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1   Introduction

The music industry is facing a rapid change as "music consumption" is moving from tangible products to online services (Johansson & Frejman, 2008). As media formats like vinyl's were replaced by cassettes and cassettes were replaced by CD's, the last physical media format, the CD, is now also about to be replaced by digital media formats (such as MP3s or streaming media). However, digital sales are too far away from covering the decline of CD sales since 2001 (IFPI, 2008). Optimistic research statistics expect that digital sales will surpass physical media sales around 2012-2013 (Forrester Research, 2008) (PricewaterhouseCoopers, 2007). However, it is not likely for the music industry to catch the revenue numbers of 2001.

The research of Pew Internet Project (2009) is assuming that eventually there will not be any difference between downloading and streaming. Furthermore, it is also stated that a big part of the population has already started to switch to 'cloud computing'[1] (Pew Research Center, 2009). The streaming music services niche digital music distribution, as a part of cloud computing, are emerged as one of the best ways of filling music consumers' needs, by using the new technological improvements such as broadband internet and 3G. These services started to make it available for consumers to reach their playlist from any computer without the need of transferring files, even without any files involved. Kuzma & Oestreicher predict that, in 2015 not only music but also other multimedia formats like live videos will be dematerialized by flat rate services (Oestreicher & Kuzma, 2009).

Today the world of music industry is changing, due to the growth of so-called streaming music services. After struggling with illegal file sharing during the past ten years, it would not be wrong to say that once again we are on the edge of a digital music revolution. While there are many different companies offering the streaming music service, which all based on different business models, some are shining in the crowd. In the IFPI digital music report 2010, Spotify, a Swedish music service company founded by Daniel Ek, is mentioned as the highest profile of among the advertising-supported streaming services (IFPI, 2010). Spotify managed to take attention of the music consumers and music industry players in a short time, and attracted more than seven million users across six different countries[2] up to date (IFPI, 2010).

The Net Generation music consumers have grown up and they have completely different consumption habits than the consumers ten years ago. We do not know much about how consumers use these music services, and how does these services effect their music consumption habits. Therefore, the primary purpose of this study is to analyze the change in consumer behavior, and the factors affecting the adoption of streaming music services, by studying Spotify. While this is the primary subject, the study also aims to present the motivational factors for music consumers to use the streaming music services.

In 2000, Jones explained the possible challenges for the future of music business as "recording sound matters less and less, and distributing it matters more and more, or, in other

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[1] Google's CEO Eric Schmidt described the "cloud computing" in an informal conversation at The Search Engine Strategies Conference, in 2006 by saying, "…It starts with the premise that the data services and architecture should be on servers. We call it cloud computing – they should be in a "cloud" somewhere. And that if you have the right kind of browser or the right kind of access, it doesn't matter whether you have a PC or a Mac or a mobile phone or a BlackBerry or what have you – or new devices still to be developed – you can get access to the cloud." (Google , 2006)

[2] Sweden, Norway, Finland, UK, France, Spain

words, the ability to record and transport sound is power over sound" (Jones, 2000). As he assumed, today it is easier to distribute sound and it is possible at almost no cost, but it is now more important to distribute it in a way consumers want since they are power over all. It is all about satisfying the consumer, thus it is important to know how they consume and how they want to consume.

1.1   The Music Industry and its Consumers in a Post-Napster Era

The ice age of the music industry started right after the launch of Napster in December 1999. Napster was the first example of a worldwide, digital, consumer distribution channel with an extraordinary library size. Although it was illegal to share copyrighted media with others, millions of users from all over the world were attached to this new service rapidly. Napster had around 52 million members when it was shut down in 2001 (BBC News, 2001).

Back in the early 00's, the vice president of the new media of EMI, Jeremy Silver, mentioned, "the threat to the music industry is not the MP3s, but the arrival of a consumer distribution channel that is not controlled by the music industry" (Lam & Tan, 2001). This statement was a perfect support for the argument of Meisel and Sullivan, who pointed out that the real value out of Napster's innovation, was not that it was free, but that it provided access to a virtual library, which contained all songs you desire, as well as the flexibility[3] in the listening experience accompanying that access (Meisel & Sullivan, 2002). Flexibility and free access was so appealing for some of the music consumers, which led them to start to share their music files, and thereby became distributors. This disintermediation process, which lately named as "napsterization"[4], caused the music industry to lose control over its customers (Lindqvist, Bjørn-Andersen, Kaldalóns, Krokan, & Persson, 2008).

The term "Climate Change" was used by the executive-chairman of Kudos Production[5], Stephen Garrett (IFPI, 2010) to refer to how today's consumers acquire information goods. Actually, it is also possible to expend it to every aspects of the music business. The term can be both applied to the changing consumption patterns due to the transformed consumer culture, and the general way of doing business in the music industry. The Net Generation music consumers have grown up and they have completely different consumption habits as the consumers ten years ago.

Tapscott mentions in his book that, the 'Net Generation'[6] has come of age (Tapscott, 2008). The Net Generation is described in the report of Pew Research Center as, "networked consumers armed with technology and high-speed connectivity and those consumers have come to expect that a digitized version of a product should be available on-line for

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[3] Customers demand the flexibility of listening to music while sitting in front of their desktop PCs, on the move in a car, or while using a portable player device (Premkumar, 2003).

[4] "Media analysts now broadly use the term, "Napsterization" to refer to a massive shift a given industry where networked consumers armed with technology and high-speed connectivity disrupt traditional institutions, hierarchies and distribution systems." (Pew Research Center, 2009)

[5] UK based firm, producing scripted television and film.

[6] "Born between 1977 and 1997, Net-generation is the first generation to grow up surrounded by home computers, video games, and the Internet. As children of the Baby Boomers, the Internet is the medium of choice for the Net-geners." (Leung, 2004)

free" (Pew Research Center, 2009). In addition to this Lessig emphasizes his thoughts about this new generation by saying, "a generation is being raised to believe that "property" should be "free", our kids are becoming thieves!" in his book Free Culture (Lessig, 2005). On the other hand, Tapscott claimed that they are not thieves but a new consumer generation that wants something which -so called- fits them. In addition, he points out that they are no more the passive consumers, as before they were in the broadcasting model (Tapscott, 2008).

Before, the dial up and the early versions of broadband could not suffice enough for listening to high quality audio. Early formats were not convincing in terms of sound quality, and they were not an equivalent of the physical media[7]. During the last decade, developments in the networking technologies made it possible to experience the online media content via streaming. Today, according to the broadband statistics of OECD (OECD, 2010), among the six countries in which Spotify operates, Norway has the lowest broadband coverage with 90 percent, whereas the weighted average broadband coverage of these six countries is 98.65 percent. Furthermore, the weighted average 3G coverage for the same countries is 82.66 percent. According to these numbers we can say every eight of ten people residing in these countries, hold the potential to consume online media anytime, anywhere.

The "music access" model consists of both advertisement supported free access, and subscription based paid access options. The "free model" is not so much different from the traditional radio business, where it is just "free to cloud", but not "free to air". In addition, both of them provide the product to listeners free, whereas advertisers pay the service cost (Anderson, 2008). In the music access model, users are also able to create and change their playlist.

The authors of '*The Future of Music: Manifesto for the Digital Music Revolution*', Kusek and Leonhard, assumed that music would be ubiquitous and available in our homes like water and electricity (Kusek & Leonhard, 2005). In order to contribute to their assumption, it would be plausible to say that music will not only be available in our homes, but also be available in our pockets via streaming, regardless of our location, as long as we have access to the cloud.

1.2   Evolution of Streaming Audio

The term of "streaming media" did not exist until early 90' when the World Wide Web (WWW) was first made commercially available to the public (MP3 Sound Stream, 2008). In the early stages of the WWW, it was only possible to transfer bits of text due to the limited bandwidth available for consumers. The audio media also digitized during the same period, but one minute of audio was taking up around ten megabytes of disk space, so it was not even feasible for downloading. The introduction of audio compression formats reduced the required disk space for digital audio, while keeping the sound quality equal to CD audio level. Following this, Internet users experienced increased access to networks and greater network bandwidth during the early 00's. Together with the enhanced audio compression formats, these improvements in communication led online music services to operate sufficiently.

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[7] The common physical audio media formats are vinyl, tape, MD, CD, DVD.

1.3   Streaming Music Services

An online music service is basically, a distribution channel that gives users access to a digital music library. Two types of online music services, downloading and streaming, use the same distribution channel but differs in how consumers acquire tracks. The services that are based on downloading use ownership model, and consist of the transfer of digital media to the local drive of the user. Whereas services based on streaming can be considered as rental, and gives user temporary access to digital media content.

Wikström classifies the different business models for digital music distribution in four different categories, as (1) single - song download, (2) membership - limited download quota, (3) membership - all-you-can-eat and (4) ad-based (Wikström, 2009). The first two models, "single-song download" and "membership-limited download quota", are parts of ownership in which consumers pay and download tracks of their choice. The last two, the "membership – all-you-can-eat" and the "ad-based", are more flexible models, which are also apply to ownership. "All-you-can-eat" and "ad-based" services give consumers the option of accessing to all library content, either free or with a flat-rate subscription. Combination of these two models also serves as basis to streaming music services, which are subject to this study. Users of streaming music services mostly have two subscription options. They can either, choose free subscription and listen to advertisements between songs, or they choose to pay a flat-rate subscription fee in order to avoid advertisements and to benefit from extra offers. The only difference is that music is not downloaded to the listener, but is streamed, and compared to "downloading" users can start to listen a streamed song almost immediately after the transmission has been initiated (Wikström, 2009).

1.4   What is Spotify?

Spotify is an online music streaming service, which offers legal and free access to an extensive library. As of April 2010, the service is available in six countries, Finland, France, Norway, Spain, Sweden and UK. The company was founded by Daniel Ek and Martin Lorentzon, in 2006 and opened to public use in 2008. The management headquarter of the company is located in UK, and the R&D base is in Sweden (Spotify Ltd.). Spotify is available in two membership formats. First option is the advertisement based free account, which users can get only with an invitation[8], and second option is subscription based premium account. Premium account holders can benefit from the "offline mode" option and have access to "mobile phone application".

Spotify uses the basic concept of peer-to-peer sharing to operate. Software keeps the index of the content that users listen to, and then once a user requests to stream a track, it makes connections to other users that cached the track before in order to stream the track. We can say users are still using the old Napster but without downloading the tunes, they have temporary access to music in everywhere they have internet –even without internet if they hold a premium account. The biggest difference is that it is legal now. The goal of Spotify is "To help people to listen to whatever music they want, whenever they want, wherever they want" (Spotify Ltd.). What we know that, Spotify holds agreements with the record companies and fairly compensates the artist for the music featured on Spotify (Spotify Ltd.).

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[8] In UK, it was possible to get a free account without an invitation code but later it was canceled by the company.

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1.5   Literature Review about Streaming Music

Shapiro and Varian (1999) describe the internet as a fantastic new medium for distribution. Their book "Information Rules" offers an insight to information goods, and explains the cost structure and the value characteristics. They also point out the importance of repeated behavior, what economists call as option value, in media product usage. In today's economy it is also so important for consumers to have the option to play a tune where and when you want. In addition to this, since consumers do not know if it is worth to consume until they experience it, internet plays an important role in eliminating the asymmetric information[9], via free sampling of the information goods. Furthermore, they also support the idea of accepting the online content as if it were "free" and they point out the importance of focusing on ways to add value to product (Shapiro & Varian, 1999).

Premkumar (2003) suggests alternative distribution strategies for digital music, by introducing six different models. Surprisingly, before the rise of the streaming services, the author introduced a model related to the streaming services. The model proposed by the author, Audio on Demand (AOD), forms a bridge between artists and customers, and is illustrated in Figure 1-1. In this model, "radio station" is referred as the distribution network to reach the customer. Premkumar's interpretation of "radio station" is so similar to the distribution model of streaming music services. Because of the similarity between radio broadcasting and streaming music through internet, he names this intermediary as "internet radio station". In brief, the author defines the AOD as a subscription model, which customer has complete flexibility to choose and change playlist. The core idea of the model is to monetize music as a service rather than ownership by offering customized playlists, either for a "nominal fee" or subsidized with "advertisement" (Premkumar, 2003). On the other hand, Premkumar also points out the technical difficulties of AOD. Back in early 00's, wireless networks were not capable of delivering streaming audio at the desired quality. Nonetheless, because of the limited software solutions, wired networks were also having performance problems. Therefore, his suggestion was not appeared to be feasible at that time, whereas it is in use now. The introduction of mobile internet technologies –such as 3G–, and the advanced broadband services that we use today, offer far more beyond the required network bandwidth for audio streaming which enabled these early suggestions come true.
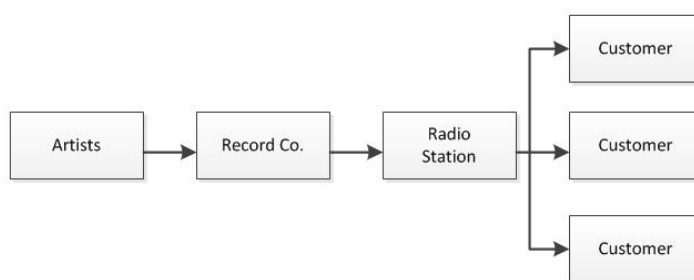
Figure 1-1 Premkumar's Audio on Demand model, source (Premkumar, 2003)

Two years after Premkumar's suggestion, Kusek & Leonard published their book titled as "The Future of Music", and stated their famous metaphor to point out a possible future for music distribution: "*Imagine a world where music flows all around us, like water, or like electricity,*

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[9] Concerning the creative goods/experience goods, the reaction of consumer cannot be anticipated before consumption. This is called as "nobody knows" property of creative industries, and it is linked with the problem, "asymmetric information", which previously has been defined as 'one party of a transaction knowing a material fact that the other party doesn't know' (Caves, 2002).

and where access to music becomes a kind of "utility". Not for free, per se, but certainly for what feels like free." (Kusek & Leonhard, 2005). Similar to Premkumar's suggestion, their assumption also highlights that, in the near future music might be monetized as a flat fee service, which will be distributed through streaming channels. Furthermore, the authors bring up the example of the existing broadcast utility model[10] in Europe, to support their argument on a possible distribution model for the future. Based on broadcast utility model, they propose that both producer and the consumer can benefit out of distribution of music, via "music access" services. Like Premkumar, Kusek & Leonard once again underline that streaming in place of downloading will only be viable, once networks provide acceptable sound quality and accessibility (Kusek & Leonhard, 2005). In addition to these, the authors also state that the average consumer prefers the internet to any other medium.

