



Phil Normand
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New Technology in Music and Creative Entertainment
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Zohe Mustafa

Critically evaluate how new technology has turned the music industry from a product to a service sector.

Since the beginnings of the Western music industry, technological advancements have directly influenced how music has been created, performed and consumed. However, it wasn't until the emergence of the internet, that the way in which recorded music was consumed changed dramatically. Digital technology has enabled music listeners to access music exceptionally easily. Before the emergence of digital technology, the recorded music business focused on selling physical tangible objects whereas today it is a service business that provides value through intangible files predominantly via streaming platforms (Peek, 2019). This essay endeavours to evaluate how different technological innovations have shaped the structure of the music industry and affected the way in which people consume music.

Establishing a definition of the 'music industry' is crucial in order to gain a better understanding of the impact of new technology. It is a general term for "all the parties involved in the creation, performance, recording, promotion and managing the...business of music" (Moulton, 2017). New technology offers productive techniques that are a "significant improvement over [an] established technology for a given process" (Marshall, 2019). For example, this improvement could be in relation to increased output or savings in cost (Marshall, 2019).

Throughout history, technology has been interconnected with all of these different sectors of the industry. Using the creators as an example, a significant technological improvement in history was the beginning of the printing press (publishing industry) in the mid-15th century or the introduction of the computer and Pro Tools in 1991 (as shown in figure 1). A technological breakthrough for the performers was the invention of the microphone in 1877 (see figure 1) which completely changed the capabilities of the human voice in a live setting. But most of all, the area of the industry that new technology has had its greatest impact

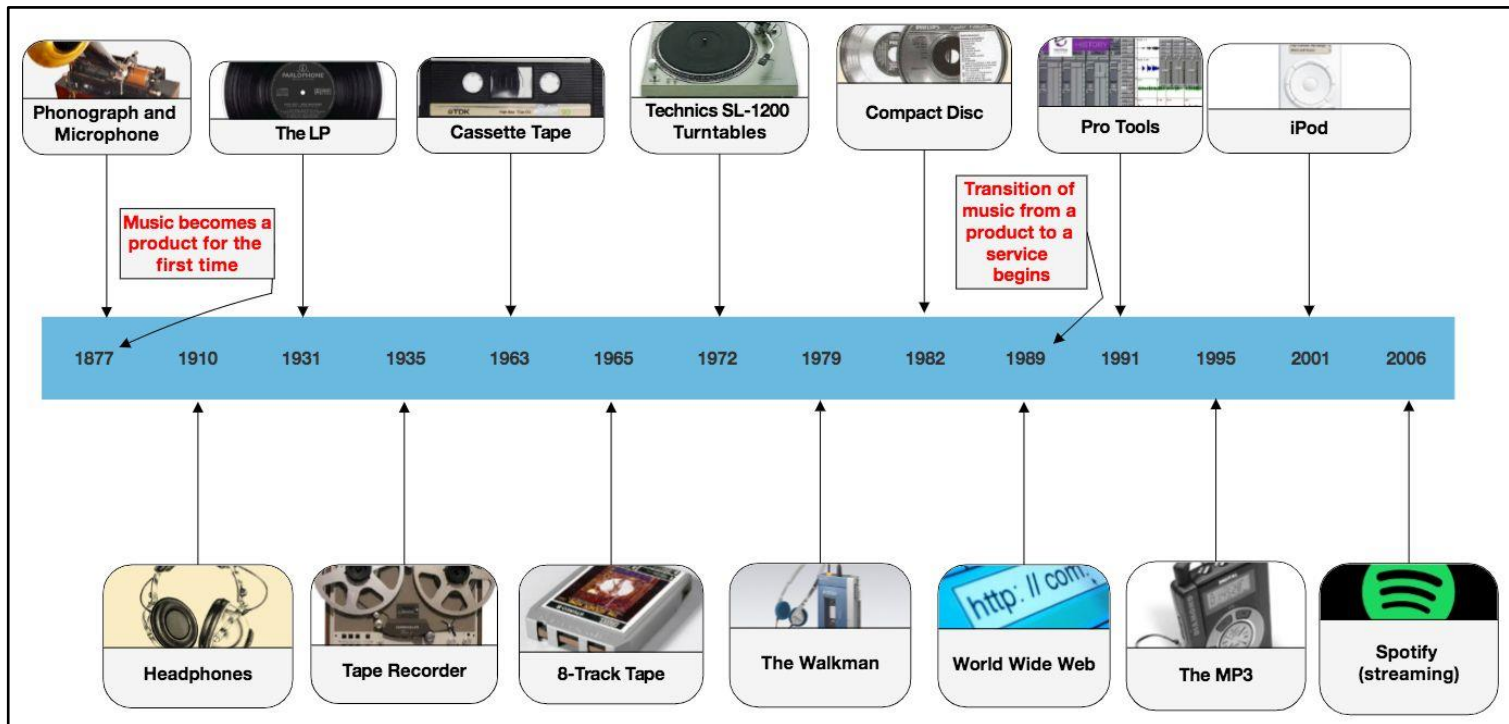


Figure 1 - Timeline of technological development within the music industry (Herzog, 2014).

