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Introduction

This essay will explore how the widespread availability of the digital mp3 file format and other conditions in the 1990s, led to the music industry transitioning from the product sector to the service sector. Key points will include how technology has impacted music consumption since the commercialisation of sheet music, how digital piracy initiated new solutions and consumer demands, the emergence of music companies selling digital products or access to digital music libraries and the ongoing creation of music services to serve digital music innovation. In concluding, key factors are outlined in relation to sustainability of the music as a services sector model and the suggestions on the key roles the music industry's should play within the sector to benefit from and participate in current wave of technological development.

Music-as-a-Product Sector

Since the 1880s, the music industry traded in duplicates of tangible music media - revenue was generated from the licensing and reproduction of music works on paper as sheet music, wax cylinder, vinyl and digital formats such as CD, mini-disc or mp3. Over the years, these technological changes did little to disrupt the value chain until the arrival an intangible digital format which changed the perception of the value of music and the way it was distributed and consumed.

Music was a performance service until the technological disruption of the printer press since the 1500s. During the 19th century, music publishers sold sheet music at scale to piano players and also directly with theatres and music halls. Sales declined in the 1920s due to changing patterns of music consumption such as music halls, radio and television (Towse, 2005, p. 11). Technological advances from the end of the 19th century to present day have revolutionised how consumers enjoy their favourite songs and artists for example listening as a group around a gramophone recording to solitary listening via a portable mp3 player and headphones. The beginnings of technological disruption transpired when the compressed audio file, the mp3, became a de facto format for converted music digital files from the mid-1990s (Al-Greene, 2012).



Figure 1. A brief history of sound recordings (Lemon, 2015)

The music industry usually attributes digital music piracy for the disruption of its business model. According to Kusek and Leonhard (2005, p. 4), the music industry adopted the CD

format and distributed it without digital rights protection and did not understand the implications for piracy online. Digital distribution via peer to peer networks no longer required the industry-owned manufacturing and distribution networks to get music consumers. This loss of control is touted as a main cause for the decline in CD sales affecting the supply chain with significant job losses and the closure of businesses. (Kusek and Leonhard (2005, p. 7).

In Maloney *et al*'s diagram as Figure 2., the traditional music value chain for physical products were owned and controlled by the record labels. Technology can create disintermediation and in the case for digital music, it was so significant that all stakeholders could bypass the record label's cartel-like control on the chain to create, reproduce and distribute content directly to the consumer. Unfortunately for record labels, this also meant illegal distribution of their content also.