In a recent research, authors Frejman & Johansson mentioned that music listening is moving from tangible products to online services (Johansson & Frejman, 2008). Although their aim is to investigate how Swedish record labels are adapting their business models to new reality, their findings give clear evidence to the transformation of traditional media into flat-rate streaming services as well. For example, during the interviews that Frejman and Johansson conducted, many of the record label respondents stated that flat-rate services would be the norm of the future. Moreover, as of 2008, flat fee, bundled or ad-based services (such as Spotify, Nokia Comes with Music and Qtrax) were in advanced stage of planning with the major labels (Johansson & Frejman, 2008).

Most recently, Patrik Wikström also covered these issues in his recently published book "The Music Industry: Music in the Cloud". In his book, he outlines the characteristics of the new music economy, which are driven by the development of digital media technologies in three: (1) high connectivity and little control, (2) music provided as a service, and (3) increased amateur creativity (Wikström, 2009).

Among these characteristics, "music provided as a service", has a significant importance in relation to the aim of my investigation. First, "Music provided as a service" shows that, the metaphor of Kusek & Leonard and Premkumar's AOD model is already became a part of music economy. In addition to this, he addresses Spotify as an important milestone in the music industry development, and he states the reason behind this proposition as Spotify took the lead of online music provider's service innovation, which actually fair for all parties (Wikström, 2009).

Wikström also discusses the accessibility issues in relation to online music services. His proposes that music consumers do not have a problem with access to content. In fact, easy navigation and manipulation of the music in the cloud is more important for them. Based on this proposition, the author points out that the primary reason behind the success of Spotify is not that it has fair relations with right holders, nor its extensive catalogue, but the future and the structure of its service (Wikström, 2009). The future will namely be more global yet more niche (Johansson & Frejman, 2008).

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[10] In some European countries, such as Germany and Austria, all residents that have televisions or radios in their homes, regardless of how or whether they use them, must pay a yearly flat free to the government. The government then uses the funds to pay for public televisions and radio productions. This model, which resembles the "media like water" concept, is largely accepted by millions of people.

Regarding to the concept of music as a service[11], Wikström points out the difficulty of replacing the longtime tradition of ownership with a concept of "music as a service" or "music rentals" (Wikström, 2009). However, taken into consideration the option value, with the rise of ad-sported feels-like-free services the user finally able to listen to any tune whenever they want. Moreover, they have unlimited access to an extensive music catalogue, and these also satisfy the music demand of the users.

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[11] Wikström classifies the digital music services under four categories, Single-song download, Membership-limited download quota, Memberships-all you and Ad-based models (Wikström, 2009)

2 Theoretical Perspective

This chapter presents the theoretical perspective anchoring this study. The Technology Acceptance Model (TAM) of Davis (1989), which models the adoption and the use of a technology, is the overarching theoretical framework. The TAM of Davis (1989) is influenced and derived from the Fishbein and Ajzen's Theory of Reasoned Action (TRA) (1975). Therefore, it is important to understand the TRA in the first place.

2.1 The Theory of Reasoned Action

The theory of Reasoned Action of Martin Fishbein and Icek Ajzen (1975) is a widely used model in social psychology, which aims to explain the individual's behavior. TRA forms a base for the major theoretical framework, TAM, of this study. There are three main components in TRA, which determine behavior; these are attitude, subjective norm, and behavioral intention, see Figure 2-1. TRA suggests that a person's behavior is based on his/her behavioral intention and two other factors, attitude towards behavior and subjective norm, determine behavioral intention of the person (Fishbein & Ajzen, 1975).
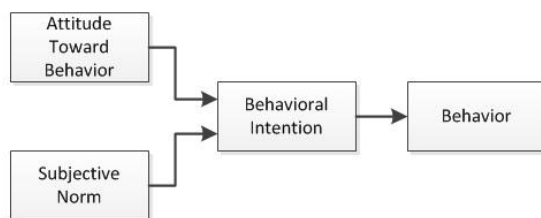
Figure 2-1 The Theory of Reasoned Action, based on (Fishbein & Ajzen, 1975)

Attitude toward behavior (A): refers to the sum of one's beliefs about performing the target behavior, which can be evaluated positively or negatively. In TRA, attitude toward behavior determines the behavioral intention to perform a behavior. Ajzen & Fishbein states that a person is more intent to perform a behavior when he/she has a positive attitude toward a behavior, and he/she is less intent to perform when he/she has a negative attitude (Ajzen & Fishbein, 1980). To give an example, you might be favorably evaluating "using an online music service", thus you are more likely to use the service than someone who thinks that using an online music service is unfavorable.

Subjective norm (SN): covers the influences of social environment on one's behavioral intention. In brief, subjective norm is a person's perception of others' belief about whether she or he should perform a behavior. According to TRA, the more a person belief that the others who are important to him/her, the more he/she intends to perform so (Ajzen & Fishbein, 1980). For example, most of your friend may be against illegal music downloading, and expecting you not to download, so you feel ashamed when you download. Alternatively, all of your friends may be downloading illegal music and thinking it is not something wrong, then it can be natural for you to do so also.

Behavioral intention (BI): is jointly determined by the attitude toward behavior, and the subjective norm. BI refers to the likelihood of a person to perform a behavior. According to Fishbein & Ajzen, the weight of these factors on BI may be not be equal, and depends on the importance in relation to the behavior. Moreover, a component may have a no weight at all (Ajzen & Fishbein, 1980).

2.2   Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) of Davis (1989) presented in Figure 2-2, is an adaptation of Fishbein's TRA. The base TAM aims to explain and predict the user acceptance of information technologies (Davis, Bogozzi, & Warshaw, 1989). The main goal of the model is to predict and explain the determinants of computer acceptance, and to generate a model, which is capable of explaining user behavior when applied to different end-user information technologies and user populations (Davis, Bogozzi, & Warshaw, 1989). The "Attitude toward using", and "behavioral intention" are two components that are taken from TRA, however subjective norm component is not included in TAM as a determinant of BI. Instead, the model uses, "Perceived Usefulness" (U), and "Perceived Ease of Use" (EOU) components to posit the two specific beliefs that are incidental to the behavior of information technology acceptance (Davis, Bogozzi, & Warshaw, 1989). In his study, Davis uses these two factors in order to answer, "What causes people to accept or reject information technology? (Davis F. D., 1989)"

Perceived usefulness (U): refers to the degree of a person's belief that using a specific system would increase his/her performance (Davis F. D., 1989, s. 320).

Perceived ease of use (EOU): refers to degree of a person's that using the same specific system would be free of effort (Davis F. D., 1989, s. 320).
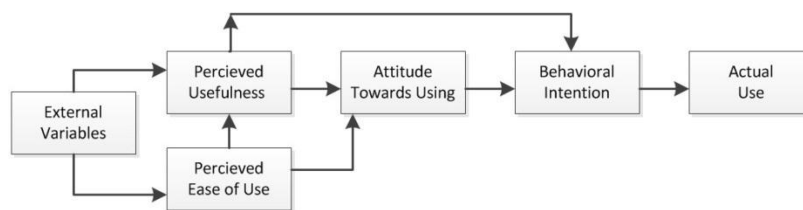
Figure 2-2 Technology Acceptance Model by Davis source: (Davis, Bogozzi, & Warshaw, 1989)

As it is in TRA, TAM also agrees that actual use is determined by BI while BI is jointly determined by attitude toward behavior and perceived usefulness. However, in their following researches Davis *et al.* remove the "attitude toward using" component form the model (Venkatesh & Davis, A Model of the Antecedents of Perceived Ease of Use: Development and Test, 1996) (Venkatesh & Davis, 2000). In addition to that, the study of Sun (2003) also proposes that attitude toward using cannot be a reliable predictor of BI. He supports this argument by bringing forward, only the three out of seven studies that he analyzed in his study found a significant relation between BI an use (Sun, 2003). TAM is widely used, modified, and extended in numerous studies, in order to measure the acceptance of different information technologies (Venkatesh & Davis, 1996) (Venkatesh & Davis, 2000) (Malhotra & Galletta, 1999) (Hiramatsu, Yamasaki, & Nose, 2009).

2.2.1   TAM2 and Extensions of TAM

Davis *et al.* extended the TAM in order to explain perceived usefulness and usage intentions via social influences (Venkatesh & Davis, 2000). The subjective norm component, which was eliminated in TAM, is introduced in TAM2 under social influences, Figure 2-3. TAM2 asserts that subjective norm has a significant direct effect on usage intentions over and above perceived usefulness (Venkatesh & Davis, 2000).
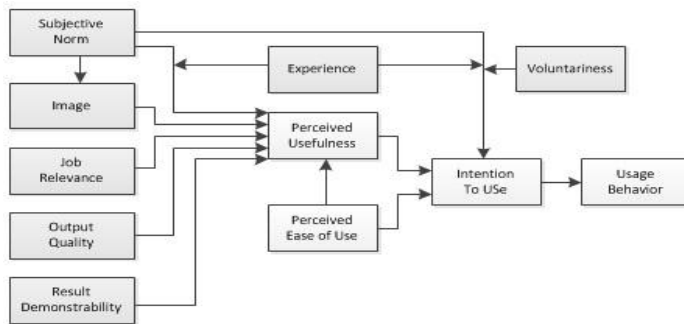
Figure 2-3 TAM2 - Extension of TAM source (Venkatesh & Davis, 2000)

The introduction of subjective norm component plays an important role in explaining the user acceptance of internet applications, by individuals. The base model, TAM, aims to explain user acceptance of information systems within organizations, and lacks of accounting in the factors important to understand the acceptance of internet applications.

The study of Malthorta and Galletta also argues that TAM is incomplete since it does not account social influences in adoption and utilization of information services (Malhotra & Galletta, 1999). The psychological component in their extension model is a determinant of attitude towards use and behavioral intention. The aim of their study is to distinguish the causes of usage behavior, which can be a result of either one's own attitude or the influence of environment, and to distinguish the levels of changes in attitudes and actions that are produced by social influences (Malhotra & Galletta, 1999).

Malthorta and Galletta (1999) use Kelman's study of social influence (1958) as a theory base, and aims to develop an extension for understanding the role of social influences in TAM. Kelman's explanation of social influence includes three different processes, compliance, identification and internalization (Kelman, 1958). The extended model is shown in Figure 2-4.
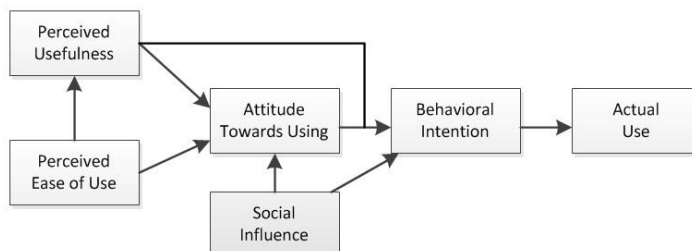
Figure 2-4 Extended TAM to account for SI source (Malhotra & Galletta, 1999)

Compliance: occurs if a person accepts influence because the person hopes to get a reward or avoid punishment. In this content a person does not accept the influence because of the belief that it is favorable. If we consider the use of legal, online music services, one can be using a specific legal music service not because the service is the best option to fill the music listening need but because it makes it possible to avoid the legal punishment against illegal usage.

Identification: is defined by Kelman (1958, s. 53) as acceptation of an influence in order to establish or maintain a satisfying self-defining relationship to another person to a group. In this case, regarding to the person, who uses a legal, online music service in the compliance example, the reason of the influence can be the popularity of the service in his or her social community.

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Internalization: applies if the influence is matching a person's value system. For example, a person, who uses a legal music service, may have a belief that supporting artists and listening to music legally is important. In this case, the user may have influenced not because of the quality of the service, or the benefits of it, but because the service carries the same values in terms of supporting the artists and doing it on a legal base.

The results of Malhotra and Galletta (2002) shows that Kelman's three processes of social influence are directly correlated with A, and they have indirect influence on BI. The results also shows that social determinants derived from compliance have a negative influence on attitude toward use, while social determinants derived from identification and internalization have a positive influence. Furthermore, internalization of an induced behavior by users plays a stronger role in shaping acceptance and usage behavior than perceived behavior (Malhotra & Galletta, 1999).

In an another TAM extension study, Amoroso and Guo (2006) takes the perspective of music consumers in order understand better the adoption of peer-to-peer[12] file sharing technologies. Their study includes different external factors, such as musical buying patterns, connection , and previous experience with P2P technology, which pertaining to music downloading using file sharing technology in addition to TAM variables, see Figure 2-5 (Amoroso & Guo, 2006).
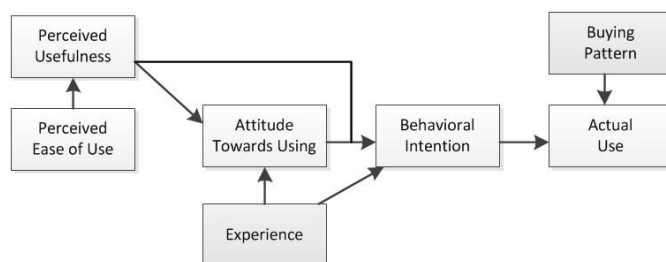
Figure 2-5 Extended TAM model for P2P acceptance source (Amoroso & Guo, 2006)

Buying pattern (BP): represents the music purchase activities, such as paying for membership or subscription and buying an online or retail copy.