is in recording and thus this essay will mainly focus on evaluating the technologies directly influencing recorded music. It is worth noting that within the different areas of the industry (i.e. creation, performance and recording), the degree to how much the area is a product or service varies and often fluctuates between the two. For example, the live industry is a service sector whereas the recorded industry is combination of the two because it consists of both physical and digital formats. Another example where there is a crossover between product and service is in the art of DJing following the invention of Technics SL-1200's in 1972 (see figure 1). This technological innovation made playing vinyl a unique experience by playing two records at the same time, thus creating a unique live experience that could not be replayed. In other words, the Technics SL-1200 enabled the product of records in the form of vinyl to be used as a service i.e. an intangible experience.

The technological developments of the recorded industry shown in the timeline in figure 1 represents how music transitioned from a product to a service sector. Before the invention of the phonograph in 1877, music was only available to people in a live setting. It was impossible for sound to be recorded and played so a single musical rendition or listening experience was unique to that specific moment. In other words, music was a type of service sector. After 1877, the invention of the shellac disc and gramophone enabled music to be recorded and it could be consumed for the first time without the need of a trained musician. People no longer had to go to public venues such as concert halls and clubs to experience music. The industry quickly became a product sector because it could be bought, owned and sold like any other physical commodity.

The record industry remained a product until the emergence of the internet in the early 1990s. Technological innovations prior to this such as the introduction of the Walkman and CD in 1979 and 1982 respectively, did not disrupt the sector in the same way. This was because they were “sustaining innovations” that did not challenge the existing business models (Moreau, 2013). Technological advancements enhanced the product itself by becoming more portable and accessible to its consumers, but the way music was distributed and promoted was still based on its established model and therefore remained a product sector.

The digital revolution during the 1990s was what disrupted industry models and this period initiated three major changes to the industry: the physical distribution chain becoming less important, major labels losing some of their dominance and an increase in music piracy which also undermined the position of these labels (Graham and Burnes, 2004).

Firstly, the digitalisation of music eliminated the costs of distribution (McAuliffe, 2016). The internet changed the supply chain and supplier strategies (Graham and Burnes, 2004). One definition of a supply chain is “the sequence of processes involved in the production

and distribution of a commodity” for music (Verhoeven, 2020). Prior to the internet, the chain could be broken down into three intermediaries: the record label, the distributor and retailer (Graham and Burnes, 2004). Network technology removed the barrier of transporting files to a wide reach and much more specific information could be exchanged online. Distributing physical products such as vinyl, CD and cassettes is expensive and time-consuming and thus the scope of audience is limited (Graham and Burnes, 2004). With the use of the internet, there is no longer a trade-off between the richness of information and its reach (Evans and Wurster, 1997). Music for the first time could be distributed direct to the consumer and in theory, intermediaries were no longer essential for music to be heard (Graham and Burnes, 2004). This idea of sharing music and information were the foundations for a new business model that the streaming platforms adopted a few years later.

As shown in figure 1, the MP3, a form of digital file that was introduced in 1995 “meant that hard copies were no longer necessary” and the physical products that music fans owned were replaced with digital libraries on computers (McAuliffe, 2016). The move towards digital and MP3s (away from analogue) also enabled a greater efficiency in compression and better storage capacities (Moreau, 2013). Consumer-to-consumer promotion “with automated recommender systems and online word of mouth” also changed how music was promoted to fans (Chevalier and Mayzlin, 2006). This online interaction between fans and access to MP3s resulted in the ability to create mixtape CDs burnt from computers and subsequently led to peer-to-peer (P2P) illegal file sharing which became popular through Napster in 1999 (McAuliffe, 2016). However, it must be said that the industry at this stage had still not become a service sector but rather had only moved from a physical product to a digital one. This period during the early days of the internet was a transitional phase from product to service and was crucial in the shift away from being solely a product industry. It goes without saying that the internet was the main catalyst in starting this transition.

