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# « The Only Limit is your imagination »

**Paul McGeechan**

Abstract

Has technological advancement changed the way we create, arrange and record music? Do these advancements affect authenticity? Have these advancements changed the relationship of the engineer/producer and the artist/composer?

## 1. Technologies impact on the creation, capture and consumption of popular music

The phrase "the only limit is your imagination" has been used many times in connection with music technology, sometimes as a marketing slogan to enthuse about a new piece of audio equipment hardware or software, though this can be an exaggeration on the part of the product. With advancements in music technology it is getting closer to this statement becoming reality. Software developers and music technology manufacturers are introducing new products that could change the way we realize our musical goals even further.

## 2. Milestones in recording

Throughout the years there has been milestones in the recording industry. The Beatles *Sergeant Peppers*, an album widely regarded as one of the greatest of all time, is recognised as one of the most important albums in the history of popular music. Its use of multitrack recording, orchestration and production techniques revolutionised and greatly influenced the recording industry.

There are many other ground breaking records including Pink Floyd's *Dark Side of The Moon*, Mike Oldfield's *Tubular Bells*, Brian Eno & David Byrne *Bush of Ghosts* and The Blue Nile's *A Walk Across The Rooftops* which have changed the way music is produced and recorded.

In 1985 there was a partnership between ambient and avant-garde record producer, Brian Eno and Talking Heads, David Byrne, entitled *The Bush of Ghosts*. The recording incorporated African rhythms; radio broadcasts; ambient sounds and electronics, which in turn, were manipulated using multiple tape edits and a range studio equipment. *The Bush of Ghosts* was an adventurous project outwith the normal production values of conventional record making.

A further example from this period is the Blue Nile's *A Walk Across the Rooftops*. Linn, the renowned Scottish Hi Fi company, used it for demonstration purposes of their sophisticated audio equipment. This recording employed an austere electronic backdrop; the vocal style of Sinatra augmented by emotional string arrangements. This recording's high production value is still fresh today, nearly 30 years later. <sup>(1)</sup>

The common thread of these recording is that the artists were pushing the boundaries of the existing technology to its full potential, creating new ideas and experimenting using the recording studio as an extension of their instrumentation.

### 3. Technological Advancement

When faced with a problem studio engineers and artists use their creativity to work around the issue at hand. Producer/engineer Tom Dowd is a prime example of this. Tom was the engineer who had the vision to replace rotary rheostats with sliding potentiometer (faders) for the first time on a mixing console. Dowd found the rotary pots limited the amount of control he had over the levels in the studio and strived for a better solution.

Audio engineer and inventor Roger Nichols <sup>(2)</sup> developed a system called "Wendell" this was the forerunner to the drum replacement technology used today. <sup>(3)</sup> Early configurations of the "Wendell" system could only be operated by Nichols or his partner, it used machine coding. "Wendell" could be used to loop large sections of music at a very high sample rate, it could also lock to time code for accurate playback. Roger was always developing new recording techniques to help realise the artist's vision.

In 1985 one of the technological changes came in the form of the Kurzweil K250 Sampling keyboard. This was the first keyboard that came close to replicating the actual sound of a grand piano. Not only could it be used to replace a real grand piano but it also had a transpose function which allowed you to change the key of the recorded piece of music using MIDI without having to replaying the take. Today this may seem rudimentary but before the Kurzweil K250 this function was unattainable. <sup>(4)</sup>

By 1987 MIDI technology had moved on and several computer sequencing packages had been introduced to the market. Pro 24 was Steinberg's sequencing package at the time, this was the forerunner to Cubase.

By 1995 recording technology had again advanced and Protools version III was released. This was a radical departure in the capture and manipulation of audio. At this point the technology was working at 16 bits and had very limited DSP power, but it could record up to 16 tracks without latency. The fact that Digidesign TDM systems did not introduce latency when recording would help define future working practice of studio recording. In 1997 Digidesign introduced the 24 bit systems and soon after that systems with far greater DSP capabilities. There are many defining periods in music technology and the use of computers to replace multitrack tape recorders is one of them.

The next development came in the form of unique DSP processing advancements, including the Auto-Tune plugins, GRM tools, Hyperprism and Voc Align which together with Cubase VST3 is another landmark stage in music technology. Another landmark in music technology was the introduction of Cubase VST3.

Auto-Tune: the plugin everyone loves to hate?

