The rise of the remote mix engineer: technology, expertise, star

Thorley, M.

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Abstract

Emerging technology is facilitating collaboration and peer-production across a wide variety of industries. In the music industry, one example of this is in the use of a remote mix engineer – contracted to work on a recording made by another engineer in a different location and time domain because of the value in their specialised expertise. This paper examines the rise of the remote mix engineer in the contemporary music industry. It does this by examining the technology, methods of working, expertise and the concept of stardom using two contrasting examples – one a world-renowned mix engineer with several decades of experience and a high profile client list, the other being a younger and less experienced mix engineer with a different range of clients.

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Introduction

Emerging technology is facilitating collaboration and the peer-production of projects across a variety of industries. In their book *Wikinomics*, Tapcott and Williams (2006, 11) note that such an approach can enable collaborators isolated by geography to work on elements of a project and achieve better results compared with those of more traditional working methods. Typically, peer-production can bring improved quality, higher levels of innovation, and also drive down the costs of production. Often feted in software, engineering and product development, the desire for cost-effectiveness, and the production a differentiated product through improved process is just as attractive to the music industry.

Given that appropriating the concept of peer-production as part of the music production process makes considerable sense, this paper focuses on one distinct aspect - that of the remote mix engineer. The conceptualisation of such a role relates to the manner in which the process of creating and recording music can be broken down to a series of stages. Rumsey and McCormick (2014, 123) note that in popular music recording (a sub-set of the overall production process), there are two distinct stages – those of 'track-laying' and 'mixdown'. The use of a remote mix engineer therefore taps into this concept of process and related role deliniation. Although the practice of remote mixing is now common and references to it proliferate within

circles of practice, there is presently no definition in the academic literature. The first purpose of this article is then to define the remote mix engineer which it does as 'a dedicated engineer contracted to mix a recording in a different geographical location and time domain from that of the recording'.

Initially, the rise in the practice of remote mixing would seem to have been caused by the increase in Internet network bandwidth which has allowed greater ease in the exchange of large audio session files now ubiquitous in music production (Bailey 2001, 28). The impact of the practice visible across all sectors of the music industry from global recording artists through to unsigned artists would certainly seem to support this notion. For example, at one extreme, mix engineers such as Bob Clearmountain and Mark 'Spike' Stent have a high status and are associated with a variety of globally successful acts. However, bedroom producers or garage bands may also send their sessions to be mixed by lesser-known remote mix engineers who nevertheless improve the final master with better facilities, equipment or expertise. Figure 1 explores this concept in greater depth. As can be seen, the process of music production is broken down into a series of stages often overseen by a specialised practitioner. Increased network bandwidth is shown to impact certain stages more than others. Specifically, the impact runs from track-laying through to distribution. However, whilst the impact of greater bandwidth on distribution (in the form of filesharing, illegal downloading etc.) has been widely examined in the academic literature (and by publications produced by the music industry itself), the impact further back in the process has received significantly less attention.
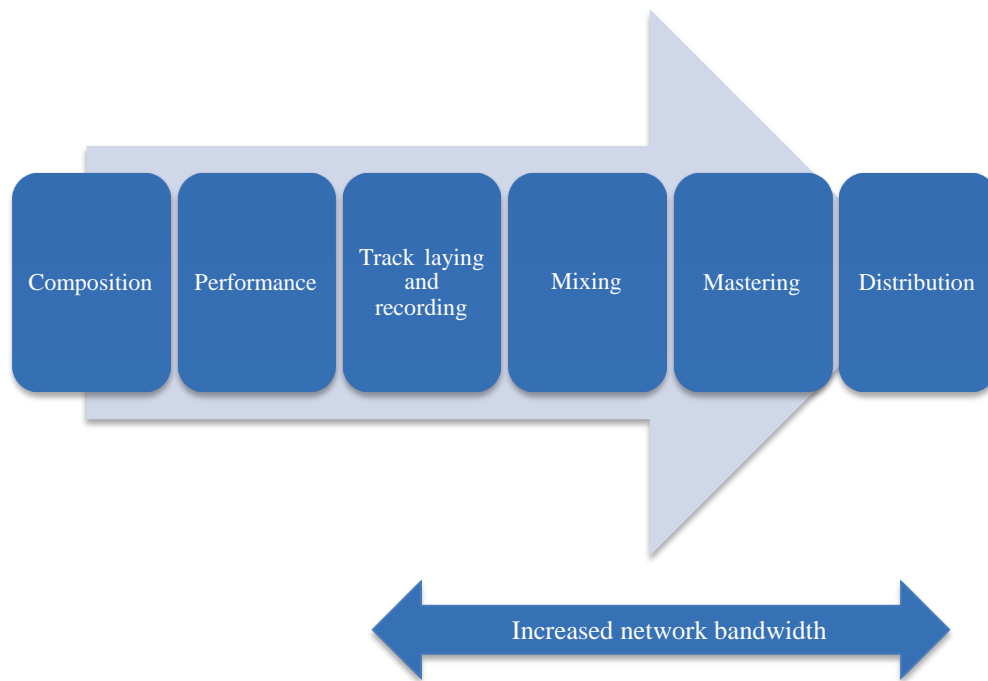
Figure 1 – the impact of increased network bandwidth on the music production process

