

New Technology in Music and Creative Entertainment

Module: BMTY7004

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INTRODUCTION

The Music industry has faced immense change over its lifetime due to continual technological changes. Technology created the industry and made music a valuable product over many different product life cycles, cylinders, vinyl, tape, CD's, MP3's and streaming. Technology has been a catalyst for growth and disruption, with far-reaching effects on many related jobs. Technology empowered artists and consumers to build new niches and sounds and have provided space for new intermediaries to cater to different demands (Dobie, 2001). The most rapid changes have occurred in the last few decades, with the online music revolution initially relying on enhanced connectivity without regard and value to copyright and intellectual property laws (Dobie, 2001). The industry has worked hard to correct this imbalance with digital sales and streaming. The digital revolution has eliminated many barriers that artists previously faced when distributing music (Dobie, 2001).

THE BIRTH OF THE INDUSTRY

Before recording and playback technology, music was heard through live music played by musicians, often within local communities. The invention of Thomas Edison's phonograph in 1887 was the first technology that led to the music industry (Edison Invents the Phonograph, 2021). The phonograph was the first invention with the ability to record and play music reliably. Edison founded the Edison Speaking Phonograph Company in New York City in 1878 to market the product (Edison Invents the Phonograph, 2021). It quickly led to the sale of cylinders to play songs on the machine. Soon after, flat discs replaced the cylinders, and many homes had gramophones (Roberts, 2019). Popular artists quickly started to emerge as the music was a product and could be sold over many territories. By 1947 modern vinyl records were created with microgrooves that improved upon previous devices' sound quality (Green, 2017). The music market expanded and culturally, it was the norm to own music and have a record player in the home.

PORTABLE MUSIC

Technological advancements meant that music was no longer restricted to the home. William Lear is credited for the birth of 'portable music', with the 8-Track cartridge created shortly after the compact cassette in 1965 (Ahsan, 2018). The 8-Track was a pre-recorded cartridge that held eight songs and gained significant popularity when partnered with Ford. As a standard, by 1966, all Ford vehicles featured an in-dash 8-Track player. This was followed by other car manufacturers, Chrysler and General Motors (Lavine, n.d.). The 8-Track created a niche market as car ownership grew, allowing these consumers to purchase and play their music in the car rather than just in their homes (Ahsan, 2018). In the years spanning from the mid-1960s to the end of the 1970s, the music industry released tens of

thousands of albums, making hundreds of millions of dollars for record companies and recording artists (O'Hagan, 2021). Music was valued highly in society and was America's favourite form of entertainment, ahead of film and sports (O'Hagan, 2021).

When the Sony Walkman was introduced in the early 1980s, it further changed the industry. The Walkman was inexpensive, portable and changed the way music was listened to (Rogers, 2013). The portability of music recorded on compact cassette tape and listened through headphones led to another avenue for the growth of music consumption (Ahsan, 2018). This is among the first insights into the importance of convenience and versatility when considering the value of music to consumers (Fly, 2021).

Soon after, also in the early 1980s, Philips and Sony announced that they had formed a joint effort to produce Compact Discs (CD) for the general public (History of the CD: 40 years of the compact disc, 2019). Both CD's and tapes were very popular and were purchased and sold all around the world. Often record companies owned elements of a distribution chain to control the costs of manufacturing. By 1982, the CD was deemed the best way to store and play music and gave listeners the ability to skip songs quickly. This new technology became immensely popular and in June of 1999, CD sales achieved an income of £30.6 billion, achieving new record highs (History of the CD: 40 years of the compact disc, 2019).

Although CDs had a positive impact on sales at first, the recording industry underwent significant changes as a result of digital technology. Record producers, sound engineers, editors, mixing engineers, and mastering engineers, who each had a significant role at various levels of music creation, gradually disappeared in favour of multi-skilled experts who could handle the whole project from a laptop (Pras and Guastavino, 2013).

Before technology transformed the whole recording process, mixing a commercially viable recording was not an easy task, it was technological work that involved monetary investment. On top of this you had the expense of physically manufacturing records – the partnership between label and artist was mutually beneficial, one needed the other (Peters, 2016). It wasn't ideal, but it was the only avenue open to musicians for decades (Peters, 2016).

