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# REIFICATION, AURA AND INNOVATION

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A STUDY OF TECHNOLOGICAL SOUND REPRODUCTION AND ARTIST  
AUTHENTICITY



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## ABSTRACT

Today the potential for artists to retake control of artistic value of their own music may have come to a tipping point. While digital technology has provided groundbreaking opportunities for musical creativity, the relationship between the musician and the listener has become further distanced since the beginning of musical performance. Some important words relating to the core ideas of this thesis are industry, technological advancement, aura, time and distance, format, authenticity and art.

The continual advancement of technology and the innovative nature of the music industry has created conflict as well as allowed music to become distributable in greater quantities and over a wider geographical area. Technology has been adapted for consumers. The music industry, as it is represented in this thesis, has struggled with issues of music rights, piracy and free sharing methods that were brought about partly by consumers and partly by artists. The distribution of music from the artist to the consumer is heavily dependent on technological roots. Recently the access to music material by consumers has increased greatly because of online distribution methods. Along with the invention of the internet, artists have found ways to reach out to the consumers and make that connection without help from the industry's traditional methods. Artists have been heavily dependent on the music industry for their product to be accessed by the consumer. The relationship between artist, broker and consumer has changed and shifted in various ways over time. With the emergence of many technological inventions more than over the past decade, technology has begun to facilitate changes within the music industry and to change methods of making music available to fans. This thesis will examine historical technology transitions over time that caused the distribution of recorded musical performance to shift and eventually end up with contemporary streaming services. The relationship of the listener to the music has been influenced by technological advancements and the future of the music culture authenticity has been questioned. To answer the question why the situation is by some seen as critical it is important to understand both how the industry has worked with the consumer, technology, and their interaction up until the present day.

## 1. INTRODUCTION

Throughout history, technology and industry have changed how people receive and perhaps how they perceive music. Music has come a long way and transformed into a much different format from how it began. Music was in the beginning, a local performance that people could gather around to hear and enjoy. There would probably exist a sort of magic in the air or a kind of ritualistic sense around the people who took part in the performance. Music has had the strength to move people, not only emotionally, but also in dance and physical motion. It has even inspired the masses to support ideologies or to have courage before a difficult task such as battle or preparing for a sports event. Music has a romantic, inspirational and energetic force which can be described in lyrics, chords and rhythm. Music is found around the world as something that can either divide or unite people. During the past 130 years, there have been major technological changes that have “challenged” the original perception of music. As modern economic systems, including capitalism and industrialization, became a common part of people’s everyday lives, music was adapted to comply with the changes. Technology and industry's impact on the cultural act of music into a product is important to understand because of the still ongoing process today. We might say that music is in the state of facing a shape-shifting revolution that has no precedence in technological history. There are several steps in technological history some that will be represented in this thesis. Technology has been developed from creative innovations and the distributional system has mainly been an economic concern. Has something about music been lost through technology since its more "primitive" days, and if so, how could this have happened? For the sake of the conversation in this study it is also important to take the artist’s voice in account and represent all parts involved in the reproduction technology of music.

## 2. AURA AND REIFICATION

With the technological advancements that today have laid the groundwork for media to be mass produced something may have been lost in the process. The German cultural critic Walter Benjamin discusses in his essay “The Work of Art in the Age of Mechanical Reproduction” (Benjamin 1936) what the age of mass media means for art work and how it’s

perceived. Mass media means that work of art can be reproduced and also repeatedly seen or listened to by an audience.

The mechanical reproduction of art and music, which this thesis focuses on, means that new areas of experience can be explored and new meaning conveyed to the audience. Benjamin refers to *aura* as something that surrounds an original piece of art, whether it is a painting of Van Gogh in an art gallery or a statue of ancient Greek gods in a museum or even a temple. The aura represents something that is intangible but communicates something to the spectator and gives the artwork a sense of authenticity and uniqueness.

Benjamin, along with the art forms of painting and photography, also discusses the mechanical reproduction of music. Music contains something spiritual that is expressed in the admiration of the fans and audience of a piece of music. Whether the music is inspiring, romantic, aggressive or calming the artist who composed the song wanted to express something and communicate it through music. It is important to understand that music offers something special, authentic and unique to the listener as a painting or a sculpture and that they are all considered art forms and sacred to cultures around the world.

Benjamin states one of the most important aspects by explaining what he means with the term aura and the connection to “presence”: “Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be.” (Benjamin 1939 location 75-76). We will see throughout the history transition of technological reproduction that time and space is changing.

When mechanical reproduction became possible it changed the idea of how art and specifically music, was perceived as an art form. This idea will be brought into focus for this thesis. It is questionable whether authenticity and uniqueness have been lost in the process. The corporate introduction to the art world and the economic aspect that has made the monetization of music possible, could be considered a cooperative process of *reification* of music between tech industry and monetizing powers (Guthrie 2014, Taylor 2007, Fine and Saad-Filho 2010). Reification is a term used by Karl Marx in his 18<sup>th</sup> century book, *Capital*, that describes the process of making the intangible into a commodity. Aura has become something that been lost or attempted to be reenacted into music as a commodity. Reification makes way for “commodity fetishism” and puts the earlier insubstantial concept into an object that

is sold for profit. Reification can also be connected to “alienation” and what it means for the worker of a product to be disconnected from their work because of corporate, economic interest that objectifies the product for monetization. As an example, the powers that drive a corporation might differentiate the work that the artist originally was creating (alienated) to be reproduced and marketed as a product (commodity fetishism) to be more profitable on markets. Reification then means that here the aura would be made into “something” and then get sold as a commodity, advertised in relation to process of technological advancement. This means that the uniqueness, the authenticity and soul that the artist has put into composing music is alienated from him or her and loses its essence in the process of the modern music industry. The issues of his time’s reification, alienation and commodification is present in Benjamin’s aura: “To an ever greater degree the work of art reproduced becomes the work of art designed for reproducibility” (Benjamin 1939 location 151-152). Benjamin points out that a form of new art is made by mechanical reproduction. As an example traditional painting and photography both coexist as art forms today. The question could be asked about modern music, “Is reproduced music a new art form?”:

*“The history of every art form shows critical epochs in which a certain art form aspires to effects which could be fully obtained only with a changed technical standard, that is to say, in a new art form.” (Benjamin 1939, location 359-360)*

There lies a nostalgic value in music when it comes to records or old technology. There is a spirit that engages people who want to understand and take part in the history of music. An LP-record can have value and be seen as a collectible item of recorded music, that is, collectible art in a specific form. Although, it becomes problematic to talk about collectible art in digital, modern times and the presence of aura or rather the lack of it. Music has gone through tremendous changes in terms of technology and distribution. It will become clear, that there are several forces that have changed or create our experience of music today in digital format.

### 3. PRE REIFICATION PERSPECTIVES

Perspectives of how the aura of music was experienced and used before mechanical reproduction are helpful and give us an idea of what has changed, and what has not. For the purpose of the thesis, four categories will be presented to shed light on how aura existed



before reification. Firstly, music was seen as a “natural resource”. In the earliest days of music there was little concept of ownership of music as it was not seen as the objectified commodity that it is today. During the renaissance music was seen as “... a gift of God, and as such it enjoyed a status equivalent to that of a natural resource or a public good, not to be monopolized by anyone in particular.” (Rob C. Wegman 2005). Musicians would, however, receive compensation for their labor in some sort in return for their performance of the art. Music as a service was a gift to a chosen receiving subject and it was a matter of honor for the receiver of the gift to give a gift to the musician in turn.

The second point is the perception of music as a part or object of a “ritual” which is also an argument by Walter Benjamin (Benjamin 1939). As an example Benjamin describes the ancient forms of sculpture art: “An ancient statue of Venus, for example, stood in a different traditional context with the Greeks, who made it an object of veneration, than with the clerics of the Middle Ages, who viewed it as an ominous idol.” The same can be said for a song made for that god and it’s relation to traditional rituals of a culture. It is important to understand here that what is discussed as the ritual meaning of the work of art relates to its aura, whether it was in the context of ancient Greeks’ view on the god Venus or the belief, in the middle ages that the same god was an idol. The same object created different perspectives of aura depending on changes in time and place. Benjamin refines this by explaining the following:

*“Originally, the contextual integration of art in tradition found its expression in the cult. We know that the earliest art works originated in the service of a ritual – first the magical, then the religious kind.” (Benjamin 1939, location 136-141)*

The third argument for understanding music pre reification, is the cultural and social impression that music was facilitated. Music was seen as a gift and natural resource as well as a ritual and later religious which makes it an art form that needs to be seen in a social and cultural perspective as David R. M. Irving introduce points out: “Most of the world’s musics are culturally, geographically and chronologically specific, and rely on the long accumulation of traditions.” (David R. M. Irving 2010, 19-24). Irving makes the point that historically, any given piece of music has been perceived in its respective location in the world, in a specific cultural perspective that is tied to local tradition. Irving goes on to explain modern times as has broken down “such constructed barriers and inherited practices” and refers to the

globalization, the corporate and technological advancements which have generated the reification into commodity of music.

The fourth category is ownership. Control of aura was used in pre reification times as a form of ownership of music that represented. The ritual surrounding music was connected to a cause and to a social structure e.g. religious rituals:

*“As the story goes, the singers in the Sistine Chapel jealousy guarded the source materials for Gregorio Allegri’s setting of the Miserere, a work considered by a seventeenth-century pontiff to be so beautiful that it could not be squandered through public dissemination and reproduction. In this sense, it was intended for listening and reverent appreciation in a unique location.” (Irvin 2010, 19-24)*

The art of music was seen as something unique and authentic which could connect the audience spiritually, culturally, magically, religiously as a gift from god(s) (Irvine 2010; Benjamin 1939). The control of ownership on particular music was highly dependent on time and space as it regulated for whom and for what cause the music was to be experienced. The presence of aura occurred naturally in musical ritual, culture and possession in the pre reification era, and was of profound importance when music was experienced by a listening audience. Music possesses the same qualities today when experienced as live-music in a church, concert hall, street café or venue in a public garden. But what about the technology that has created multiple ways for where and how to listen to music? Has something been lost through technical advancements that in pre mechanical production was tightly linked to the art of music? To understand the mechanical reproduction and specifically today’s digital era of music we need to inspect the technological history that today allowed reification in mass media and physical distance from the artist. Technology can be seen as an attempt to reproduce aura by copying music.

#### 4. COPYRIGHT

As the world has moved forward in the technology of the production of music-related material, the product itself has been shaped by the technological advancements. From the earliest methods of recording music in the form of musical notation, there has been a discussion of how the material is to be used and for what purpose. Music in the earliest days was considered a live performance act to be brought out to the listeners and admirers with

the sheet music that documented the work of the composer. Music, as a medium, has today advanced throughout history to the level where it is available to anyone with one of many technological devices that enable the storage or streaming of music files digitally.

From the music recorded on the earliest machines to contemporary, playable devices, the music and the musicians have followed new technology to continue their craftsmanship when composing and bringing their work to the audience. Even early musical works have been stolen from composers, copied or imitated with or without disputes and legal trials following. In recent history, conflict between the interests of music distributors, artists, and consumers has increased. Consumers have had the opportunity to access music for free and to bypass music distributors. This phenomenon removes all control and payment from the artist. For this reason, the music industry has been important in controlling the distribution of music and providing payment to the artists. It is, therefore, important for the music industry to keep up with technological advancements in music distribution and promotion. As turbulent as the process of reification in the relation to music has been, it is a crucial factor in the rise of the music industry. "The music industry is a business whose success depends on certainty in the legal environment and on copyright law" (International Federation of the Phonographic Industry's Report 2014, 40). The music industry is today a part of how music is distributed and the laws of copyright is a strong key to success and steady flow of profit.

#### 4.1 A BRIEF HISTORY AND EXPLANATION OF COPYRIGHT LAW AND ITS RELATION TO THE DIGITAL MUSIC CONTEXT

One of the earliest copyright legislations was established in England in 1790 (Wikström 2009; Marshall 2002). This legislation was a response to the need of artists to profit from their work in a capitalist society. This was an important step in the development of the concept of intellectual property. Previously the printers had been able to print works including books without any notice of the actual compensation for the author of the work. The "Act" as it was called ensured the owners of the creative work were paid rightfully for their work as it was passed

on as copies and sold out from printers around the country of England (Wikström 2009, 18). The Act was stated as the following under the name 'The Statute of Anne':

*"Whereas Printers, Booksellers, and other Persons, have of late frequently taken the Liberty of Printing, Reprinting, and Publishing, or causing to be Printed, Reprinted, and Published Books, and other Writings, without the Consent of the Authors or Proprietors such as Books and Writings, to their very great Detriment, and too often to the Ruin of them and their Families: For Preventing therefore such Practices for the future, and for the Encouragement of Learned Men to Compose and Write useful Books . . ." (Wikström 2009,18)*

The Statute of Anne- legislation, also generally stated as the earliest legislation, was originally a law which covered literary-works within the national borders of England. But centuries later the law started to cover other artistic work including paintings, drawings and music. Although it started out providing exclusive protection for national artists, it evolved into providing coverage for all artists, no matter from which origin or nationality (Wikström 2009,18). It was necessary to make the material that the creative industry was developing secure under law, hence the legislation was made. The livelihood of authors and artists was protected under the new legislation. The previous absence of a market threatened the artists' livelihoods and may have dissuaded individuals from pursuing creative work. The lawmaking, of course, was beneficial to the industry as well, as this was an industry with economic impact already, and people strove to make a living from their creative production.

