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# A digital agenda for music

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## **A Digital Agenda for Music**

**By Michael Hannan**

There are many issues facing musicians, the music industry, music education and music broadcasting as a result of the way music is now produced, distributed, promoted and consumed in the digital domain. This article outlines a number of these for consideration.

The rights of musicians and other intellectual property holders are protected by the Copyright Amendment (Digital Agenda) Bill 1999, which covers the communication of works to the public by digital as well as more conventional means. Enforcing these rights is, however, difficult because of the way the internet and computers are being used by consumers of music and other products. The article begins with consideration of issues of music piracy, one of the most serious issues facing the economic viability of the music industry. It then considers the consumer rights that may arise from attempts to prevent piracy in a heavy-handed manner.

Since the 1980s and the advent of digital music production, there has been a large impact on the way music has been produced. Do it yourself (DIY) record production facilitated by digital music systems has seen a decline in the work available for performing and recording musicians and a shift to the prominence of the composer/producer. This phenomenon is examined along with related issues such as the trend to create music by sampling already existing music. The evolution of the technology of music production and its impact on the industry is considered.

One of the problems faced by music educators both in schools and universities is how to keep up with new technologies and how to fit more relevant subjects into the curriculum without letting go of treasured traditional approaches. A curriculum re-evaluation agenda is promoted in this arena.

Finally from a consumer point of view, issues related to access to broadband and impending digital radio services are presented.

### **The use of the CD burner for piracy**

With the advent of the CD burner's general availability in computers and also the increasingly small cost of writable compact disks, owners of computers are able to copy commercial CD recordings for around a dollar. Even the artwork can be reproduced reasonably cheaply using scanning and image manipulation software.

This practice is becoming widespread especially among teenagers. It drastically affects the profits of record companies and the royalties of musicians who have record deals. It

even has a huge affect on artists who self-produce CDs and replicate them in small runs. Many gigging artists that do not have record deal still need to have a CD of their current work available for promotional purposes. Some festivals will not consider engaging artists if they do not have a CD for sale. Gig door sales have been the main way these artists have of funding the expense of production and replication. Now, with CD copying being so widespread, there is less chance of recouping these costs through gig door sales. Only one person in a particular community or even at a festival needs to actually buy the CD. The CD is then passed around for others to copy it.

How are the record labels and other content companies trying to stop you from copying?

Attempts (some more successful than others) have been made to develop copy-protected CDs that won't play in CD ROM drives. If they only play in CD players they cannot be copied. But because car CD players use CD-ROM drives (as distinct from the audio CD drive of standard CD players) these copy-protected CDs will not play in car radios either. They also won't play in DVD drives (which in fact will make it necessary to own a CD player in addition to your DVD player). This raises serious issues for the rights of consumers. They naturally want the right to play a CD they have bought in a variety of machines and circumstances.

Legislation is being proposed in the US (called the Security Systems Standards and Certification Act proposed by Senator Ernest Hollings) to introduce standards in the manufacture of computers and operating systems that will prevent unauthorised copying.

There are other consumer issues here. Content owners wish to limit the consumer's options for copying their products. There is also a business conflict between the content owners and the producers of computer hardware and software.

Godwin (2002) outlines the basis for the conflict:

One way to understand the conflict between the Content Faction and the Tech Faction is to look at how they describe their customers. For the content industries they're consumers. By contrast the information technology companies talk about users.

If you see people as consumers, you control access to what you offer, and you do everything you can to prevent theft, for the same reason supermarkets have cameras at the door and bookstores have electronic theft detectors. Allowing people to take stuff free is inconsistent with your business model.

But if you see people as users, you want to give them more features and power at cheaper prices. The impulse to empower users was at the heart of the microcomputer revolution.: Steve Jobs and Steve Wozniak wanted to put computing power into ordinary people's hands, and that's why they founded Apple Computer. If this is your approach it's hard to adjust to the idea of building in limitations. In a basic sense, moving bits around from hard drives to RAM to screen and back again with 100 per cent accuracy in copying, is simply what computers do. To the Tech Faction, building DRM [digital rights

management] into computers, limiting how they perform their basic functions, means turning them into special-purpose appliances, something like a toaster. This approach is anathema to the user-empowerment philosophy that drove the PC revolution.