Musicians no longer have to rely on expensive recording studios and endless hours spent perfecting a recording (Peters, 2016). Technology has shrunk in size and cost to the point where most of the hardware can be obtained by anyone with a spare space, and software can be shipped virtually anywhere on the planet (Peters, 2016).

DIGITAL MUSIC - THE DISRUPTOR

Digital technology advancements led to the internet age and many more personal computers. The MP3 file became a standard compact digital format for music that could be streamed, stored and e-mailed, altering how music could be delivered and consumed (The Revolution Will Be Digitised: 25 Years Of The MP3 - Attack Magazine, 2021). MP3 files enabled file sharing sites such as Napster to thrive in the 1990s, attracting consumers who no longer needed to pay for CDs, tapes or vinyl (Gerber, 2017). "The idea of free music was so compelling that up to eighty million users downloaded Napster and broke the law" as this form of file sharing with no payment to the creators breached copyright laws (Forde, 2019).

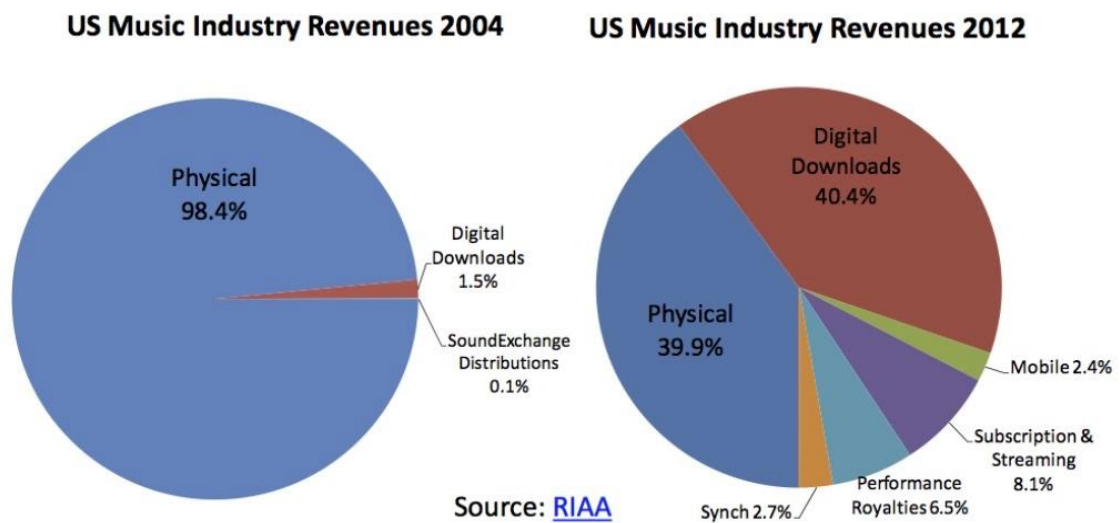
Illegal file-sharing heavily impacted global sales of music, which saw a 25% drop in sales between 1999 and 2005 (Williams, 2006) as 14,000 songs were being downloaded each minute (Lamont, 2013). The Napster creator, Shawn Fanning, created fear among record labels and artists alike, as Napster ranked as popular as applications such as email and instant messaging (Lamont, 2013). The shift from a physical to a digital product altered the perception of music's value and led to nine hundred independent record store closures by 2003, reducing the industry's size (Williams, 2006).

DIGITAL PORTABLE DEVICES

Major record labels took action against file sharing and the digitalisation of music with fear of piracy and attempted to halt sites such as Napster through lawsuits (Knopper, 2011). In 2001 a US court ruled Napster needed to stop peer to peer sharing of copyrighted music (Kopf, 2019). Napster attempted to become a subscription service but discontinued its operations in 2002 (Creager, 2019). The impact of file-sharing services led to an agreement between Apple and major labels in 2003 to offer music digitally through an online store for a low price (Wikström, 2021). Consumer acceptance slowly garnered for Apple as the online store worked well with the iPod, a sleek digital music storage device. The iPod was selling well when the iTunes Music Store debuted and provided iTunes with a sizable customer base from the opening (Williams, 2006). The iPod's size and the quantity of music were revolutionary, as it could hold and play a range of songs more quickly than the earlier technologies (Williams, 2006).