Another important legislation in international copyright law was passed in 1886 known as the Berne Convention. It was proposed by French author, Victor Hugo, who was a strong promoter of authors' rights on an international level. Since then, the Convention developed and expanded to recognize more copyright-related features which are today known to be fundamental and crucial in international copyright legislation. Some examples are that there are no formalities required for there to be a copyright and so it is not necessary to register a song for it to be protected (Article 5: Rights Guaranteed). This Convention also controls some 'additional rights' in response to new technologies, such as sound recording technology (Article 9: Right of Reproduction) (Wikström 2009, 18-19).

Productions within copyright industries are frequently classified as information goods because they are defined as immaterial, intangible and can be digitized. As an example of the scope of copyright protection, take for instance a song from iTunes and interior from IKEA. The person who makes the purchase does not afterward own the design of the IKEA product or the copyright of the artists' song. The purchase merely includes an example of the IKEA design or in the case of iTunes, the right to listen to a specific song in a specific format, and to do so within copyright stated restrictions. There are in other words owners of that piece of digital information, who have the exclusive copyright to it. (Wikström 2009, 20-21)

According to Wikström, the term 'copyright' is a legal term and under copyright law a cultural expression is made into goods that can be traded, bought, sold or infringed (Wikström 2009, 43). During the era of IT-technology evolution with culture and also the commodification of music the copyright has also advanced such as in mobile music business: "The industrial changes initiated from technological innovations are a result of the complex interactions of technological potentials to disrupt industrial orders and existing copyright institutions to regulate innovative activities." (Lee, 2012).

According to Power and Scott, the current music industry has been changing due to technological advancements and the internet is the "tipping point" (Power et al 2004, 65). The record companies have had to take on the challenge of building digital distribution models and at the same time developing strategies to prevent illegal music piracy. According to Power and Scott "experiments" had been carried out "with subscription-based downloading services, to attempt to completely reintermediate the music industry value chain." as well as continuing on to say, "Thus, while firms such as Napster, Kazaa and Morpheus illustrated the potential market for downloading music, it was the computing firm, Apple, rather than a record company, that pioneered the first successful and legal large music download music model" (Power et al 2004, 65). It was in the year 2003 that iTunes introduced their online channel for digital music distribution which resulted in a recent major change for the market (Koh and Byungwan 2014).

## 5. History Transition and Music-Reproduction Technology

### 5.1 INTRODUCTION

Before the technology to record and replay audio, all music was lost or passed away as soon as the musical performance was over. A musical performance could be reinterpreted instead with use of describing literature word to mouth and notation as Friedrich A. Kittler describes it: “History was the homogenized field that, as an academic subject, only took account of literate cultures. Mouths and graphisms were relegated to prehistory.” (Friedrich A. Kittler 1999, 4)

Music that was made could only travel with the performers and the musicians who knew how to perform the musical act as it was intended. Technology would change this method of how music was transmitted and preserved.

*“It’s evolution during the last 100 years has been multifarious, the only factor common to all its branches being that music in any civilization exists as a social and cultural necessity. The music industry has developed in two particular categories: the production of hardware, the ‘music machines’, and the production of software, i.e., the music sounds to be mass-produced, including the vehicle on which the music is recorded and its packaging.” (Wallis and Malm 1984, 1)*

According to Wallis and Malm (Wallis and Malm 1984, 1-2) the mass-production of broadsheets were, in the beginning, printed texts of well-known melodies that occasionally included musical notation. And as such could be termed reproduced music. During the second half of the 19th century the reproduction of albums and sheet music increased. The spread of new technology had a profound impact on the listener’s role in music-making. According to Wallis and Malm, in the earliest of times musicians and audiences relied on two-way communication, due to the listeners’ physical closeness to the performer and engagement in the live performance. A rapport was possible within the close and harmonious relationship between the musician and the audience (Wallis and Malm 1984, 281). In the ethnographic,

qualitative research conducted and represented in *Big Sounds From Small Peoples* published 1984, Wallis and Malm state that:

*“This happens everywhere in rural areas where traditional music is still part of local rituals. But the incidence is rapidly on the decrease, simply because never before have people had such easy access to so much recorded music” ... “This is a global trend. Transistor radios and cassette recorders are everywhere” (Wallis and Malm 1984, 281)*

Wallis and Malm assert that technology was changing the music culture that they were conducting research on. Culturally, technology has had a profound impact on sound reproduction and how music has been perceived by the audience through various mediums. 150 years ago the artist as performer of music had a small demographic of unique listeners, who he or she understood well because of the closeness and mutual cause of a group of people. The artist could cater to the specific interests of the people he was performing for and provide a customizable performance on each occasion based on the demographic and social background of his audience. But because of the closeness to the consumer the artist could also be hindered from self-expression in order to provide an accepted standard of service. The earliest significant change of reproduction of music was that it could be spread and marketed to a greater audience than before.

## 5.2 PLAYER PIANO

The player piano made the earliest mechanic reproduction of music available to the market in the mid 19<sup>th</sup> century U.S. The player piano is, according to Timothy D. Taylor, the earliest mechanism of providing music in a form of commodification. It was popular due to the construction of the mechanism that was attached to a real piano. Pianos had been a popular installation in American homes and could be found in half of the population’s homes by the 1920s (Taylor 2007, 285). It was the way that the companies also represented the player piano product that made this mechanism a commodity. The commodity, the player piano, distanced music from the actual performer social activity and putting essence on objectification of music as a *thing* on another level, as in an ad from 1910: “When people buy piano nowadays, they

buy it for *music*. The day when pianos were bought as ornaments is *past*.” (Taylor 2007, 295). This defines the very nature of technological shape and be shaped.

The earliest player pianos were made in the mid 19<sup>th</sup> century and were an extension of a real piano featuring mechanical “fingers” that “played” the keys of the piano. The machine player piano “read” music from encoded “... perforations of a paper roll.” “ Later, the external playing mechanism was integrated into the piano cabinet itself.” (Taylor 2007, 185). “Recorded” performances on paper tolls was reproduced to imitate a live piano player session and many famous pianists and composers made their living out of making rolls for player pianos (Taylor 2007, 285).

### 5.3 TELEPHONY

Telephony is “A system for transmitting voices over a distance using wire or radio, by converting acoustic vibrations to electrical signals” (Oxford Dictionaries online 2015) and was invented by Alexander Graham Bell 1876 (J.E. Flood 1976). The technology surrounding telephony, and the breakthrough both economically and culturally surrounding telephony-research is a major stepping stone in the history of technology for sound reproduction. The earliest ideas of sound transmission through technology of telephony has been the basis of the modern protocol and routine for digital technology that we have today (Burgess, 2014). It is much that technological advancement of sound reproduction has “loaned” to telephony: “...telephony and the peculiar characteristics of its infrastructure are central to the sound of most audio technologies over the past 130-odd years.” (Sterne, 2012). Many things in the early years of sound reproduction technology derives from telephony not only in share engineering but also from aesthetics (Sterne 2012; Trotter 2013). Each major technical iteration of sound recording has made use of telephone research: the first phonographs were built in labs funded by telephonic (and telegraphic) research; the first electrical recording and playback technologies were borrowed from innovations in telephone systems in the 1920s...” (Sterne 2012 loc.93).



It is significant to point out that the transmission of sound was no longer limited by distance nor location. The result would be a broadening potential for marketability of music to the masses and also the possibly increased tendency to compromise musical vision to reach a larger audience and to be more profitable. This changed the dynamic between the listener and the musician. The listener was no longer directly paying for music but instead advertisers were paying the broadcasters and in turn the broadcaster paid the musicians. This would mean an end for the audience directly paying tribute or money to the artist, or at least that the possibility of its absence was now a fact. One could also argue that the respect for the musician had changed also regarding that the musician was not necessarily *present* anymore. Telephony introduced a new kind of sociability over distance with whom telephony connected the “caller”: “... connecting in order to connect, connecting in order to stay connected, at a distance. Since the connections it made put one person’s privacy directly and immediately in touch—but not, of course, in *touch*—with another’s.” (Trotter 2013, 38). Trotter points out that transmitting voice and sound was now a social act that could transpire across a distance between people communicating in “real time”. Telephony, however plain the technology surrounding it in the beginning was, contained culture as a transmission of a message would “... in some small measure” (Trotter 2013, 41) be a ritual act. The telephone was further a contributor to the commodification of audio into an object and the faculty of hearing that could be enhanced through technique (Trotter 2013; Sterne 2012). Concerns about the quality of early telephony begin to echo modern day concerns about communication technology:

*“Martin and Gray proposed, “the major importance of a difference between the original and the reproduced sounds is determined by its effect on ‘intelligibility,’ that is, the degree to which the latter sounds can be recognized and understood by the listener when carrying on a telephone conversation.” “Intelligibility became the measure of the effectiveness of interaction at a distance.” (Trotter 2013, 44)*

Today the digital formats are e.g. seeking quality and minimal demand of digital storage, which is today also a sign for an efficiency standard to accomplish when it comes to technology for storing music.

#### 5.4 FROM THE PHONOAUTOGRAPH TO THE PHONOGRAPH: THE BIRTH OF RECORDING TECHNOLOGY

In the 1860s, seventeen years before the more famous phonograph was invented, a typesetter named Édouard-Léon Scott de Martinville etched the sound of a French song called “Au Clair de la Lune” on a soot-blackened paper. This was the starting point of what would be a long list of innovations and patents to come, made by great innovators and researchers. De Martinville’s method is considered to be the first-known recording of an acoustic sound. The creator thought at the time that it would not be possible to play the sound back. The invention was patented in the year 1857, and was called “phonautograph”. The invention was based on a horn and a diaphragm converting an ambient sound to a mechanical vibration (Burgess, 2014).

The technology of sound reproduction was invented at a time when the status of invention and development was itself changing (Lochte 2000; DeGraaf 1995). The Western Union had become the first major financial and communication company and as Jonathan Sterne, the author of *The Audible Past: Cultural Origins of Sound Reproduction*, points out, the first modern corporation in the United States (Sterne 2003, 185). The telegraph was the first electronic media, and at the time not precisely a mass media as the newspaper was. It was giving new imagination to everyday life in many countries including the USA. The Western Union at the time was conducting the majority of research in communication technology in the USA. Telegraphy provided a context for the development of sound-reproduction media. It provided both an income and research program for the people who would later go on to invest in other sound technologies. Sterne describes the initial development of sound-reproduction technologies as emerging from a relatively small elite group of people, and many of them were in contact with each other. Two of the most well-known figures in North America were Alexander Graham Bell and Thomas Edison.

Mr. Bell and Mr. Edison experimented in the early days of sound reproduction through their work in telegraphy. The telegraphy was a technological invention that sent multiple telegraphic messages over a single line by varying the pitch of the telegraphic tone (Sterne 2003, 185). They were both successful in popularizing their discoveries through well established scientific and technical lecture circuits and in newspapers and magazines. Both

were fairly business minded and established financing for their own experimentation. Mr. Bell and Mr. Edison hired a fair number of assistants and were eventually able to set up multiple research labs and research complexes. According to Sterne, what was an “invention” in the 1870s was to become “research” and “development” by the 1920s and during that time invention moved from “artisanal” to an “industrial” mode of production (Sterne 2003, 186).

DeGraaf points out that technology had become a part of a corporation structure as the inventions had become popular and needed funding and growth to survive on the market: “At issue here is not whether Edison was a good or bad manager, but how he responded to the problems of designing and marketing sound-recording technology within a rapidly changing competitive environment” (DeGraaf 1995, 89). There are similarities to the contemporary models in business and technology surrounding music distribution today. At the time another prolific business person who could be mentioned as one of the founders of the modern corporate reproduction Henry Ford, was during this active to define history: “The traditional explanations for Edison’s commercial failures maintains that he was a poor business manager. This view was initially expressed by Henry Ford, who called Edison “the world’s greatest inventor and worst businessman.” (DeGraaf 1995, 88) Whether or not this was true it indicated that at the time inventions and business was seen as respectful titles, and them both combined resulted in greater success. Wegman points out that what was at stake at the time was a never ending source of profitability of musical sound that at the same time disturbed the underlying value of quality by “reduce it to a mere idle pleasure” such as food “and other objects of gluttonous pursuit.” (Wegman 2005, 425).



*Figure 1 – Edison and phonograph 1878. Licensed under Public Domain via Wikimedia Commons*

Both Bell and Edison were working toward rationalizing the invention process. Edison later went on to found his laboratory in Menlo Park in 1876 and the laboratory is regarded as the first independent research and development laboratory in the United States. The laboratory in Menlo Park, founded by Edison, had the main purpose of developing technologies from useful and practical innovations and would meet the demands of the commerce at that time.

The purpose was to develop technologies that would generate capital through sales to the industry and in this way enable the development of more technologies. Sterne states that Edison “helped to transform invention and innovation into an industry in its own right” (Sterne 2003, 186).