Connection: component in the model refers to the internet connection type that users are using to acquire the online service. Amoroso *et al.* (2006) assumes that perceived usefulness of internet music downloading technologies should be positively correlated with the internet connection's download speed.

The results of their study shows that age, gender, connection type have no effect on user's perception of the U and EOU of downloading music using P2P technology. In addition to this, buying pattern has a negative path coefficient that shows users use file sharing as the means to obtain music less if they are willing to pay for the music one-way or another (Amoroso & Guo, 2006).

Finally, Hiramatsu, Yamasaki and Nose (2009) extends existing TAM model in order to explain why Japanese students use online video service. Figure 2-6 shows extended TAM for online video services. Their study plays a fundamental role in explaining the acceptance and the use of current internet based services by including ad-charge and flow components to the model. The TAM extension of Hiramatsu *et al.* (2009) also includes the social influ-

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ence factor. However, their interpretation refers to the influences from TV & magazines, and does not include Kelman's explanation of social influences (1958) that was used by Malhotra and Galletta (1999).
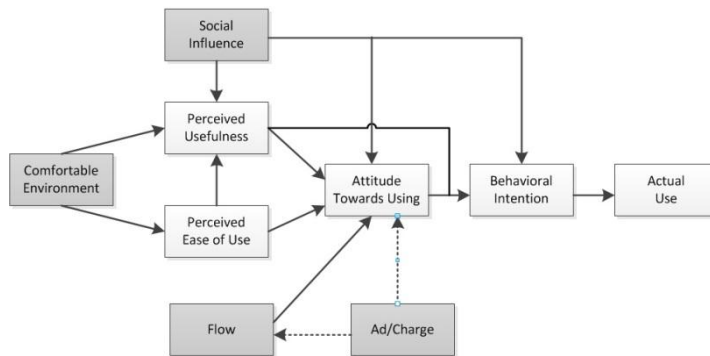
Figure 2-6 Extended TAM for online video services source (Hiramatsu, Yamasaki, & Nose, 2009)

Ad-charge (D): factor in the study aims to cover the effect of advertisement and charge on service use. The relation between ad-charge and flow is supposed to be negative. Factor questions included in the questionnaire of the study (Hiramatsu, Yamasaki, & Nose, 2009) cover different factors such as, the effect of free acquisition of online video on the use frequency or restriction of service use by users because they worry about a charge (Hiramatsu, Yamasaki, & Nose, 2009).

Flow (F): experience factor is defined as the degree to which a user feels pleasant by watching online video content. In other terms, the integral experience that users feel when they act with total involvement, while using an online system (Hiramatsu, Yamasaki, & Nose, 2009).

The findings of Hiramatsu *et al.'s* study (2009) shows that ad-charge factor is correlated with F and A. It is certain that ad-charge has influence on use but the coefficients are small, and it does not show a strong influence. On the other hand, F and A factors are highly correlated and it shows flow has a strong influence on attitude toward use (Hiramatsu, Yamasaki, & Nose, 2009).

2.3 Problem Discussion

Music rental vs. ownership is a recent discussion topic, and the "Music access" concept is a relatively new term. The "music access" model is based on monetizing the access of the consumers to music rather than monetizing the ownership of the music.

Previous studies on the music business in a post Napster era have covered the impact of illegal file sharing on record sales (Oberholzer-Gee & Strumpf, 2007) (Bhattacharjee, Gopal, & Sanders, 2003). However, these studies are based on the ownership model, and they mostly focus on the piracy levels rather than the motives behind the piracy. Therefore, in order to examine the transformation of digital music distribution, and how consumers adapt to this change, it is important to study the music access model in conjunction with the motives towards actual usage and the social influences.

Researchers used different "adoption" and "behavior" theories to understand these factors (Hiramatsu, Yamasaki, & Nose, 2009) (Amoroso & Guo, 2006) . This study uses the Technology Acceptance Model (TAM) of Davis (1989). There are limited amount of studies that

uses TAM to explain the adoption of online media services, and there is no study done which examines the adoption and use of streaming music services.

Amoroso and Guo use TAM in their study in order to explain the acceptance of file sharing technologies by music consumer (Amoroso & Guo, 2006). The primary goal of their study was to create an extended TAM model, to explain the music downloading habits of students and their file sharing usage. Their study gives strong evidence to the correlation between perceived usefulness and behavioral intention, as well between behavioral intention and actual use. However, it does not include the social influences factors.

A second study was conducted by Hiramatsu, Yamasaki, and Nose (Hiramatsu, Yamasaki, & Nose, 2009). They examine the behaviors of online video service users, based on TAM model. However, the focus of their study is based on social influence and flow attachments for TAM, while perceived usefulness was their secondary concern. Meanwhile, in this study it is also important to focus on perceived usefulness in order to be able to find out motive drivers and to answer, "What customers are looking for?"

In another study, Kunze and Mai focus on the demand of customers, and "What they look for in commercial music services" (Kunze & Mai, 2007). However, their conceptual framework uses "perceived risk" and "risk relief" factors, and ignores the other key factors such as "social influences", "ad- charge" and "flow".

Previous studies mentioned above used TAM in order to understand the adoption of online video services, and file sharing technologies by music consumer. In common, these studies try to explain; "what customers are looking for" via examining the relations between intention and attitude factors towards actual behavior. However, the sampling groups of these studies consist of either university students or a mix group of a single nation. There are no studies done on a multinational scale in order to sample all users of an online media service. Although the study of Kunze and Mai (2007) shows that, there are cultural differences affecting consumption behavior and it is important to examine behavior on country basis; this study proposes that this is not applicable to cloud computing and to cloud based services. Users of a cloud based music service are expected to share the same cultural characteristics in terms of music consumption behavior. However, the users can have different music tastes, but this does not make any difference since they all have access to the same music catalogue that they can listen to different songs according to their tastes. On the other hand, the legal regulation differences between countries, against piracy, can possibly influence the online music consumption behavior, yet it is not possible to mention a significant difference between the legal regulations of the countries subject to this study.

2.4   Purpose of the Study and the Research Model

The primary purpose of this study is to analyze the change in consumer behavior, and the factors effecting the adoption of streaming music services via extended TAM for streaming music services. While this is the primary subject, the study also aims to present the motivational factors for music consumers to use the streaming music services.

In addition, the study aims to come up with a theory model that can explain the acceptance of different streaming music services by users. In the following sections of this chapter, the research model derived from TAM and the hypotheses of the model are presented.

Two research questions based on these purposes are as follows.

Research question 1: How did consumers' music acquisition and consumption behavior change after getting access to a streaming music service?

The aim of the first research question is to find out how consumers' consumption habits change after they start using a streaming music service. It is important to know how these services are affecting the consumption habits, since knowing this will help to the new business startups to focus on the niches. Furthermore, the changes in consumption habits also cover the effect of the legal streaming music service usage on music piracy. One of the main arguments of the legal streaming music services is that service usage actually lowers the music piracy by offering access to a legal music catalogue that is asserted as equivalent to online file sharing. There is a research gap in studies concerning the change in consumer behavior. Therefore, it is important to examine this change.

Research question 2: What are the motivational factors for using a streaming music service?

The motivation factors are important to know in order to able to understand, "Why consumers use a streaming music service", and "What they are looking for". Therefore, the second research question aims to identify different motivational factors for using a streaming music service. It is possible to explain the motivational factors via examining the consumers' perceived usefulness on service use and their behavioral intention to use the service. On the other hand, examining these two components separately can only provide information at a micro level that is capable explaining the adoption of that single service. Hence, as it was mentioned in the problem discussion part, it is essential to see these motives as a part of a theoretical model that explains the actual use of a streaming music service.

2.4.1 The Research Model and Hypotheses

In order to be able to answer the research questions presented in section 2.4, this study proposes a hypothesis model derived from the TAM of Davis (1989) and its extensions that are previously explained in the theoretical perspective section. The proposed research model for extending TAM to account streaming music services is presented in Figure 2-7, aims to explain the motivations of the consumers' and the adoption of the streaming music services, within a theoretical framework.
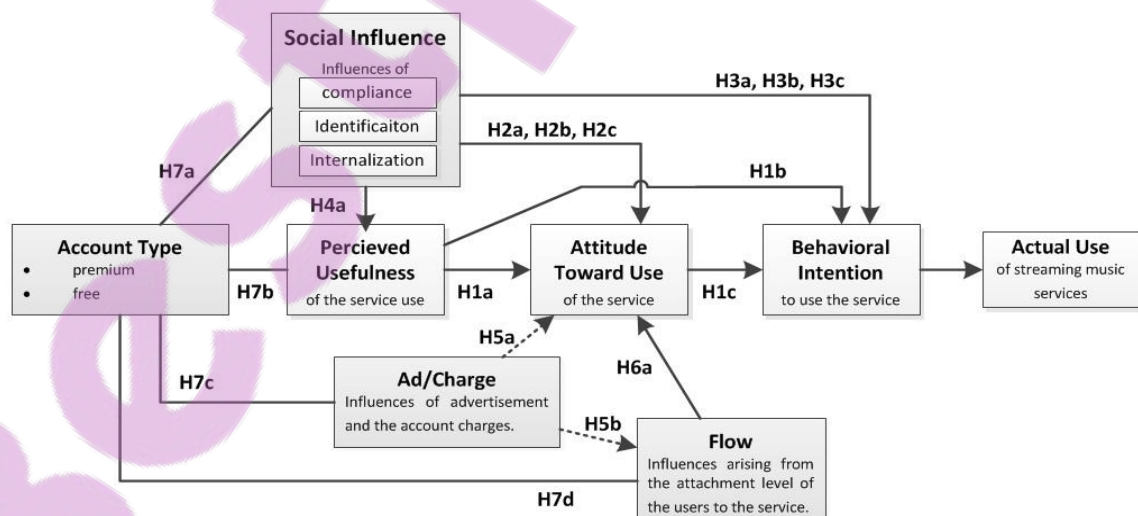
Figure 2-7 Research model of acceptance of streaming music services

Social influence, flow experience, ad-charge and account type components are added to the base model in order to examine external and internal factors related to the actual usage of streaming music services. One of the main components of TAM, "perceived ease of use (EOU)", is subtracted for the model since its main purpose is to indicate the effect of complex computer technologies on adoption.

The relations between the extension components of the hypothesis model are expected to be as follows.

- SI influences U, A, and BI.
- D influences A, F.
- F influences A.
- Account type influences SI, U, D, and F.

This study presents a research model based on TAM and on its extensions. The proposed model includes eight components, which result in the following hypothesized relationships. The factors in Figure 2-7, together with the H_1 hypothesis are explained as follows.

Influences of Perceived Usefulness, Attitude toward Use, and Behavioral Intention

The H_1 hypotheses directly derived from TAM examine the influences between perceived usefulness, attitude toward use, behavioral intention and actual use.

Hypothesis 1a: *Perceived usefulness is positively correlated to the attitude towards use.*

Hypothesis 1b: *Perceived usefulness is positively correlated to the users' behavioral intention.*

Hypothesis 1c: *Attitude toward use is positively correlated to the users' behavioral intention.*

Influences of Social Influence

Social influence (SI) component of the model is a factor concerning the influences from user's value system and from their social environment. The core of SI factor in this study is based on Kelman's study of social influence (1958), but also includes subjective norm component that was used in TAM2 of Davis (2000). The social influence factor concerns the effect of social environment' and user' perception of music piracy, to the effect of anti-piracy regulations, and to trendiness of the streaming music service.

The H_1 Hypotheses between social influence and attitude toward use:

Hypothesis 2a: *Compliance within social influence is positively correlated to attitude toward use.*

Hypothesis 2b: *Internalization within social influence is positively correlated to attitude toward use.*

Hypothesis 2c: *Identification within social influence is positively correlated to attitude toward use.*

The H_1 Hypotheses between social influence and behavioral intention:

Hypothesis 3a: *Compliance within social influence is positively correlated to behavioral intention.*

Hypothesis 3b: *Internalization within social influence is positively correlated to behavioral intention.*

Hypothesis 3c: *Identification within social influence is positively correlated to behavioral intention.*

The H_1 Hypotheses between social influences, perceived usefulness:

Hypothesis 4a: *There will be a positive relationship between Identification within social influence and perceived usefulness.*

Hypothesis 4b: *There will be a positive relationship between Compliance within social influence and perceived usefulness.*

Hypothesis 4b: *There will be a positive relationship between Internalization within social influence and perceived usefulness.*

Influences of Ad-Charge

Influences from ad-charge is represented as dotted lines as it is represented in Hiramatsu *et al.'s* study (2009), in addition it is expected to have the same negative influence on attitude toward use and flow. The primary aim of the ad-charge factor is to cover the effect of advertising on streaming music service usage, but it also indicates the influence of ad-charge on account type.

Hypothesis 5a: *Advertisement and charge will negatively influence the attitude toward use.*

Hypothesis 5b: *Advertisement and charge will negatively influence the flow.*

Influences of Flow

Flow factor indicates the attachment level to the streaming music service, and flow can be defined as the degree to which a user feels pleasant by using streaming music service.