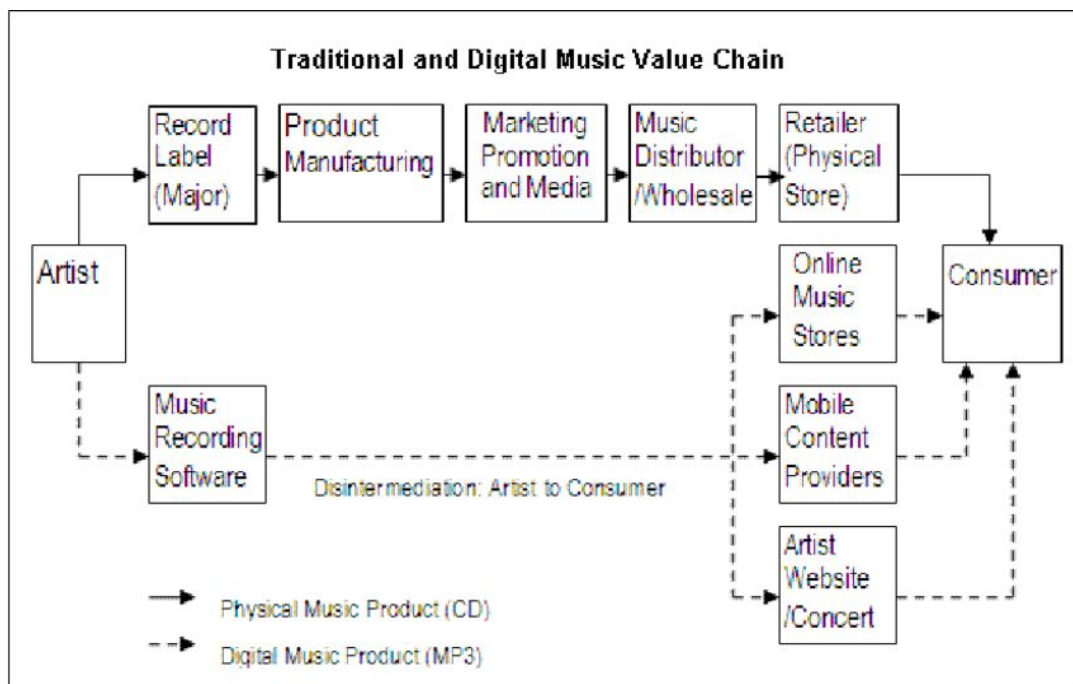


Figure 2. Current Music e-Value Chain Model (Maloney *et al*, 2008)

Technology has always been a part of the music industry's history, however the digitisation of the manufacturing and distribution stages of the value chain revolutionised the entire industry. Digitised content traversed digital distribution networks owned by third parties who built a relationship and met demand for music consumers. Intangible products were typically devalued to low to no cost i.e. free in the minds of the consumer at that time. Ownership of music libraries - physical or digital - still had bragging rights and that was made easier by file sharing.

The convergence of digitised media technology, alternative ways to consume media, changing consumer attitudes towards digital piracy and the industry's position to weather the

storm because the internet was considered by some to be a fad, brought about the changes where consumers purchased less physical music products over time.

Digital Music Piracy & The Transition Phase

Digital media piracy transcended geographic and legislative boundaries with speed unlike physical media piracy. Until social media became mainstream in the mid-2000s with platforms such as MySpace, Facebook and Twitter, the uploaders were the earliest digital playlist curators illegally meeting consumer demand. Unfortunately the music industry's solution to piracy did not foster a means to service this audience commercially, but sought to intimidate it into compliance.

As of 2006, it is estimated that over 10 million users engaged in peer to peer (p2p) sharing swapping over 10m gigabytes of data and more than 500 million downloads of p2p software had been tracked since 1999. (Casadesus-Masanell and Hervas-Drane 2010)

At its peak the US music industry had revenues of \$15bn in 2000. The fall in sales the following year was attributed to the wider adoption of platforms such as KaZaa, Limewire and in particular Napster. Figure 3, details the gradual decline of revenue up to 2003 when Apple's iTunes store launched accounting for digital download sales. (Chen, 2010; Lynskey, 2013).