The illegal file sharing and downloading that began with Napster in 1999 kickstarted a surge of music piracy. People for the first time were able to access their music for free and this completely undermined the position of the major labels (Graham and Burnes, 2004). The industry structure was broken down and a decline in profits began. In 1999, the music industry reached £30.6bn in profits as a result of the booming CD business. But by 2004, legal sales had rapidly fallen off and the global piracy industry was worth around \$4.8 billion with roughly “4.5 million counterfeit CDs sold each year in the UK alone” (Reece, 2004). The illegal platform set up the model that was later adopted by Spotify because users were able to “access nearly any song they wish” (Kopf, 2019). A global report from the International Federation of the Phonographic Industry (IFPI) in May 2020 shown in Figure 2, reveals how this decline in physical sales happened simultaneously with the rise of digital downloads and subsequent streaming platforms.

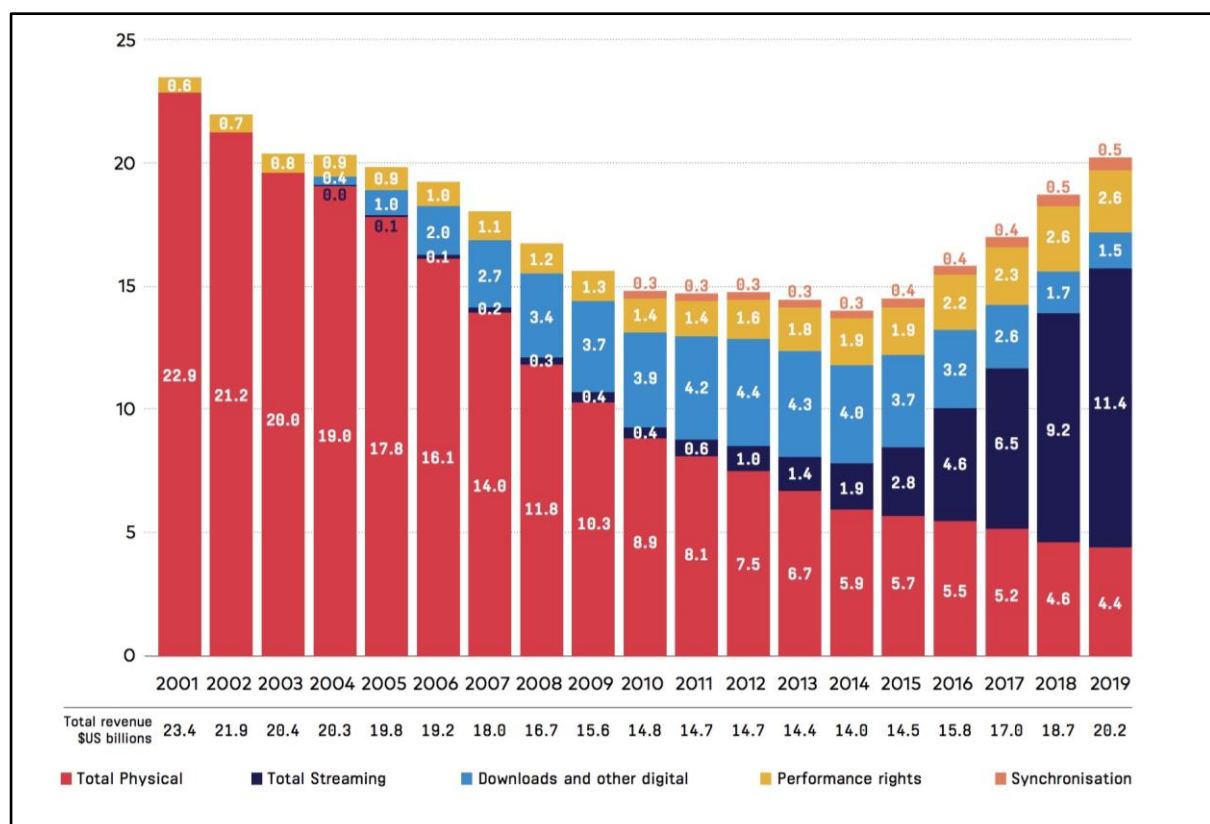


Figure 2 - Global Recorded Music Industry Revenue 2001-2019 (Ingham, 2020)

Legal file downloading was commercialised by Apple with the iPod in 2001 and iTunes in 2003. Steve Job's company legitimised online downloads by receiving approvals from the major labels. There was a delay in the decline of physical sales after the introduction of digital downloads (as shown in the chart in figure 2) because a number of major labels leaders were reluctant to transition to a service-based model and use the new available technology to their advantage. The new technology threatened to undermine their power because of the newfound ability for independent artists to be successful.

