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New Technology In Music And Creative Entertainment

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Introduction

The emergence of new technologies has always been a disrupting force in any industry, the music industry is no exception. Technologies relating to the consumption of music have had a massive impact on the music industry throughout its history causing wide scale disruption. However, these disruptions and changes have brought about improvements regarding connectivity, discovering new music and promoting/releasing new music. This essay will analyse and interpret these various technological advances paying close attention to the consumer driven online music revolution which was made possible through the emergence of new technologies that enhanced connectivity while also weakening the power of intellectual property rights and copyright protections (Dobie, 2001). Time and time again we have seen the industry fail to recognise and adapt to the changes these new technologies have brought about, this has led to losses in revenue throughout the industry, and only recently have larger music corporations started to adapt to the changing nature of the industry.

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Emergence of the Mp3 & File Sharing

Originally audio was recorded and stored in analogue form, whereby vibrational sound is created from wave form representations. When this was the norm, the only way to make a copy of a record would be to reproduce it by making a copy of the original master recording. This gave record companies complete control over the reproduction of these records, meaning their intellectual properties and copyrights were safe from being illegally reproduced and redistributed. This all started to change in 1982 as music became a digital product with the emergence of the compact disk (CD). The CD completely and irreversibly changed the way music was recorded, stored and played. CD's revitalised a stagnant market and promised users higher quality however this new technology presented some problems for the industry. The digital nature of the CD allowed consumers to illegally burn copies of these CD's time and time again without affecting the quality of the recording. This caused a drop in the sales of CD's and led to a backlash from the music industry culminating in a push for new legislation that would lead to the passing of the 1992 Audio Home Recording Act. This legislation stated that "all manufacturers of digital audio recording devices were legally required to implement restrictive mechanisms into their machines which rendered potentially uncontrollable digital formats controllable" (Dobie, 2001). This was an attempt to once again restore the record companies' monopoly on production and distribution. The record companies attempted to protect their product-based business model by minimizing illegal reproduction.

Compression technology was the next major technology breakthrough that greatly affected the industry. Throughout the late 1980's many companies sought to develop an algorithm that could reduce the data of a file, which would greatly reduce the size of the file while not affecting the

quality, this would be ideal for more efficient reproduction and transferring of certain files. In 1991 an extremely efficient algorithm which allowed for compression of audio files was created, at the time it was called the MPEG 1 Layer 3 but it is now more commonly referred to as the Mp3. This Mp3 file allowed users to store vast amounts of music on their computer hard drives during a period of time where storage capacity was limited and much more expensive than the present day (Dobie, 2001). The advent of the Mp3 would usher in a new era of digitisation in the music industry as it allowed users to download, copy and transfer files with extreme ease. It also allowed artist the ability to make their music available for download online, opening up a much larger market for them. Although the industry didn't know it at the time this was the start of the end of the product based model, the advent of the mp3 set off a chain of events that would eventually lead to the emergence of todays more service based business model. It greatly reduced record companies control over the reproduction and distribution of their music and helped to introduce the world to file sharing services such as Napster.

Napster is an online file sharing platform that was founded in 1999 by Shawn Fanning. Napster essentially allowed people to share files from their hard drives via their peer to peer network. This service broke nearly every copyright law in the book but it still managed to amass a user base of approximately 57 million users by its peak (Swanson, 2013). Napster developed a file sharing system whereby they did not need to rely on the major record companies as a source of music, instead they relied on a decentralised network of individuals who would share these files amongst themselves. "A democratisation of the consumption of music was occurring and it was not in the interests of the major record companies to let this develop" (Dobie, 2001). This led to a massive loss in record sales and revenue as people opted to pirate music online instead of paying for it.

The music industry was in disrepair, mainly due to the fact that they were unable to keep up with the ever changing business environment and new technology, instead of embracing these technological changes and adapting they simply hoped it would go away, that was until Apple emerged with a revolutionary new idea. Building of their iTunes platform, which allowed users to save their music from their CD's to their computers, Apple launched the iTunes music store in direct response to "growing tensions in the music industry regarding illegal downloading of songs" (Coffey, 2016). The iTunes store provided consumers with a legal alterative to Napster and was championed by the music industry as a whole, this led to an expansion and recovery of music sales in an online market. This coincided with the success of the Apple iPod, users of this product were further incentivised to purchase tracks via the iTunes store. This had a majorly positive effect on the industry and allowed the industry to move towards a more digital model. This meant that by 2008 "digital music accounted for 32 percent of recorded music sales in the US, three quarters if which were sold at the iTunes music store" (Waldfoegel, 2010).