Although the iTunes Store encouraged some people to return to paying for music, music's value had been altered. Rather than buying a complete album, iTunes allowed the purchase of individual songs, which dramatically reduced revenue, which fell 32% between 2003 and 2010 (Knopper, 2011). A study by Professor Elberse showed, "for every one-percent increase in users who move to online buying of music; there's a six-percent decrease in album sales" (Berinato, 2010). Besides, digital sale prices were set far lower than previous physical products in order to attract users to purchase music legally (Knopper, 2011). Apple's model of owning digital copies of albums and songs had made music more affordable and accessible than prior decades and by 2012 was the most significant revenue stream for the industry, see Figure 1 (Golijan, 2013).

Figure 1: Music industry sales

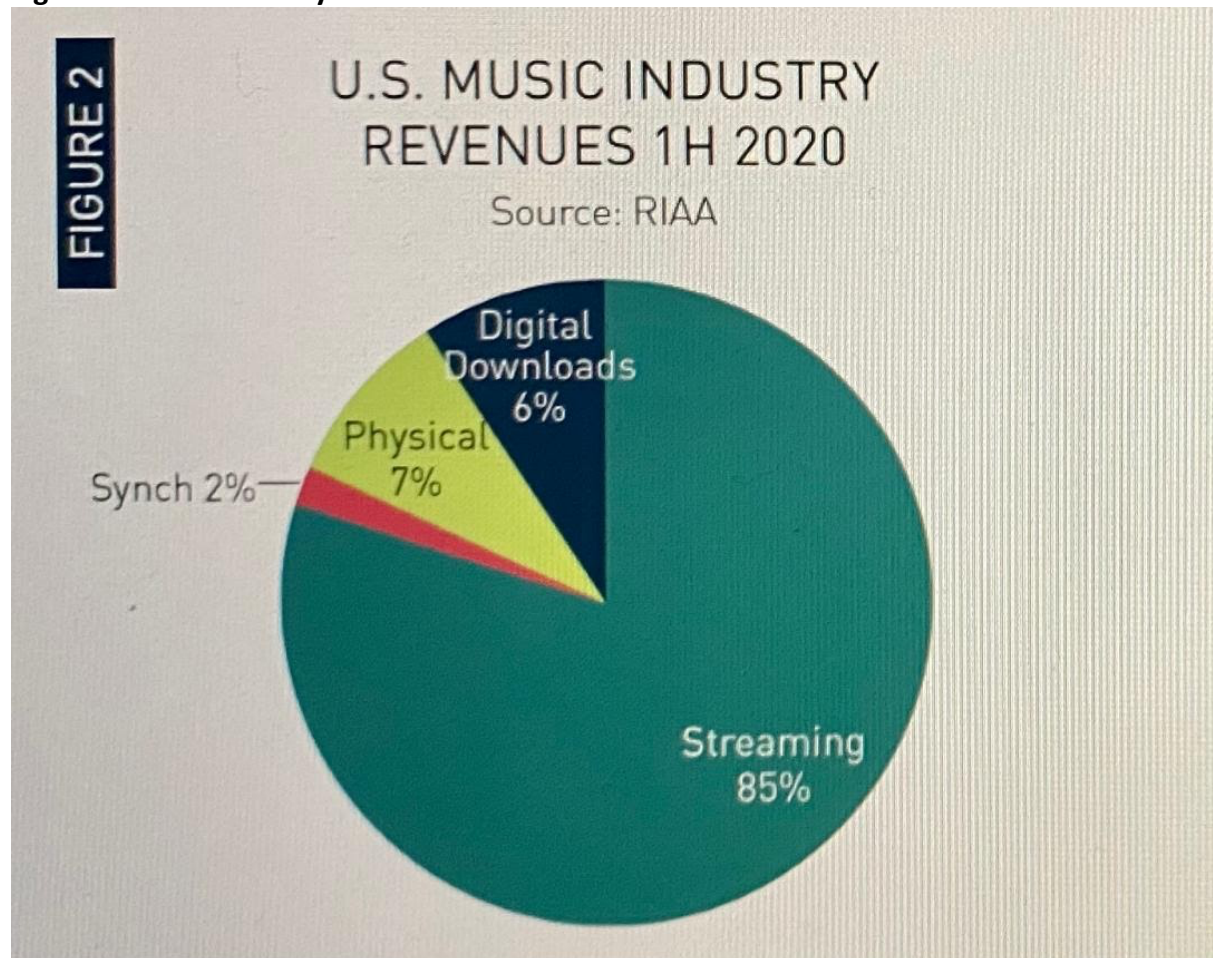


(Golijan, 2013).