*Auto-Tune has often been accused of eliminating the need for vocal talent (along with being a harbinger of The Apocalypse), but in reality, that's simply not the case. A crappy singer with Auto-Tune is still a crappy singer, just in tune.*

*Marco Alpert, Antares VP of Marketing.*

Auto-Tune of course is not the only pitch correction plugin Melodyne is a popular alternative. TC Intonator is another example as is the lesser known Pure Pitch. They all have different sounds/artefacts. But people tend to say that when a vocal has been tuned it has been auto tuned. I have used Auto-Tune many times on vocals, flutes, whistles, violin, pipes, trumpets and bass all with very good results. I have even used it on polyphonic material as an effect. I have also used pure pitch on singer that did not like the characteristic of Auto-Tune, Pure Pitch is a very natural sounding plugin, it does however introduce latency in a TDM system though this can easily be compensate for. TC Intonator has also been found to be very transparent.

Michael Bublé has spoken in interviews about the use of Auto-Tune and its commercial values within pop music.

*I use it as a means to get onto pop radio, onto Top 40 radio. It's kind of an effect, I guess, that you hear so much on modern radio that if you don't have it, you don't really get played. People's ears are so tuned to it now. It's almost cosmetic surgery ? you can fix little things. I think if it's not overused, it's okay. I have a feeling that if Elvis Presley and Frank Sinatra were alive today, they might just use it once in a while.*

## 4. Changing methods

As we have moved away from some of the more traditional methods of recording (large studios etc.) the relationship of the artist, the engineer and the recording studio has changed and will continue to evolve. It is not only the technology that has influenced change but the exchange of knowledge. The internet has given musicians/artists access to resources and information that was previously unavailable or difficult to source.

This has narrowed the boundaries and closed the gap between the continents and there associated recording practices. With the advance of information technology combined with more affordable recording equipment it is not uncommon to work on sessions that start in a large scale studio for basic tracking then move to a laptop for supplementary recording/editing and return to a studio for vocals and mix. This could be due to budget restrictions or just to give the artist freedom to experiment. There has also been changes in the development stages of production moving from the traditional processes of: writing/rehearsal; production rehearsal; recording, mixing & mastering. To a process where there can be no rehearsals this can result in an additional stage during mixing that involves "fixing".

## 5. Consumption

Delivery formats have also changed dramatically over the last decade. iTunes; Bandcamp; Amazon; and Spotify have changed the musical landscape and the way music is consumed. Convenience, in some cases, seems to have taken over from quality of product, however is this any different from when the pre-recorded cassette was the biggest selling format in the USA (1984-1990)? (Faulk, 2011)

In Scotland, for traditional Gaelic & folk music the favoured delivery format is still the CD. In other genres and some of the independent labels and self releasing artists, vinyl is once more becoming a popular format. The aesthetic of vinyl is appealing to a widening market for example it is common place to release a limited issue, gatefold sleeved vinyl record including a CD or download. Independent Scottish record label Chemikal specializes in releasing collectibles, such as a deluxe triple vinyl version of last year's SAY-winning Everything's Getting Older by Aidan Moffat and Bill Wells.

*They cost us about £10 or £11 per unit to make, but we can retail them for £35 to £40. When you think that we sold 1200, those numbers start to make sense.*  
*Henderson (Vass, 2013)*

## Conclusion

Can we suggest that Auto-Tune and other technological advancements have affected authenticity by creating a level playing field? Technology has made recording, editing and processing tools available to most people and anyone can now record a music project. However in addition to the technology it also requires ideas, skill, practice and dedication to realise engaging and emotive work. Technological enhancements have always been used to help capture musical and artistic goals. Music technology is an extension of instrumentation and of artistic endeavors, it is quite clear that we have always used available technology not only to capture but to manipulate and enhance performance. Even composers such as Scott Joplin are documented as modifying their performance by means of adding extra notes to his pianola music rolls. Artists have always used the tools that are available to them to create new work. It is up to the artists, performers, engineers and producers to decide on how to use these tools regardless of the pressure of market forces. Unless you are using technology to create a notable effect it is best to use it sparingly. New tools are becoming available continuously so as we enter every brave new world we are met with a new dimension in creative decisions.

1. Further information can be found at <http://thebluenile.org>
  2. Further information can be found at <http://rogernichols.com/wendel>
  3. This system was first used for drum sound replacement on "Gaucho" by Steely Dan and then on Donald Fagan's "Night Fly".
  4. Further information can be found at <http://www.kurzweiltech.com/kms.html>
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