Paid for Streaming Services

The iTunes store did not however completely solve the problem, consumers had gotten a taste for free music and the fact that pirating music was easy and fairly risk free made it hard to re capture many customers. The Industry needed a new model, one that was easier to use than file sharing websites and gave the impression of providing free/affordable music.

Streaming services such as Spotify have filled this gap, they allow users to access an unlimited catalogue of music for a reasonable monthly payment or via their freemium service which generates revenue through advertisements. Under this system the users do not actually own any of this music, they instead pay a monthly subscription for access to this catalogue and can listen to all the music they want anytime on their devices. This switches the consumption of music towards a service-based

model from the older product-based model. Users of these services do not have the ability to download the mp3 from these platforms and cannot reproduce and share these copies online, this has significantly reduced the amount of online music piracy in many markets, take for example Norway, where streaming has massively reduced the prevalence of music piracy suggesting there is an extreme substitute effect between the two services (See Appendix 1).

As Spotify grew, becoming the streaming market leader, and streaming began to overtake digital downloads Apple sought to enter this market and compete with Spotify. In 2014 Apple purchased Beats Electronics, this allowed them to enter the market quickly with a working platform in order to catch up with market leader, Spotify. Following this acquisition, they rebranded their streaming service as Apple Music. This service gave users unlimited access to the large iTunes catalogue in exchange for a monthly subscription (Coffey, 2016). This marked a massive change in the industry, with a major player like Apple adopting the streaming subscription model it was clear that this would be the new norm within the industry. This was the second time during this era of digitisation that Apple has adapted to the changing nature of the industry, firstly recognising that digital downloads would surpass physical purchases of music and now recognising the change in consumer needs and behaviour that resulted in the rapid expansion of these on demand subscription based streaming services. The industry at this point was in the process of changing from a “business model dependant on the sale of commodities to a model based on subscriptions and streaming” (Arditi, 2017). David Arditi referred to this model as the “unending consumption” model as it “traps music listeners in a cycle where they must continually subscribe” in order to have access to this catalogue of music (Arditi, 2017).

It can be seen that these new streaming technologies had a symbiotic relationship with many other technologies. Similar to how the emergence of the iPod lead to an increase in Mp3 purchases and the industry wide adoption of this new technology, we can now see that other technological advancements are spurring on the growth of these streaming services. Music streaming has grown rapidly in popularity in part due to the fact that an increasing number of consumers have access to smart phones which in turn have access to the internet. This means they can use these streaming services anytime and anyplace. This shows a correlation between the rise of streaming services and the widespread adoption of smart phone technology. I would go on to say that this highlights that the recent movement towards a service-based model has been dependant an many different technological innovations. These innovations do not only revolve around streaming but also include innovations in regard to social media and the devices we consume music through.

Industry Reaction

The majority of the Industry has recently accepted that the old product-based system, which was responsible for astronomical profits in the pre digital era, has now been replaced by this new service based system. It is clear that the re evaluation of laws and business practices that we have seen recently are a direct response to advances in technology (Coffey, 2016). Although these changes which were brought about by new technology originally received a massive backlash from the industry as a whole, as of late major record companies have accepted the inevitable and have started to invest in these new services rather than hinder their development, this has lead to these services becoming the new industry standard (Coffey, 2016). By charging customers a monthly subscription, the recording industry hopes to substantially raise the average amount consumers spend on music on a yearly basis by approximately 200% (Arditi, 2017). This widespread adoption of this streaming technology has solidified the fact that music can no longer be monopolised as a commodity, instead this new service based model focuses on giving customers easy access to an

unlimited catalogue of music in exchange for an affordable monthly payment. Although piracy is still prevalent in the industry, streaming has managed to re capture many customers and deter them from using these illegal services. By focusing on building a new service-based model around technological advancement the music industry has developed a better and more efficient service than these illegal file sharing websites, and consumers are happy to pay for this.

