

Essentials of Digital Music

Matthew N. O. Sadiku¹, Uwakwe C. Chukwu², Abayomi Ajayi-Majebi³, Sarhan M. Musa¹

¹Roy G. Perry College of Engineering, Prairie View A&M University, Prairie View, TX, USA

²Department of Engineering Technology, South Carolina State University, Orangeburg, SC, USA

³Department of Manufacturing Engineering, Central State University, Wilberforce, OH, USA

ABSTRACT

Digitalization has completely changed how music is composed, transmitted, preserved, heard, and performed. The overwhelming majority of music today is digital music since they exist in electronic form. Digital music along with other digital content is the driver for the global technology markets. As technology advances, so do the means for marketing and promoting of anything and everything. The music industry is no exception. It is now apparent that the digital production, distribution, and consumption of music is inevitable. However, while the digital music market is booming, it has been observed that there is no sustainable future for the music artists or for technology companies. The pressure consumers have placed on the music industry is enormous. This paper provides an introduction on digital music.

KEYWORDS: *technology, digitalization, digital technology, digital music, music industry*

INTRODUCTION

Technology is everywhere. Without doubt, new technologies always have profound influence on the socioeconomic and institutional transformation of economy. They have had enormous impact on music production, distribution, and consumption. Electronic technology is also involved in the design of musical instruments, the reinforcement of the acoustics of concert halls, and the recording of music. For example, instruments are now available that have what look like piano keyboards. The sounds that we hear have been performed by musicians and interpreted by audio engineers. Recording technology has forced us to reconsider what constitutes a piece of music. Manipulated recordings indicate that recording does more than preserve [1].

Recorded music permeates every aspect of our daily lives. Music is a significant and integral part of our culture. Traditionally, music is stored in analog media which could be magnetic tapes or cassette tapes, tape recorder, compact disc (CD). In the 90s, for example, digital music was most commonly available in the form of albums on CDs. The music industry was

disrupted by emerging technologies: digitalization, data compression, and the Internet. The MP3 compression format came along in 1993 and made things a lot easier. In the transition from traditional to digital music, many techniques and tools have been developed. Digital piracy took off with the launch of Napster, a free file-sharing network that connected people worldwide. The app was shut down in 2001 after many legal battles. Napstar was undeniably illegal genius, but genius nonetheless [2].

WHAT IS DIGITAL MEDIA?

Digitization has dramatically affected most of the media industries. Digital delivery of information is becoming increasingly ubiquitous. Digital music is attracting high attention with a large number of legitimate online music services. The ubiquitous evolution of digital music has created a drastic shift in the way consumers and producers view and use the music industry. The music industry should not be regarded as one, but a number of different industries. Its basic structure has given rise to three core music industries [3]: (1) the recorded music industry—

How to cite this paper: Matthew N. O. Sadiku | Uwakwe C. Chukwu | Abayomi Ajayi-Majebi | Sarhan M. Musa "Essentials of Digital Music" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-6 | Issue-6, October 2022, pp.497-502, URL: www.ijtsrd.com/papers/ijtsrd51906.pdf



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focused on recording and distribution of music to consumers; (2) the music licensing industry—primarily licensing compositions and arrangements to businesses; and (3) live music—focused on producing and promoting live entertainment, such as concerts, tours, etc. While the recorded music industry has suffered during the past 15 years, the other two industries have gained in prominence. The music licensing is the most profitable music industry sector, while live music has developed into the largest music sector.

Before digitalization, the music market consisted of a large number of artists [composers, lyricists, and musicians] producing creative expressions. The digitization of the music industry has drastically changed the way music is produced, distributed, and consumed.

➤ *Music production:* This refers to various recordings of the music itself.

Digital music producers use all sorts of recording technology to produce music to be used in other types of media. These recordings are used on websites, television shows, movies, and videogames. Digital music production may involve creating loops, beats, basslines, melodies, and arrangements. Some artists and composers have recently implemented the context-focused model in the creative production of their musical works. Online communication technologies facilitate media sharing at an unprecedented rate. Figure 1 shows a typical music production [4].

Several well-known authors consider the ability to reproduce music as audience participation in redefining meanings of forms through consumption. Remixing prerecorded music, and record-scratching are also oft-cited examples of public re-appropriations of popular culture.

➤ *Music Distribution:* This is how music goes from the artist to the listener. Distribution is a crucial part of music promotion. To get the music in the hands of listeners or potential fans, digital distribution is a must for an artist. Traditionally, distributors got records into stores through middlemen, who took a percentage of the revenue. Digitalization has radically changed the role of distributors. Digital distribution is a new technology that is revolutionizing the pop-rock music market. It is now the smart way to get your records out there, keep full rights to your music, and start building a name. As people buy your music, you receive royalties in exchange. The top ten best music distribution services are listed as follows [5].