Hypothesis 6a: *There will be a positive relationship between flow and attitude toward use.*

Influences of Account Type

Account type refers to the subscription method of users, which can be "free", or "premium" for streaming music services subscription method can.

Hypothesis 7a: *Free and premium users differ in terms of their social influences on streaming music services.*

Hypothesis 7b: *Free and premium users differ in terms of their perceived usefulness of streaming music services.*

Hypothesis 7c: *Free and premium users differ in terms of flow.*

Hypothesis 7d: *Free and premium users differ in terms of ad/charge.*

3 Methodology

In the light of the theoretical framework and the background information, which are introduced previously, this chapter of the study focuses on explaining how the empirical study was conducted. In addition, the following sections of this chapter include detailed information about, the choice of research method, the research design, the data collection, and the manipulation of the data and analysis.

3.1 Research Philosophy and Approach

As mentioned earlier, the aim of this study is to come up with an extended TAM model that explains the factors affecting the adoption of streaming music services, and the change in consumer behavior.

Saunders, Lewis, and Thornhill (2007, s. 101) states that the research philosophy and approach adopted have a great influence on research strategy choice and on research method. This study espouses a positivist position to the development of knowledge within epistemological thinking of research philosophy. The positivist positioning focuses on working with an observable social reality to come up with a product that has law-like generalizations (Saunders, Lewis, & Thornhill, 2007, s. 103).

In addition, this study is based on deductive research approach that is more applicable to positivism, than inductive approach (Saunders, Lewis, & Thornhill, 2007, s. 117). A deductive research approach is consisting of deduction of the hypothesis from the theory base, expression of the hypotheses to propose a relationship between two specific concepts or variables, test of the hypotheses with collected data, examination the specific outcome of the inquiry, and modification of the theory in the light of the findings (Saunders, Lewis, & Thornhill, 2007, s. 117). The TAM theory formulation studies of Davis *et al.* (1989) together with the other extension studies by Amoroso & Guo (2006), Malhotra & Galletta (1999), and Hiramatsu *et al.* (2009) concerning the TAM, provided the preliminary information to construct the theoretical framework of the study. Based on the findings of these previous studies an extended TAM was modeled, and the hypotheses, which are previously given in the research model and research hypotheses part, were formulated in order to test the functionality of the new model.

3.2 Research Strategy and Method Choice

Saunders *et al.* (2007, s. 134) mention that research problems of a study may have more than one purpose and can be both explanatory and descriptive. In terms of the explanatory purpose, this study aims to examine streaming music service adoption via explaining the relationships between different components of proposed TAM by subjecting the data to statistical tests. In addition, the study also aims to present an accurate profile of the streaming music service users, concerning the descriptive purpose.

Survey strategy is highly associated with positivism research philosophy and deductive research approach. Moreover, when compared to the other research strategies, surveys allow researchers to collect a large amount of data form a sizable population in a highly economical way (Saunders, Lewis, & Thornhill, 2007, s. 138). Therefore, this study adopts the survey research strategy and uses survey to analyze the proposed theoretical framework. On the other hand, the survey strategy can use both quantitative and qualitative data as input. From these two techniques, the quantitative method was chosen for this study. Saunders *et al* (2007, s. 145) states, quantitative method includes data collection techniques and analyses

(such as questionnaires, statistics), which generates and uses numerical data. Moreover, the data collected can be used to explain relationships between variables while producing the models of these relationships, since it is standardized and allowing the easy comparison of variables.

This study, which adopted survey strategy, uses a single method. The choice of single method is suitable with the positivism philosophy, and the deductive approach of the study. As mentioned previously, deductive research approach and positivism philosophy aims to work with an existing theory to develop test hypothesis, and to come up law-like generalizations. At this point, the quantitative data collection techniques enable easy comparison of variables, and standardization. Furthermore, analyzation of the collected data by using statistics is also possible with quantitative method. Therefore, the choice of single method and using quantitative methods for data collection and the analysis is essential for testing the proposed TAM for streaming music services.

3.3   Data Collection Technique

According to Saunders et al (2007, s. 355), the questionnaire is a widely used data collection technique in survey research strategy, which best suits with descriptive and explanatory studies. In addition, it was stated that questionnaires are effective in collection of responses forms a large sample, since each respondent is asked to the same set of, standardized, close-ended questions. Therefore, in the light of the existing knowledge, questionnaire is chosen as the data collection method of this study, and a questionnaire is designed based on the theoretical framework.

The questionnaire designed for this study consists of close-ended, standardized questions that target a specific target group, and is designed as a self-administrated questionnaire that completed by the respondents. After the formulization of the questions, an electronic internet-mediated questionnaire form was created by the help of the form sheets offered by Google documents. In addition, since the web link of the form file generated in Google documents was long and complex, the web link was directed to the http://spotifysurvey.blogspot.com/ domain address. This made the questionnaire link that was sent to respondents simpler and more attractive. Besides, the use of electronic forms of Google enabled the automation of capture and input of the answers of the respondents. After the completion of the data collection, the final dataset was exported as a Microsoft Excel file, which is a ready input file format for the statistical analysis programs. The automated capture and input of the data catered the extra time needed for the data collection period by eliminating the time required for manual entry of the data.

3.4   Data Sampling

Sampling is essential when it is impracticable to collect data from the entire population, due to time, money and access restrictions (Saunders, Lewis, & Thornhill, 2007, s. 204). The survey strategy of this study aims to examine the adoption of streaming music services via studying Spotify, and Spotify has an approximate user population of seven million. Therefore, sampling was also important in this study because it was not possible to census the entire population due to time constraint.

There are two main types of sampling technique, which are probability and non-probability sampling. According to Saunders et al (2007, s. 207), probability sampling provides equal chance of each case selected from the population is known. That, in result, makes it possible to answer each research question statistically through the characteristics of the popula-

tion defined by the sample. On the other hand, non-probability sampling allows identifying the members of a group, when it is not possible to acquire the details of the all cases to store on the computer.

The probability sampling technique that was used for this study requires the identification of the sampling frame as a first step. The research questions and theoretical model extension objective of this study was concerned with members of Spotify. Therefore, the sampling frame should have been the complete membership list of Spotify. In the light of this information, the members of Spotify Facebook group[13], and the Sharemyplaylist.com[14], which hosts Spotify users and gives access to complete membership list, was defined as the sampling frame. All of the cases listed in this sampling frame are Spotify users and can provide data to answer the research questions and hypotheses.

In order to lower the likely error in generalizing the population, the sampling size should be as big as possible, which also in result increase the accuracy of the findings while lowering the money required for the collection, and the analyzation of the data. The choice of sample size is determined by the total size population, the types of analyses to be undertaken, the margin of error to be tolerated, and the confidence level needed (Saunders, Lewis, & Thornhill, 2007, s. 210). As of April 2010, the total size of Spotify users was around seven million (IFPI, 2010) and the population size of sampling frame was 340.000. The sampling size for the population was calculated as 384 at a level of certainty of 95 percent, and the margin of error of 5 percent. However, as Saunders *et al* (2007, s. 212) stated the 100 percent response rate was unlikely so actual sampling size required to suffice the margin of error was calculated as 1280 according to the expected 30 percent response rate.

Saunders *et al* (2007, s. 215) emphasizes, once the suitable sampling frame is chosen and the actual sample size required is established, the most appropriate sampling technique needs to be selected. In this study, a combination of simple random and self-selection sampling methods was used to collect the data. The questionnaire link was sent to respondents, who were chosen by using random numbers, from the member lists of the previously mentioned web-community pages. Although, the complete member list was accessible, it was not possible to create a case database in order to assign random numbers to each case. Thus, the random number technique was used by assigning the random numbers manually each time before selecting the respondents from member list page. In addition to the simple random sampling, as a part of the non-probability sampling the self-selection sampling technique was also used. The questionnaire was advertised by posting the questionnaire website link as a comment to the wall posts of Spotify in Facebook. Since wall posts of Spotify only targets the members of the fan group in Facebook, only the cases within the sampling frame were successfully covered. Moreover, in Sharemyplaylist.com community webpage, the need for cases was advertised and members were asked to take part in filling the questionnaire.

3.5   Questionnaire design

Concerning the questionnaire design, Saunders *et al* (2007, s. 356) emphasizes that the design of a questionnaire directly effects the response rates, the validity and the reliability of

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[13] Spotify Facebook group is a fan page that is administrated by Spotify, and gives full access to the list of members of the group.

[14] ShareMyPlaylists.com is a resource for Spotify users to share and explore Spotify Playlists, which is owned and operated by UK Offer Media Limited (Sharemyplaylist).

the data collected. Furthermore, in order to maximize the efficiency, the questions should be carefully encoded, and the questionnaire must be clearly introduced, designed, pilot tested, and administrated.

The validity of the questionnaire can be assessed under three groups, which are content validity, criterion-related validity and construct validity. According to Saunders *et al* (2007, s. 366), content validity refers to the adequate coverage of the research questions, hypothesis by the questionnaire, and criterion-related validity. The content validity of this study was made through intense identification of the research through the literature reviewed, and a test-group of potential respondents was interviewed to discuss whether the questions included are essential or not. Besides, the questions are designed to account TAM components; Table 3-1 presents the link between components, question numbers, and the research questions. The complete questionnaire can be seen in appendix 1.

Table 3-1 Questionnaire design

	Question # in Questionnaire	Research Question		Question # in Questionnaire	Research Question
Perceived Usefulness	3	2	**Ad/Charge**	12	2
Attitude Toward Use	4	2	**Flow**	11	2
Behavioral Intention	8, 9	2	**Change in consumer behavior**	14, 15, 16	1
Social Influence	5, 10	2	**Demographics**	17, 18	
Account Type	2		**Background questions**	6, 7, 13	

When designing the questionnaire, the measurement scales and the questions regard to base TAM were adapted from other questionnaires designed for the previous TAM studies. In addition, new questions were developed for the new attachments of the proposed model. The questionnaire designed includes a combination of open and closed questions. The only open-ended question included is the comment box added to question 13, which aims to get detailed answer about users' intention to buying digital music copies from Spotify, and to understand what is uppermost in their minds towards digital music purchase. Saunders *et al* (2007, s. 369) states that, although the open-ended questions are useful to capture deeper knowledge, they are extremely time consuming to code as a part of a large-scale questionnaire and it is advised to keep their use to a minimum. Therefore, rests of the questions in the questionnaire were worded as closed-ended. The closed-ended questions were used because these questions require minimal writing, as they are quicker and easier to answer (Saunders, Lewis, & Thornhill, 2007). Saunders et al (2007, s. 368) lists six types of closed-ended, questions, list, category, ranking, rating, quantity, and grid. This study has used grid question type with Likert-style rating on a five point rating scale, for the questions connected to TAM components. In addition to the grid questions, list (questions 1, 7, 13), and category (questions 2, 17, 18) question types were used.

The questionnaire that was designed contains eighteen questions. The first question in the questionnaire aims to exclude responses besides the target group, and the following ques-

tions from three to sixteen includes include factor questions that try to capture different aspects based on the theoretical framework model. The last two questions covers the demographics, in order to know the age and sex of the respondents. In order to be able to test each component of the proposed TAM for streaming music service, the part of the questionnaire related to these components divided into seven parts, which consist of factors concerning perceived usefulness, attitude toward use, behavioral intention, social influence, ad-charge, flow, and account type.

The second question of the questionnaire was concerning the account type component of the proposed model, and respondents were asked to choose either free or premium to define their membership method. In the question 3, respondents were asked to rate different statements that aim to capture the degree to which users believe that using a streaming would enhance their overall music listening experience, or habits. These statements were asking whether if using the streaming music service enhances, the size of the music catalogue they can access, the sound quality of the music that they listen, their accessibility to music and their music sharing activities. The respondents' attitude toward use of streaming music services was asked in the question 4. The questions 8 and 9 concentrated on measuring the behavioral intention to use streaming music service. Behavioral intention to use was captured in two different questions in order to differentiate between intentions to use arising from different account types. The question 8 measures intention to use Spotify in general, whereas the question 9 focuses on intention to use a premium Spotify account. The factors that aim to measure the level of social influences were asked in the questions 5 and 10. The nine factors in these two questions were also divided into three categories to capture Kelman's three processes of social influence (1958). These factors targeted to different dimensions of compliance, identification and internalization. In the question 11, respondents were asked to rate the given statements in order to be able to measure their level of attachment. The attachment level, in the proposed model, was defined in flow component. The respondents were asked whether Spotify is their music player, and if they switch to another medium when the tunes they want to listen are not available in Spotify. The question 12 was asked to measure the ad-charge component, and covered the effect of advertisement and charges for premium account on use. In addition to the questions targeting the components of TAM, in questions 14, 15 and 16 the respondents were also asked about different factors that aim to measure the change in their consumption habits after Spotify. These questions were designed to answer the research questions of the study, which contains factors that concern the change of music consumption behavior, and the effect of streaming music service use on music piracy. The question 6 included to the questionnaire in order to measure respondents' opinion about piracy and legal music service use. Besides, questions 7 and 13 were also included to measure the streaming music services users' willingness to pay for music ownership in general.

3.6   Pilot Test of the Questionnaire

According to Saunders et al (2007, s. 386) the questionnaire should be pilot tested before using it to collect data. As mentioned before they also state that pilot testing is a part of the questionnaire design, which improves the efficiency. The pilot testing enables to find out, the time required to complete the questionnaire, the biased & wrongly encoded questions, and the problems related to design.

The first pilot test of the questionnaire was conducted with two persons. According to the feedbacks of the test participants, a revised version of the questionnaire was formed that included the corrections on grammar, and encoding problems in order to increase clarity.

