zou zijn om artwork dan wel als hoge resolutie-scans aangeboden wordt dan wel als pdf documenten.</p>
#5	Redelijk goed Te veranderen: keuze, aanbod, overzichtelijkheid; speciaal aanbod/tarief voor back catalogue in zijn geheel.
#6	redelijk goed.
#7	Er is naar mijn idee meer ruimte voor kwalitatieve podcast kanalen in vele muziekgenres.
#8	Meer aanbod in de wat minder bekende muziekstijlen. Goedkoper. Link naar de website van de artiest en concertagenda
#9	Met Spotify is er een stap in de goede richting gezet. Voorheen was de

	eerste fase de muziek gratis downloaden om vervolgens ik enkel mijn favoriete platen te kopen, te wijten aan te weinig financiële middelen. Nu gebeurt die eerste fase via Spotify, waardoor er toch nog een beetje geld naar de rechthebbenden gaan.
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Statistieken voor vraag 6:	
Welke eigenschappen van digitale muziekdiensten (bv. prijs, geluidskwaliteit, aanbod) zijn het belangrijkste voor u?	
<i>Respondent</i>	<i>Antwoord</i>
#1	volledigheid en eeuwigheidswaarde van het bezit van de muziek (niet steeds opnieuw betalen voor muziek die ik al eens gekocht heb).
#2	Aanbod, interface/zoekfunctie, geluidskwaliteit.
#3	De prijs. Ik hoef geen superkwaliteit, maar het moet wel normaal klinken.
#4	Het belangrijkste vindt ik, naast het aanbod, dat de muziek via meerdere plekken te streamen is en ik niet afhankelijk ben van een extern programma.
#5	Prijs, aanbod, snelle beschikbaarheid
#6	geluid
#7	Aanbod.
#8	Aanbod en prijs
#9	Aanbod

Statistieken voor vraag 7:	
Hoe hebben digitale muziekdiensten uw muziekervaring veranderd?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Meer kennis, meer informatie en meer vluchtigheid
#2	Niet per se, al ben ik veel minder gaan downloaden en veel meer gaan streamen.
#3	Ik heb in mijn leven alleen maar met digitale muziekdiensten gewerkt, dus hier kan ik niks zinnigs over zeggen.
#4	De muziekervaring niet, maar de manier hoe ik muziek benader met het ontdekken van nieuwe muziek wel.
#5	Verbreiding van muziekkennis - nwe dingen leren kennen
#6	Ja, vooruit en thuis luisteren voor de aankoop.
#7	Nummers zoeken was vroeger een uitje bij de platenwinkel, bakje koffie erbij de halve dag platen luisteren. Super mooi! Nu luister je wel meer tracks via de digitale kanalen, wat wel positief is. Geen platen meer sjouwen, vind ik zelf wel erg fijn. Prive is het erg relaxt om podcasts te luisteren ipv een cd.
#8	Muziek verwordt een hapsnap artikel, aanbod is zo groot dat je bijna niet aan luisteren toekomt. Voordeel is dat je meer andere soorten muziek kan luisteren en je smaak kan verbreden.
#9	Ik heb meer mogelijkheden om muziek te ontdekken, waardoor ik meer goede muziek heb ontdekt en ook vaker platen koop en naar concerten ga. ☺

Statistieken voor vraag 8:	
Is er één digitale muziekdienst die u het meest gebruikt, of verschilt dat van tijd tot tijd?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Youtube denk ik toch wel.

#2	Spotify gebruik ik veruit het meest.
#3	Veelal iTunes, maar ik ga nu veel meer Spotify gebruiken.
#4	De dienst waar ik het meest gebruik van maak is Bandcamp. Deze dienst heeft voor mij het interessantste aanbod qua muziek (vrij veel leuke bandjes hebben er een profiel), is makkelijk bereikbaar (geen aparte applicatie voor nodig), efficiënt qua site (geen overbodige aanvullingen, reclame of google tracking) en als er iets is goed is en ik tot aanschaf overga is er vaak ook nog een mogelijkheid om de muziek kosteloos te downloaden om de muziek in een betere kwaliteit te beluisteren (alhoewel dit wel afhangt van het account (de band)en er ook een hoop accounts zijn waar er voor de downloads betaald moeten worden.)
#5	Varieert
#6	Spotify
#7	Beatport, Soundcloud en Itunes veruit het meest, altijd. Dropbox ook veel, is niet alleen muziek.
#8	Meestal Itunes maar nu ook Spotify en heel soms Grooveshark.
#9	Spotify, sinds ik er maandelijks voor betaal. ☑

Statistieken voor vraag 9:	
Hoe blijft u op de hoogte van de ontwikkelingen op de digitale muziekmarkt?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Dat komt vanzelf naar je toe. Als iets ok is merk je dat vanzelf aan de anderen die het gebruiken.
#2	Via een aantal blogs op internet, bv. EHPO.
#3	Musicmeter(.nl) en heel af en toe Spotify-aanraders.
#4	o.a. via blogs en via bepaalde fora (o.a. tweakers) en af en toe via computertijdschriften.
#5	Div: muzieksites (Muziekmetern, Discogs), blogs, LinkedIn-groepen, contacten en social media
#6	Oor, Mojo, Uncut en MuMe
#7	via vrienden.
#8	Via Internet -> Fora, websites als Musicmeter.nl en via emails van div. platenmaatschappijen en ticketmaster voor de concerten.
#9	Muziekfora

