

## **Role of Information and Communications Technology (ICT) in Music**

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### **Abstract:**

Information and communications technology (ICT) has a deep impact on every aspect of human life and music is no exception. Information technology has changed the way of music production, preservation, recording, Listening, sharing, Transferring and Broadcasting. ICT has significantly reduced the amount of money needed to record and generate music. With high speed internet it is possible for artists to collaborate with each other worldwide online. YouTube, Google and other search Engines provide ample amount of songs, sounds, Loops and Music related information. ICT has made teaching of music very illustrative as thousands of websites Academia.edu & search engines like Wikipedia, Google are there which contain ample study material which helps to learn music theory and other music techniques. There are ample tutorials regarding various aspects of music on the Internet which help in understanding music better. These days software and applications like Sound cloud, SHARE it, YouTube, Whatsapp etc have changed the way of music sharing. ICT has made it possible to send music anywhere in the world within seconds in High Quality. ICT has provided opportunity through thousands of Applications for mobile phones which are used by musicians for tuning of instruments, enhancing the musical ability and doing vocal or instrumental practice. This research paper author has put light on how deeply music field is transformed by ICT and how it can further be used in music field so as to make it better.

**Key Words:** Information and Communications Technology, ICT, Music, Computer, Internet

**Introduction:** Information and communications technology (ICT) is an extensional term for information and technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage, and audio-visual systems, that

enable users to access, store, transmit, and manipulate information<sup>[1]</sup>. ICT covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form (e.g., personal computers, digital television, email, or robots).

### **Sources of ICT**

Some of these ICTs sources are:

- Digital video camera
- Multimedia computer (PC), Laptop and notebook
- Application software such as word-processing, spreadsheets and PowerPoint simulation
- Local Area Network (LAN), and Wide Area Network (WAN)
- Multimedia PC with video card and web Camera
- Digital Libraries
- E-mail, internet and World Wide Web (www)
- computer-mediated conferencing and audio conferencing, video text, tele-text, interactive video disk (IVD)
- Virtual classroom and virtual reality

The above sources of Information and Communication Technology (ICT) could be employed in the form of tools, equipment and application support which help in the collection, storage, retrieval, use, transmission, manipulation and dissemination of information and accurately and efficiently as possible for the purpose of enriching the knowledge and develop communication, decision-making as well as problem solving ability of the users<sup>[2]</sup>.

### **Role of ICT in music**

ICT is participating in promotion and propagation of music in various ways. Some of the major areas in which ICT is playing a major role as follows.

#### **1. Propagation of Music**

ICT has enabled music to be propagated very easily. Due to this, we can get a whole playlist just by the click of a button. Earlier, various electronic devices like tapes, vinyl, CDs, pen drives etc. had to be used in order to store and access music. One had to buy that particular album to hear that one song. Nowadays, ICT has enabled the free and paid access to almost any music (songs, albums) in the world. Remember a song? Just go on the internet or streaming services and you will be glad to find it there. The internet has almost all the database of music. With the advent of various online and offline streaming platforms music

access has become so much easier. On the world stage include **Spotify, Sound Cloud, Apple Music, iTunes**. Streaming music is cheap or even free in the case of Pandora and Spotify <sup>[3]</sup>. The Indian counterparts are **Gaana, JioSaavn, Wynk Music, YouTube** is a major contributor to enhance music listening and streaming. These streaming platforms have a huge database of music. With the introduction of **Artificial Intelligence (AI)** and **Machine Learning (ML)** in these streaming platforms, the user experience has tremendously improved. One such example is Spotify. It has incorporated AI and ML algorithms to automatically generate playlists according to the users history, personal preferences, etc. The quality of streaming has also quite improved. There are millions of tracks and episodes on Spotify. So whether you're behind the wheel, working out, partying or relaxing, the right music or podcast is always at your fingertips <sup>[4]</sup>. The incorporation of Alexa, Siri and Google Assistant in the streaming services has made music access so much convenient. Don't remember the name of the song? Sing it or hum it. You will be surprised to instantly get the name of the song. **Shazam** app is the pioneer for discovering the song via just singing or humming the melody (tune) of it.

## **2. Music Sharing**

With the advent of various file sharing platforms like **Whatsapp, Google Drive, Cloud Services, Dropbox**, music sharing has become very easy and convenient. Users can directly share their playlists, listening history with their friends and also anyone in the world. Nowadays, promotion of music has become very easy. Social platforms like **Facebook** and **Instagram** have become highly beneficial in music sharing. You, an artist? Want to showcase your talent? Take a video, audio of yours showcasing your talent and upload it. You will be able to showcase your talent to the world. Heard a song? Really loved it? Share it to the world. Apart from Facebook and Instagram there are various audio sharing platforms like **Smule** which has become popular. Music sharing has become extremely easy and convenient. Smule is an American mobile app which specializes in developing social music-making and collaboration applications for iOS, Android, and Web <sup>[5]</sup>.