On the premise that there may be more behind the concept than merely improved network bandwidth, this paper interrogates the role of the remote mix engineer and aims to illuminate the reasons behind the rise in its popularity. Specifically, it looks at the background literature, chosen technologies, methods for sharing the mix, communication, expertise and role definition and the mix engineer as a star.

Background literature

Literature surrounding the emerging phenomena of the remote mix engineer is understandably scant. The role is however grounded in the traditional practice of mixing as part of music production, so there are a number of relevant works which are explored here.

The fundamental task of mixing music is illuminated in similar terms in a number of texts. For example, Rumsey and McCormick (2014, 170) explain that:

> Once the session is completed, the multitrack recording is mixed down. […].
> The balance between the tracks in the stereo image can then be carried out at
> leisure (within the budget constraints of the project) often without the
> musicians present under the control of the producer. During the mix down,
> further post-production takes place such as the addition of effects from
> outboard equipment to enhance the mix.

Additionally, in terms of the reason for undertaking this process, Huber and Runstein (ibid, 22) note that the project is mixed 'into a final master recording in any number of media formats (mono, stereo and surround sound formats)'. On this point, it should be noted that there are now more formats than ever - many of the newer ones designed for downloading and streaming have particular implications for the final stages of production.

The delineation of roles, which has developed within the music production process, is usefully illuminated by Barrett (2010, 95) who states that 'From about 1960 the role of producer slowly emerged from that of A&R on one side and the mix engineer on the other'. Paton and McIntyre (2009) distinguish the role of mix engineer from that of mastering engineer and producer in a similar way. Izhaki (2008, 19) considers the complexity and specialisation of the role further by noting that 'It is clear why mixing is often done by a specialised person. (…) - the amount of knowledge and practise

required to make a great mixing engineer is enough to keep anyone busy'. Furthermore, this specialisation and the contenscious questions of consent and authenticity centred on the amount of change to a recording which can be achieved are explored by Lindeman (2008, 91-97).

From the less 'academic' and more 'instructional', there are a number of works such as Skinner's *Primed for mixdown: How to prepare your tracks for a mix engineer* (2010) and Case's *Mix Smart: Pro audio tips for your multitrack mix* (2011) which explain how to practically deal with a separate mix engineer. Though these texts do not purport to take a particularly deep technical or academic approach, their presence does further provide further evidence of the rise and challenges associated with the practice of remote mixing.

It is also worth noting that the word remote has been used in recording parlance for decades, though most often within the term 'remote recording'. This refers to the practice of taking some form of recording set-up away from the recording studio to the site of a live performance. The word 'remote' is therefore used to refer to the performance and its capture taking place somewhere other than that of the specialised recording studio. First pioneered by Wally Heider with his mobile recording truck in 1960s California, there are some parallels with the 'remote' of 'remote mix engineer', particularly in the use of a chosen acoustic environment. Furthermore, the 'remote' approach presents particular challenges which are examined by writers such as Bartlett and Bartlett (2010, 355-384). Some of the challenges of remoteness examined therein are likely to be common to the remote mix engineer process.