According to Richard James Burgess in his book, *The History of Music Production*, Thomas Edison was experimenting with the idea of recording and playing back telephone messages by holding an embossing point, against a rapidly moving paraffin paper. When seeing the sound vibrations on the paper, Edison figured out that it was possible to “store up and reproduce automatically at any future time the human voice perfectly” (Burgess 2014, The Thomas Edison Papers 2012). The machine was called the “phonograph” from the Greek word “sound-writer” and was in production in the year 1877. The device and the innovation were first thought of as a dictation device by Edison and an attempt by Edison to improve telephony and telegraphy which were reliant on expensive copper cables (Burgess 2014; Kittler 1999). One of the first visions that Edison wanted to accomplish with his device was to record “the last words of dying persons.” (Kittler 1999, 12). The fact that much technology was such a new concept left open many possible new applications. Because the phonograph allowed for the recording of audible sound and made possible repeated playback, it was perceived as an invention that could in some ways give sound and the sound of loved ones immortality. In fact one of the uses Edison proposed for the phonograph was to record the last words of loved ones, as Benjamin points out:

*“In photography, exhibition value begins to displace cult value all along the line. But cult value does not give way without resistance. It is no accident that the portrait was the focal point of early photography. The cult of remembrance of loved ones, absent or dead, offers a last refuge for the cult value of the picture.” (Benjamin 1939, location 166)*

On the other hand, Alexander Graham Bell, his cousin Chichester Bell and Charles Summer Tainter started work on making practical phonograph records in 1879 (Burgess 2014). They were later on to found the Volta Laboratory Association in 1881. The three, Chichester, Bell and Tainter, were convinced that the tinfoil originally used in Edison’s recording on the phonograph was an obstacle for further advancement in the technology. The material tore easily, was only capable of a few playbacks and the quality of the sound reproduction was not

satisfying. They decided to begin making a wax compound whereon they would be able to engrave the sound waves directly. The patent was made on an improved phonograph in 1886 and went under the name “graphophone”. The foreign rights were sold in 1889 and the International Graphophone Company was founded the same year (Burgess 2014).

The idea of using Bell’s wax cylinders as recording material was adapted by Edison. At this point in history, there were no standards in recording speeds used, or for that matter a standard format size. Therefore, recordings from one company would not necessarily play on another company’s machine. The mass production of the wax cylinders would not become a reality before the year 1901 (Burgess 2014; Gronow 1983).

When Bell and his benefactors were out of the telephone business by the early 1880s, Edison continued his interest within the musical phonograph industry until 1929, and in the dictation machine technology business for an even longer time. He would be a prominent name and face in the whole line of hardware and software through the 1920s (Sterne 2003, 186; DeGraaf 1995).

Many of the inventions in the technology industry during this time influenced each other and the developments were directly related to each other, according to Sterne. In some cases, one development was directly applicable to all areas. For instance, Mr. Edison held a patent on the carbon transmitter that gave greater volume and distinctness to Mr. Bell’s first telephone (Sterne 2003, 189). The environment in the industry was, despite being interdependent and interconnected, highly competitive and sometimes territorial in its nature. New technology was, in some cases, seen as taking success from others. As an example, a patent for the duplication of phonograph records by a certain Mr. Thomas Lambert was considered a threat by Edison. Edison decided to sue Mr. Lambert and did so until his company was eventually out of business in 1907 (Burgess 2014). At this point in history, there was no so-called mass production within the industry. Each specific item was represented mainly by its own inventors. Phonographs and graphophones both used wax cylinders as their medium in the late 19th century. The prerecorded cylinders were not easily mass produced for commercial sale. Each of these machines could only record onto a single cylinder at a time. Each machine was operated manually. Several machines and operators were often present at a single

recording session in order to make multiple copies of a performance. The gramophone, which is the direct ancestor of the phonographs would change this (Sterne 2003, 203).



*Figure 2 – Edison phonograph circa 1899 using wax cylinder. Licensed under Public Domain via Wikimedia Commons.*

Although recording technology at this time was still cumbersome, it was an important moment in sound technology, as it freed music from existing only performed one time. Now listeners and the audience could listen over and over again to the same recorded material. However, the technology still had its flaws, as the experimental materials on which the sound was recorded did not reflect the best of quality. The physical recording materials inevitably degraded in quality over time. Nevertheless, it broke the barrier for music and sound in time. This allowed the further commercialization of sound and music. At the time it also had undertones of what was beyond the living world as communication could be transferred

without physical presence of the body. Traditional beliefs such as life after death and communicating with the dead were confirmed (but not scientifically based) by spiritualists at the time (Daniel Wojcik, 2009). According to John Durham Peters, Jonathan Sterne, Emily Chivers Yochim and Megan Beddinger one of the first advertisement for the phonograph was the ability to listening and even speaking to the dead (Peters 1999; Sterne 2003; Yochim & Beddinger 2008).

*“When people heard voices over a phonograph, they often noted how the speaker’s spirit seemed to be present, as though actually residing in the machine itself. For 19th-century listeners, this separation of the voice from the body and its subsequent mechanical embodiment was perplexing but intriguing.” (Yochim & Beddinger 2008, 185)*

The technology at the time had just started out as sound and audio reproduction-machines. The users were intrigued and fascinated by the new technology for different reasons than today. Also though it was to be used for recording of sound, audio and eventually musical work for reproduction purposes, the speculations had no limits to what the new technology could do.

## 5.5 THE GRAMOPHONE

German-born Emile Berliner was a Washington DC-based inventor, and had in 1888 put together a recording and playback device that he would call “gramophone”. The device was patented one year earlier and began to be obtainable around 1895 (Burgess 2014; Gronow 1983). The earliest gramophone by Berliner had characteristics that can also be seen in today’s devices including attributes such as the use of flat discs, lateral cut grooves and maybe one of the most important characteristics, a strictly playback-only device. Berliner had collected many attributes that have been developed earlier and incorporated them into later recording and music reproduction technology. Berliner foresaw the modern business model of proprietary rights for recordings and the playback devices for consumer use. During the time, for example, Edison was promoting his phonograph as a dictation device (Burgess 2014). The cylinder model of the recordings was superior in sound quality to the disc format. On the other hand, the discs were easier to store because of their shape and practical design. The discs also



had room for credits and text on a round blank middle part. The sound quality of the disc was improved as the technology around it eventually evolved (Burgess 2014).

Berliner was the first to mass-produce hard rubber vulcanite copies from a zinc master disc using the etched master and stamper technique that is used still today in the disc duplication process. Emile Berliner founded the U.S. Gramophone Company which in 1894 had sold 1000 machines and 25,000 records, on the 7" hard rubber disc. Electrically motorized machines were available, but a hand-driven model was the most common at the time (Burgess 2014). Before the introduction of radio, the gramophone had passed the 100-million-dollar mark and is considered as the beginning of the record mass market (Kittler 1999; Gronow 1983).

## 5.6 BROADCASTING

The advent of the telephone was the precursor to broadcasting sound and paved the way for today's radio broadcasting systems. One of the earliest forms of broadcasting appeared as an innovation by a man who had been working closely with Thomas Edison in the United States named Tivadar Puskás, who traveled to Paris and then to Hungary and the city of Budapest to perform experiments in telephone broadcasting. Puskás had earlier helped Clément Ader to set up the Parisian telephone broadcasting system, the Théâtrophon, which broadcasted performances from the Parisian Opéra, the Opéra Comique and the Théâtre Française. According to Sterne, these systems were probably the first systems of stereophonic transmissions. Tivadar Puskás was also the first man to conceptualize a central telephone exchange (Sterne 2003,193). Transmitters would be set up to capture sound from the performance including both the performers voices and the orchestra's music so that the listener would get a feeling of being present at the Opéra (Sterne 2003, 193). While the listeners could not experience the original aura of the opera as it was created by the lavish surroundings of the opera house and the physical presence of the musicians they could experience a version of the ambiance created in the opera house and transmuted by the listeners' respective locations. The aura, by its nature, could not be transmitted, but listeners could each have a unique experience of the music in their own surroundings.

In 1892 Tivadar together with his brother Ferenc Puskás founded the Telephon Hirmondó. The Telephon Hirmondó, which translates directly to “Telephone Herald” was the daily provider of a scheduled program of stock prices, news, sports, and cultural programming to an elite group in the city of Budapest in Hungary. The service was not expensive, but it was still only broadcasting in the language of the ruling elite in Hungary of that time, the language of Magyar. It was considered therefore to be exclusively dedicated to a group of people with similar political and cultural interests. The content directed in Telephon Hirmondó was dedicated to an elitist interest in the country. In 1893, the broadcasting Telephon Hirmondó had 1,000 subscribers and by 1896, 6,000 subscribers, with a peak in 1914 with 9,107 subscribers (Sterne 2003, 193).

On the other side of the Atlantic Ocean, trade press was interested in the Telephon Hirmondó and the New Jersey-based Telephone Herald Company attempted to bring the system to the U.S. in the year 1911. It was not a success because of an actual over-demand in numbers of subscriber-interest. The project was not getting enough investors because of a history of legal problems in the company, as well as not being able to fulfill its need for the technological equipment that the large numbers of subscribers demanded. Of 2,500 contracts, the company was only able to operate 1,000 installations at a time. The company eventually could not pay their staff nor their musicians and the service closed never to reopen (Sterne 2003, 193-194). The Telephone Herald “is the only represented major entertainment-based telephone network in the United States” but nevertheless there were other experiments within broadcasting “concerts, sermons, speeches and even impromptu jam sessions among late-night operators could occasionally be heard over the telephone lines by the mid-1880s” (Sterne 2003,194). The people listening to broadcasts would experience a performance at the same time, seemingly shortening the distance although the transmitter and receiver were located geographically apart from each other. The sense of connection to a routine of live audio on news on sports, business and cultural programming would make the listening subscriber keep up to date with information that he or she would receive in their home. This made the Telephon Hirmondó a unique experience, which also proved to be popular new cultural trend for a paying elite.



Figure 3 - Telefon Hirmondo reporters. Licensed under Public Domain via Wikimedia Commons.

## 5.7 TELEGRAPHONE AND RADIO BROADCASTING

The Poulsen arc transmitter was a predecessor to radio tubes that were introduced fully during the first world war by invention of De Forest. Prior to that Valdemar Poulsen, a Danish inventor was the man who patented the first-known magnetic recorder, in 1898 and using a steel wire calling it the “telegraphone”, which could be used in electric signal transmitting of sound (Burgess 2014; Kittler 1999).

Other inventors prior to the first world war, were also developing technology that would fulfill the potential of broadcast sound. Guglielmo Marconi born in Bologna, Italy was 22 years old when he filed a patent in the UK, on June the 2nd of 1896. The patent would later be seen as a crucial step in the early development of radio technology (Burgess 2014; Guthrie 2014). Marconi’s idea of electromagnetic waves that would be the foundation of the wireless telegraph system became a lifelong obsession. From his earliest efforts, Marconi strove for

two results—increasing the distance at which he could receive a message and a conquering the obstacles of the hilly terrain (Lochte 2000, 100). According to Jason Lee Guthrie and Lochte (Guthrie 2014; Lochte 2000) the man who set in motion factors that would make the radio a reality was amongst other Guglielmo Marconi, and also points out that there is not one single definite creator of the radio.

In the U.S. Lee de Forest filed, in 1906, a patent on a triode vacuum tube. The “Audion” would be the first ever amplifier of electronic signals and would open possibilities for subsequent developments and steps in radio technology, telephony, and later on in recording technology (Burgess 2014; Kittler 1999). In the year 1907 de Forest invented an “arc-based radiotelephone transmitter and receiver”. De Forest wanted to send music by wireless means and made improvements on the Audion device to become a detector, an amplifier, and transmitter. Later on de Forest started radio stations that were part of the early broadcasting of music in the United States, which at the time played opera music as the primary genre for their listeners (Burgess 2014). The vacuum tube was a central part of 20th-century electronics and it made radio commercialization possible. As the vacuum tube improved recording and playback quality, it also eventually helped the music industry overcome its setbacks from their not so successful, early years. The clarity allowed by the vacuum tube was one cause of radio technology’s rise in popular use (Burgess, 2014).

According to Robert Henry Lochte a “diffusion” process took place in the radio market at its beginnings and points out that “innovation depends on cultural phenomena” (Lochte 2000, 94). The diffusion process relies on the definitions of “innovator” and “inventor” where he cites MacLaurin from 1949: “When an invention is introduced commercially as a new or improved product or process, it becomes an innovation. Usually, the innovator is an entrepreneur—not an inventor. And innovation covers a much wider sphere of possible new developments than inventions” (Lochte 2000, 94). Lochte defines further, that innovators do not need to be inventors themselves as long as they are actively in the process of adopting and communicating new ideas. However, they usually are not the ones who are engineering and patenting devices (Lochte 2000, 94). Lochte goes on explaining that for technology diffusion to be successful, both inventors and innovators have to be involved and “cannot proceed until innovators decide how to assimilate new ideas into generally useful technology.” (Lochte 2000, 94). What to understand here, is that the technology of radio was not “invented” by one

man but assimilated from a process of diffusion. Marconi became one name to be in the forefront of such a process at the time (Lochte 2000; Guthrie 2014; Burgess 2014).

While the original business model of radio emphasized the sale of physical products, the department stores who were using the radio technology to broadcast their own radio channels saw the opportunity to air advertisement for their listeners. This had its beginnings in New York during the 1920's, where department stores such as Gimbel's, Wanamaker's and Bamberger's had their own respective radio channels. Advertisement-based radio and also television programming originates from here (Guthrie 2014).