STREAMING

An industry that once relied on people buying physical products like vinyl records and CDs has shifted to a service sector, with music streaming now by far the most popular way to consume music. See Figure 2: Music industry revenues in 2020 (Pallotta, 2020). Streaming services have been made possible by advancements in smartphones and internet capability, which reduced the sales of digital music on iTunes in 2010 by 6%, two years after the launch of Spotify (Golijan, 2013). Culturally it is now the norm to access music via a subscription for a small fee. The range of access to music is far more extensive and economical than digital downloads and is a key reason for the major decrease in illegal file-sharing (Dans, n.d.).

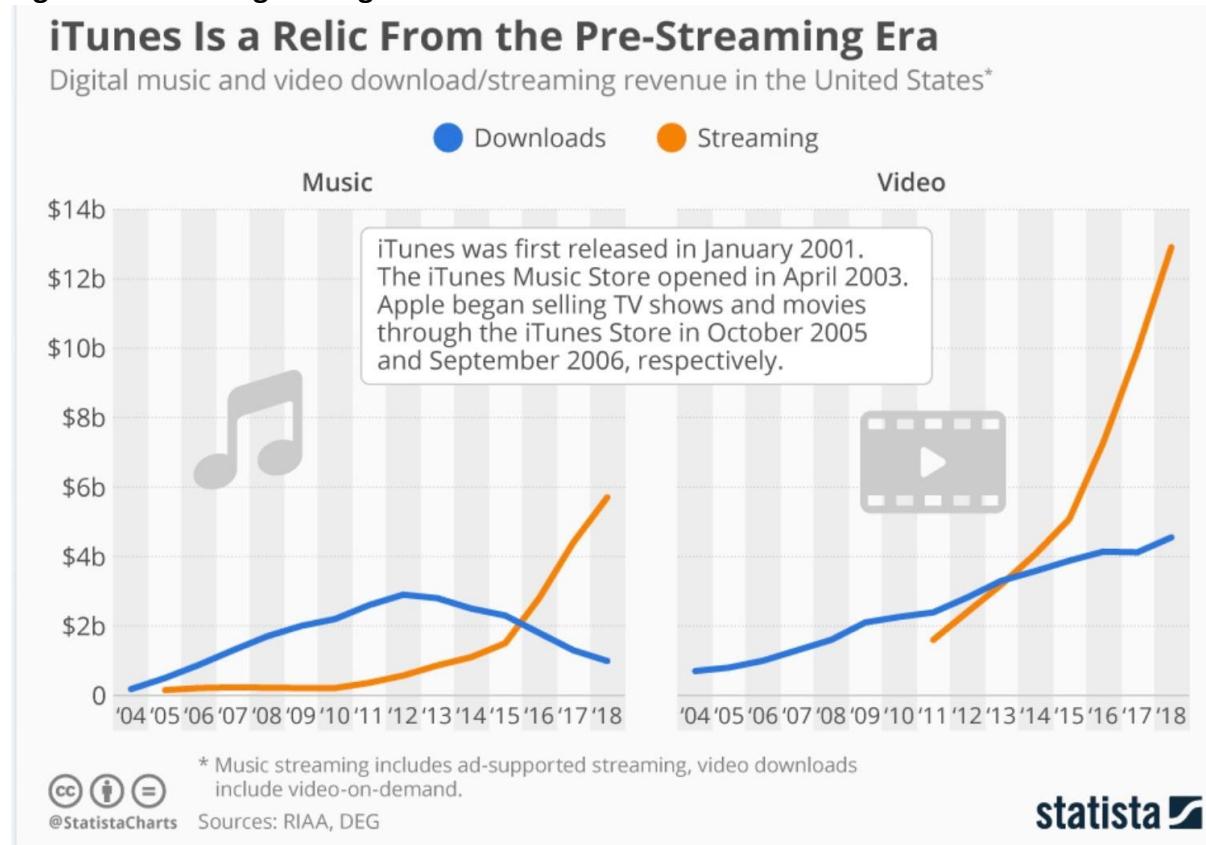
Figure 2: Music industry revenues in 2020



(Friedlander, 2020).