The questions, which were related to the technical details about internet connection speed and type, the compression quality of digital music and media compression types, and the medium preference of the users' to listen to music were deducted from the questionnaire according to the supervisor comments. These questions were deducted since they were not directly related to the research hypotheses and questions. This also lowered the time required for completing the questionnaire.

The second pilot test was conducted online with fifteen persons. The link of the web page that hosts the questionnaire was sent to the test participants through Facebook. The participants were informed that it was a pilot testing, and were asked to report the grammatical mistakes that they captured together with their comments about the questions that caused blur while answering. The final version of the questionnaire was created after the corrections done according to the feedbacks captured from the second pilot testing.

3.7 Data Collection

Saunders *et al* (2007, s. 388) underlines that during the administration stage of the questionnaire, the goal of the researchers is to gain access to sample and to maximize the response rate. They summarize different techniques that help to maximize the response rate, when conducting a postal questionnaire. Some of these techniques were also adopted to use in the questionnaire of this study. Two Facebook and one Sharemyplaylist account were created and a new e-mail address was registered for the research project, in order to give a more official appearance. The profiles included the genuine logo and brief information about the purpose of the questionnaire. In the information section, it has been noted that the questionnaire was a part of an academic research that has been conducted in the Jönköping University. Before the start of the administration, the web link of the questionnaire created in Google forms was directed to the *spotifysurvey.blogspot.com* domain, and tested with different web browsers in order to be sure that the image being displayed is the same.

The administration of the questionnaire was started on 10th of March 2010, and finalized on 18th of April 2010. As a part of the probability sampling, the direct link of the questionnaire web page was sent to 600 randomly selected respondents, 200 through Facebook and 400 through Sharemyplaylist.com. Since Facebook has strict rules against spamming, each account has a temporary limit in sending web links via personal messages in order to prevent spamming. Therefore, it was critical to send out a maximum of twenty request messages every day. The accounts were blocked by Facebook two times, and during that block stages it was not possible to send out any request messages for ten days in total. Sharemyplaylist.com portal was less sensitive in this sense, and with the help of the site admin, the request message could be freely sent out to the randomly selected respondents. In addition, non-probability sampling was also used since it was not possible to reach to the targeted 1280 actual sampling size with probability sampling due to the time constraints. The web page link of the questionnaire was posted as a comment to the wall post Spotify in the company Facebook group. Fifteen comments were posted during the administration period. Although it is not possible to identify how many group members viewed the comments, when the timestamp and comment times compared it is possible to say that each comment provided five to ten responses within the next 20 minutes of the comment time.

As of 18th of April 2010, 246 responses were achieved. The achieved response number resulted in an increase to in the margin of error to 6.25 percent, and decreased the confidence level to 88.3 percent. The limitations of using Facebook to gain access to sample were not taken in consideration during the planning stage. These limitations resulted in major time consumption, and hindered the achievement of the targeted sample size of the

study. On the other hand, use of non-probability sampling in Facebook came up more efficient than it was expected.

3.8   Methodological Limitations of the Study

The adopted method for conducting the internet-based questionnaire resulted in some structural changes because of the practical limitations. The second question of the questionnaire aims to collect categorical data to explain the account type component included in the proposed TAM. The research hypotheses that are attached to account type component assert that SI, U, D, and F can differ for users, according to their account type. Since premium and free user are using the same service with different features, the questionnaire needed to address extra questions to the respondents according to their account type chooses in the question 2. However, the form sheets offered by Google documents do not have an option to filter and address different question depending on an answer given to a question. Therefore, the designed questionnaire is not capable of capturing different the dimensions that derive from account type preference. However, it is still capable of explaining the differences on beliefs of these two groups.

4   Empirical Study

In this chapter, the analyses of the results of the questionnaire and discussion of the analyses are presented. The analyses of the results are conducted by using the SPSS statistical analysis software. In the first section, descriptive analyses are presented. The analysis related to main question that aims to investigate the change of consumption habits is given in this section. Then in the second section, Mann-Whitney U test, correlation analysis, and regression analysis of the research model are presented. After the presentation of analysis of the results, discussions of the analyses are presented in the second part of the chapter.

4.1   Analysis of the Questionnaire Results

As previously presented, the questionnaire was conducted through Googledocs. After the administration stage finalized, the data set that consist of automatically captured responds was exported as a Microsoft Excel document. The Excel spreadsheet document was then imported into SPSS for analysis.

4.1.1   Descriptive Analysis of the Results

The frequency distribution of the "Are you a Spotify user?" question presents that there are 246 valid cases in the study, whereas 48 of the cases were the female and 198 of them were male. The female respondents represent 19.5 percent of the total cases, as males form the major population with 80.5 percent.

Table 4-1 shows the age distribution of the respondents within different age groups. The descriptive frequency statistics given in the table represents the frequency, percentage, and cumulative percentage of all respondents. The analysis shows more than half of the sample population is clustered in the age group 15 -25. Moreover, 82.5 percent of the respondents are below 37.

Table 4-1 Age distribution of the questionnaire respondents

	Younger than 15	15 - 25	26 - 36	37 - 47	48 - 58	59 - 69
Frequency	8	125	70	29	13	1
Percentage	3.3 %	50.8 %	28.5 %	11.8 %	5.3 %	0.4 %
Cumulative Percentage	3.3 %	54.1 %	82.5 %	94.3 %	99.6 %	100 %

In the questionnaire, respondents were asked to state their membership method, and the result is presented in Figure 4-1. According to the analysis, 35 percent of the respondents have a premium account, whereas 65 percent is using the free account option.

Figure 4-1 the account preference of the respondents

In the question 7, respondents were asked if they have ever paid for music. The "music" in the question defined as legal music purchases such as, digital music service subscription, single digital media purchases, any physical media purchases like CD, cassette, and other excluding concerts. As represented in Figure 4-2, the analysis shows that 95 percent of the respondents answered the question as "yes". Furthermore, the age distribution of the respondents who have never paid for music shows that 92.8 percent of this group is below 25 years old.
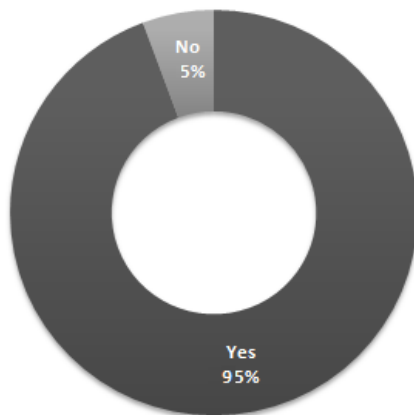
Figure 4-2 Have you ever paid for music?

Analysis of the Change in Consumer Behavior

Question 15 in the questionnaire was designed to find out the how consumers' music acquisition and consumption behavior changed after getting access to a streaming music service. Spotify users were asked to rate different statements related to this change. The respondents rated the statements on a five-point Likert scale that is then converted into numbers for statistical analysis. The Likert scale was label from one to five as, strongly disagree, disagree, in between, agree, and strongly agree. In order to present the balance of the change clearly, *strongly disagree* and *disagree* scales are grouped as "disagree"*, whereas *strongly agree* and *agree* grouped as "agree". Figure 4-3 presents the percentages for disagree, in between, and agree answers given.
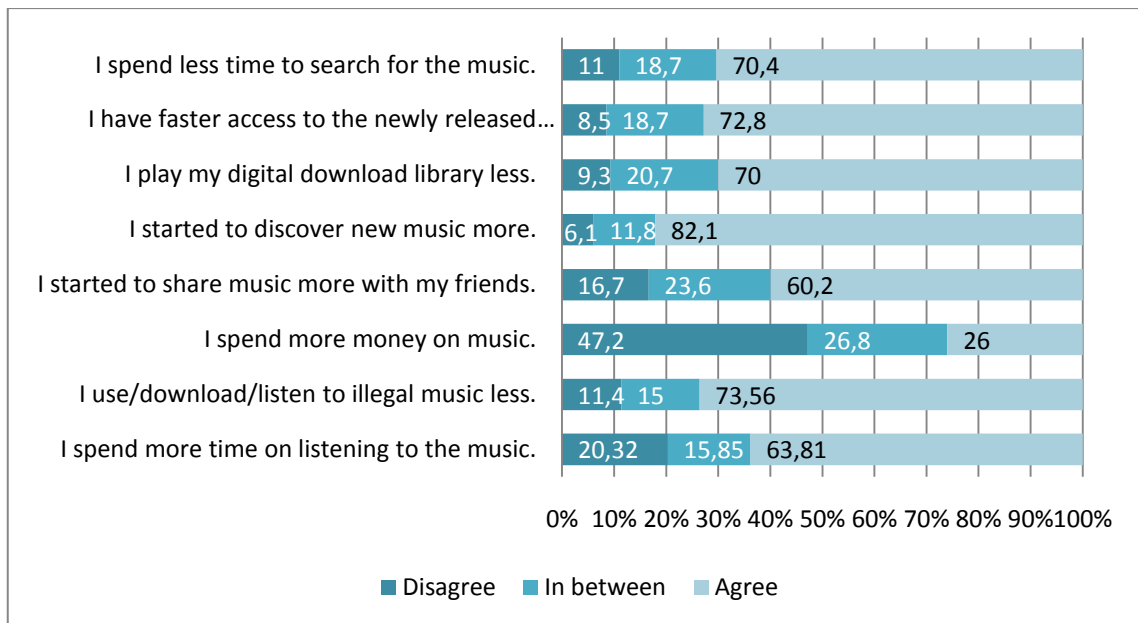
Figure 4-3 Frequency statistics of the statements concerning the change in consumption behavior

According to the percentages table, it is possible to say that most of the respondents agree that they experienced a statistically significant change in their music consumption habits after they started to use. The analysis shows that the most significant change in the music users' consumption behavior concerns the statement *I started to discover new music more.* 82.1 percent of the respondents stated that they are agree on that they started to find out new music more, after they started to use Spotify. The respondents also agreed on *I use/download/listen to illegal music less* statement by 73.56 percent, and on *I have faster access to the newly released music* by 72.8 percent. Moreover, *I spend less time to search for the music*, and *I play my digital download library less* statements also showed an agreement level over 70 percent. Furthermore, 63.81 percent of the respondents agreed that they started to spend more time on listening to the music, and 60.2 percent agreed that they started to share music more with their friends. On the hand, 47.2 percent of them disagreed that they started to spend more money on music after they started to use Spotify.

Analysis of the music pirating behavior after Spotify
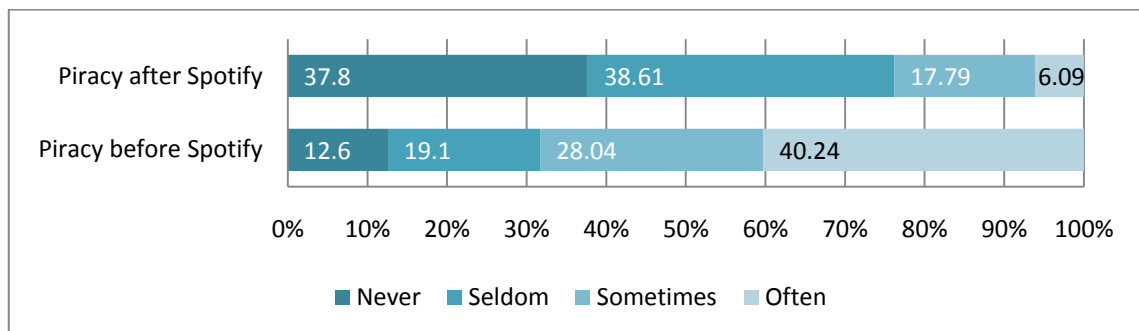
Figure 4-4 Frequency statistics of the statements concerning the music piracy before and after Spotify

Question 16 included in the questionnaire aimed to capture whether if the access to a streaming music service reduce consumers' usage of illegal file sharing services for their music acquisition purposes, or not. The analysis result is shown in Figure 4-4. The respondents were asked to rate the given statements on a four-point Likert scale which was based on the frequency of the behavior. The four-point Likert was scaled as Never, Seldom,
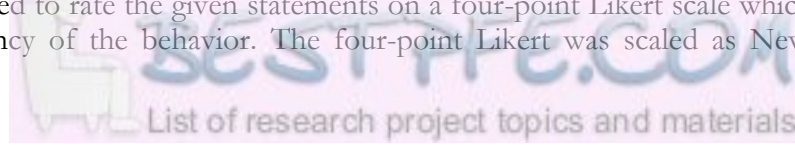
Sometimes, and Often. According to the answers of the respondents, 40.24 percent of the respondents were often buying or downloading illegal music before they started to use Spotify. Moreover, 28.04 percent of them were sometimes performing the behavior. However, the analysis shows that the frequency of buying or downloading illegal music is decreased after they started to use Spotify. 37.8 percent of the respondents reported that they never pirated after started to use Spotify, in addition 38.61 percent reported that they seldom pirating.
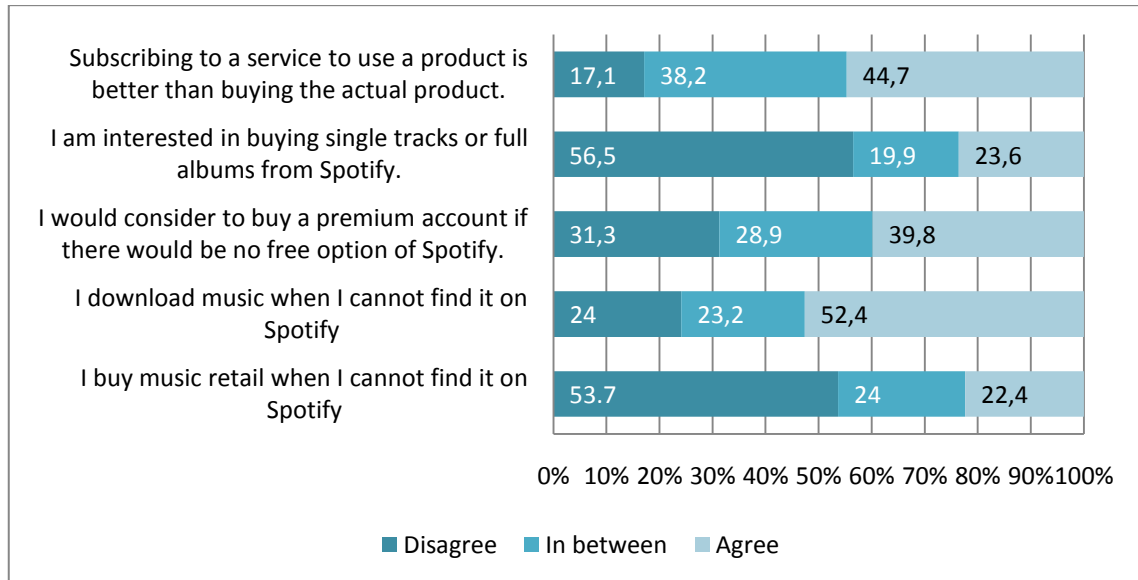
Figure 4-5 Frequency statistics of the statements concerning to buying patterns