Not only has the rise of the internet affected distribution but it also has had a significant impact on promotion. Prior to social media, music promotion heavily relied upon MTV, a music TV channel established in 1981 that showed music videos 24/7. This was a significant step of the music industry moving from product to service because music was no longer a product consisting solely of audio but a visual product too. New revenue streams with the added visual element and fans began to interact with music on a different level. This was accelerated at the turn of the century by social networks such as a Facebook which are now heavily used to promote music. Social media has increasingly challenged mass media promotion such as radio with young people far more likely to discover new music through social media over radio (Moreau, 2013). The younger demographic of 18-25 find new music through streaming platforms like Spotify and YouTube. This shift from product to service via Napster was supported by social media sites such as MySpace in the early 2000s.

The era of digital downloads through iTunes was short-lived and the streaming platforms quickly became in demand for the consumer. As shown in figure 2, the revenue from physical sales in the recording industry remained the main source of income for record labels throughout the period of MP3 downloads and iTunes. It was not until 2014 that streaming numbers overtook physical sales in total revenue. Spotify was established in 2006 by Daniel

Ek and it is a “direct by-product of his love for Napster, and his desire to create a similar experience for users” (Kopf, 2019). Illegal downloads rapidly disrupted the revenue streams and it was Spotify that helped bring back the industry’s viability (Kopf, 2019). The premium subscription model that Spotify adopted costs £9.99 per month and it enables the user unlimited streaming ad-free as well as being able to download music. This subscription model that was also adopted by many other DSPs was the answer to the renegade download model that was causing the decline in sales in the music industry. IFPI reported in 2017 that the global recorded music market grew by 8.1% as more fans were engaging with streaming with 54% of the total revenue coming from digital consumption (Yönak, 2019). DSPs have today also removed a secondary market because the song or album on the streaming service always stays with the original owner further highlighting the shift from product to service (Doyon, 2013).

Whilst it is clearly evident that streaming has placed the industry in a predominantly service sector, it would not have been possible without the force of consumerism driving this change. Consumerist fundamentals are focused on consuming goods and services in large quantities in order to obtain happiness and well-being (Kelly, 2021). In terms of the music industry, it is the consumers of music that demand an increasingly greater number of songs in their digital libraries and subsequent Spotify accounts.

Despite the changes in the last twenty years of product to service coming from new technology, there has been an increasing number of consumers who are going against the trend. There has been a resurgence of physical sales in the form of vinyl since 2014. Figure 3 highlights these changes and reveals that an increasing number of music fans are now rejecting new technologies and seek tangible products that was once the norm. In 2014, “vinyl album sales totalled 1.3m – six times bigger than its tally just five years earlier in 2009” (Ingham, 2015).