Streaming has provided growth to the industry, offsetting the decreases from the prior decades and the digital disruption's impact, see Figure 3: Streaming and digital sales (Pallotta, 2020). In the first six months of 2020 alone, streaming, including both paid versions of Spotify, Apple Music, Amazon revenues and ad-supported on-demand streaming services, such as YouTube, Vevo, and ad-supported Spotify revenues, grew 12% to \$4.8 billion (Friedlander, 2020). However, despite the recovery in industry revenues, it is unclear who is benefitting from the surge, with many artists, songwriters, musicians, and producers advocating for change, openness, fairness and for greater rights from the streaming platforms (Shah, 2020). Contrastingly, Daniel Ek the founder of Spotify announced \$5 billion was paid to 8 million music copyright holders (Ingham, 2021). Although \$5 billion was paid, it is concentrated amongst approximately seven thousand five hundred artists who earn over one hundred thousand dollars a year (Ingham, 2021).

Figure 3: Streaming and digital sales



(Richter, 2021)

Streaming services have lowered the barriers to entry for independently releasing new music, and consequently, more than 60,000 new songs are being uploaded every day, or one new track every 1.4 seconds (Ingham, 2021). An artist can now record, produce, distribute, promote and monetise their own music with ease which has further reinforced a lowered consumer perception of value (Worldwide, 2021). The technology used in this process can be relatively inexpensive, and promotion through social media is free. Record labels now also look at social media statistics as a way to ensure their acts' saleability, further limiting a musician's ability to be signed. The impact of increasing music supply leads to a 0.094% likelihood of an artist earning more than \$100,000 on Spotify in 2020 (Ingham, 2021). This prospective pay off has further resulted in independent artists being as lean as possible, as the pay off for their intellectual property is little.

"In a world where you can record, produce, distribute, promote, and monetise your works using any combination of well-established services and platforms, the historic value proposition offered by the traditional music industry is viewed through a different framework. This high-growth services sector and the businesses that harness them directly challenge the status quo" (Worldwide, 2021).

Although the industry is incredibly difficult to succeed in today, technology may be a solution to some of the issues around fair remuneration. Technology has blurred the once-clear lines between labels, executives and musicians (Worldwide, 2021). Blockchain technology poses an appeal to modern artists because of its transparency, incorruptibility, and power to cut out the intermediaries through smart contracts, where there is the

potential for consumers to do business directly with artists (Chan, 2019). Blockchain may be a technology that can help redistribute compensation back to the creator rather than the host of intermediaries and aggregators needed in the current market (Chan, 2019).

It could also be argued that since technology is open to a broader audience, it would increase earning potential. The same Internet that has caused the music industry so many problems can also be an artist's best friend, particularly for independent artists who are not signed to a major label. To put it another way, the Internet helps people all over the world to connect with one another and music has been able to travel further than ever before in the history of mankind (How The Internet Changed Music | Recording Connection, 2021).

CONCLUSION

The music industry has been through a continual change from its inception, from the shift from physical products to digital products and to service sites. Each technology advancement created a new aspect of the market, it made other parts obsolete, and the rate of that change has been ever increasing. Digital technology has impacted all aspects of creating, distributing, and promoting music and lowered the consumer's perception of music (Dans, n.d.). Streaming platforms provide consumers with unprecedented access to almost all the music ever recorded. Although streaming platforms act within the law and pay copyright holders, it is arguably little recompensation to creators advocating for change in the industry. Future technologies are likely to work towards a balance between musicians and consumers directly, as new technologies such as blockchain simplifies transparency, corruptibility and intermediaries. There is real potential for blockchain to redistribute power and monetary wealth to independent musicians again and bring value back to creating music (Chan, 2019).

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