The radio transmissions were a step backward in quality from earlier inventions such as the phonograph. Edison thought radio would define how people listened to music, as through the distortion of radio would disillusion the listener into not liking the actual real music. It was true, at the time, that radio distortion was a quality issue. But the ideology of a "democratized luxury" made consumers buy radios in favor of phonographs, as it was a symbol of social status. The audience learned to listen to bad quality music because the perception was that the music was of less worth than the actual technology that it was played from (Guthrie 2014).

## 5.8 FM AND AM RADIO

Major Edwin H. Armstrong created the first radio amplifier in 1912 and it is still the basis of the continuous-wave transmitter that is central to radio broadcasting. Armstrong also invented telecommunication technologies including wide-band frequency modulation, also known as FM radio. FM radio had higher fidelity and greater range than earlier AM radio. The earlier AM radio had not been able to transmit high fidelity songs nor stereo radio plays. FM radio made stereo transmissions possible by "multiplexing" that overlaid two single musical broadcastings to form stereo radio broadcasting in the 1950s. The 1960s rock-era a demand on same quality that was found from home records, increased stereo component market demand and left the technology of AM radio further behind (Burgess 2014; Guthrie 2014; Kittler 1999). Today we can experience music from anywhere with the help of this technology. The contemporary listener rarely needs to consider music in relation to distance, so far removed from the original performance has the experience become.

## 5.9 MUZAK

Back in the United States, AT&T's research and development in the early 1900s impacted the recording and reproduction of music. Telephone lines also made it possible to transmit national radio networks in the 1920s. George O. Squier signed a patent in 1922 for the transmission of music over telephone lines. This made the emergence of sound recording and telephone transmission possible which in turn would become Muzak. Muzak was a company in the 1920s that promoted itself as an alternative to the already existing jukeboxes. The system of transmitting music was initially over the A.C. power system but was later on through telephone lines. The system sent recorded music into homes in Cleveland for \$1.50/month on three channels (Burgess 2014). The Muzak company later revolutionized their business model for playing sound in factories, elevators and other commercial spaces (Sterne 2003, 190). This company model or service is not far from modern services that provide music to listeners online through digital streaming content such as Spotify and other modern digital streaming services.

Erik Satie (1866-1925) was the inventor and composer of "furniture music" and considered the "father of muzak" according to Hervé Vanel (Vanel 2013, 11). The music was simplistic and was made to be put into an environment. His musical work titled, "Vexations," is, not surprisingly, annoying and as Vanel points out, might have humorous tones as Satie admits he is not a musician and his work, "Vexations" according to musical notation should be repeated 840 times (Vanel 2013, 10). The commodification of music is here present to the fullest, as the music is objectified ridiculously to the point of creating a complete absence of spiritual indications and aura. Even the name "Muzak" is a sort of cheap knockoff of the real name, "music. It had been stripped of all its artistic value and made into a sort of home accessory as Vanel points out, Saties music was made to satisfy *useful* needs and had the same role as "light and heat." (Vanel 2013, 22).

In the 1920s sales of radios were rising while sales of phonographs were declining. During that time, there were speculations in the market about whether or not the radio would fully replace sound recording in providing music and other audio entertainment. Radio networks would later give the recorded music industry the opportunity to spread and promote their recordings via radio broadcasting. Eventually, it became clear that both radio and recorded

music could coexist and even benefit one another (Sterne 2003, 190). However, initially radio did cause a 90 percent drop in recorded music sales and caused an upheaval of concerns in the record industry and loss of invested money in the businesses and research (Burgess, 2014). Interestingly, the much later transitions both from LP to CD and from CD to digital format caused a very similar upheaval within the industry.

### 5.1.1 THE JUKEBOX

According to Sterne, already in 1890, there were “frustrated phonograph merchants” who were getting more interested in a growing system called “coin-in-the-slot”. The Jukebox facilitated an economic transaction from the listener by buying songs that would be played instantly once, and often in public space. It was a lucrative investment in the mid-1890s. These coin-in-the-slot machines were around until the 1920s in the United States, where after new inventions in technology made way for a newer machine called the “jukebox” (Sterne 2003, 201). By 1933, record sales had hit rock-bottom but the jukebox business was booming. Homer Capeheart’s “Simplex automatic record changer mechanism” was bought by the Wurlitzer Company, and by 1939 the market in the United States had grown to 300,000 machines. Radio of the time used information from the jukebox industry and aired the music that was most popular on jukeboxes around the USA (Sterne 2003, 201). The information taken from two different technologies was here used to improve sales and similar to how today’s online streaming services gain consumer insight from the listeners' habits and playlists. This strategy is similar to the contemporary model of gathering data digitally, the consumer agrees to give out statistics about their listening habits to be used for recommendations in a later stage by services such as Spotify (Yahoo! Tech 2015).



Figure 4 – A Wurlitzer Jukebox. From personal album.

### 5.1.2 THE MICROGROOVE LP

In 1931 RCA (Radio Corporation of America, founded 1919) produced a predecessor of the LP-format in the form of a wide-groove vinyl disc that ran at a speed of  $33 \frac{1}{3}$  rpm (rotations per minute), but was too early to be successful in the market. The heavy weighted tone arm and the type of stylus used on the disc cut through the disc and caused complaints from the consumers.

The disc was eventually brought from the market in 1933, but the invention and research in the technology were kept within the company until 1948. That information was used in the next dominant format, the Columbia Record's 12"  $33 \frac{1}{3}$  rpm, microgroove disc called the LP



(Burgess 2014). The LP was made of a vinyl record and was considered to be more resistant to breakage than earlier predecessors. Also, the LP could hold up to around 22 minutes of recorded sound on each of its sides. The LP had expanded to 30-16,000 Hz which was much closer than its predecessors to the range of human hearing (20Hz to 20kHz). In the year 1958 a worldwide standard for stereo records was established with LP. The medium was in ways different from the original LP but based on some of the same principals (Burgess 2014). The LP, the long-playing vinyl format dominated the music industry and recorded music consumption from the 1950s, until the newer technology CD was introduced to the market (O'Neill 2010). Subsequent to this, mobile radio and cassette tapes began to rise in popularity.

The LP brought music to the individual in a more personal format. The individual could collect specific music from artists that he or she liked. It became more personal, instead of relying on a jukebox menu or radio selections. It was now possible to collect a personal collection and, therefore, it became more of an individual art and a reflection of the individuality of the collector. The support of the individual was now more directed to the individual artist they liked. The invention of the LP made it possible for the listener to actually own the previously intangible art form as a physical object. This was the greatest degree of freedom over the enjoyment of music that had been possible for the consumer since the beginning of music reproduction technology. The LP also is today considered a collectable item and maybe much so because of the nostalgia that people move to from digital formats and getting closer to the art form. Digital formats of music may be considered more of a disposal nature and are often not ornamented with covers and colors physically, but merely digital pictures in forms of pixels on a digital device screen.

Although consumers and critics estimated already in the late 1970s and 1980s that the vinyl record was a dead format, it still has loyal buyers because of the personal nature of the format:

*“The persistence of this technology in a culture rife with new and sophisticated forms of music distribution is possible because of both consumers’ and producers’ re-articulation of records’ meaning and the appearance and reappearance of a trope of death throughout their discursive history” (Yochim et al 2008, 183)*

When considering a music format like vinyl, that has “survived” and now perseveres in modern times, it begs the question of how an outdated format can remain competitive in a seemingly

immortal way. To Yochim and Biddinger the explanation lies in the relationship between the consumer and the product:

*“We argue that when vinyl collectors expound upon aesthetic, tactile and sonic superiority of records, they are not simply romanticizing the past but are articulating an abstract relationship between technology and humanity by grounding it in more concrete qualities. Throughout both their history and in the contemporary moment, vinyl records have been articulated with human characteristics, such as fallibility, warmth and mortality, which, for record enthusiasts, imbue vinyl with authenticity.” (Yochim et al 2008, 183)*

We can argue that the technology inherits human characteristics and therefore becomes precious because of authentic experiences that the listener sees as stored and associated with that object.

### 5.1.3 THE MOBILE RADIO

The first radio receivers were not made to be moved around but rather seen as a static part of the furniture in the room where they were located. William Powell Lear designed the first commercial car radio. It was introduced in 1930 through *Galvin Manufacturing* in Chicago, under the name *Motorola*. Lear eventually held more than 100 patents on pioneering electronic devices. Lear's radio receiver was powerful enough to pick up radio stations from across the United States. Prior to the 1950s in the United States car radios had existed, but the demand for car radios increased as the number of cars in the United States increased dramatically. The first, pocket, mobile radio using a 22.5-volt battery and was produced in 1954 by I.D.E.A. Co. in Indianapolis under the name “Regency TR-1” (Burgess, 2014). Portable radios were a common thing by the 1960s, and music labels such as the popular Motown in North America mixed and formatted the music to be playable on the new devices (Burgess 2014; Kittler 1999). Mobile radios could be argued to have a similar effect on music as a commodity as earlier stated on the music commodification in the transition between phonographs and radio broadcasting (Guthrie 2014). Once again music quality was devalued as the technological access for listening to music became the priority- Social status and the mobile function was the main target of technological business and consumer interest.

#### 5.1.4 THE CASSETTE AND THE WALKMAN

In 1963, a big step in the mobile sound revolution took place with debut of the “compact cassette” from Philips. The compact cassette replaced the former “8-track tape” which was more popular in the United States during the 1960s and 1970s than it ever became in Europe. The cassette took over the market of mobile music in a revolutionizing fashion and gave the opportunity to consumers to even record their own material for their mobile device. This had not been possible using prior mediums such as the mobile radio where the playlists were not decided by the listeners per se. In the market, the Philips cassette tapes would compete with the prior format of the Microgroove LPs and they were a step backward in sound quality from LP. The Philips cassette used Ferric Oxide-coated tape and gradually evolved by several steps in production to metal tapes. The “cassette Walkman” was superior in 1979 despite it’s shortcomings in sonic quality and in its build. It was 25 years after the transistor radio which had made music mobile “everywhere” that SONY introduced the TPS-L2 Walkman, which was a portable pocket cassette player and it is considered to be the next step in history for “personalized mobile music” (Burgess, 2014). The cassette tape “was a transformative technology for consumers, artists, and producers. Compared to LP's, 45's and 78's they were small, light, and could hold much more music. You could record your choice of material and listen privately in a car or, after 1979, on a Sony Walkman, almost anywhere” (Burgess, 2014). The format of the LP was, according to Dave Laing, deliberately ruled out of “some major companies” in favor for the cassette (Laing 1990).



Figure 5 - Maxell and TDK cassettes. Licensed under Public Domain via Wikimedia Commons

The music was now getting an interactive touch with the possibility of personal mixtapes that were made possible with the cassette format for the average consumer and the ability of the listener to control the location in which they enjoyed music continued to become more flexible.

## 6. HISTORICAL OVERVIEW ON THE DIGITAL DISTRIBUTION ERA OF MUSIC

### 6.1 INTRODUCTION

It is important to understand history of technology when approaching modern times as it may help us to recognize trends that occur in the future. The following chapter represents the digital distribution of music, and points to key inventions and innovations that changed the future. This history transition, is not an exhaustive timeline but serves to clarify certain important points in the thesis.

Digital distribution era of technology has been another stepping stone in the evolution of how music is experienced. As mentioned earlier, aura, reification and technology have all been involved in the making of the digital future of music. The trend is to make music more collectible, produce greater quantities and provide access everywhere to meet the modern human's craving for music. What has made all this possible is the "dematerialization" of music (Steigler 2010; Kittler 1999; Benjamin 1939). Inside the computer everything becomes a number and is based on numbers. The difference from analog reproduction of music is that it is delivered by electrical waves.

### 6.2 TURING'S SIGNIFICANCE

In the 1930s a "computer" was referred to as a person "equipped with pencil, paper and instructions" according to George Dyson (Dyson 2012). Alan Turing reworked the computer by designing the Turing machine. The Turing machine was a mathematical system following presets of instructions that contained symbols encoded on an endless paper tape. Turing's design would pave way for a new way to automate information and help define the dawn of the digital era.



*Figure 6 – The human computer was common before Turing’s design The Turing machine. Licensed under Public Domain via Wikimedia Commons*

### 6.3 THE PERSONAL COMPUTER

Computers were from the beginning made for solving mathematical problems. The modern personal computer is a part of our “Information Age” where the computer does much more than mathematical equations. Computers today “store and retrieve data, manage networks of communications, process text, generate and manipulate images and sounds, fly air and spacecraft, and so on.” (Cruzzi 5-6, 2003). Inside a computer, there are circuits that will do those things by transforming mathematical language. As Cruzzi points out, few of the users of a personal computer today are capable of understanding the math behind the wonders that the computer is used for, although the sole purpose of the electronic digital computer was to do exactly that: solve equations (Cruzzi 5-6, 2003). “The word “computer” originally meant a

person who solved equations; it was only around 1945 that the name was carried over to machinery.” (Cruzzi 5-6, 2003). Attempts to commercialize the electronic computer were made in the late 1940s as well as in the mid-1990s as the networked versions of personal workstations became a commodity.



*Figure 7 - An IBM 7090 electronic computer taking up the whole room. Licensed under Public Domain via Wikimedia Commons*

## 6.4 THE CD

The CD (Compact Disc) was introduced in the year 1982. The first digital audio format was made available in Japan with compatible players. The technology was a combined result of the research and development of two companies; Sony and Philips. The CD was a 12 cm disc with shiny silver-like coating and was at first met with skepticism from the retailers as the “CDs did not easily fit into vinyl bins” and the cost at the start of launching was higher than LPs which were celebrated at the time (Burgess 2014; Yochim et al 2008).