In addition to the statements concerning the change in music consumption behavior, the participants were also asked to answer different statements related to the music buying patterns. The questions were asked to be rated on the same five-point Likert scale that was explained previously, and the results are regrouped as disagree, in between, and agree. The findings of the analysis are presented in Figure 4-5. According to the findings, 53.7 percent of the respondents disagreed that they buy music retail when they cannot find it on Spotify, whereas 52.4 percent agreed that they download in the same occasion. Moreover, 56.5 percent of them stated that they are not interested in purchasing single tracks or full albums from Spotify. Besides, 44.7 percent agreed that subscribing to a service is better than buying the music, while 38.2 percent of them stated that they are in between about the same argument. On the other hand, when they were asked whether they would consider buying a premium account if they would not be free subscription option, 39.8 percent agreed on buying premium, 28.9 percent answered as in between, and 31.3 percent disagreed.

4.1.2   Analyses of the Research Model and Hypotheses

In order to inspect the proposed TAM, relations between components should have been examined. Therefore, correlations were analyzed. According to Pallant (2001, s. 90) Pearson correlation is one of those techniques that aim to explore the strength of the relationship between to continuous variables, and gives the strength of the relationship in both negative and positive directions.

Correlations between variables, included in each component of the research model, are tested with significance at the 0.01 level. Pallant (2001, s. 121) suggests that in large samples where N is bigger than 100, it is better to work the $p < .01$ level, because very small correlations may be statistically significant. The correlation coefficients between variables are

listed in the following tables, and the values that have a correlation significant at the 0.01 level are colored to gray. The un-colored, white, cells represent that there is no correlation between variables. The abbreviations for the variable titles that are listed in the following tables are follows.

- U   >   Perceived usefulness
- A   >   Attitude toward use
- BI   >   Behavioral intention
- SI.it   >   Social influence (Internalization)
- SI.id   >   Social influence (Identification)
- SI.c   >   Social influence (compliance)
- F   >   Flow
- D   >   Ad/charge

4.1.2.1   Analysis of Relationship of the Research Model Components

In the first section of the research model analyses, all of the sub-factors of the main factors are listed in the tables. The sub-factors are numbered according to the variable abbreviations, such as U1, U2 for *Perceived usefulness1*, *Perceived Usefulness2*.

Influences of perceived usefulness on attitude

Table 4-2 lists the correlation coefficients between perceived usefulness (PU) and attitude (A). Research hypothesis 1a asserts that the PU is positively correlated to A. As it shown in the table, all of the variables are correlated. The analysis supports the research hypothesis 1a. H_0 was rejected. This means that users' perceived usefulness about using the streaming music service has a positive influence on their attitude toward use of the service.

Table 4-2 Correlation coefficient between Perceived Usefulness and Attitude

	U1	U2	U3	U4	U5	U6	U7	U8	U9
A1	0.296	0.443	0.244	0.219	0.359	0.171	0.365	0.383	0.336
A2	0.329	0.458	0.262	0.306	0.412	0.250	0.325	0.425	0.468
A3	0.247	0.517	0349	0.428	0.357	0.288	0.279	0.359	0.356
A4	0.264	0.387	0.314	0.282	0.418	0.346	0.356	0.486	0.422
A5	0.288	0.349	0.360	0.291	0.328	0.315	0.387	0.476	0.376

Influences of perceived usefulness on behavioral intention

The correlation coefficients between perceived usefulness (PU) and behavioral intention (BI) variables are listed below in Table 4-3. This relationship was given in the research hypothesis 1b as; U is positively correlated to the users' BI. From the correlation coefficients listed, it is clear that most of the relations are significant. The statements regard to effortless usage experience and using a legal service, within PU; and the statements regard to intention to hold a premium account for mobile application and for special offers, with in BI, came up to be uncorrelated. The other relationships are significant at 0.01. The analysis supports the research hypothesis 1b. H_0 was rejected, which means that users' perceived usefulness about using the streaming music service has a positive influence on their behavioral intention to use the streaming music service.

Table 4-3 Correlation coefficient between Perceived Usefulness and Behavioral Intention

	U1	U2	U3	U4	U5	U6	U7	U8	U9
BI1	0.260	0.420	0.200	0.328	0.259	0.271	0.224	0.314	0.322
BI2	0.336	0.455	0.262	0.396	0.230	0.258	0.244	0.318	0.389
BI3	0.223	0.229	0.192	0.192	0.275	0.064	0.200	0.273	0.638
BI4	0.209	0.143	0.177	0.109	0.153	0.238	0.143	0.169	0.116
BI5	0.188	0.114	0.130	0.095	0.188	0.181	0.139	0.210	0.150
BI6	0.171	0.266	0.239	0.119	0.219	0.196	0.148	0.263	0.212
BI7	0.136	0.072	0.289	0.114	0.301	0.234	0.124	0.108	0.184
BI8	0.232	0.179	0.110	0.140	0.216	0.086	0.188	0.069	0.180

Influences of attitude on behavioral intention

Relationship between attitude and behavioral intention was presented in research hypothesis 1c. The hypothesis asserts that attitude toward use (A) is positively correlated to the users' behavioral intention (BI) to use streaming music services. Table 4-4 lists the correlation coefficients of the variable of A and BI. It is clear that there is a significant relationship between A and BI. A is positively correlated with BI; however the concentration of the correlation coefficients shows that this relationship is not so strong. The analysis supports the research hypothesis 1c. H_0 was rejected.

Table 4-4 Correlation coefficient between Attitude and Behavioral Intention

	A1	A2	A3	A4	A5
BI1	0.376	0.394	0.408	0.322	0.256
BI2	0.386	0.563	0.460	0.346	0.379
BI3	0.312	0.439	0.259	0.351	0.281
BI4	0.178	0.152	0.111	0.214	0.158
BI5	0.094	0.253	0.177	0.216	0.213
BI6	0 .150	0.266	0.224	0.302	0.280
BI7	0.112	0.221	0.227	0.304	0.243
BI8	0.276	0.294	0.196	0.253	0.192

Influences of social influence on attitude

Table 4-5 lists the correlation coefficients between social influence (SI) and attitude (A) variables. SI component is based on Kelman's study of social influence (1958) factors that are divided into compliance, internalization, and identification. The research hypotheses 2a, 2b, and 2c assert the relationship between SI and A. Hypotheses were formed as compliance, internalization, and identification within social influence are positively correlated to attitude toward use.

Table 4-5 Correlation coefficient between Social Influence and Attitude

	SI.id1	SI.id2	SI.id3	SI.id4	SI.c1	SI.it1	SI.it2	SI.it3	SI.it4
A1	0.369	0.400	0.059	0.025	0.067	0.148	0.179	0.013	0.076
A2	0.511	0.474	0.099	0.045	0.180	0.153	0.211	0.025	0.104
A3	0.416	0.410	0.073	0.020	0.104	0.156	0.183	0.050	0.035
A4	0.377	0.330	0.153	0.110	0.228	0.278	0.219	0.099	0.118
A5	0.307	0.315	0.077	0.080	0.164	0.203	0.176	0.207	0.132

The analyses shows that there is a large positive correlation between the first two identification factors of SI and A. The third and fourth factors of identification were aiming to capture external effects such as popularity of the service. However, it is seen that there is no relationship between external factors within identification and BI. Although, the relationship between identification, compliance, and BI is not clear, it is predicted that there is influence since most relations are significant. On the other hand, the relationship between BI and internalization is not clear. There is no significant relationship between these variables. Therefore, H_0a and H_0c were rejected. The analysis partially supports the research hypotheses 2a and 2c. However, the analysis does not support the research hypotheses 2b. The H_0b hypothesis rejected.

Influences of social influence on behavioral intention

Table 4-6 shows correlation coefficients between social influence (SI) and behavioral intention (BI). Most of the relations between identification and BI are significant, but it is not clear that there is a strong influence. On the other hand, there was no significant relation between compliance and internalization. The research hypotheses 3a, 3b, and 3c were asserting that compliance, internalization, and identification within SI are positively correlated to behavioral intention. According to the analysis, the research hypothesis 3c was accepted, whereas the research hypotheses 3a and 3b were rejected.

Table 4-6 Correlation coefficient between Social Influence and Behavioral Intention

	SI.id1	SI.id2	SI.id3	SI.id4	SI.c1	SI.it1	SI.it2	SI.it3	SI.it4
BI1	0.281	0.367	-0.055	-0.107	-0.034	0.097	0.053	0.044	0.021
BI2	0.589	0.586	-0.008	-0.057	0.105	0.181	0.159	0.069	0.088
BI3	0.326	0.270	0.167	0.063	0.148	0.152	0.196	0.056	0.049
BI4	0.217	0.193	0.047	0.085	0.054	0.167	0.034	0.043	0.017
BI5	0.195	0.138	0.124	0.081	0.096	0.187	0.183	0.065	-0.018
BI6	0.219	0.215	0.013	0.066	0.071	0.082	0.040	0.126	-0.038
BI7	0.180	0.175	0.206	0.233	0.344	0.287	0.255	0.122	0.090
BI8	0.271	0.261	0.153	0.091	0.279	0.334	0.534	-0.215	0.204

Influences of social influence on perceived usefulness

Table 4-7 represents the correlation coefficient between social influence (SI) and perceived usefulness (PU).

Table 4-7 Correlation coefficient between Social Influence and Perceived Usefulness

	SI.id1	SI.id2	SI.id3	SI.id4	SI.c1	SI.it1	SI.it2	SI.it3	SI.it4
U1	0.271	0.285	0.058	0.005	0.020	0.050	0.074	0.059	0.049
U2	0.369	0.411	-0.078	-0.040	0.124	0.180	0.095	0.032	0.129
U3	0.331	0.228	0.096	0.179	0.199	0.156	0.083	0.172	0.124
U4	0.356	0.366	-0.059	-0.027	0.044	0.076	0.032	0.136	0.003
U5	0.311	0.356	0.159	0.176	0.210	0.328	0.252	0.105	0.190
U6	0.245	0.170	0.049	0.073	0.183	0.219	0.077	0.219	0.103
U7	0.174	0.316	0.083	0.011	0.055	0.135	0.023	0.051	0.157
U8	0.324	0.384	0.025	0.011	0.097	0.206	0.073	0.200	0.094
U9	0.279	0.315	0.138	0.045	0.080	0.029	0.089	0.055	0.079

The research hypothesis 4a, 4b and 4c assert that there will be a positive relationship between SI and perceived usefulness. It is not clear that there is a strong influence of SI on PU. However, most of the relations between identification and perceived usefulness are significant and the existing coefficients are medium. Therefore, the research hypothesis 4a accepted and H_0 was rejected. On the other hand, since there is almost no significant relation between compliance and perceived usefulness factor, the research hypothesis 4b rejected. However, the hypothesis 4b was retained since the findings partially supported the relationship.

Influences of flow on attitude

Research hypothesis 6a asserts that there will be a positive relationship between flow (F) and attitude (A). Table 4-8 lists the correlation coefficients between F and A. Concerning F, all of the variables are correlated with A and coefficients are large. Therefore, it is clear that F influences A, and the research hypothesis 6a is accepted. The H_0 was rejected since there is a significant relationship between variables.

Table 4-8 Correlation coefficient between Flow and Attitude

	F1	F2
A1	0.316	0.261
A2	0.361	0.461
A3	0.360	0.358
A4	0.347	0.292
A5	0.253	0.202

Influences of ad/charge on attitude

Table 4-9 shows the correlation coefficients between ad/charge (D) and attitude (A). The analysis represents that there are only six correlations and the coefficients are small. The research hypothesis 5a that was concerning the relationship between D and A was assuming advertisement and charge would negatively influence the attitude toward use. However, according to the correlation analysis, there is no relation between D and A. Therefore, the research hypothesis 5a was rejected, and the H_0 concerning this relationship was retained.

Table 4-9 Correlation coefficient between Ad/charge and Attitude

	D1	D2	D3
A1	0.177	-0.133	0.192
A2	0.253	-0.108	0.187
A3	0.163	-0.052	0.134
A4	0.195	-0.017	0.111
A5	0.172	-0.093	0.081

Influences of ad/charge on flow

The research hypothesis 5b concerns the influence of advertisement and charge (D) on flow (F). The correlation coefficients related to these two components are listed in Table 4-10. Concerning D, two third of the variables are correlated and the coefficients are small. The research hypothesis 5b was asserting that advertisement and charge would negatively influence the flow. According to the analysis, it is predicted that that D influences F but there is a small influence. However, the relation that was found is positive and the hypothesis was assuming a negative relationship. Therefore, the research hypothesis 5b was rejected, whereas H_0 retained.