The Tech Faction believes people should be able to do what ever they want with their digital tools, except to the extent that copyrighted works are walled off by DRM. The Content Faction believes the digital world is not safe unless every tool also functions as a copyright policeman.

At the heart of the argument are two questions: whether computer users can continue to enjoy the capabilities computers have had since their invention and whether the content companies can survive in a world where users a have those capabilities.

From the consumer point of view there is considerable concern. One U.S. based consumer group, Digital Consumer has devised a Bill of Rights in response to these issues:

### **Bill of Rights**

<http://www.digitalconsumer.org/bill.html>

1. Users have the right to "time-shift" content that they have legally acquired. This gives you the right to record video or audio for later viewing or listening. For example, you can use a VCR to record a TV show and play it back later.

2. Users have the right to "space-shift" content that they have legally acquired. This gives you the right to use your content in different places (as long as each use is personal and non-commercial). For example, you can copy a CD to a portable music player so that you can listen to the songs while you're jogging.

3. Users have the right to make backup copies of their content. This gives you the right to make archival copies to be used in the event that your original copies are destroyed.

4. Users have the right to use legally acquired content on the platform of their choice. This gives you the right to listen to music on your Rio, to watch TV on your iMac, and to view DVDs on your Linux computer.

5. Users have the right to translate legally acquired content into comparable formats. This gives you the right to modify content in order to make it more usable. For example, a blind person can modify an electronic book so that the content can be read out loud.

6. Users have the right to use technology in order to achieve the rights previously mentioned.

This last right guarantees your ability to exercise your other rights. Certain recent copyright laws have paradoxical loopholes that claim to grant certain rights but then criminalize all technologies that could allow you to exercise those rights. In contrast, this Bill of Rights states that no technological barriers can deprive you of your other fair use rights.

### **The use of internet file sharing for pirating music and movie files**

File sharing software has resulted in the piracy of music files online. Illegal and legal music files on individual computers on the World Wide Web can be easily transferred from computer to computer, thus seriously damaging the economic basis of the record industry and the royalty-base of composers. Some of the file sharing software companies (such as Napster, Scour, Audiogalaxy) have been successfully stopped by litigation by the record industry, but others keep appearing (eg currently KaZaA and Win-Mx).

KaZaA is an Australian company that is avoiding attempts to close it down by setting up operations in Vanuatu and the Netherlands. In many countries it is not illegal to trade in file sharing software. The issue is also not covered by the World Intellectual Property Organisation (WIPO) treaty.

The industry is desperate. Currently a US Congress bill is being proposed by Howard Berman to allow copyright holders to hack into consumers' computers in order to take measures to prevent them trading pirated songs and movies, in effect legalising all the antisocial internet activities they have been trying to stamp out for a decade. This in itself brings up serious invasion of privacy issues.

As a result of the problems associated with piracy, viable music e-commerce of digital music and music/multimedia products in file format is stalled.

There was a huge advertising campaign in the US in September 2002 by the record industry using their big stars to plead with the public not to rip off music. Artists from Pavarotti to Eminem have participated. An example of the text of one of the ads is Britney Spears saying: "Would you go into a CD store and steal a CD? It's the same thing people going into the computer and logging on and stealing our music".

The public is not likely, however to be particularly sympathetic to this desperate campaign. There is a feeling that the record industry has itself to blame for not adopting online delivery mechanisms in a viable way. For example they have withheld songs from MP3.com. There is also a poor selection of songs available to be downloaded legally on subscription services like MusicNet (a joint venture of Real Networks, AOL Time Warner, Bertelsmann and the EMI group) and on Press Play (owned by Universal and Sony). There are even restriction on the number of songs that can be retrieved and on how long you can keep them on your harddrive.

Until the record industry starts offering a service commensurate with what can be obtained illegally they are unlikely to be able to convince the public that file sharing is unconscionable.

## **EMPLOYMENT PROBLEMS FOR MUSICIANS**

### **Decline of work opportunities for instrumental backing musicians and session musicians.**

In the early 1980s music technology was revolutionised by the invention of a number of digital devices. The world's first dedicated music computer available on the music equipment market was the Australian-made Fairlight Computer Musical Instrument (CMI). This expensive machine involved the first sampler and a little later the first sequencer, allowing for studio music production without the involvement of session musicians.