Statistieken voor vraag 10:	
Hoe nauwkeurig volgt u de nieuwste trends op het gebied van digitale muziek?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Beschouwingen over auteursrechten en juridische kwesties rondom wie er geld zou moeten verdienen en wie het feitelijk doen interesseren mij. Over wat er feitelijk kan en van de nieuwe snufjes weet ik minder.
#2	volg het wel redelijk, maar niet enorm. Het heeft niet mijn grootste interesse, ik zie wel hoe de markt zich ontwikkelt.
#3	Niet echt nauwkeurig. Als er echt iets doorbreekt, merk ik dat vanzelf wel.
#4	Redelijk, ik vind het interessant om de "trends" te "zien / volgen", maar sta er aan de andere kant ook wat kritisch tegenover en spring niet meteen met de nieuwe hype mee.
#5	Zo veel mogelijk

#6	Ik denk best wel nauwkeurig bijna dagelijks
#7	erg nauw.
#8	Niet echt behalve op het gebied van Progressive Rock.
#9	Behoorlijk nauwkeurig, ik zit er wel redelijk bovenop.

Statistieken voor vraag 11:	
Wat is uw motivatie om bezig te zijn met digitale muziekdiensten?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Wel: het leren kennen van nieuwe muziek.
#2	Puur het luisteren naar muziek. Vind het erg makkelijk om zo nieuwe dingen te luisteren en bv. op werk ook naar mijn favoriete muziek te kunnen luisteren.
#3	Het is goedkoper en praktischer dan een fysieke collectie
#4	Ik ben redelijk vaak met computers bezig en dan is het handig om van deze diensten gebruik te kunnen maken, een tweede is om nieuwe muziek via deze diensten te ontdekken.
#5	Interesse, persoonlijk en professioneel
#6	Informatie en natuurlijk hobby, alles snel weten en luisteren.
#7	Werk en ontspanning
#8	Gemak. Overal te draaien. In de auto, alleen, met een groep e.d. Kan via de Ipad, Ipod, Iphone e.d.
#9	Passie voor muziek

Statistieken voor vraag 12:	
Naast het gebruik van digitale muziekdiensten, draagt u ook wel eens iets bij aan digitale muziekdiensten (bv. door middel van het leveren van feedback of webinhoud)?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Recensies van concerten en albums op Musicmeter, bijdragen aan Musicmeter zelf (verbeteringen en plaatsen nieuwe albums). Feedback op Amazon
#2	Nee, eigenlijk niet.
#3	Ik geef geen feedback aan de leveraar, als dat bedoeld wordt.
#4	Nee, ik geef af en toe wel feedback via fora maar nooit bij de muziekdiensten zelf.
#5	Ja - bloggen, recensies, discussies op fora/social media; tips geven
#6	soms wel dmv recensie etc
#7	Mixtapes op Soundcloud.
#8	Ik ben actief op diverse fora en geef regelmatig tips van nieuwe artiesten en albums.
#9	Nee

Statistieken voor vraag 13:	
Bent u lid van een online community, gelinkt aan (digitale) muziek? Zo ja, wat doet u daar zoal?	
<i>Respondent</i>	<i>Antwoord</i>
#1	zie vorige vraag
#2	Er zijn er een aantal. Musicmeter (waar ik crewmember ben). Verder Discogs,

	Rateyourmusic. Maar daar doe ik weinig mee.
#3	Musicmeter en last.fm. Op musicmeter discussieer ik met anderen over muziek die ik goed vind. Met last.fm doe ik vrij weinig met de community. Ik gebruik het puur om te kijken wat ik veel/vaak luister.
#4	ja. Discussiëren over muziek, ontdekken van nieuwe muziek en op de hoogte blijven van bv. concerten.
#5	Ja - zie vorige vraag
#6	Ja input nieuwe albums
#7	Soundcloud, leveren van mixtapes.
#8	Spotify, Itunes en fora als Musicmeter.nl, Progwereld.org, Dprp.net en Procharchives.net. Schrijf voor een kennis concert en album reviews voor op zijn website.
#9	Ja, MusicMeter, RateYourMusic, last.fm. Voornamelijk geef ik daar mijn mening over bepaalde muziek.

Statistieken voor vraag 14:	
Geeft u muzikale aanbevelingen aan anderen (bv. door middel van afspeellijsten of weblogs e.d.)?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Af en toe op twitter, Feedback op Amazon. Top 10 jaar-lijsten van zeker 40 verschillende jaren op de Musicmeter.
#2	Ja, af en toe iets via een blog of ik stuur muziek door naar vrienden via Spotify.
#3	Ja, door middel van topics op musicmeter.
#4	ja, o.a. via posts op fora.
#5	Ja - zie 12
#6	enkel dmv posts
#7	ja, via Dropbox.
#8	Ja zie hierboven.
#9	Ja, ik maak afspeellijsten op Spotify en Grooveshark. Ook geef ik aanbevelingen op muziekfora.