The compact disc had many “radically different elements” that it brought into audio technology. Three major changes were introduced: the use of digital data for storing and processing the audio signal; error correction making the signal more solid; and the use of an optical, non-contact pick-up “to read” the signal on the disc (O’Neill 2010).

The demand gradually increased after that and in 1985, millions of CD players had been sold and the manufacturers of discs were struggling to keep up with the demand (Burgess, 2014). The consumers of the CDs discovered early that the material was not indestructible and that both thumbprints and scratches could cause skips or stuttering on the early CD-players. The CD had at full dynamic range capacity of 16-bit (Burgess, 2014).

## 6.5 CD-R

In 1988, Sony and Philips launched a new standard called, “Orange Book” that would work with computers and use the same laser technology as the previous audio CDs. The CD-R or “Compact Disc Recordable” was, in the beginning limited, but was used in various situations for broadcasting, recording purposes and storing music that could then be played back from the disc. (Burgess, 2014)

## 6.6 CD-ROM

CD-ROM drives were introduced to the market in the year 1992. The price of the discs was declining and more manufacturers were taking on the production of the new technology. The CD-ROM quickly became a standard component that came along with the computers that consumers bought at the time. The possibility to copy data onto “CD-R blanks” that earlier had been available exclusively to the music industry was now becoming widespread to consumers and suitable for home and personal use. This made it possible for the average consumer to make inexpensive and exact digital copies. According to Burgess, “this confluence of audio and data uses signified the inevitable overthrow of the music industry control by the ongoing computer revolution” (Burgess, 2014). The format of the music was again changing with the dawn of the CD-ROM. Throughout the historical transition, reproduction took many shapes all of which served to enhance usability and performance. It also served as an indication of how the relation between consumer and producer was changing as the consumer’s power increased from a corporate perspective. The shift of power through technology will be discussed later in the *piracy* section.

## 6.7 RECORD STORES

Music retail stores still exist but were a much more common sight before the dawn of contemporary digital distribution channels. The social aspect of music is important for the survival of the record store. A record has a sort of aura in that it's value is not in a completely intangible, digital form of music. Records have a tradition of interesting album art and collectors desire because of their limitations and the presence of aura. Record stores are today fighting to sustain their niche and reputation by retailing avant-garde music to collectors according to Ed Christman (Christman 2008). Record stores are also an important destination for many consumers who value authenticity, community and ritual.

*“At one time, a factory stamped out musical discs and trucks delivered them to retail stores where salespeople sold them. While that system has not been entirely destroyed, it is certainly more common to simply receive music instantly over a network” (Jaron Lanier 2014, location 345)*

The days are not over for the record stores yet but modern distribution methods has gained ground in recent years.



Figure 8 – A record store during record store day 2014. Licensed under Public Domain via Wikimedia Commons



## 6.8 THE INTERNET

In 1969 in the United States, the Department of Defense was conducting network research on a concept known as ARPANET. The earliest hosts of the ARPANET were connecting Stanford Research Institute, UCLA, UC Santa Barbara and University of Utah in North America. A so-called “time-sharing service” named CompuServe was up and running between these universities (Burgess 2014; Strawn 2014). The ARPANET enabled scientific research on remote computers, collaboration, sharing of data and “email” (Burgess, 2014). In the year 1979, Usenet, a form of newsgroup had been developed for discussion of various topics electronically. ARPANET was to be the predecessor of the internet as it would become known in 1982., In 1987, there were 10,000 hosts and by 1990 the number of hosts had grown to 300,000 (42) (Burgess, 2014). According to Greg Kot the Internet started out with idealistic undertones, designed by researchers “...as an indiscriminating conduit for information” and would later on become the biggest threat to the entertainment industry (Kot 2009, 45). Chapters later on in this thesis will also describe more thoroughly why the industry was changing.

## 6.9 ISDN

ISDN (Integrated Services Digital Network) was introduced in 1986 and 1988 the first commercial system was available according to Vincent S. Lai and Bernard Reeh (Lai & Reeh 1995, 132). The lines made it possible to transmit audio files over long distances. Duets and Duets II were two recorded albums by Frank Sinatra in which some of the recordings were done in a collaborative process via ISDN-technology thousands of miles away. In 1995, The Winter Olympics in Japan “opened with synchronized live audio feeds of a simultaneous performance from five continents using ISDN and satellite technology” (Burgess, 2014). ISDN was a faster form of transferring information over long distances and allowed for the collaboration in the making of music online. The faster speeds of online connections with ISDN made software such as Napster gain popularity because of ease and short downloading time (Kot 2009, 47).

### 6.1.1 WORLD WIDE WEB

Tim Berners-Lee was, in 1989, working at CERN (The European Laboratory for Particle Physics) near Geneva in Switzerland. He proposed a new idea for a more useful internet and worked persistently to get his proposal through to his management. In the year 1990, in October Berners-Lee defined the “World Wide Web”. Berners-Lee had outlined HTML: Hypertext Markup Language, URI: Uniform Resource Identifier and HTTP: Hypertext Transfer Protocol. Berners-Lee would also code the first web page editor, web browser and the first web server as well as serving the first web page. In the year 1991 commercial use of the Internet was allowed through an internet service called “Gopher,” where the first “point-and-click navigation” was used. CERN released the World Wide Web software and the first graphical Web browser, Mosaic. They were developed at the National Center for Supercomputing Applications and a Windows operating system version of America Online launched in the year 1993 with over 500,000 subscribers. The leader of the team who had developed the web browser Mosaic, Marc Andreessen, would found the Netscape Communications Corporation later on. In the year 1996, 40,000,000 users in 150 countries were using the internet and by the year 1998, 4,000,000 websites were online (Burgess 2014; Lost in Cyberspace 1999).

### 6.1.2 DIGITAL RADIO

Radio’s move into the digital environment has been slow, and it is still in the process of the transition from analog networks (O’Neill 2010, 19). The transition from AM to FM was fairly straightforward in comparison to the additional complexities involved in transitioning from analog to digital because of competing options and platforms and uncertainty in the market (O’Neill 2010, 20). As the delivery of audio files over the Internet became possible in the early 1990s and the audio coding system MP3 was developed (O’Neill 2010, 53) the first attempts for streaming audio over the Internet were also made. Streaming eventually started to gain popularity with the development of essential computer software such as Real Audio (O’Neill 2010, 53). The stream player made it more efficient to listen to music online. It was not necessary to download an audio file to a hard drive or other digital storage devices, to be able to listen to the material. The stream player played the audio while receiving it. The number of

radio stations offering audio streaming services over the Internet grew and has become especially popular in the United States (O'Neill 2010, 53; Lax and Ala-Fossi 2008).

Digital radio is a direct result of technological advancements and intertwined technologies coming together. Corporations and technology naturally tend to grow and advance. Both influences have worked together to form our future and how we perceive and use products that are sold on the market. It's through a perspective of companies' vision and innovators' eager will to create, that technology has become familiar in our everyday lives and consumption. Today we have new portability access of music and the informational hub of music is online for us to access all of the world's music digitally through network technology. We have the ability to mix music as we like, to make playlists and share our favorite music on social networks. Digital technology has made us consumers have unlimited amount of music streamed to us on devices where ever we can be connected to a network. And if we are not able to be online we can access our storage of digital distributed music on our device of portable or no portable device. During the history of reproduction of sound, we might have lost something on the way in the craze of technology hype that overshadowed music. The hype might also have helped highlighting what has actually been in the process of reification and commodification of music throughout history and now with the possibilities of computers and the internet.

## 7. THE MUSIC INDUSTRY

### 7.1 INTRODUCTION

The term "industry" traditionally refers to the realms of the economy, factory mass production, and mass consumption. It has, since the industrial revolution, been an expanding term and is now related to the production, marketing and distribution of commodities also including the services and immaterial goods. The structure of industrial activity can be classified into primary, secondary and tertiary industries. Examples of the primary category are mining and agriculture, the secondary category refers to manufacturing and the tertiary category includes service production (Wikström 2009, 46). According to Wikström, the most

common way to define an industry is by the output from a particular industrial activity. When defining industries based on their output it is also common to make a structural overview based on activity within the industry such as core activities, supporting activities or related activities (Wikström 2009, 47). According to Wikström, the definition of core in the music industry in his book *Inside the Music Industry 2009*: “The music industry consists of those companies concerned with developing musical content and personalities which can be communicated across multiple media.” (Wikström 2009, 49).

Although Wikström does not refer to the music industry as ‘creative industry’, ‘experience industry’ or a ‘cultural industry’ he does categorize the music industry as ‘copyright industry’ (Wikström 2009, 12). This is true of the situation that the industry is in today and makes one of the key points of the thesis outline more interesting: how the resource of music should be perceived as a resource in digital organizational environments.

## 7.2 THE MODERN MUSIC INDUSTRY MODEL

The history that has been laid out in the earlier chapters shows that there has been a tremendous progression of technology since the late 19th-century in sound reproduction. Record labels are also part of that industry which promotes musicians and invests in their careers as clients under their label. This makes labels a major part of the music industry. The record labels have gradually been able to position themselves in a way that makes them obligatory for the flow of the value chain and by doing so have also gained extraordinary economic advantages in the industry. These advantages are still intact but have been weakened since the introduction of network-based distribution and promotion on the Internet (Power and Scott 2004, 58; Rogers 2013, 130-131).

The relation that is made up between the system for production of musical culture - the firms, roles, structures and processes are, according to Wikström, distinctly different from the system of cultural consumption. Wikström states that the connections within the two systems of cultural consumption and production of musical culture are “substantially stronger than the relationship between producers and consumers”. He goes on saying, “Consumers of music,

once largely the domain of teenagers and young adults, interact among themselves and with mass media, including radio, television and film.” (Wikström 2009, 51).

According to Wikström the economic connection is the strongest key within the industry of music. The difference between production and consumption have a mutual link through media, live performance and the economic act which is the act of value exchange music as a product. Production and consumption are, in the system, represented as having no stronger ties to each other and do not have heavily impact on each other in terms of behavior (Wikström 2009, 51).

### 7.3 MEDIA AUDIENCE RELATION

In recent times, there have been increasing resources and attention devoted to the distribution and promotion of music in media. Music is today consumed as a part of media in everyday life amongst music listeners. Media such as movies, radio, video games and television incorporate music as an important part of their production. The music industry is dependent on channels of promotion through various forms of media (Wikström 2009, 31). Today’s music consumption relies on media to be able to distribute music to the audience, whereas only a fraction of consumers would actually be able to be present at a live performance of a particular artist.

The ‘audience-media engine’ as described by Wikström is an explanatory model of how the media interacts with the audience through different channels such as television, radio, and video games. The different stages of audience participation are designed to describe the ecosystem that music goes through. And eventually ends in consumers making a final purchase of a song or music related merchandise etc. (Wikström 2009, 86-87). This is a crucial part of the promotion and distribution of products. It can create positive results for fads, brands, acts or genres but can also go the opposite way, and work against the distribution chain and make a success impossible (Wikström 2009, 87).

According to Wikström, music is an information-based product and a non-rival good. A piece of music is consumed and listened to and can be also consumed by several individuals at the

same time. The distribution of a piece of sheet music, a physical format piece of music such as an LP or other physical form of carrier, makes music a rival good. In this way, an artificial supply with control of distribution and consumer price of the product is created (Wikström 2009, 88). According to Wikström, the same model has been present in the music industry since the 15th century. As the first distribution formats were sheet music, the industry developed alongside books and newspapers a part of the publishing industry (Wikström 2009, 88). When new technology was developed and the music was able to be stored to new formats such as cylinders at the end of 19th century, the traditional means of publishing music were disrupted (Wikström 2009, 88).

Because of the increase in channels of distribution online it is becoming more and more difficult for a few powers to monopolize and control music distribution and to disallow information swapping. Just like when physical formats and carriers of music became less popular or dated, in our times, internet-based distribution channels that had previously gained money from the market by limiting the supply and flow of products are now disappearing in favor of a more open and shared market (Wikström 2009, 89). According to Wikström, the result of the numerous digital innovations on the internet have made the distinction less clear regarding the difference between promoting outlets and distributing outlets (Wikström 2009, 91).

## 8. STATISTICS AND FIGURES IN THE INDUSTRY TODAY

### 8.1 INTRODUCTION

The music industry is highly dependent on income and there would be no music if there were no musicians. Musicians make investments in both time and their own money and by taking a certain risk to pursue their creative livelihood of choice. What is represented here is a wider overview of the music industry in numbers. The data illustrates the sales and the actual money that is brought by musicians.

What the streaming services are capable of today, is to spread an enormous amount of music in the form of information online over the internet in high quality to millions of people who are connected with digital devices worldwide. The streaming services might seem to be the savior of the industry at the current moment, as figures show that consumers are willing to pay for online material such as music streaming online. There is also the possibility of downloading the material, and storing the music information on a device equipped with a hard drive or equivalent for music listening offline. Music has become mobile and global, and the trend seems also to be a positive one by actually giving the music industry an economic boost. The music industry is still growing despite its vocal fight against piracy and illegal file-sharing. Despite the decline in physical sales, record and cd sales still make up a big proportion of the industry's income while new digital formats and services such as streaming-services are getting more common.