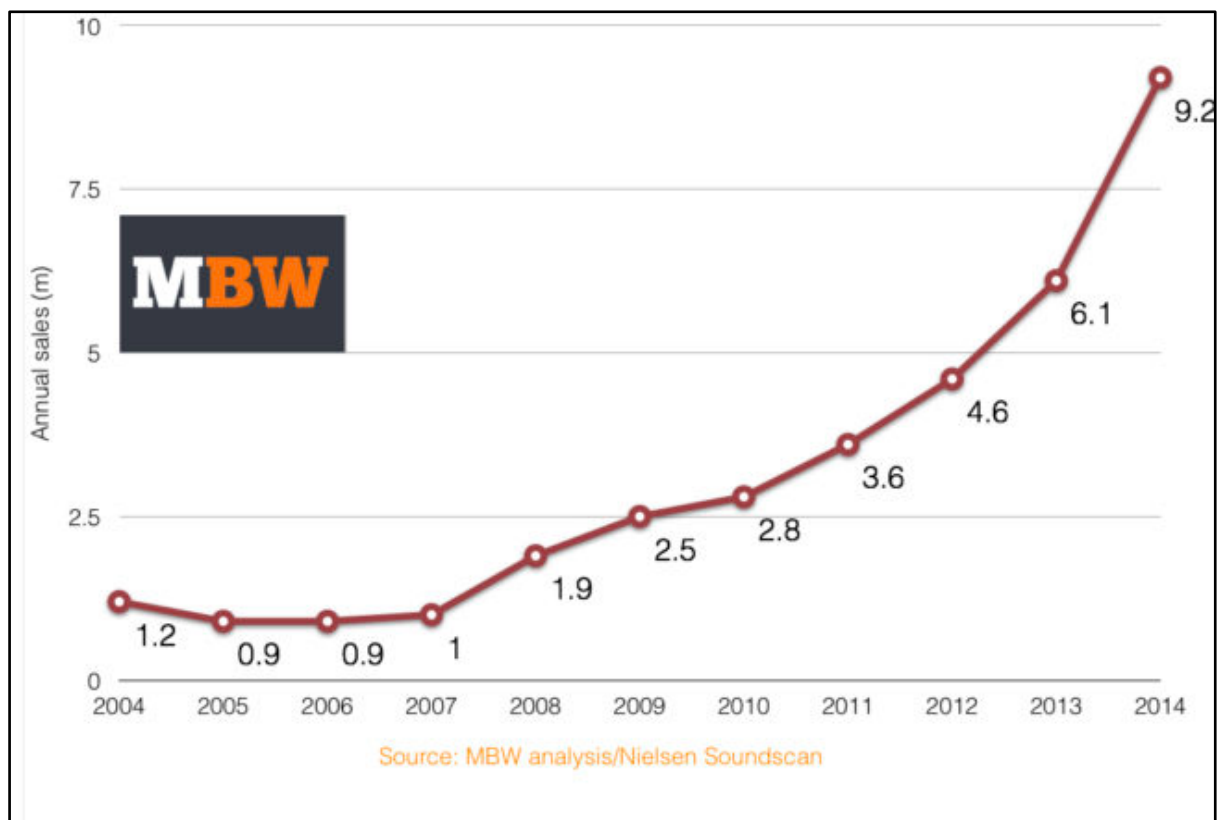


Figure 3 - US: Vinyl Album Sales 2004-2014 (Ingham, 2015)

There are a number of reasons as to why this is case. Firstly, the sound quality of the analogue format is regarded by many as superior to digital with the sound being much closer to what the performer or producer intended the listener to hear (Rose, 2020).

Secondly, music fans want to enjoy the experience of going to a record shop and searching for both their favourite and unknown records. The process of finding the perfect record is something that one can't do when searching on a computer or smartphone for music.

Moreover, the tangibility of owning the physical product of music adds sentimental value and increased attachment to that particular album or EP (Rose, 2020). The listening experience also adds another perspective to the music and enhances the attachment to it. What is more, a downloaded personal library or Spotify library only lasts for as long the platform whereas a physical collection can be kept and stored indefinitely (Rose, 2020).

Lastly, copies of vinyl retain their value if kept in good condition. In some cases, records can be sold at a much greater price because they have since been repressed and remastered (Rose, 2020). This rise in popularity will continue to last and the change is apparent throughout retail; Pete Selby CEO of Sainsbury said in an interview with MBW that “...we don’t see this as a novelty gifting fad but a complimentary part of our existing music offer...” (Music Business Worldwide, 2016). Having said this, the resurgence of vinyl will not prevent technological development and physical consumption will unlikely return to the mainstream in the future.

In the coming years, AI will continue to transform the recorded industry in the same way that previous technological innovations such as the internet and streaming has done. Spotify already incorporates the technology with its playlists by using artificially intelligent algorithms that cater towards the user’s specific tastes (Byers, 2019). DSPs using AI is crucial to support the service-based model because the more data (i.e. number of users) that is accumulated, the more intelligent the algorithms become. This will retain the number of users on the platforms because they can access their favourite music more quickly and easily. Spotify’s adoption of AI as well as context-based features such as sharing, ultimately gets users hooked on the platform which leads to further success (Wikström, 2013).

Virtual reality (VR) will also transform the industry by offering immersive experiences that will blur the boundaries of the how music is consumed. This kind of new technology with the increased demand of a service mentality will further blur “the increasingly faint lines

between label and artist, between executive and creator, and between major and independent” (Music Business Worldwide, 2021). Since the Covid-19 pandemic, the demand for VR to save the live industry is greater than ever and this will add another dimension to how people consume music in the future.

In conclusion, the movement of the recorded music industry from a product to service sector has occurred at a rapid rate as a direct consequence of the digital revolution. The three most influential new technologies that have emerged since the beginning of the 1990s are the internet, Napster and Spotify and they have all in their own way transformed the structure of the industry. As the number of competitors in the digital market increases, so does the demands of the consumer and it is for this reason new technologies are quickly updated. The adaptations streaming services have made such as through subscription models has pushed the industry further towards a service-based sector, despite their being a noticeable increase in vinyl sales since 2014. Starting with MTV and moving into more immersive technologies such as AI and VR, the industry has become closer to a multi-sensory experience. The holistic approach that is representative of a service-based sector, is the future of the industry and this lies in AI and VR. With this in mind, the major labels will once again need to establish new business models that incorporate these advancements in order to generate revenue.

The drastic changes that have occurred to the industry in the last 15 years will continue at a rapid rate because of the increase in the data available and the more efficient manipulation of that data. The possibilities made available by digitalisation are endless and the music industry will always transition in conjunction with technological development.

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