Table 4-10 Correlation coefficient between Ad/charge and Flow

	D1	D2	D3
F1	0.277	-0.047	0.235
F2	0.214	-0.027	0.236

Mann-Whitney U Test analysis on account preference

The account type variable in the dataset contains results of the service subscription preferences of the respondents. According to the account type, the respondents are divided into two independent groups as free and premium users. Pallant (2001, s. 260) states that Mann-Whitney U test can be used to examine the differences between two independent groups on a continuous variable.

The research hypothesis 7a, 7b, 7c, and 7d assert that the users differ in terms of social influence, perceived usefulness, flow, and ad/charge according to their account types. In order to test the hypotheses the account type variable was used as an independent grouping variable input to the test, and U, F, and D factors were defined dependent variables.

Table 4-11 shows the results of the Mann-Whitney U test for account type and SI. According to the analysis, the differences in the identification and internalization scores of free and premium account users are not statistically significant. Most of the (p) values for iden-

tification and internalization are bigger then .05. On the other hand, the (p) value for compliance is less than 0.5, and this represents that there is a significant difference. Therefore, the research hypothesis 7a is partly accepted.

Table 4-11 Mann-Whitney U test statistics of account type & social influence

	SI.id1	SI.id2	SI.id3	SI.id4	SI.c1	SI.it1	SI.it2	SI.it3	SI.it4
Z	-2.378	-1.738	-1.541	-2.026	-2.278	-.558	-.133	-4.295	-1.263
Sig. (2-tailed)	.017	.082	.123	.043	.023	.577	.894	.000	.207

The results of the Mann-Whitney U test for account type and PU are listed in Table 4-12. Concerning PU, almost all of the variables have a significance level below 0.5, so it is clear that there is no significant difference in the perceived usefulness scores of free and premium account users. Therefore, the research hypothesis 7b was rejected and H_0 retained.

Table 4-12 Mann-Whitney U test statistics of Account type & perceived usefulness

	PU1	PU2	PU3	PU4	PU5	PU6	PU7	PU8	PU9
Z	-5.155	-1.886	-1.072	-2.220	-.150	-.420	-.096	-1.218	-2.013
Sig. (2-tailed)	.000	.059	.284	.026	.881	.675	.923	.223	.044

Research hypotheses 7c and 7d were asserting that free and premium users differ in terms of flow and ad/charge. Table 4-13 shows the results of Mann-Whitney U test for account type and F & D. According to the analysis, the two F variables had a significance level less than .05. Therefore, the result is significant. The research hypothesis 7c was accepted, and proved that there is a significant difference in the flow scores of free and premium account users. In addition, the most of the ad/charge variables also showed a significance difference at .05. This in result showed that there is a significant difference in the flow scores of free and premium account users, and the research hypothesis 7d was accepted.

Table 4-13 Mann-Whitney U test statistics of Account type & flow and ad/charge

	F1	F2	D1	D2	D3
Z	-2.360	-2.986	-.818	-6.654	-7.014
Sig. (2-tailed)	.018	.003	.413	.000	.000

4.1.2.2 Regression Analysis of the Research Model

In the second section of the research model analyses, the individual components of the research model tested with regression analysis. The regression analysis of the research model was necessary, since the correlation analysis was not capable of presenting the relative contribution of each independent variable, and did not provide sufficient evidence to confirm the research hypotheses 2a, 2c, 3, and 4c. The following equations that were estimated aims to tell how much of the variance in the actual use of streaming music services can be explained by the independent variables.

Equation1: $U = \beta_0 + \beta SI.it + \beta SI.id + e_1$

Equation2: $A = \beta_0 + \beta U + \beta SI.c + \beta SI.id + \beta F + e_2$

Equation3: $BI = \beta_0 + \beta A + \beta U + \beta SI.id + e_3$

In order to be able to test these equations with the regression analysis in SPSS, sub-factors of the each factor were grouped into one variable by calculating the mean of all sub-factors. Table 4-14 lists the correlation coefficients between calculated variables. As presented, all of the variables are correlated at 0.01 levels.

Table 4-14 Correlation coefficients between the components of proposed TAM

	U	A	BI	F	D	SI.it	SI.id	SI.c
U	1							
A	.715**	1						
BI	.548**	.516**	1					
F	.509**	.463**	.404**	1				
D	.241**	.169**	.179**	.283**	1			
SI.it	.316**	.278**	.295**	.335**	.315**	1		
SI.id	.388**	.380**	.368**	.405**	.337**	.406**	1	
SI.c	.190**	.188**	.226**	.211**	.207**	.599**	.281**	1

** significant at 0.01 level

According to the findings of the regressions analyses, listed in Table 4-15, identification and compliance found out to be not the significant predictors of attitude toward use. All relations besides that are approved as significant predictors of the dependent variables. Furthermore, *Beta*-explains the individual contribution of each factor- and R^2-expalins how much of the variance explained by independents variables- are also listed in the table.

Table 4-15 Results of the linear regression models for TAM variables

	Perceived usefulness Equation 1	Attitude toward use Equation 2	Behavioral Intention Equation 3
U		0.744**	0.393**
A			0.220**
SI.id	0.268**	*0.093*	0.160**
SI.c		*0.013*	
SI.it	0.151**		
F		0.072**	
(Constant)	2.643	0.437	0.717
R^2	0.181	0.730	0.593

** significant at 0.05 level

With the information gathered from the regression analysis, the research hypothesis 2a and 2c, which were partially supported by correlation tests, were rejected. On the other hand, the hypothesis 3c that was also partially supported accepted and retained in the model. Moreover, the hypothesis 4c also found out to be significant predictor and retained. The resulted equations from the findings are:

Equation1: Perceived usefulness = 2.643 + (0.268*SI.it) + (0.151*SI.id)

Equation2: Attitude toward use = 0.437 + (0.744*U) + (0.72*F)

Equation3: Behavioral Intention = 0.593 + (0.393*A) + (0.220*U) + (0.160*SI.id)

The findings of the correlation and regression analyses are listed in Table 4-16.

Table 4-16 Results of the research hypotheses

Hypothesis 1a	Supported	Hypothesis 3a	Rejected	Hypothesis 5a	Rejected
Hypothesis 1b	Supported	Hypothesis 3b	Rejected	Hypothesis 5b	Rejected
Hypothesis 1c	Supported	Hypothesis 3c	Supported	Hypothesis 6a	Supported
Hypothesis 2a	Rejected	Hypothesis 4a	Supported	Hypothesis 7a	Supported
Hypothesis 2b	Rejected	Hypothesis 4b	Rejected	Hypothesis 7b	Rejected
Hypothesis 2c	Rejected	Hypothesis 4c	Supported	Hypothesis 7c	Supported
				Hypothesis 7c	Supported

4.2   Discussion of the Analysis of Questionnaire & Findings

In this part of the empirical study chapter, analyses of the questionnaire results that were previously presented are discussed in detail. The discussion aims to answer whether if the purpose of the study has been fulfilled and the analysis resulted according to the expectations, or not. Moreover, the actual TAM that accounts the streaming music services is also presented in this section. The analysis of the research hypotheses that were tested in the previous section provided the necessary input to confirm the proposed TAM research model.

In total 246 Spotify users participated in the study, where females were represented by 19.5 percent and males by 89.5 percent. Big majority of the participants were within an age range from 15 to 25. The sampling frame was including the users from six different countries, and the questionnaire was designed and conducted in English. Although this was expected to effect the age distribution, the findings resulted parallel to the actual user profile.

4.2.1   Discussion on the Preliminary Analysis

The descriptive analyses that were represented in 4.1.1 provide the statistical analysis to answer the research question 1.

The research question 1, "How did consumers' music acquisition and consumption behavior change after getting access to a streaming music service?" was aiming to examine how streaming music service effect the consumption habits. Different factors related to service users' consumption habits were asked in the 15th question of the questionnaire, in which respondents compared their life with Spotify to their life before Spotify. The analysis that was listed in Figure 4-3 shows that Spotify members had a clear change in all factors.

Most significant change is seen in the new music discovery habits. Streaming music services offer users an extensive catalogue with new music suggestions through the related artist function embedded in artist pages. The findings of the study present clear evidence that

these options increased the users' access rate to the new music. In addition to the music sharing habits, the respondents stated a significant decrease in their illegal music consumption. This factor also was also crosschecked later with question 16 in order to provide a reliable result for the analysis of piracy behavior.

The respondents also reported a significant change in their time spending that is allocated to music listening. The analysis presented that streaming music service users started to spend more time on listening to the music. This increase might be an effect of the combination of flow and perceived usefulness factors, which were a component of the proposed TAM. In order to see if the change in the time spending allocated to the music is related to these factors, correlation analysis done and the results of the analysis are listed in Table 4-17. Table includes correlation analysis between PPCH6 "I spend more time on listening to the music", and F2 "Spotify is my main music player", U1 "Spotify allows me to access to my library anytime, anywhere", U2 "Spotify helps me to have a big music library/catalogue", U7 "Using Spotify is effortless in terms of use, experience". As seen in the table, the time allocated to the music listening is highly correlated with the flow and second perceived usefulness factors. The high correlation between factors can be a possible interpretation of the increased time allocation on music consumption.

Table 4-17 Correlation coefficients between post Spotify consumption habits and flow & perceived usefulness

	F2	U1	U2	U7
PPCH5	.457	.192	.242	.150

Moreover, respondents also reported that they started to spend less time to search for the music, and they had faster access to new music releases. This result can be explained as an outcome of the intermediation of the music consumption by streaming music service. Streaming music services that are subject to this study are a direct link between producers and consumers of the music. A direct link means subscribers of the streaming music service have instant access from their devices to service's music catalogue, whenever and wherever they want, from one medium. As a result, since the streaming music service increases the music distribution efficiency, users experienced a decrease in the search and access time to music as expected. In addition to the change in search and access time, respondents also reported they agree that they started to play their own digital download library less. Possible interpretation of this is also related to the flow component of TAM and intermediation of the music consumption. Before, users had to buy or download each track and then needed store, organize their music library. However, the streaming service use eliminated the necessity to buy or download music by offering ready to use, organized, online library that is larger than a user can have. In fact, the second generation[15] of Spotify made it possible for user to play their digital library through Spotify, but it seems like a patching strategy, which lets users to play the tracks that are not available at Spotify. Furthermore, allowing users to play their local files through the service will most probably increase the flow.

The findings showed another significant change in the music consumption behavior in sharing activities. Spotify allows its users to share music with their friend by using the direct

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[15] The second generation of Spotify was released on 27th of April 2010, after the data collection of this study was finalized. The new generation introduced a number of social features, which entegrates Spotify with Twitter and Facebook.

track links to share via different mediums, and the embedded *send to* feature of the software. These features seem to provide ease of use while decreasing the overall effort needed to share music. On the other hand, since it was not directly stated in the question, it is not clear if the increased music sharing activity actually derived from Spotify usage.

Moreover, the analysis of *I spend more money on music* statement came out be opposite the expectations. The respondents stated that they started to spend less money on music after they started to use Spotify. General expectation of the study was that the money allocated to the music is in direct proportion to the flow and to the time allocated to music.

Furthermore, the analysis also answered the question "Does access to a streaming music service reduce consumer's usage of illegal file sharing services for their music acquisition purposes?" The analysis shows that there is a significant difference on consumer's illegal file sharing usage before and after Spotify. The respondents reported that they were often using the illegal file sharing service before they started to use Spotify. However, after they started to use seldom. Streaming music services seems to be an effective way of reducing illegal file sharing activities. In short, the analysis of the conducted questionnaire provides evidence to the arguments of the legal streaming music services by finding out that the service usage actually lowers the music piracy. This in result fulfills the aim of the research question as expected.

4.2.2 Discussion on the Relationship Analysis and Actual TAM

The primary purpose of this study was to analyze the factors effecting the adoption of the streaming music services by modeling a new TAM extension for streaming music services. In section 2.4.1, the research hypotheses and the proposed TAM model were introduced. The analysis of the research hypotheses were presented in sections 4.1.2.1 and 4.1.2.2. During the analysis of the questionnaire a series of statistical test were conducted in order to test the hypotheses, the results of the hypotheses are listed in Table 4-16. In this section of the study, the actual TAM model is introduced and the relationship of the new extension components are discussed according to the analysis presented earlier. The analysis of the research model also answered the research question 2 and the discussion of the findings is presented in this section.