The use of a remote mix engineer should be seen as part of the collaborative nature of music production and this has also been examined in detail. For example, according to Negus (1992, 141), 'The work of recording industry personnel has often been characterized as a "collaborative" or "collective" activity coordinated according to various conventions, shared goals, consensual values or commercial formulas'. The role of remote mix engineer, though relatively new, is then a further development of this underpining concept. Furthermore, with reference to collaboration, Kealey (1979, 9-19) describes three different 'modes of collaboration' in record production - those of 'craft union mode', 'entrepreneurial mode' and 'art mode'. Interestingly, as recording technology has become increasingly complex since the post-war period, the amount of collaboration within the role has also increased. Whilst the post-war 'craft union mode' recording engineer would have a formal and distant relationship with musicians, at the other extreme, the 'art-mode' engineer is seen as an essential collaborator in the overall production process. Again, the question of how the remote mix engineer works collaboratively with others in the production process is worthy of examination.

Method

To illuminate the concept of the remote mix engineer and go beyond existing work, this paper considers two cases – one of whom is well known in the music and recording industries, and the other a newer, more-aspirant practitioner. Though this approach cannot expect to reflect the practice of every remote mix engineer, by focussing on and comparing a long-established, 'school of hard knocks' global

practitioner with a younger University-educated practitioner, these two outlier cases should highlight the crucial themes.

The paper takes the approach of case-study research, drawing on a variety of sources including structured interviews, invited-audience presentation, observation and press interviews. The use of this type of methodology to investigate contempoarary phenomena has been recognised by a breadth of researchers including Eisenhardt (1989, 532-550) together with Halinen and Törnroos (2005, 1285–1297). Robson (1993, 146) defines the case study as 'a strategy for doing research which involves an empirical investigation of a particular contemporary phenomena within its real-life context using multiple sources of evidence'. Remote mixing is very much a contemporary phenomena standing as it does on the intersection of technology, creative music production practice, collaborative working and overall trends in the global music industry.

Results

Overview

The first example, Chris Lord Alge is one of the best known (if not the best known) remote mix engineer. Based in his own studio in Los Angeles, he boasts an extensive discography of over 750 recordings. His path to mix specialist is one which has taken in most facets of the recording process however. He started as a tea boy at H&L Studios in New Jersey (with Steve Jerome of Sugar Hill Record's repute as his mentor). He then went on to work as assistant engineer at Unique studios in New

York and started to be associated with significant recordings such as James Brown's 'Gravity' album, Chaka Khan's 'Destiny' and Tina Turner's 'Foreign Affair'. Ultimately, he ended up working as a freelancer in Los Angeles, and setting up his own studio to concentrate on mixing. He is known to have a distinct sound (whether based upon equipment or expertise), there are numerous articles about his work in the audio and music press, and he is active in showcasing his work in workshops and masterclasses.

By comparison, the second example, Sam Wale is a young, UK-based remote mix engineer operating out of a small studio in Birmingham. In contrast to Chris Lord Alge, he has a University degree in Music Technology, and has only ever worked for himself. Clients tend to come from the UK and focus around some key genres. His studio is not particularly unusual in the way it is equipped, and this combined with his lesser experience would initially suggest that there is less potential for a recognised sound associated with his name.

Mixing as part of the process

Looking at the central technical process of mixing, there is nothing fundamentally different to the principal process as covered by existing literature. That is, with both of these practitioners' work, a multitrack master is subject to manipulation of levels and spacial placement, the use of equalisation and the application of effects. The point of interest therefore needs to be on the uniqueness evident in the overall process of remote mixing. Explored here, these are the chosen technologies which are unique to

a particular remote mixer, the methods used to share multitrack sessions, how communication takes place, expertise and role definition and the relevant notion of star.

Chosen technologies

Both Chris Lord Alge and Sam Wale work in dedicated studios which they each own and run. These studios are equipped specifically for mixing, do not have recording or tracking rooms, and are not hired out to external clients. Due to their physical isolation from clients, both practitioners work in seclusion in their studios. The chosen technology in each case is therefore very specific for the task of mixing, and is based on the perceived needs of each particular remote mixer's approach.