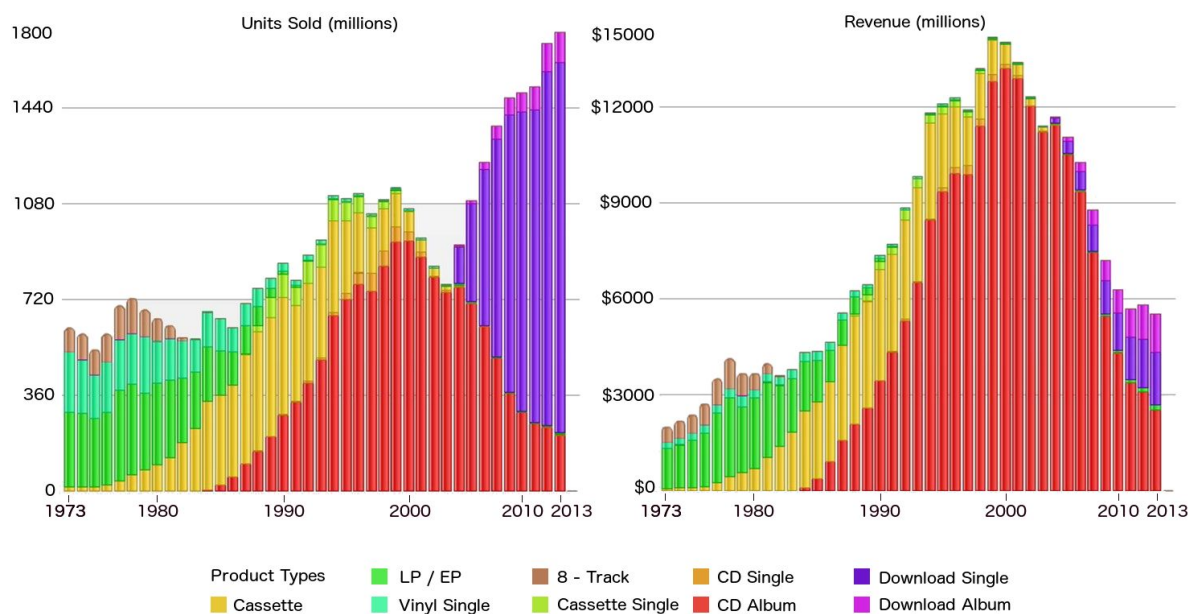


Figure 3. RIAA Sales Chart by units and revenue (Swensson, 2014)

The effects of music piracy are difficult to calculate but a study by the Institute of Policy calculated that in the US, \$12billion are lost annually to music theft and 19 states in the EU lose approximately \$126m with the UK accounting for 45% of that amount at nearly \$55million (Schneider, 2016; Siwek, 2007).

To stop the haemorrhage of sales, the industry responded by suing many peer to peer sites which led to the shuttering of Napster and Kazaa (Cooke, 2016; McIntyre, 2018a; McIntyre 2018b), sued the illegal downloaders at a rate of \$750 minimum per song with a claim that over 30,000 people received writs including a 12 year old girl (BBC, 2004; Barkham, 2004). After 5 years, the Recording Industry of America (RIAA) stopped all suing US music fans largely because legal action was ineffective against music piracy and only served to discredit their brand and annihilate music fans and artists alike (Silverman, 2008).

In contrast, the industry has been criticised for not redefining their business model to incorporate a subscription model (Mahajan and Tripathi, 2013) and the UK's communications watchdog, Ofcom published a report confirming that file-sharers were the music industry's best customers spending more on music than consumers who purchased music by legal means (Jacobs, 2013). A research paper by Columbia University produced similar results (Karaganis and Renkema, 2013)

Piracy was always an issue for the music industry, but the digitisation of media facilitated the ease of file conversion and the internet accelerated the speed of transmission. The music industry has generally been a late adopter of new technology and in the 4 years between Napster's launch in 1999 and Apple's iTunes Store release in 2003, time, money many opportunities were lost. Such as, partnering with a peer to peer network to monetise it, issuing licences to digital music platforms with ready-to-pay consumers, engage with music fans and technologists to co-create innovative monetisation models, products and experiences to put the music fan at the heart of the business.

Emergence of Music as a Service Sector

The music industry's sales figures indicate more consumers prefer to access music instead of purchasing music to own. Digital music services for fans emerged to combat the recording industry's two largest challenges: music piracy and declining music sales. However, as history has shown, the industry did not create disruption for their benefit from within, but were impelled to respond to reports and research to support a music subscription model.

Providing music fans with a legal means to listen to music became the undertaking of researchers, consultants and technologists outside of the recorded music industry. In light of the perceived value of music being 'free', value propositions shifted away from the music product itself to the access of the libraries that hold them as well as the virtues of portability, connectivity and shareability of digital music libraries (Hanzanchuk, 2017).

Research conducted by Ghosemajumder (2002) outlined several strategies to help digital media and content businesses manage the change in digital consumption. One of his strategies explored a peer-based approach providing unlimited access to music for a low monthly subscription. The proposal then became known as the Open Music model and many of its aspects have been adopted by the industry. Music artist David Bowie (Pareles, 2002) and music educator Kusek (2005) also talked about this as a concept of music as a utility.