Conclusion

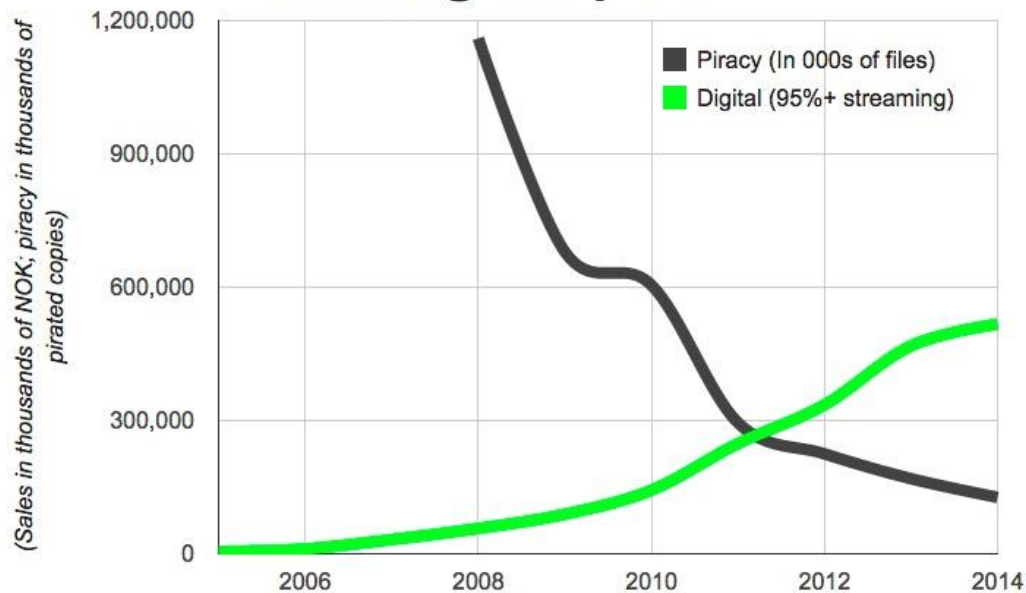
It is clear that the emergence of new technology has driven the industry towards it's new service-based model, I would go as far as to say that new technology has been the main driving force behind this shift. Although this shift has resulted in a loss of revenue since the peaks of 1999 (Ingham, 2019), there has been an upward trend in recent years in regard to revenue thanks to streaming (See Appendix 2). I believe that if the industry can address certain issues relating to this new model that we could be on the verge of a new era of prosperity within the industry.

Going forward there is still much work to be done in order to ensure that this new service-based model remains viable. It is interesting to note that in the case of the streaming market that more competing companies are actually bad for the consumer. When streaming companies start competing and bring exclusive artists into play this can negatively affect the consumer and threaten the stability of this new service-based model. In economic theory it is a general rule that competition is good for the consumer however in this case more competition means that consumers will have to sign up to many different services to listen to all their favourite artists. Thankfully, the industry as of late has started to move away from offering exclusive content recently as if this were to continue I would predict that customers would refuse to purchase multiple subscriptions and would instead revert back to illegally pirating music online.

Appendix

Appendix 1.

Norway: Piracy Rates vs. Streaming Adoption

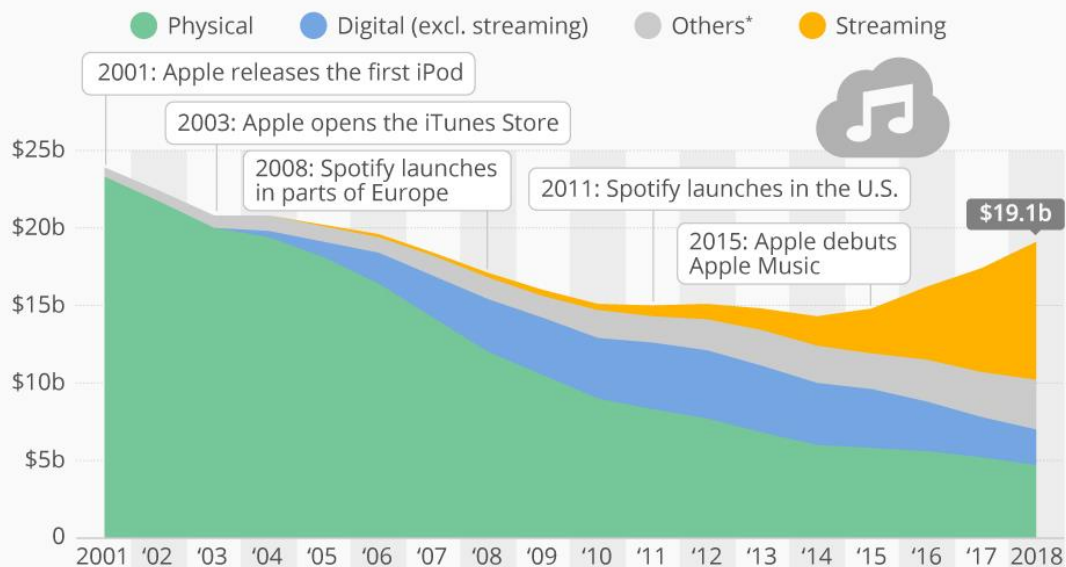


(Coke, 2015)

Appendix 2.

Streaming Drives Global Music Industry Resurgence

Global recorded music industry revenues (in billion U.S. dollars)



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* includes performance rights and synchronization revenues
Source: IFPI

statista

(Richter, 2019)

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