- LANDR
- CD Baby
- Tune Core
- Ditto Music
- Loudr
- Record Union
- MondoTunes
- Reverbnation
- Symphonic
- iMusician

These music distribution companies are responsible for sending recorded songs to streaming websites such as Spotify, Apple Music, and Amazon Music. A music distributor gets the music into physical and online stores, where the listeners can find it.

➤ *Music Consumption:* Digital technologies have allowed drastic reduction in the costs of copying and disseminating information. In the case of the music industry, these costs reductions have been major gains for consumers. Music consumers often substitute CD purchases for unlicensed music consumption. This is due to online piracy on the off-line physical sales of recorded music and it is an illegal behavior. Although unlicensed music consumption could, in theory, stimulate licensed music consumption, the unlicensed music consumption is often perceived as a loss to the music artist [6]. Music and technology may be organized along a continuum of music use and practice. Figure 2 shows the continuum of music production and consumption practices [7]. This continuum depicts music consumer behavior in terms of their relative activity or passivity. Marketing is an important component in turning an artist into a star. Before the digital age, marketing would have involved using just radio stations, television ad, and industry press. Today, marketing digital must consists of social media outlets like Facebook, Twitter, YouTube, Tik Tok, MySpace, and Instagram,

Today, the easiest way to buy digital music is to get it from storefront like iTunes or Amazon Music. Amazon is one of the most popular places to download digital music. Streaming services like YouTube and Pandora are well known for providing free digital music streaming services. Digital music stores sell copies of digital audio, for example in MP3 and WAV file formats.

APPLICATIONS OF DIGITAL MUSIC

The convergence of music production, distribution, exhibition, presentation, and consumption, enabled by the new communications technology, has shaken the music industry as never before. Digital music is

applied in teaching music, digital sheet music, and digital marketing/advertisement.

Teaching Music: Music-driven instructional activities, when used appropriately, can humanize, personalize, and energize online courses by enhancing social presence through student-to-student interaction. It can also tap into students' interests, and elicit positive feelings and associations. The digital music technology introduced in music classroom instruction of schools contributes to cultivating students' music learning capacity. Digital music making allows kids to express themselves and their individuality [8]. Figure 3 shows Disney's Mickey Mouse Digital Music Player Sound Book for kids [9].

Digital Sheet Music: This is a technology for representing and displaying sheet music in a computer-readable format. Sheet music is usually a handwritten or printed form of musical notation that uses musical symbols to indicate the pitches, rhythms, or chords of a song. Four factors appear to facilitate digital sheet reading: computer, content, containers, and controllers [10]:

1. *Computer:* depending on the musical work or performance, different form factors might facilitate the digital sheet music consumption
2. *Content:* a choice of static content versus dynamic content, and a choice of open content versus proprietary content.
3. *Containers:* hardware accessories used to hold or mount your computer
4. *Controllers:* hardware accessories that enable you to work with your digital sheet music in a variety of ways.

BENEFITS

The popularity of digital music has rapidly increased. Access and control are the major benefits of a digital music collection. Buying music is a one-time purchase, with no monthly rental payment. Listeners select not only where they start and stop music but also in what order they hear its sections. The ubiquity of recordings has influenced performers as well as composers. The sophistication now available to the recording editor was little more than a dream a decade ago. Although revenues from recorded music have fallen dramatically during the past 15 years, people across the world listen to more recorded music than ever before.

CHALLENGES

The music industry is facing several challenges. It seems that the digital age has created both a luxury and a monster for consumers and producers alike. The impact of music piracy on licensed sales of music is

enormous. It has shaken the music industry as never before. Due to music pirating, music recording companies are losing money. Media sharing networks such as Gnutella, Kazaa, and Napster have threatened the profitability of popular music. Music piracy and illegal downloading are major challenges that the digital age has brought upon music artists. It is surprisingly to note that there are artists who feel that this illegal downloading is somewhat of a good thing and are completely supportive of the digital era of music. Piracy acts as promotion for an artist because once the consumer has downloaded an unknown song, it is said that they are more likely to purchase something from that artist in the future [11].

One should expect people with a strong interest in music are likely to consume more of it, whether it is through licensed purchases or unlicensed downloading. Such individuals may become addicted to some music, as depicted in Figure 4 [12]. Digital music collection can be obsessive. Imagine someone who accumulated nearly 50,000 digital tracks over three decades.

Many of the problems musical institutions are facing today include lack of funding, lack of appreciation, lack of audiences, and lack of interest. These challenges are traceable to the shrinking of music education in schools a generation ago.

Not all of the nations necessarily have the same availability of licensed digital purchasing websites. In some nations, many families may have computer, while many schools may not have computers.