Following the initial launch of unsuccessful music subscription sites, Apple launched the iTunes store in April 2003 offering legal music downloads for sale (McElhearn, 2016). CEO Steve Jobs was not in favour of the music subscription model based on the notion that customers at the time favoured the ownership of music over access (Heisler, 2014).

Deezer, the legal version of Napster, Spotify and more recently Apple Music and Soundcloud and many other platforms entered the music subscription market at a time when consumers were more familiar with paying for digital music. The recorded music industry revenues have shown signs of growth for the first time in fifteen years, thanks to growing streaming revenues (IFPI, 2018).

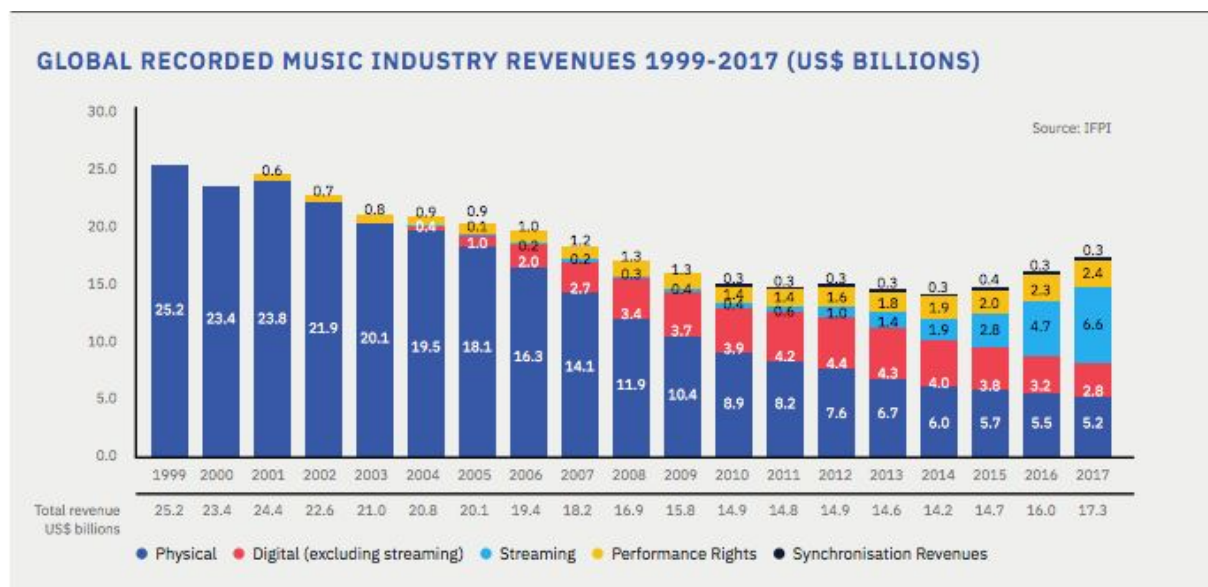


Figure 4. Global recorded music revenues 1999-2017 (IFPI, 2018)

However, streaming as a silver bullet for music industry's revenue declining fortunes may not be sustainable as the Swedish market - an early market adopter of Spotify - has started to show signs of maturation (Mulligan, 2018) and stream ripping on YouTube which is another form of piracy, has increased by 25% (Geddes, 2016).

Streaming adoption was facilitated by the familiarisation of purchasing digital music, the emergence of broadband internet and the inconvenience and expense for high capacity players to carry thousands of digital music files. Streaming services may be showing signs of maturation in certain markets due to oversaturation of services, lack of differentiation between them and the accessible market reach maybe near completion ie preference of ownership vs access. To stimulate growth, technological innovation should be considered such as mixed reality for experiential activations, and take advantage of trends that maybe be a fad, yet it meets consumer demand such as vinyl records. However, streaming services are generally not profitable, due to the high licensing costs for inventory and therefore music entrepreneurs will need to embrace more calculated risks to develop a music services model that can adapt and embrace technological disruption while being profitable.