Around the same time the first personal computer (Apple) appeared. Then in 1983 MIDI was introduced. MIDI (an acronym for Musical Instrument Digital Interface), was developed by the Roland Corporation with cooperation and input from other synthesizer manufacturers. MIDI is a digital data format in which control signals generated by a keyboard or other type of controller can trigger the tone generating circuits of a synthesiser or bank of synthesisers. MIDI data can also be stored using computer sequencing software which then allows for playback. MIDI data can also be edited, allowing for "fixing up" improvised material.

The advent of MIDI allowed for affordable music production facilities and revolutioned the music industry and the nature of music. Significantly it signalled the change of emphasis from the performer to the composer/technician in the production of music. The nature of music production expertise changed also. For example it became possible to do arranging without being able to read and write music.

The nature of what constitutes music, particularly popular music, underwent radical changes. This was the beginning of the electronic dance music era. Popular music styles developed that did not have lyrics, melodies or chords changes. Any noise that could be sampled or synthesized was now a legitimate sound source for composition.

The development of hard-disk recording and editing in the early 1990s further facilitated the DIY production of music.

Just what has this meant for performing musicians?

Digital forms of backing particularly MIDI files are readily available (either legally or illegally) for playback in a music-minus-one situation, thus reducing the demand for backing musicians. MIDI files can be changed to suit the vocal range and the tempo and instrumentation preferences of the (vocal) performers.

Generally the livelihoods of highly skilled recording session musicians have been undermined by the computerisation of music production. Most television and documentary film soundtracks and most radio and television music advertisements are now predominantly electronic. The same is true for much of the music used in live theatre particularly dance theatre. A high percentage of pop music is also entirely digital except for the human voice (Even the voice is typically digitally manipulated).

### **Shift in the market for music equipment**

As personal computers have become more powerful, the need for dedicated music hardware devices has lessened. Whereas keyboards and sound modules are based on the concept of turning synthesis software into a (hardware) chip, it is now possible for this kind of software and large volumes of sounds to be stored and operated on a personal computer, thus effectively dispensing with the need for dedicated music hardware devices.

Thus there is a shift taking place in the music equipment market from hardware to software devices.

Software such as “Reason” that includes sampler, synthesizers, drums machine, sequencer, digital effects and other features within the one program for around A\$500 can be used to create creditable music tracks.

Because music production devices such as this are available in the form of software (rather than hardware) they are easily pirated. This poses a new problem for the music equipment manufacturing industry.

However the shift to software has further revolutionised the means of music production. This kind of system- a computer and a couple of bits of software- allows composers/songwriters to get a professional sounding result extremely cheaply. More interesting experimental software is also available e.g. generative music tools such as Koan Pro (as used by Brian Eno).

### **The adverse effect of the digital recycling of heritage music upon original music**

Ever since the appearance of the CD in the early 1980s, original music has suffered from the endless recycling of recordings from the past (regardless of genre). Records from the past can be digitally remastered, thereby arguably improving on the original. Most of the music played on radio is from the past, not necessarily the hits of the past but rather the most bland music of the past (e.g. Neil Finn is played more often than the Beatles on Australian radio).

A new wave in this trend is about to hit in the form of surround sound remixing of old recordings (although the technology will obviously also be applied to new recordings).

The proliferation of old music in different formats on the music market will continue to have an impact on the market share of new recordings, and therefore on the economic viability of creative music of all kinds. The situation may even decline as the boomer generation consolidates its wealth and increases its leisure spending.

## **MORAL RIGHTS OF MUSICIANS**

### **Unauthorised sampling**

Sampling and other digital manipulations of existing recordings has the potential to breach the moral rights of musicians as well as their copyrights. Or is it just good clean fun? The current bootlegging trend called “bastard pop” (these records are also called “mash-ups” or “bootlegs”) is a case in point e.g. “Oops!...The Real Slim Shady Did It Again” combines Eminem and Britney Spears. These records are made illegally and circulated illegally in clubs and via the internet.

Of course sampling in the sense of appropriating the sounds and ideas of other composers is an age-old practice. When Dimitri Tiomkin accepted his 1955 academy award for best original score he said “I would like to thank Beethoven, Brahms, Wagner, Strauss, Rimsky Korsakov....”