Statistieken voor vraag 15:	
Wat denkt u dat een stimulans is voor mensen om voor een betaalde digitale muziekdienst te kiezen in plaats van vrije toegang (illegaal downloaden)?	
<i>Respondent</i>	<i>Antwoord</i>
#1	Ik zou wel een soort superVIP abonnement willen. Op basis van vertrouwen met fysiek (echt) onbeperkt hergebruik van de muziek maar met een echtheidscertificaat dat niet overdraagbaar/vermenigvuldigbaar is. En natuurlijk voor ALLE muziek, niet alleen die van de grote labels. Als het alleen voor een beperkte groep grote labels is zal ik nooit geïnteresseerd zijn. Daarbij natuurlijk gebruikersgemak (geen computer-afhankelijke ID, werkend op alle platforms, en gewoon op elke speler en met elke software afspeelbaar) met af en toe niet-digitale voordeeltjes als voorverkoop van concertkaarten, promomateriaal, CD's en platen). Ik zou voor een goed

	<p>abonnement in deze sfeer zo 1000 euro per jaar neerleggen.</p> <p>Eigenlijk wil ik dan dus alle gezeik tegelijk afkopen voor alle muziek die ik menselijkerwijs kan consumeren; een 'ik mag alles' kaart, met een product ervoor terug met een klantgerichtheid als bij Amazon, met daarbij voordeeltjes die echt iets voorstellen. Een soort 'platinum' muziekkaart, zeg maar.</p>
#2	<p>Een groot aanbod, een mooie interface. Eigenlijk gewoon gebruiksgemak. Spotify vind ik wat dat betreft al behoorlijk goed. Je zoekt iets op en je speelt het af, de tussenstap van downloaden vervalt compleet, bovendien staat de muziek niet lokaal opgeslagen, maar online, waardoor je er vanaf elke computer met internettoegang bij kunt.</p>
#3	<p>Er is vrijwel geen verschil tussen betaalde en illegale muziekdiensten. Het enige verschil is dat je legaal bezig bent ipv illegaal, dat kan dan ook de enige stimulans zijn.</p> <p>Of wacht, er zijn mensen die hiermee denken de artiest(en) te steunen die ze beluisteren. Zelf denk ik dat je daarvoor echt fysieke kopieën moet kopen of rechtstreeks van de artiest (bv. via de eigen site).</p>
#4	<p>Ik denk dat de kwaliteit van de muziek als mede de aanbod ervan de grootste stimulansen zijn. En zeker oudere, onbekendere muziek die niet meteen via downloadsites gevonden kan worden maar die wel op zulk soort diensten staan zou een grootte aanwinst zijn. Ook het duidelijk maken dat je er de muziek direct mee financiert kan denk ik wel een impuls geven</p>
#5	<p>Ja m.n. door social media en 'buzz' - downloaden zal tzt in NL onmogelijk/illegaal gemaakt worden. Op Europees niveau staat NL onder politieke druk.</p>
#6	keihard verbod, onmogelijk maken van downloaden
#7	Muziekkwaliteit en de nieuwste nummers beschikbaar (aanbod)
#8	<p>Aanbod (niet alles is te downloaden), prijs (nu veel te duur). Ook speciale sites voor bepaalde soorten muziek. Mooi voorbeeld is de site Progstreaming. Hier kan je albums luisteren. En als je hem goed vind kan je hem kopen. (gebeurt in de progrock scene overigens heel veel. (Ook tijdens concerten).</p>
#9	<p>Een lage grens qua prijs. 99 Cent voor een digitaal muziekbestand is gewoon te veel voor iets wat eigenlijk geen enkele waarde heeft. Zeker gezien het feit dat downloaden legaal is en tegenwoordig de normaalste zaak van de wereld. Artiesten verdienen tegenwoordig ook veel meer aan concerten en merchandise dan plaatverkoop, dus als je als muzikant ervoor zorgt dat jouw muziek makkelijk beschikbaar is dan trek je meer mensen naar je concerten en verhoog je je merchandise-inkomsten.</p>

Statistieken voor vraag 16:	
Is er iets anders wat u over dit onderwerp wilt melden?	
<i>Respondent</i>	<i>Antwoord</i>
#1	
#2	Nope. Succes met de enquête!
#3	Ik verwacht dat dit de toekomst wordt. Geen fysieke uitgaves meer en puur alleen digitaal.
#4	Nee.

#5	De muziekwereld wordt nooit meer zoals ie was. Geld zal steeds minder worden verdiend met fysieks releases (cd, dvd en lp); album zal een andere status krijgen, maar ook download tegen hoge tarieven zitten op het einde van de PLC.
#6	neen, succes
#7	nee
#8	Ik ben dagelijks bezig met muziek en internet. Verder ben ik benieuwd naar het resultaat van het onderzoek.
#9	