## 8.2 DIGITAL MUSIC SALES STATISTICS AND CONTEMPORARY DIGITAL DISTRIBUTION STATUS

The report from IFPI 2014 shows that digital revenues grew by 4.3% in the year 2013. The growth of revenues and subscribers have been continually increasing to so-called “ad-supported services” and a stable income from sales of downloads has been increasing in most markets in the year 2013. According to IFPI Report from 2014 the digital revenues in the industry accounted for 39%. In Japan though, a 16.7% fall was measured, which impacted the total number of global digital revenues as Japan is the second largest market in the world (IFPI 2014, 6). The numbers according to the IFPI Report were: 13.3% digital market growth in Europe, the US (the world’s largest digital market) grew by 3.4% and accounts for 60 percent of the US market in 2013 (IFPI 2014, 10).

## 8.3 MOBILE SMARTPHONE STATISTICS

The newest innovations on the market for music distribution online, in digital format are smartphone-based mobile platforms. The fixed line of desktop PC experience has been mobilized through smartphones and consumers now have the ability to listen to their music using a wireless connection to the internet and online services for digital music. In 2012 according to IFPI worldwide mobile devices classed as smartphones accounted for 12.9% of

portable listening. This is seen as a market that will rise according to IFPI interview with Rob Weels, president of global business at Universal Music Group (IFPI 2014, 19):

“There’s a blurring of the lines between the models. iTunes Radio is a stream. iTunes Match is a subscription, and on the back of it is a download service.” “Service definitions are getting more and more complicated, but this is to the benefit of the consumer, who is getting more and more choice. The greater variety of consumer offerings there are in the marketplace, the more they will spend on music and the more engaging their experience will be.” (IFPI Report 2014, 19)

#### 8.4 INTERNET RADIO STATISTICS

Record companies have recently started licensing internet radio services, which are focused on consumers who want dedicated playlists that are tailored for consumer discoveries of artists or genres in music. iTunes has been developing a service called iTunes Radio since 2013, which is seen as a globalized internet radio model which was initially, predominantly restricted to the U.S. According to IFPI the service also has a buy button which is directing the consumer to the iTunes store, where music can be bought online (IFPI 2014).

#### 8.5 STREAMING AND SUBSCRIPTION SERVICES

The latest invention has been the streaming services that have gained tremendous popularity in recent years. As of the 14th of April 2015, according to the IFPI Digital Music Report 2015, digital music revenues are on par with physical revenues on a global scale. “Revenues from digital music services match those from physical format sales for the first time, according to IFPI’s Digital Music Report, published today.” At the moment, streaming and subscription forms are the most popular and subscription revenues have risen by 39% while the digital download sales have declined by 8%. Today it is estimated that 41 million users use subscription services, according to IFPI Digital Music Report from 14th of April 2015. According to Frances Moore, chief executive of IFPI, “The recorded music business has always led the way for creative industries in the digital world. That leadership continues today as the music industry’s digital revolution continues through new phases, driven by the



consumer's desire for access to, rather than ownership of, music. It is a reflection of how much we have adapted that digital revenues today are, for the first time, on a par with physical." (IFPI 2015).

## 8.6 STREAMING STATISTICS

According to IFPI 2014 revenue from subscription services (including free and paid) has grown by 51.3% in 2013. The US\$1-billion-dollar mark has been reached by the year 2013 and the services are growing in a consistent manner in all major markets (IFPI 2014, 7).

Some of the bigger brands are Deezer and Spotify, which are geographically expanding their services. Other services such as Rdio, KKBOX and WiMP have all been growing in figures of subscribers. Beats Music and YouTube have announced plans to launch their streaming services of music by early 2014 according to IFPI Digital Music Report 2014 (IFPI 2014, 7).

Subscription models have been continuously leading more consumers to pay for music and according to IFPI, the services are also making a positive impact on the shift of consumers from "pirate services" to licensed music environment, which are paying the artists and the rights holders. The figures for paying subscribers to subscription services was 28 million in 2013 which is a rise of 40% since 2012 and 20 million more than in 2010 (IFPI 2014, 7).

Advertising-supported, streaming services' revenues from brands such as YouTube and Vevo have also grown to 17.6% in 2013. The music video revenues have increased in the industry as YouTube has spread to more than 50 countries with 13 territories added in 2013. The record companies, according to IFPI have increasingly adapted their business model based on access to music rather than ownership of music. The music industry attains 27% of total digital revenues from subscription and ad-supported streaming services, a growth of almost double since 2011 (IFPI 2014, 7).

## 8.7 WEBSITE BLOCKING

ISPs (Internet Service Providers) have recently begun blocking certain websites that have been associated with the illegal distribution of digital music online. According to IFPI Report 2014, courts in 10 EU countries have ordered ISPs to deliberately block users' access to certain services that have operated in order to infringe copyright laws. Other countries such as India, Indonesia, Malaysia, Mexico, Norway, South Korea and Turkey have stated similar orders on the same grounds. Norway passed a legislation to block these types of websites in 2013 and Italy formed an administrative body - the Italian communication authority AGCOM- to authorize website blocking (IFPI 2014, 41). According to Bertola Vittorio the past attempts of the industry to prevent file-sharing, and especially "peer-to-peer file sharing applications" have been met with "counter-technologies and work-arounds by the users" (Vittorio 2010). The public attempts by governments have often failed to put their order and control on online traffic as "millions of global citizens, who independently decided that the present intellectual property rules and economic incentives were sufficiently unfair to motivate the to commit a crime, and to continue committing it for several years, even while risking prosecution." (Vittorio 2010).

## 8.8 DIGITAL DOWNLOAD SALES

According to the report from IFPI 2014, the digital downloads model accounts for 67% and is helping the music industry's digital growth in developing markets such as South Africa, Hong Kong, Philippines and, Slovakia. Global digital downloads of music have been declining slightly according to IFPI, but the digital album sales have been rising and consumers are showing a demand to own music in the album format. The decline of digital downloads by 2.1% in value is offset by an increase in streaming and subscription revenue that has generated an overall growth in digital revenue in a majority of markets (IFPI 2014).

## 8.9 PHYSICAL SALES

Physical sales are still a prominent part of the music industry and the industry is still reliant on the sales of music in physical formats such as CD and LP. According to IFPI (IFPI Website) the

share of physical format sales declined from 60% to 51% during the year between 2011 and 2012. In many major markets, according to IFPI, the physical music sales accounts for a major proportion. The LP format is still produced and is today considered a niche product in gifting and deluxe box sets. This could be an indicator for a nostalgic value in a physical object, which has diminished with the introduction of digital downloadable music as music. Although global physical sales did decline in 2013 by 11.8%. The physical format of LP is still seen as a small portion of the market share in modern days, and have, according to IFPI webpage, recently had an increase in sales (IFPI, 2015).

## 9. TECHNOLOGY VS. THE MUSIC INDUSTRY

It is necessary to argue that piracy and file-sharing have made it possible for new ideas to grow out of digital concepts have had a positive impact on music reproduction and distribution as well as promotion. It is, however, necessary to be reminded of the negative impact on the economy that piracy and file-sharing have had on the music industry. The economic aspect was a major concern for the music industry in the early days of digitalization. Concerns are still present as the numbers of private, illegally shared files of music are still accessible on the internet. Internet was, on the other hand, a milestone that opened the eyes for many music lovers around the world to how they could share and experience more music. The internet made the music industry change, making new standards of distribution and promotion of music content as it went online. Capitalism and the need for social control through competition and need of profitability was tested in the music industry with the introduction of digital sources for distributing music. The object, the commodity, was becoming more difficult to handle as its material form disappeared into technology that was able to both produce and consume copies digitally. A democratization of music online had started and it was a dream for music-lovers and it would involve both artists' and consumers' views on the art of music. As can be seen by the industry's response to Napster, the music industry wanted to have control over the digital distribution like it had done with cassettes and vinyl etc. before the introduction of digital online sharing. There was no system or place online at the time that were sold music, so the industry was caught sleeping when it arrived from a cunning digital software creator during his college studies (Kot 2009; Siva Vaidhyathan 2001). And the industry began to blame technology such as Owen Gibson the manager of rock band U2:

*“U2’s manager yesterday called on artists to join him in forcing the ‘hippy’ technology and Internet executives he blames for the collapse of the music industry to help save it. Paul McGuinness, who has plotted the rise of the Irish group over 30 years, said technology gurus in Silicon Valley such as Apple’s Steve Jobs and Microsoft’s Bill Gates had profited from rampant online piracy without doing anything to stop it. ‘I suggest we shift the focus of moral pressure away from the individual P2P [peer-to peer] thief and on to the multibillion dollar industries that benefit from these tiny crimes,’ he said.” (David 2010, 29)*

2007 was a year when the industry in the UK saw a decline in the sales of singles by 29.3% from 2006 and a decline of 10.8% in sales of albums. IFPI states in their report that in the UK market single sales grew because of “continued growth of download sales” ... “which became the third biggest year on record for the format” (IFPI 2007).

The statement by Mr. McGuinness, a prominent figure of the music industry in the UK, was not a universally shared view in the music industry. There were obviously concerns about how the future might look as technology made sharing products possible for free. It could be argued to be a mere economic concern from Mr. McGuinness' perspective revealing discontent with major technological advancements. His concern may not have seemed as far-fetched at the time because technology made some major changes necessary for the music industry. At this point, it is relevant to consider, from an economic perspective, with whom the power of control lies when discussing an art form such as music today.

The quote from The Guardian in 2008, suggests that the two “gurus” (Mr. Gates and Mr. Jobs) can be considered front figures when it comes to new technology and the digital world of innovation and development. But there are others who have contributed. The innovations were fostered by Jobs’ and Gates’ respective companies’ atmospheres, which maintained a kind of open and liberal approach when it came to advancements in development. This freedom allowed creative innovators to be valued for their creative process and encouraged innovation in various digital coding languages on operating systems. Mr. Gates and Mr. Jobs enabled the progression of new software. As in previous technological transitions, the music industry was reluctant to embrace the changes in technology, seeing them as a threat rather than an opportunity. This further stresses the concern relating to economic and organizational control within the music industry.

Technology has had an impact on creativity in society. It has left some wondering if the new reality actually agrees with their artistic values and ideology. However, the development of technology can be understood to be directed by the appetite of the general public. Illegal digital copying of music has in a sense forced the industry to be where it is today. The music industry has since adapted to new digital formats of distribution by taking into account the consumer's needs and the needs of the musicians themselves. The internet was a new way of sending and receiving information and along with it, artistic value.

Digital recording in studios made flexibility possible during the production and during the process of mixing sound. The circulation of material between studios and to the factories where the physical formats were manufactured was made more efficient with the digital transformation. The compact disc, the laser disc, and the minidisc were products of these developments. Digital, downloadable formats had the advantage over physical retail copies because of the practical ease and reduced time of transmitting the audio material. Digital formats also eliminated the production cost as well as improved the sound quality and durability of analog products. With the cost reduction and higher sales in revenue because of reformatting to compact disc from older formats like vinyl and tape, the result was that the industry saw huge growth in profitability during 1980's and 1990's (David 2010, 31; Kot 2009).

After the success story of the rise of the compact disc in 1982, it took one decade before it was highly used. Along with technological advancements more pirate copies were created as well. Bootlegging both commercially and with home taping was never a substantial threat, instead studio out-takes, live show recordings and private taping from radio or records was actually encouraging the legal sales. At the time, home taping brought along a culture of music listening that contained those who would go later on and buy the actual music they liked when they had the economic means to do so according to David (David 2010; Kot 2009).

The anxiety which arose was partly due to the rapid progression of technology. Although the technology of sound reproduction has, since the 19th century, been in an ever changing cycle with major breakthroughs for sound reproduction technology, the digital era with piracy and file-sharing was and still is argued to be the most significant distribution method to shake the foundations of the music industry. This disruption is useful in revealing the actual power that the music industry had had over music as an artistic resource until then. There are many

arguments against piracy, if not the strongest one the economic issue that makes the industry penniless from work that has been put into producing the music. At the same time, an argument arises where the software at the stage of file-sharing and P2P was actually a start, not only for the industry-processed product material, but also a start for many musicians to realize that their creativity and their work was now easier to distribute on their own behalf without contracts or help of middlemen. This technology allowed new found independence and possibilities of distribution.

## 9.1 FILE SHARING AS DE-COMMODIFICATION

According to David, (David 2010, 38) peer-to-peer file-sharing supports 'de-commodification' of music as an informational good as networking websites are promoting the 'democratization' of information. David also stresses that to understand them as two phenomena is not accurate even if an artist taking control over their own music sales their own website does parallel '...consumer rebellions against corporate control'. David points out that there is 'tension' between file-sharing networks where music is made free and the networking sites where artists distribute their work in exchange for money (David 2010, 38). Even though they are in conflict with one another they are both reactions to corporate control in the music industry.

## 10. NAPSTER

The controversy surrounding the innovation and invention of Napster made shockwaves through the music industry because of it's way of making music available without focusing on the commodification of music. Napster is essential to understanding the concept of a tipping point in history, when musicians and listeners experienced music freed from the context of capitalism.