## **3. ICT and Collaborations of Artists**

With computer, internet and high speed data transfer we can listen, share, preserve and transfer our audio files anywhere in the world without any loss of quality, no matter how big the files are. Platforms like 'We Transfer' and 'Google Drive' are doing well in this area. Now artists across the world are combining with people from different genres, different

countries and different musical backgrounds so as to create new music. Nowadays, many artists sitting in different parts of the world have no need to meet they can do so sitting at their respective locations and collaborate by sharing files online. Coke Studio Pakistan is collaborating with the artists around the world. 'Coke studio Season 10' has various songs collaborations in which 'Rabba Ho' featuring Sayyin Zahoor and Sanam Marwi is an perfect example in which artists from Pakistan, Nepal, Bangladesh, Rome (Italy) and middle east collaborated through sharing of files online through ICT <sup>[6]</sup>.

This is a big boost to music and betterment of music as collaborations bring new horizons and new possibilities to artists. Secondly when artists of different backgrounds collaborate they witness different music practices and different musical traditions which enhance music knowledge and creativity. In Punjab usually music files are sent online to Delhi for Flute and Violin. Similarly music producers in Punjab send audio wave files (called Stems) online for mixing and mastering to various places which is made possible though ICT only. Many websites are coming day by day which are specifically designed for music collaborations e.g. **Splice, SoundTrap**, etc.

#### **4. Music Education**

There are various domains in which ICT can be used in Music education:

- Providing access to music education
- Classroom Activities at Schools/ Colleges
- Improvising and Composing Pieces
- Music Software
- Recording
- Use of Video Conferencing for music education

With the advent of ICT, access to music education has become very convenient. On a click, one can access instructional videos, learn their favorite instrument, get acquainted with music theory and also research in music sitting in the comfort of your own home and location. Nowadays, if one has knowledge, he/she can start his own education business and share his skills with the world. In remote areas, it is difficult to find music educators and learning an instrument or music for that matter is nearly impossible there. Due to introduction of ICT, it has become possible. One can learn from multiple sources and gain adequate knowledge just by exploring the internet and with the use of ICT. Pitts and Kwami found that students with limited musical knowledge were successful in generating ideas through ICTs. Completing a

musical activity with ICTs allows for students to work independently, permitting the teacher to move freely through the classroom to assist students. Other findings of ICTs in music education enabled technologies to be used for expressing music symbols in innovative ways, generating sounds quickly with computer software, learning to play the piano through built-in assistive guides, creating background tracks for improvising and composing pieces, and investigating music traditions from around the world through resources on the Internet. Other advantages to use of ICTs included opportunities for students to work interactively with recording technologies and receive feedback during compositional or performance exercises, the ability to see and hear the musical product, viewing authentic examples of performances on YouTube, creating musical compositions with software, and improvement in reading music, pitch recognition, and rhythmic skills through the use of ICTs. Ho found that use of ICTs allowed students to feel confident in applying their knowledge of music related activities. Use of ICTs affords new opportunities for learning music education in online environments. Using podcasts allows students access to recordings, lecture material and resources. The use of video conferencing provided students with the opportunities of learning music through distance learning. In tutor sessions, participants felt the setting had a natural feel, similar to face-to-face instruction. Orman and Whitaker reported that distance music lessons involved uninterrupted student performance followed by synchronous instructor feedback. In rural and urban classrooms, noted that participants benefited from accessing professional musicians as well as the opportunities afforded through cultural connections.

### **5. ICT in Sound Engineering and Audio Production**

Nowadays, with the introduction of **Digital Audio Workstations (DAW's)**, making music has become very simple. Composition on the go has become very easy. With free software' like **Audacity, Adobe Audition**, one can edit the sound signatures and make a better audio. One can edit the tracks. The portion which is unwanted can be deleted. The audio can be trimmed, reversed, enhanced and what-not. Earlier, if the recording had some glitches, it had to be recorded again leading to overhead costs and manpower. With the advent of ICT, the overhead costs have been removed drastically. More sophisticated DAW's include **FL Studio, Cubase, Logic Pro, etc.** In these DAWs one can produce audio, attach various sound effects. Music can be made with a PC, laptop or a mobile. It has drastically reduced the need

to buy instruments. Costs and space have been saved. Gone are the days, when one used to use analog consoles to mix and master. Now, all the possibilities are there in DAW's like FL Studio, Logic Pro, etc. Writing and recording music becomes easier, which allows much more people to record and produce music, what previously required thousands of rupees, now can be done with your spare change <sup>[7]</sup>.

**Conclusion:**

From upper discussion it is very clear that role of ICT in music is multi faceted. It helps in Music education, Music propagation, Music creation, Music Promotion, Music sharing and Music preservation. ICT provides material to music students, Tools to Music Teachers. It provide ample material or music research as well. ICT has given liberty to artists around the world to collaborate online and create world music by sharing files online. ICT has paved the way for easy mixing, mastering as musicians can share large Wave files through high speed internet. Hence ICT is doing a great job for betterment of music.

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