As seen in Table 4-16, most of the hypotheses of the social influence component were rejected. The rejected hypotheses were referring to compliance and the internalization factors of SI, and the analysis showed that only the identification and internalization factors were related to streaming music service acceptance. However, the compliance factor had an exception on hypotheses 7a and kept in the final model. According to the analysis, all of the proposed components of TAM presented a full or partial. The actual TAM for streaming music service acceptance is presented below in Figure 4-6.
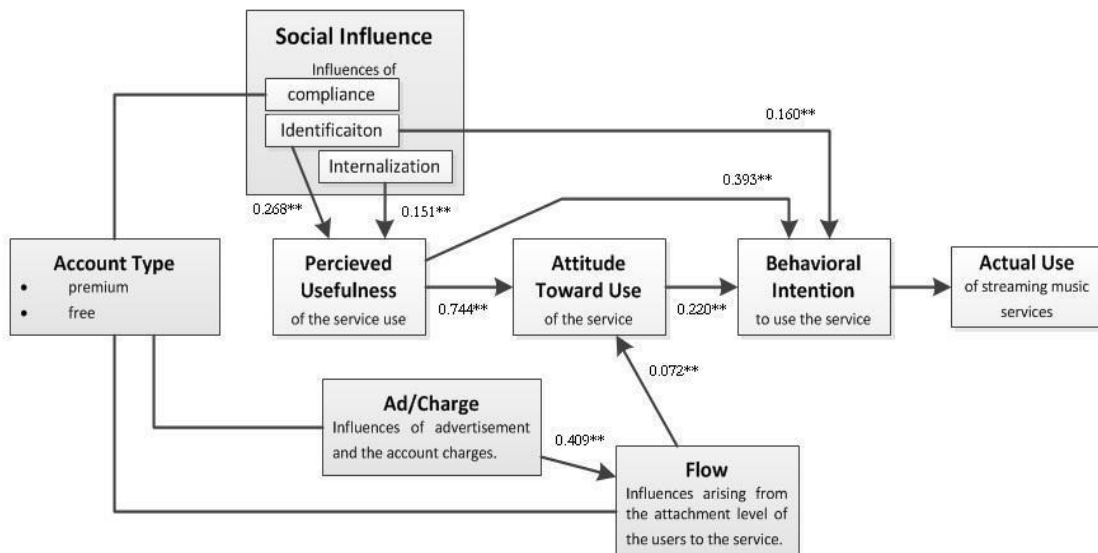
Figure 4-6 TAM for streaming music services by M. Deniz Delikan

The findings of the study suggests that identification, internalization and compliance factors of social influence, flow, and ad/charge play a role in determining the acceptance and usage of streaming music services. Moreover, it is also clear from the findings that the effect of ad/charge, compliance and flow differs according to the account type of user's. Interpretations of these findings as follow.

Social influences

Concerning the social influence, the study did not show any statistically significant relation between compliance and perceived usefulness, attitude toward use, and behavioral intention. The finding means that the users' attitude toward using the service and their behavioral intention is not linked to any punishment or to a reward. In this study, compliance was aiming to cover the effect of the legal punishment against music piracy.

On the other hand, the influences of identification on perceived usefulness and behavioral intention are clear from the analysis. The identification factor assumes that acceptation of an influence results from the instinct of establishing or maintaining a satisfying self-defining relationship to another person to a group. In this case, the findings suggest that external effect of the social community is an important factor on, how useful the users' perceive the service, and why they intent to use it.

In relation to the internalization factor, the findings show that there is statistically significant relation between internalization and perceived usefulness. The finding means that their value system does not have an influence on their attitude toward use and behavioral intention, but their perception about the usefulness of the service is directly related to their value system. One possible interpretation of this finding can be that users' intention toward actual use is influenced by the quality or the benefits of the service. In this case, users do not care about if their value system is matching with the service or not. However, in relation to perceived usefulness they do care about their value system.

In the question 5 of questionnaire, respondents were asked to rate two statements in order to examine their value system about music piracy in relation to internalization. These two statements were "*music should be available for free*", and "*downloading illegal music is stealing*". The frequency statistics of *music should be available for free* variable provided 57.3 percent of the

respondents agree on this statement. In addition, the analysis of *downloading illegal music is stealing* variable provided 47.6 percent agree on this statement. Furthermore, in the question 6, the respondents were also asked whether they care if the music they listen to is provided legally or not, to have deeper information. The frequency statistics showed 54.5 percent do not care about the source of the music they listen. The findings of these factors show the users "grown up digital generation" do not have strong value system about music piracy. A big portion of the respondents think music should be available free and downloading music is stealing. However, the finding of the question 6 clearly shows that they do not care if the music they listen to is provided legally or not.

Flow

Concerning the flow factor, the research hypothesis was accepted as expected. The flow factor was indicating the users' attachment level to the streaming music service would have an influence on attitude toward use. As it is confirmed with the test of the research hypothesis, the findings of the study present that the respondent's attachment to Spotify has a positive relationship with their attitude toward using Spotify.

Ad/charge

Ad/charge factor was another extension component of the proposed research model. The aim of this factor was stated previously, as to cover the effect of advertisement and charge on the streaming music service use. In order to find if a relationship exists or not two research hypotheses assigned to ad/charge were tested. $H_1 5a$ and $H_1 5b$ were asserting that advertisement and charge would negatively influence the attitude toward use and the flow. The findings shows a statistically significant relationship between ad/charge and flow components, however the research hypothesis 5b was rejected since the direction of the relationship was positive. Surprisingly, the finding shows that the amount of advertisement and the charge for premium account came out to have a positive relationship with the attachment level. This can be a possible error of grouping the factors related to the advertisement and the charge for premium account in the same component. Those factor questions were answered by both account users, and in Spotify, the users are object to different amounts of advertisement and charge according to their account type. During the questionnaire design stage, this problem was not stated. However, if there is no error, the findings shows that charging the users for premium accounts or objecting them to offer a free service positively influence their attachment to the streaming music service.

Account type

Lastly, the relation between account type and social influence, perceived usefulness, flow, and ad/charge examined in order to find out if the these influences differ for free and premium users. The findings showed that users perceived usefulness does not differ according to their subscription method, whereas social influence, ad/charge, and flow differ. It is not surprising that all members of the service share the same perceived usefulness of the service. In Spotify case, both free and premium users have the same basic features in terms of usefulness. The extra features of the service can differentiate between the two different account models. However, because of the limitations of the internet-based questionnaire service used in the data collection it was not possible to construct a questionnaire that addresses different questions to different user groups. Therefore, the perceived usefulness was measured with basic features and it is found out that it does not differ according to account type. On the other hand, findings showed that the compliance differs according to the account type. Possible interpretation of this finding can be that free account users use

the service in order to avoid the legal punishment against music piracy, whereas the premium users who pay for the service to use it not to avoid punishment but to get extra benefits. The second relation that was found out with the findings is that the effect of advertisement and charge differs for premium and free account users. The findings present, while listening to an advertisement to listen to music or using the service only with a free account can be OK for the free account subscribers, it cannot be OK for premium account subscribers. The same goes for the relation between flow and account type. The finding of the study shows that the attachment level of free account users and premium users is different. This result can be explained by the extra benefits that the premium users have and by the influence of ad/charge on flow that was previously discussed.

5 Conclusions

This study examined the changing consumption behavior of music consumers, based on TAM. In order to explain the change in consumer behavior within the theoretical framework, first the base TAM is extended to account for streaming music services. The new model included account type, ad/charge, flow, and social influence components. These components and the change in consumer behavior are tested with a questionnaire based empirical study. In the light of the findings of the study, the extended TAM that explains the acceptance and the use of streaming music service is presented in Figure 4-6. The relations between the extension components of the actual model are resulted as follows.

- U influences A and BI
- A influences BI
- SI influences U, and BI.
- D influences F.
- F influences A.
- SI, D, and F differ according to the account type.

Certainly, the validated metrics of this study should be of use to other streaming music services, and to researchers. In the first place, the findings present clear evidence to the changing music consumption behavior of net generation, and illustrate the change in detail. The research question 1 was aiming to find out "How did consumers' music acquisition and consumption behavior change after getting access to a streaming music service?" The summary of the findings of this question is listed as an illustration.

The findings of the study show that the consumers, started to discover new music more, started to listen to music more, started to share music more, had faster access to new releases after they started to use the streaming music service, but on the other hand also cut back on money they spend for music. In addition, the findings also show a statistically significant decrease on respondents' use of the illegal file sharing services after they started to use a streaming music service.

In addition to the findings concerning the change in consumer behavior, the outcome of the research model is also equally important. The extended TAM that accounts streaming music services provides important knowledge about music consumption habits and the motives of streaming music service users. The research question 2 was also answered as a part of the research model. The aim of this question was to understand the motive factors for streaming music service use by answering, "What are the motivational factors for using a streaming music service?"

Within perceived usefulness, the findings show that being able to access to an extensive online library anytime, anywhere is a strong motive for the respondents. These motives in combination form a strong base to the arguments on "music access" and "music as a service" concepts. In this content, using a mobile phone application is also seems to be a strong motive for streaming music users, liked to their behavioral intention. With the increased usage of the mobile phones as a music player, and with the increased coverage of 3G networks, it is not surprising that the mobile phone application is a strong motive for user. Following the strong motive factors, sharing the music with others also came out to be positive motive for users

This study took the first step to understand the streaming music service use. In conclusion, the actual TAM model provides a validated metric, which is applicable to other cloud based media services. The music and media service entrepreneurs or the future research can use these findings to explain how and why consumers think, and feel when using the streaming music services.

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Questionnaire

Account Type   **Question 2**

What is your Spotify account type?   o Premium   o Free

Perceived Usefulness   **Question 3**

		Strongly Disagree				Strongly Agree
U1	Using Spotify allows me to access to my library anytime, anywhere.	o	o	o	o	o
U2	Using Spotify helps me to have a big music library/catalogue.	o	o	o	o	o
U3	Using Spotify has enhanced the sound quality of the music that I listen.	o	o	o	o	o
U4	Using Spotify helps me to listen to music legally.	o	o	o	o	o
U5	Using Spotify always gives me an up to date music catalogue.	o	o	o	o	o
U6	Using Spotify allows me to save hard-disk space.	o	o	o	o	o
U7	Using Spotify is effortless in terms of use, experience, etc.	o	o	o	o	o
U8	Using Spotify allows me to save time while searching for music.	o	o	o	o	o
U9	Using Spotify makes it easier to share the music that I like.	o	o	o	o	o

Attitude toward use   **Question 4**

Using Spotify and listening to music through it…

		Strongly Disagree				Strongly Agree
A1	is appealing.	o	o	o	o	o
A2	means a lot to me.	o	o	o	o	o
A3	is good.	o	o	o	o	o
A4	is exciting.	o	o	o	o	o
A5	is fun.	o	o	o	o	o

Behavioral Intention   **Questions 8 and 9**

		Totally Disagree				Totally Agree
BI1	I intend to listen to streaming music via internet.	o	o	o	o	o
BI2	I intend to use Spotify to listen to music.	o	o	o	o	o
BI3	I intend to use Spotify to share the music I like with others.	o	o	o	o	o
BI4	My intention to have a premium account is to use mobile application.	o	o	o	o	o
BI5	My intention to have a premium account is to get higher audio quality.	o	o	o	o	o
BI6	My intention to have a premium account is to use off-line mode.	o	o	o	o	o
BI7	My intention to have a premium account is to benefit from special offers of Spotify.	o	o	o	o	o
BI8	My intention to have a premium account is that I want to support artists by paying for their music.	o	o	o	o	o

Social Influence   **Questions 5 and 10**

		Strongly Disagree				Strongly Agree
Identification						
SI.id1	I am proud of using Spotify.	o	o	o	o	o
SI.id2	I talk up (praise) the use of Spotify to my friends as a great use.	o	o	o	o	o
SI.id3	I use Spotify since all of my friends are using.	o	o	o	o	o
SI.id4	I use Spotify since it is popular.	o	o	o	o	o
Compliance						
SI.c1	My attachment to Spotify is directly related with legal regulations against pirate music.	o	o	o	o	o
Internalization						
SI.it1	I like using Spotify because it reflects my values.	o	o	o	o	o
SI.it2	I use Spotify because it is important for me to support legal music.	o	o	o	o	o
SI.it3	I think music should be available free.	o	o	o	o	o
SI.it4	I think downloading illegal music is stealing.	o	o	o	o	o

Flow   **Question 11**

		Strongly Disagree				Strongly Agree
F1	If an artist or a song that I want to listen is not available on Spotify, I keep on listening to another one available via Spotify.	o	o	o	o	o
F2	Spotify is my main music player.	o	o	o	o	o

Ad/charge   **Question 12**

		Completely Disagree				Completely Agree
D1	Listening to an advertisement on Spotify in order to stream music is OK.	o	o	o	o	o
D2	I would not prefer to use Spotify, if there was no free subscription option.	o	o	o	o	o
D3	The premium account fee is acceptable, when I consider the extra benefits included.	o	o	o	o	o

Post Spotify consumption habits   **Questions 14 and 15**

	Strongly Disagree				Strongly Agree
I buy music retail when I cannot find it on Spotify	o	o	o	o	o
I download music when I cannot find it on Spotify	o	o	o	o	o
I would consider buying a premium account if there would be no free option of Spotify.	o	o	o	o	o
I am interested in buying single tracks or full albums from Spotify.	o	o	o	o	o
I spend more time on listening to the music.	o	o	o	o	o
I spend more time on listening to the music.	o	o	o	o	o
I spend more money on music.	o	o	o	o	o
I started to share music more with my friends.	o	o	o	o	o
I started to discover new music more.	o	o	o	o	o
I play my digital download library less.	o	o	o	o	o
I have faster access to the newly released music.	o	o	o	o	o
I spend less time to search for the music.	o	o	o	o	o
I am thinking subscribing to a service to listen to music is better than buying retail.	o	o	o	o	o

Post Spotify piracy habits   **Question 16**

	Never			Often
How frequently were you used to buy/download illegal music before you started to use Spotify?	o	o	o	o
How frequently do you buy/download illegal music after you started to use Spotify?	o	o	o	o

Background information questions   **Questions 6, 7, and 13**

	Strongly Disagree				Strongly Agree
I do not care if the music that I am listening to is provided legally or not.	o	o	o	o	o
I do not care what the others think about listening to illegal music.	o	o	o	o	o

Have you ever paid for music?	o Yes	o No

This includes any legal music purchase such as digital music service subscription, single digital media purchases, any physical media purchases like CD, cassette, etc., excluding concerts.

Have you ever bought a digital copy from Spotify?	o Yes	o No

Demographics   **Questions 17 and 18**

Gender	o Female	o Male

Age   o < 15   o 15 - 25   o 26 - 36   o 37 - 47   o 48 - 58   o 59 - 70   o > 70