Napster was a file-sharing service created by Shawn Fanning in the year 1999. Fanning was a college student in the U.S. at the time he created Napster. Napster allowed users to share copies of music stored on personal computers over the internet. The service was operating on

a P2P (peer-to-peer) system and enabled anyone to access a huge online bank of music that was spread over the world and stored on personal computer hard drives. In the year 2001 the service had 1.5 million shared files simultaneously available for download. It had at that point surpassed the sales of earlier physical forms of media such as records, tapes and compact discs. Napster faced legal issues over digital rights and was one reason for the development of “digital rights management software to prevent computer copyright piracy” (Encyclopædia Britannica, Inc. 2012; Kot 2009; Kusek & Leonhard 2005). The idea of songs being downloaded had, at the time, with the rise and fall of Napster, shown that downloading music files via networked computers was a phenomenon that had come to stay. In 2002 Roxio, Inc. an American computer software company, acquired the assets of Napster and relaunched the software service as a legitimate e-commerce enterprise, for sale of digital music files online (Encyclopædia Britannica, Inc. 2012). The highly used digital format for sharing the music was in the file-format, MP3. Prior to Napster MP3s had been downloaded only by the most dedicated enthusiasts. The format is a digital format that is able to compress the song/file to one-twelfth of its original size (Kot 2009, 46).

Napster was short lived but had a huge impact on online music sharing. Early users of Napster, before becoming a licensed company, were able to reach new music, but in doing so committed an illegal action because none of the digital files in the Napster network were licensed copies. During the 1990s there were no digital “Walkman’s” such as iPods or mobile smartphones, nor any streaming services for legal use of server sharing operations via online networks to reach licensed copied music. Today this is the trending format used by music consumers (IFPI 2014).

## 10.1 THE END OF NAPSTER

Napster was eventually forced to close due to requirements from the US courts and monitoring and regulation of traffic on its servers. Napster could not meet the requirements (David 2010, 31; Marshall 2002) and the legal process had taken over and stopped an innovation that did not follow legal procedure by literally trafficking music illegally online.

The legal actions against Napster were initially taken by the RIAA (Recording Industry Association of America) and also prolific artists such as the rock band Metallica, rapper and producer Dr. Dre and pop singer Madonna and finally A&M Records for all of the copyrights that were illegally shared online on the Napster software. All these individual legal actions were brought under a newly enacted law called the Digital Millennium Copyright Act (DMCA) in the US. The law had been drafted earlier years to enforce in 1996 signed treaties by the World Intellectual Property Organization (WIPO). The DMCA was passed by the US Senate in October 1998 and enacted by president Bill Clinton. A similar law to the DMCA was enacted in the European Union in 2000 as part of the EU Copyright Directive. Other countries that had not enacted similar laws were required to uphold a sort of claim on copyright holders and those breaking rules defined by the DMCA (David 2010, 34; Kot 2009). The filing of a lawsuit by rock band Metallica would be given extra attention during that time in 2000. The rock band was going to divide consumers and producers over commodification in connection to their lawsuit (Marshall 2000). According to Lee Marshall, the lawsuit from Metallica was the first one made solely by artists and not a company. Metallica had prior to the lawsuit been seen as liberal toward sharers of their music as they allowed live-video recording and audio recordings from their live concerts to be shared. According to Marshall it was not certain at the time that Metallica knew what they were doing, as it gave them a bad reputation within their fan groups. Although the immediate reaction was that the spokesman for Metallica, also the band's drummer Lars Ulrich, said in a released press statement: "It is therefore sickening to know that our art is being traded like a commodity rather than the art it is." (Marshall 2002, 2). According to Marshall, Ulrich's statement relies on the Romantic view of separation of art and market, as art at the time was seen as something of a divine nature that could not be related to simple commodity or any market (Marshall 2002). Marshall argues that artists such as Friedrich Schiller in Germany and William Wordsworth in England were not materially successful and therefore declared that real artists were to be associated with "a spiritual calling which should not be demeaned with money." (Marshall 2002, 3) This would progress into the 19<sup>th</sup> century Bohemia where the ideology that artists who succumbed to the market did not deserve the title of an artist. According to Marshall this is wherefrom the concept of "authenticity" derives in popular music. This Romantic ethic is shown in another statement according to Marshall:



*“The truth is, what we do, we do for ourselves. We don’t do it for anybody else. You really have to have that attitude, otherwise it will pollute or distort your creative purity ... There is a selfishness in this band, but that leads to more artistic purity.” “We are not a product. We aren’t toothpaste.” (Marshall 2002, 8)*

It is hard to fail to see that what Ulrich is trying to say in his statements imply something more than specifically the software, technology and Napster. It could be suggested that Ulrich actually took advantage of the situation in an innovative way and tried to raise social awareness of what *had been* and what *would need to be changed*. The lawsuit against Napster could therefore have merely been a declaration of a desire to bring music as an art form back in focus.

As the Internet had been designed as a utopian ideal by nonprofit researchers (Kot 2009, 45) Napster was an internet related dream and that also made clear how important music was to a generation of young people (Kot 2009, 51). The original idea passed on by Shawn Fanning to entrepreneurs such as Daniel Ek and the company Spotify (The New Yorker 2014). Although Napster quickly became embroiled in a turmoil of legal issues and music artists stepping in to secure their income, Napster can be seen as the piracy software that can be held accountable for the new legal digital ideas that later on became the future music promotion and distribution software such as iTunes, Spotify, YouTube, Google Play and TIDAL. It’s invention and innovation made it possible for music without limits to be accessed by consumers worldwide with the help of the technology. Consumers had the “store” in their homes, or wherever they would be able to get online with a capable device. Commodification now exists in the form of streaming music and is in the hands of tech corporations. Because the streamed music is passed to the consumer by a middle man music must go through the process of reification. The consumer could be said to be buying the technology and today our concern is whether that technology is a vehicle of art or something else.

## 11. RADIOHEAD’S EXPERIMENT

Music and the music industry have gone through various stages as technology has evolved. Economically and structurally the music industry's organization has had to adjust as the

production of music technologically has changed. One of the most talked about events relating to music distribution was when the alternative rock band, Radiohead's, release of the album, *In Rainbows*, released late 2007, in the form of a digital download of the entire album on a simple website. The website simultaneously made it possible for the downloader to pay a fee, of whatever the downloader was willing to pay. The significance of such acts shows a move by music artists that directly corresponds to a level of freedom that would not have been possible with earlier technology prior to downloads, digital formats, and the internet. All the band needed was a simple website on the internet, available to all fans worldwide, with a simple layout to make their whole album available for free. The band gave it to their fans but did still own copyright of the material on the band's own terms and not the industry's.

The album sold in both physical format and digital format although the album was offered for free in download format (Musically 2008). The experiment that was carried out by Radiohead emphasized the actual situation the music industry was in during that time. It simply made the fact that a fan of the band had the choice to either pay or not for the music a reality. It was an instance of complete elimination of the "middle man" (the music industry). The band received a certain amount of publicity surrounding the experiment which attracted more "consumers" (whether paying or non-paying) and surprisingly many consumers chose to pay. This hints to what has been discussed earlier with Metallica's Lars Ulrich who spoke out about how music had become a commodity. Radiohead, on the other hand made technology *their* vehicle of distribution, which made them uniquely, directly in touch with the audience. The cultural and social power of the format still remained, as it was made apparent by the tens of thousands of physical albums sold (Musically 2008). The reification-process could be said to have diminished with Radiohead basically sharing their music and the corporate control of the music industry was not accounted for in the relationship between consumer and artist. An example where the industry did interact was with artist Tom Petty who in March 1999 uploaded a free version of "Free Girl Now" on the website MP3.com. More than 150,000 downloads were made within 56 hours. The giveaway was ultimately shut down by his label Warner Bros (Kot 2009, 49). As musicians are longing to make their music relate to more traditional artistic values such as aura and authenticity, the music industry seems to be getting in the way of artist and audience communication. The artist makes music for the same reasons musicians

did before reification of music. That is made apparent by what is discussed by prominent artists today.

## 12. TODAY'S EXAMPLE OF DIGITAL MUSIC DISTRIBUTION

### 12.1 SPOTIFY

According to the founder of the online music streaming service company Spotify, Daniel Ek (The New Yorker 2014), the main reason for starting the entrepreneurial project called Spotify, was to improve on an old idea. Ek's idea was basically already invented in the peer-to-peer systems and online sharing software like Napster. Spotify has been an example of a successful innovation in online streaming. And Ek claims that he is still improving the digital service. His next move is to match the mood to the listeners by evaluating data. Data is gathered from variables which the Spotify software is able to collect from users of the service and by matching the variables and figuring out the assumed mood of the user. It could make the audience better served with the tailored music proposals acquired by the software's data-collection and by doing so also reenact the sense of aura to the user's listening experience depending on time, space and personality.

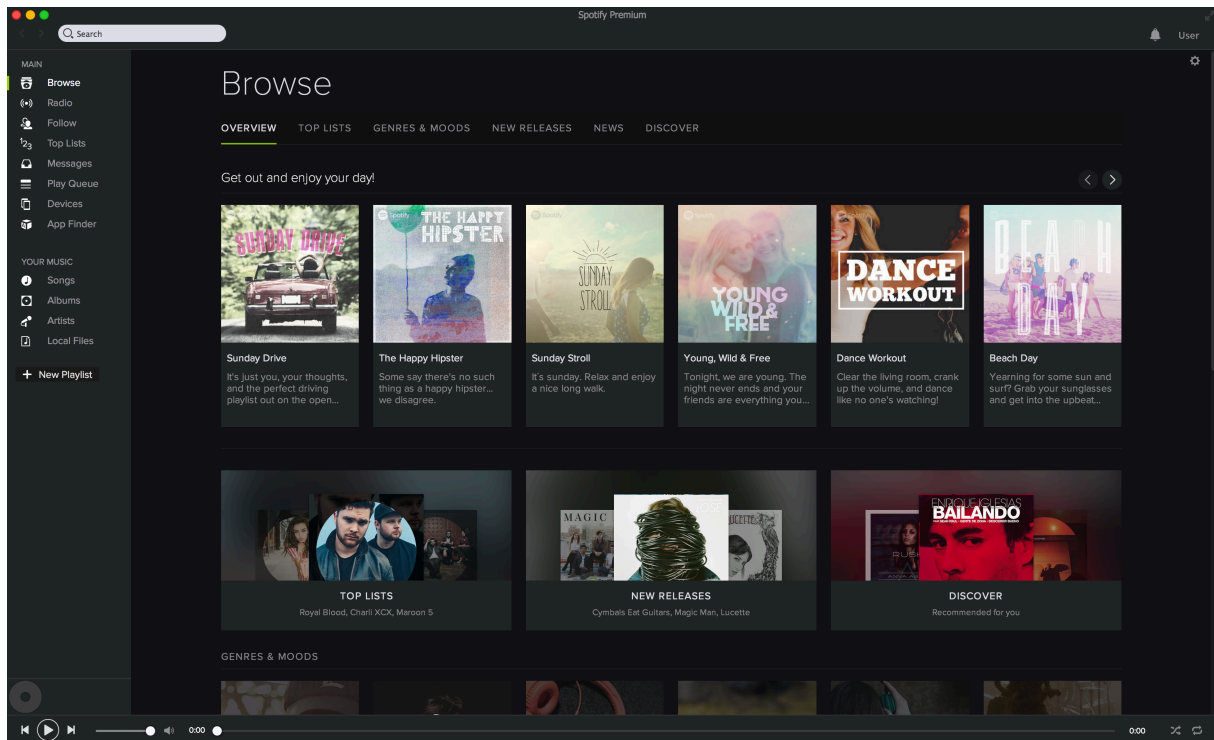


Figure 9 – the Spotify application. Lincensed under Public Domain via Wikimedia Commons

What Yorke and other earlier mentioned artists refer to as a controlling industry with no real relation to the art, is what corporate owner Ek is further investigating, and by doing so, extending the distance between artists' intention of aura and their fans. This is because of the middle man, the tech company and its data control and supervision. In many ways, reproduction during the different technological advancements throughout history is an enactment of aura and desperation of artists to deliver unique experience to the listener when the control of musical art and listener experience becomes a property of the corporation.

## 12.2 TIDAL

Two years after Thom Yorke's statement to the press, a company named TIDAL was bought by rap artist JAY-Z and can be said to be owned by an *artist*. TIDAL. TIDAL was originally a tech company and still connected to Aspiro AB, a media technology company (Aspiro website) despite its ownership by the prolific rap artist. The company under Jay-Z's ownership seems to be working toward something that has been partially accomplished with de-commodification and democratization of information swapping on the internet and which was tightly knit to the movements of file-sharing and piracy including Napster. TIDAL is similar to

Spotify in the sense that it's a application that is used online. TIDAL is a streaming service and music distribution platform that lets the user access music for free or for a premium subscription which the user needs to pay for. Artists supporting and involved with TIDAL include R'n'B artist Beyonce and pop figure Madonna. Through the words of a TIDAL advertisement and promotion video from March 30, 2015 their statement is made clear. Beyonce says that "If the fans can see it's from us, it is so important and then it's done!" and "We really do have a way to change the way that we are experiencing art". Later on, in the video advertisement on TIDAL's official YouTube channel Madonna says: "Maybe it sounds like a cliché but it's about putting the art back into the forefront" (Tidal Advertisement 2015). The words of the artists in the advertisement suggest that the time is right, in terms of technological advancements, for the artists to take back control of their work and make a change of how music is perceived by fans. JAY-Z, says in his occurrence in the video:

*"You can't make it to where we do, what we have accomplished without that love of music be the foundation. I think it is one of the things that set us aside from someone that is a tech company that is selling advertising or selling hardware" ... "Right now they are writing the story for us, we need to write that story ourselves" (TIDAL Advertisement 2015).*

TIDAL is an attempt by artists to do something that is similar to the earlier mentioned Spotify and with focus on artists and fans. As the company is now owned by a musician the outcome would seem to be different if also the statements in the advertisement was followed through. It is unclear however, what the future will look like for a company such as TIDAL, and if the ideal will stand.