I suppose it depends a lot on your sensibilities. The sensibilities of James W Newton Jr a jazz professor at Cal State Los Angeles were offended when one of his students pointed out that his work “Choir” had been sampled (and credited) on a Beastie Boys track called “Pass the Mic”. The Beasties had obtained a licence for the recording through the record company but not for the composition itself because they had been unable to contact Newton. Newton was outraged and pursued the matter through the courts but, to his dismay, found that because the Beastie Boys track had only used three notes of his work (although they had looped it through the whole song) it did not constitute a copyright infringement.

## **MUSIC EDUCATION**

### **Digital Music Technology**

As music and creation, performance, production, distribution and marketing becomes increasingly digitised, music education needs to change with it to reflect industry practices.

A large percentage of the activities of the music industry is not serviced by educational programs in schools and universities.

In number of 2002 interviews I did with Tony Gould (VCA) and Stephen Whittington (Elder School of Music) both described their frustration with the fact that the tertiary curriculum is so full of subjects that most people consider are core activities, and that there is no room for new areas of study (such as digital music production and multimedia) as they appear. Gould said the contemporary tertiary music curriculum didn't look too different from the one he studied more than 30 years earlier. Whittington



asked the question: 'Do you have to be able to write a fugue before you do multimedia?'

Whittington also described a new breed of composition student who works entirely in the digital domain and has no use for music notation.

The digital revolution has brought about the convergence of different digital media (music, sound effects, sound design, graphics, animation, digital video and film, interactive media etc etc. Of course specialisation is expected in one or more of these areas, but versatility or collaboration is needed to create work. Music and arts schools need to recognise the requirements of these new media in their curriculum planning.

Unless music school seriously re-evaluate the relevance of their offerings their students will fall behind in the skills and knowledge required to survive in the music industry.

## **TELECOMMUNICATIONS/BROADCASTING**

### **Broadband internet services in Australia**

Broadband internet services are not universally available to Australians and are also too expensive. Both problems are a result of Telstra having a monopoly on broadband infrastructure. Use of the internet for music and multimedia is adversely affected by this situation.

Nguyen (2002) explains a further problem:

Most of the content we request and see online is held or runs through networks, gateways, routers or other telecommunications infrastructure owned by American companies. This gives them concentrated powers to charge non-US carriers such as Telstra relatively high prices, resulting in a discrepancy between what they charge us for carrying traffic across their networks and what we can charge them. This discrepancy is ultimately borne by all Australian Net users through higher prices.

### **Digital Radio**

Unlike the digital television situation there is no government directive for the radio industry to change from analog AM and FM radio services by a certain date. However in March 1998 Senator Richard Alston initiated a planning period for the introduction of digital radio and various technical testing projects have proceeded since then. The system suggested for Australia is Eureka 147 (used in Europe but not Japan or the US). It is being tested using VHF (Channel 9A) and L-Band spectra. VHS has a longer range and better penetration than L-Band but a combination of both will be needed for national coverage, and even then there is some doubt that coverage of rural areas could be as good as that of the current analog services.

Although the signal and audio quality of digital radio are far superior to those of the analog FM and AM, the quality of the medium depends on how much bandwidth is used

for each station. A number of stations can be bundled into the same allocated bandwidth, each with corresponding smaller bandwidth (and lesser audio quality). Other types of data can also be transmitted taking up more bandwidth, thus further reducing the quality of the individual stations being transmitted.

The way radio stations play this game will determine the quality of the services. There is no point in going digital if the FM quality we now receive is not improved upon substantially.

Another issue is the question of whether there will be enough bandwidth for all stations to participate. Larger commercial stations may have the political and economic clout to push out the smaller community stations vying for a fair share of the bandwidth.

A degree of vigilance is needed on the part of the community to try to prevent the radio industry offering an inferior quality product to that which is already available through analogue radio, and to make sure that existing community services are not reduced.

## **Conclusion**

This article has presented some of the issues relating to the impact of digitisation on music in its production, distribution, promotion and consumption. All these aspects need to be considered also in the education and training of musicians and music industry workers. While a fair amount of territory has been covered there are many issues that may well have been neglected or glossed over here. I invite readers to communicate to me via email on any other issues or angles on issues in this field and also, if they wish, to provide me with sources of information on digital music issues to enable further investigation and analysis.

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