The Digital Music Ecosystem

The digitisation of the music industry gave rise to an ecosystem to serve the stakeholders within the digital music value chain. New digital offerings at times supplanted traditional non-digital aspects. The ecosystem is bracing itself for new technologies and innovation, but none are likely to create a revolution or shake up that is desperately needed to ignite growth primarily due to outmoded industry mindsets and business models.

Vasquez (2017) developed a value network interconnecting numerous stakeholders in relation to how different music sectors are connected with numerous entities within and outside of the music and entertainment industry. The model aims to capture the three main clusters of the music industry and the stakeholders involved with them.

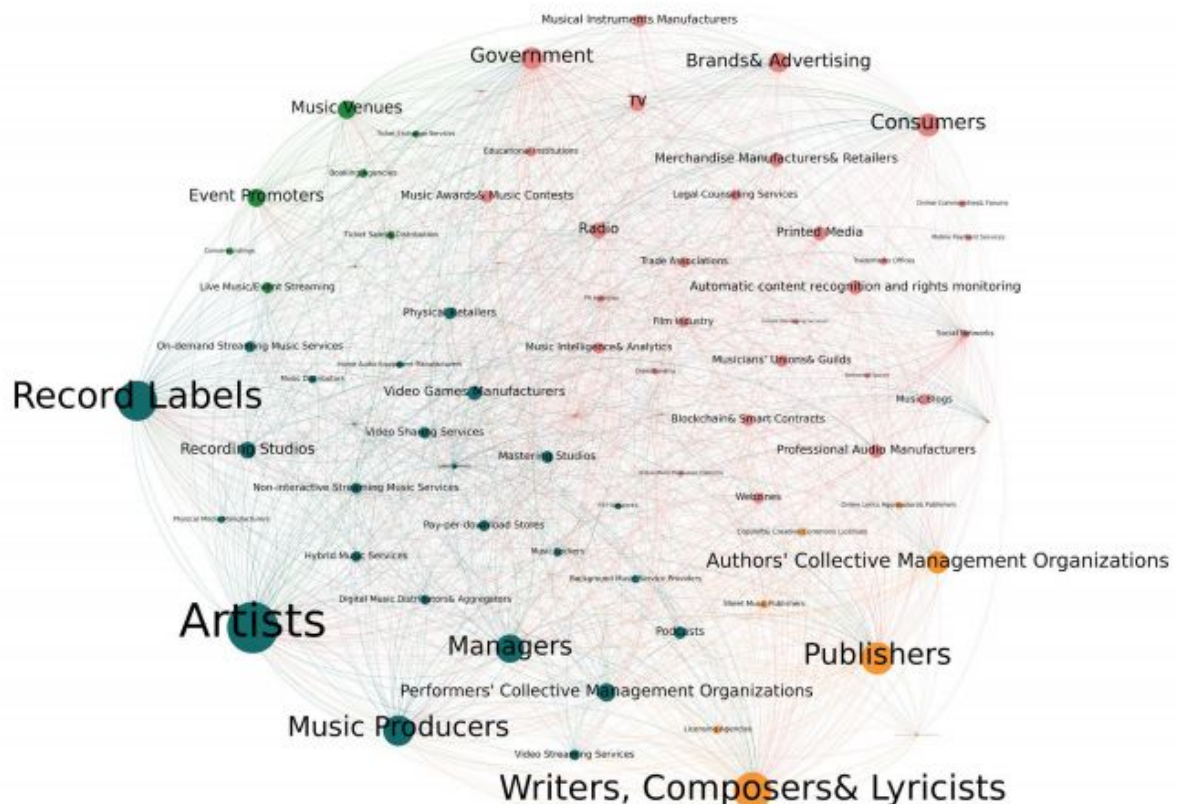


Figure 5. Generic Music Industry Value Network (Vazquez, 2017)