### 12.3 BANDCAMP

According to John Tozzi, Nick Leiber and Siobhan Crise in an article for Bloomberg Business in November 17, 2011 Bandcamp at that time was one of the fastest growing "online stores" (Tozzi, Leiber and Crise 2011). Bandcamp is an online website that promotes and makes music from independent artists, that is, artists without any legal ties to one of the major record labels. The men behind Bandcamp is Ethan Diamond and Shawn Grunberger, who started

Bandcamp in 2008, working from a public library. Diamond’s background is within entrepreneurship and his company before Bandcamp he sold to Yahoo! (Bandcamp 2015; Tozzi et al 2011). Bandcamp is a platform for music marketing with options to sell, give away or stream the albums of artists that sign up. Bandcamp is giving services such as “Total Artist Control, Total Flexibility”, “Real-time Statistics” and “Physical and Digital, Side-by-Side” on their website (Bandcamp 2015). Through their services Bandcamp.com claims that “Fans have paid artists \$129 million USD using Bandcamp, and \$3.7 million in the last 30 days alone.” on their website (Bandcamp 2015).

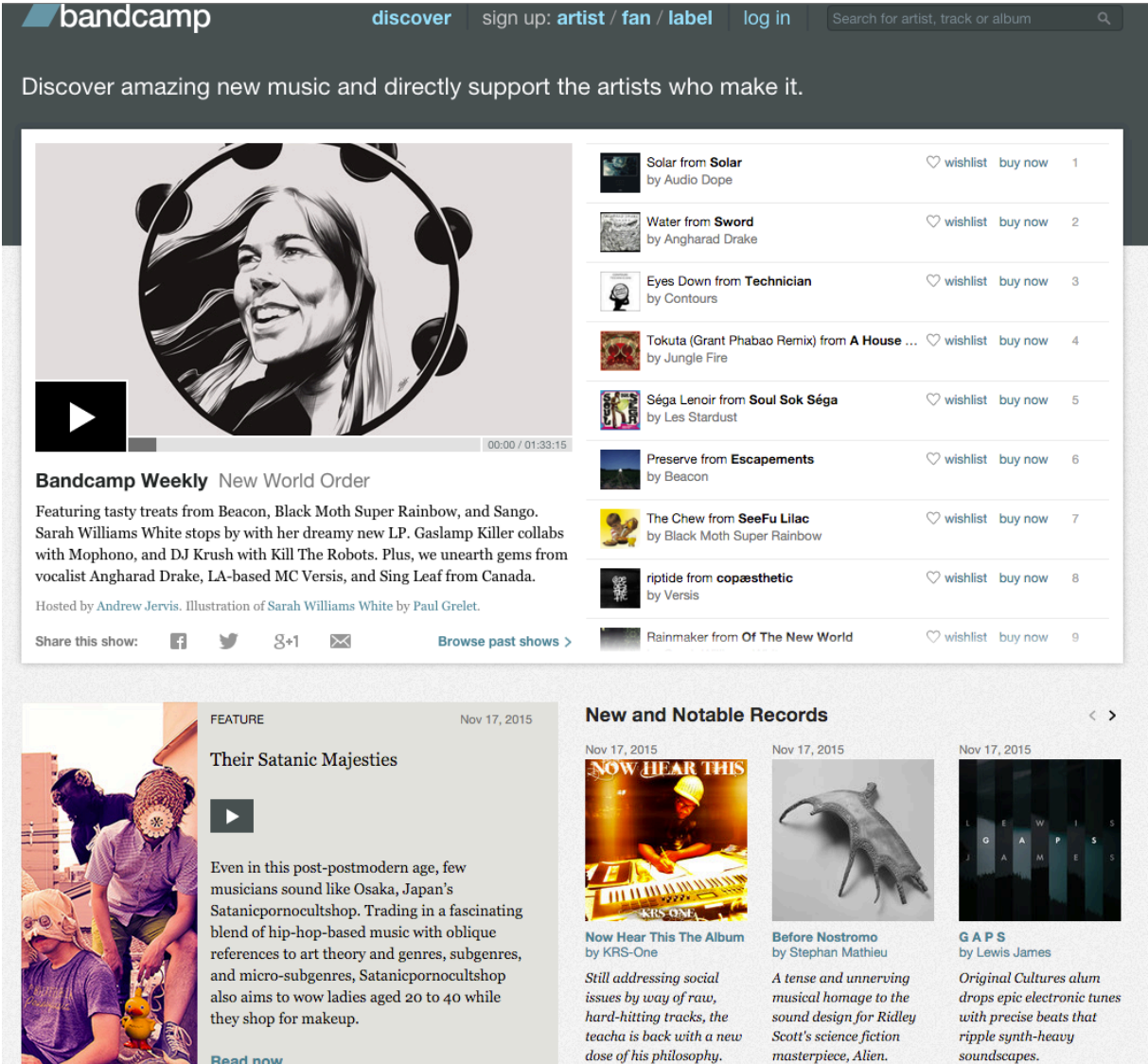


Figure 10 – Snippet taken from personal web browser showing front page of website Bandcamp.com 19.11.2015

Bandcamp can be seen as an alternative to previous alternative at a time when music as a culture is orienting itself after the decline of major music labels: "... the once-dominant labels and retailers have been upended by the shift to digital. EMI Group, one of the four remaining big record companies, is being sold off in pieces." (Tozzi et al 2011). Even though Bandcamp has been in business since 2008, at the time of writing, almost 7 years later the model is thriving according to official numbers on their website. The model of Bandcamp where labels, artists and fans meet in an interactive digital space is today where small-time independent musicians who seek authentic experiences in music meet for marketing, promoting and consuming music. There are other models of music distribution, as mentioned, but this model creates a pattern of mutual respect between producer and consumer and also a better divided outcome economically with the artist herself in focus and an increase in profitability for creativity in music. This is also clearly something that musicians in the present time want.

### 13. YORKE'S RESPONSE TO THE STATE OF TECHNOLOGY AND THE INDUSTRY

The term aura, and Walter Benjamin's idea of how art is perceived with a certain amount of charismatic authenticity and originality prior to mechanical reproduction seems to correlate with recent statements made by musicians in popular culture and with the transition to new types of music formats distributed and promoted on the internet. Prolific artists, for example, front figure of Radiohead and Atoms of Peace, Thom Yorke, who stated that some technology, that is today, providing music as a service to the audience, would be downhill momentum and "the last fart of a dying corpse" in an interview with Mexican website Sopitas included in an article by Stuart Dredge for *The Guardian* in 2013 (Dredge 2013). Yorke was referring to the state of the industry as it was to that date, and the lack of control artists have had over their work. "I feel like as musicians we need to fight the Spotify thing. I feel that in some ways what's happening in the mainstream is the last gasp of the old industry. Once that does finally die, which it will, something else will happen," (Dredge 2013). Yorke is referring to how Spotify, together with major record companies, have made deals with each other in order to control the distribution of music to the consumers (Byrne 2013).

Yorke also commentates on the status of technology in relation to music: “But it’s all about how we change the way we listen to music, it’s all about what happens next in terms of technology, in terms of how people talk to each other about music, and a lot of it could be really fucking bad.” (Dredge 2013). As Yorke points out, it is important for music to continue as a culture of art.

When Yorke was an active member and front figure of Radiohead, as earlier mentioned, their experiment was one of a kind in the early stages of digital music distribution:

*‘When we did the In Rainbows thing what was most exciting was the idea you could have a direct connection between you as a musician and your audience. You cut all of it out, it’s just that and that. And then all these fuckers get in the way, like Spotify suddenly trying to become the gatekeepers to the whole process, said Yorke’” (Dredge 2013)*

We can directly see the frustration of how musicians such as Yorke, want to regain control of what their art is worth. The middle man, the wheel of reification and process of making music into a commodity is the music industry (Wikström 1999; David 2010; Guthrie 2014, Taylor 2007, Fine and Saad-Filho 2010).

The voice of the producer of culture is heard in the article and makes one understand how intense Yorke’s feelings about of music are:

*“We don’t need you to do it. No artists needs you to do it. We can build the shit ourselves, so fuck off. But because they’re using old music, because they’re using the majors... the majors are all over it because they see a way of re-selling all their old stuff for free, make a fortune, and not die.”*

*It’s like this mind trick going on, people are like ‘with technology, it’s all going to become one in the cloud and all creativity is going to become one thing and no one is going to get paid and it’s this big super intelligent thing’. Bullshit, “said Yorke.” (Dredge 2013)*

The culmination of the interview with *The Guardian* back in 2013 shows a frustration from Yorke as the artist and his music is becoming caught in between processes of innovations, inventions and reification that is represented by the major labels and the music industry’s major corporations.



## 14. DAVID BYRNE ON CONTEMPORARY DIGITAL DISTRIBUTION

When David Byrne, band member of Talking Heads wrote his article 'The internet will suck all creative content out of the world' in *The Guardian* three years ago (Byrne, 2013) he was making an observation on how the music industry and artists are today managing with new technology. Although Byrne does not blame technology, he is concerned over how artists rely on services such as Spotify do distribute their work. Byrne is referring to what composer David Lowery wrote for the community blog, *The Trichordist* (Lowery 2013), dedicated to following up on artists' rights in the digital age. Lowery's text titled: "*My Song Got PLayered On Pandora 1 Million Times and All I Got Was \$16.89, Less Than What I Make From a Single T-Shirt Sale!*", explains even in the title what Lowery's text was concerned with. Pandora is a similar streaming application to Spotify and TIDAL. It pays royalties artist whose songs that are included in their service library. Pandora is also commercial based in the free version of their service application. The option to get rid of commercial breaks in between playing music is done by upgrading the consumer account by paying a monthly fee. A similar model is used by Spotify but Spotify also includes in their upgraded versions, the ability to store music material by offline access as long as paid subscription is made up monthly (Pandora 2015; Spotify 2015). As the title of Lowery's contribution to the blog conveys, he is not very happy with what the service of Pandora is offering him. According to Byrne what "these services" offer in payments to the musicians is very small and is not a sustainable system for musicians to survive economically. Byrne explains that the record companies are getting the biggest share in the profits. While record companies, as Byrne states, once in his career, gave him the help he needed as a musician:

*"Some of us has other sources of income, such as live concerts, and some of us have reached the point where we can play to decent numbers of people because a record label believed in us at some point in the past. I can't deny that label-support game me a leg up - though not every successful artist needs it." (Byrne 2013)*

What Byrne is explaining is that in order for him and others to survive as musicians today they need advertisement and marketing to the consumer. In the past, when he earned a living wage, record labels had more influence on the marketing and communication processes because they specialized in distributing music profitably to consumer masses. What the record labels were needed for in the past is now happening quite automatically through services such as Spotify, as they offer massive online libraries of music for the mere price of listening to advertisements. According to Byrne, streaming services such as Spotify have made deals with record companies in advance, in shares of the company and pay money upfront to record labels to get access to their respective artists that have been signed under them. In this way music becomes overshadowed by corporate profitability. Byrne discusses the different perspective that record labels have of music from the perspective of the actual musicians. He distinctly points out that record labels are seeking a sort of reification process which guarantees continual profitability from the music, while the musicians only want to continue with their passion and make it their living (Byrne 2013; Blacc 2014). Byrne's concern is for new artists who do not have had the same economic success that Byrne has already enjoyed:

*“Without new artists coming up, our future as a musical culture looks grim. A culture of blockbusters is sad, and ultimately it's bad for business. That's not the world that inspired me when I was younger. Many a fan (myself included) has said that “music saved my life”, so there must be some incentive to keep that lifesaver available for future generations.” (Byrne 2013)*

Byrne and others are concerned about the state of how musical authenticity and culture will proceed as the poor income from streaming services shows would not help musicians stay on track composing. What would be the most negative outcome in a dystopian world is that the producers (artists) of music would get extinct.

## 15. CONCLUSION

The relationship between the musician and the listener has been brought together again. After a long history of technology that introduced reification and turned music into a commodity and involved it in capitalistic interests a connection that has been lost over time has been brought to the surface. Sound reproduction technology distanced the listener from the music, not only physically, but also distanced them from the authenticity and aura that surrounds music when it is performed live. Technology and the attempt to reenact aura began at an early stage which later on emphasized the vehicle of music and turned it into a symbol of social status. Thereby overshadowing the music itself. Today musicians and prominent artists are raising their voices against the lack of respect that music has been given throughout the reification process. As live music still exists today the aura is not gone and the creativity that sparks genuine compositions and creations of art still remains within musicians. The vehicle, that is technology, which distributes music to consumers should exist in a symbiotic relationship with musicians. The ownership of music as a commodity may lie in the hands of corporate interests but the creators behind the commodity's existence, from the very beginning, are the artists.

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