CONCLUSION

Technology has become an integral part of our lives. It is affecting the ways we hear, compose, and perform music. Technology is drastically changing the essence of music, although many musicians still do not realize the extent of its influence. Our academic universities must train their music students to understand and respect technology, not to fear it. They should teach students critical listening skills, analysis, theory, world music, orchestration, and composition [1]. Music courses should provide students with hands on experience. Students should study various means of computer assisted digital audio production including sequencing, digital recording, recording studio techniques, mix down, and synchronization to video. Today's music technology offers programs that are simpler and easier to use. More information on digital music can be found in the books in [13-20] and the following related journals:

- Journal of Music Business Journal
- Popular Music and Society.

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Figure 1 A typical music production [4].

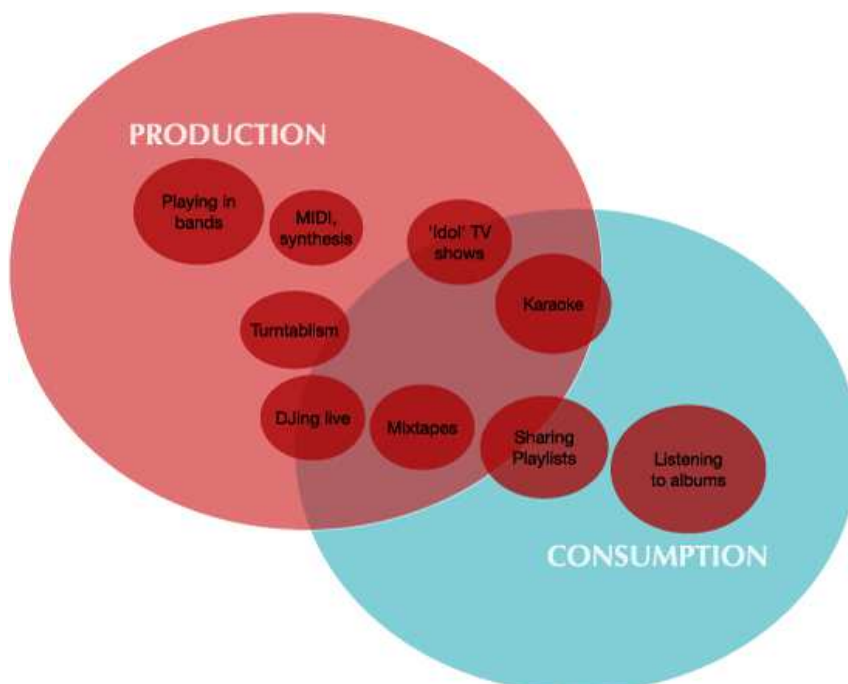


Figure 2 Continuum of music production and consumption practices [7].

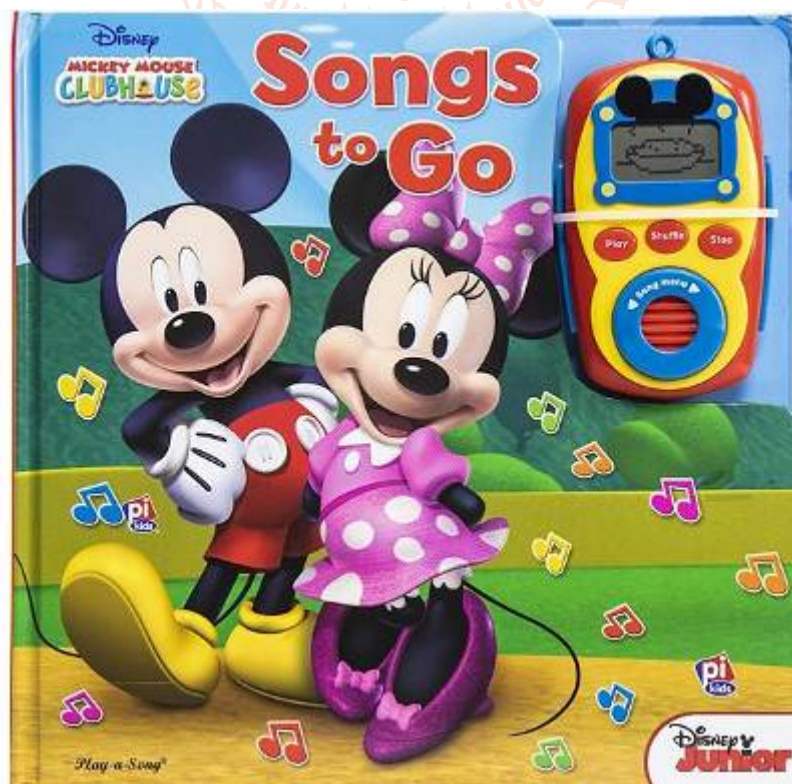


Figure 3 Disney's Mickey Mouse Digital Music Player Sound Book for kids [9].



Figure 4 One may become addicted [12]