Besides the music streaming services companies there is a thriving economy of digital services for the music industry that operate within the above value network. Numerous stakeholders have commercialised their connections to support their consumers and a sample of them are listed below:

Music & Artist Discovery

Music blogs like Pitchfork, Rap Radar and Stereogum provide the latest news on artists, releases and tours in a similar vein to music magazines, TV and radio where digitisation has shrunk some of their offline businesses. Currently, algorithms and artificial intelligence support music discovery in the form of bespoke content curation such as Spotify's Discover Weekly playlist (Hughes, 2017).

DIY Artist Services

Digital tools enabling artists to release and promote their own music and retain their rights has weakened the value proposition label deal for some. Digital distribution companies such as TuneCore, CD Baby and DistroKid or digital music services companies like Kobalt's AWAL or Platoon enables an artist to have full control over their career. Given that the independent artist market share is continuing to grow, this area is likely to expand (Music Business Worldwide, 2018)

Fan Support

Artists can have more intimate connections with their audience using mainstream communication tools such as social media, email newsletters and websites. However, sites like Pledge Music and Patreon can be used to crowdfund projects or receive a regular patronage for content. Artists can also sell merchandise, experiences, tickets to gigs directly to fans using turnkey digital destinations such as Musicglue (2018).

Experiential

Ticketing companies like Ticket Fairy can provide detailed buyers analytics that can be used to augment release and tour strategies and there are solutions using blockchain technology to outsmart touts (Boycott-Owen, 2018).

Augmented Reality, Virtual Reality and Mixed Reality

New music start-ups have emerged offering heightened music experiences, some with a 360 perspective. London-based MelodyVR aims to be the iTunes of music-related virtual reality (VR) content (Burgess, 2018).

Blockchain

This unique technology architecture has been touted as the next digital music revolution empowering artists to transact directly with fans bypassing labels and collection agencies, create smart contracts so that agreements are trackable and accountable. Start-ups have entered the industry to solve some of its most pressing problems such as piracy for labels, ticket touts for promoters and correct remuneration for artists. Major players such as Dot Blockchain, Ujo, Mycelia and Jaak are in live testing mode. (Dickson, 2017; Levine, 2018)

Music services companies are likely to expand due to the recent growth in the music generated by increased demand in consumption. The strategic use of big data is a major asset to companies which recognise its value to serve their customers better. However, despite a call for innovative music technology, music consumer adoption of cryptocurrency for blockchain, VR headsets and widespread use of augmented reality has been slow due to market conditions. The industry on a whole requires a holistic approach to its operation

strategy while partnering and collaborating with other stakeholders to innovate, create value in the marketplace and stimulate growth.

Conclusion

The shift from product sector to service sector for the music industry has been created by a number of factors, namely the creation of the mp3 file, the digital and internet economy and the escalation of digital piracy. The music industry's response included suing peer to peer sites and individuals for infringement of copyright as a deterrent to other illegal downloaders and waiting for the 'internet fad' to die down. Researchers, inventors and technologists and artists posited a way to counteract music piracy and declining music sales, is to monetise online music libraries by charging a subscription for access - much like a utility.

The music industry's role in the current music ecosystem is principally to manage rights as a rights holder while outsourcing the consumer interactions and transactions to 3rd party music technology companies. However, as the music ecosystem expands with new ways to monetise value exchanges between incumbent and new stakeholders, services will emerge and evolve to help artists, music companies, consumers and other stakeholders navigate the ever changing landscape.

Currently new service innovations offering different ways to consume music using advanced technology are in the pipeline. However, consumer adoption has been slow for certain technology such as music virtual reality and the blockchain due to market conditions. To foster sustainability and growth, the music industry should look to its stakeholder value network to develop cohesive strategies to unify operations, resources and efforts.

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