Taking the example of Chris Lord Alge first, his choice of equipment is unusual for this point in time. For example, until recently, he chose to mix from a Sony 3348, a tape machine with uses the Digital Audio Stationary Head (DASH) format but for which the tape has been unavailable since 2008. Though he has recently moved onto using Focusrite's Rednet system to replace this (necessitated only by the unavailability of tape), the majority of his mixing work has been done from the Sony machine, and many of his working methods are still based around this approach. For example, his Rednet system is set-up with exactly 48 tracks of digital to analogue conversion to replicate the 48 tracks of the Sony DASH system. His mixing desk is a 60 input SSL 4056 E-Series (with some modifications) the design of which dates from some twenty-five years ago. He uses extensive amounts of analogue outboard

equipment and often talks of an 'ark' approach where his studio boasts two of everything. The extensive list includes Urei Bluestripe 1176s', EMT 246's, Sony DRE2000's, Pultec's, Teletronix LA3A's and Focusrite Reds. Unusually, the pieces of outboard equipment are hard-wired to sends from particular channels of the mixing desk and the settings on each piece of equipment are set. If another setting is needed, Lord Alge is known to buy another one of the same piece of equipment. The set-up is therefore extensive and somewhat quirky but aimed at achieving a sonically consistent result in the shortest time.

This choice of equipment has a number of implications. Firstly, given the fact that few studios use the Sony 3348 format, session files which are received need to be edited and laid-off (usually from Pro Tools used in the track-laying process) onto the Sony 3348. This involves a significant amount of work to sift through the often hundreds of Pro Tools tracks and lay off to only 48 tracks. Lord Alge has a number of assistants who are entrusted to go through this preparation process for him before he sits down to construct the mix. Nevertheless, this process involves significant numbers of choices which have a great deal of impact on how the final mix will sound. Though the recording engineer (and indeed producer) may have particular ideas of how a mix will sound, the fact that they can (and often do) provide large numbers of tracks which need to be whittled down means extensive influence on the part of Lord Alge. The second significant implication of this technological approach is the sonic character imparted by the Sony 3348, the SSL desk and the extensive analogue outboard. All of these devices have significant and unique sound characteristics which Lord Alge praises. For example, there are frequent references to the 'warmth' of analogue, which though an oversimplification of the process (Izhaki [2008], and Rumsey and

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McCormick [2014] offer a more robust examination), does point to a significant sonic alteration. Also, the fact that the equipment is hard-wired in with fixed settings does much to ensure a consistency of mix style. This can be a challenge with analogue equipment when compared with the extensive recall capabilities of digital technology.

By comparison, Wale uses what may be termed as standard 'in the box' equipment housed within a low-cost acoustic environment. His mixes projects in the digital domain using a Mac Pro running Logic, Adam A7X monitors and KRK headphones. There is therefore very little which could be described as unique or specific to the setup, it being largely based on equipment seen in large numbers of home, project and indeed commercially-run studios throughout the world. However, of most interest is that in terms of processing, he uses large amounts of digital plug-ins and is particularly keen on examples such as those produced by Steven Slate which are designed to emulate analogue processing.

In terms of methods, in comparison with Lord Alge, Wale needs to do little to use the multitrack sessions sent within his set-up - most Digital Audio Workstations are designed to facilitate the easy importing and exporting of session files from others. Most often, his clients will have used programs such as Logic or Cubase so it is a matter of importing these into Logic. In this way, his set up is much closer (rather than highly differentiated as in the case of Lord Alge) to that of the clients who have recorded the material. Secondly, his equipment has little in terms of sonic character compared with that of Lord Alge. The main way in which sonic character could be said to be imparted is in his use of particular plug-ins.

Sharing the mix

Turning to the question of how these two practitioners bring work into and out of their

work environment, it is important to draw a distinction between their service and that

of many other online mixing services. Many online mixing services allow the

originator of the recording to upload a multitrack session file for mixing via a website

for a fixed price, though there is no facility to brief the mix engineer, discuss the

project or exchange ideas. It is therefore an anonymised service - the originator has no

idea how or indeed who will process the mix. Of interest here though, and typified by

Lord Alge and Wale is the type of service provided by a named remote mix engineer

with whom the client can deal directly.

As has been noted, the work of the remote mix engineer has been facilitiated by the

increased availability of Internet bandwidth. This means that large digital files can

now be sent via the Internet whereas in the past, this would have been either

problematic or extremely slow. Along with this increase, services such as WeTransfer

and Dropbox which allow the sharing of large digital files (not necessarily audio) now

proliferate. Alternatively, practitioners in any field can share content using their own

server if they have the necessary financial and technical resources. Unsurprisingly,

both Lord Alge and Wale exchange mixes over the Internet receiving multitrack

session files from the client, and returning stereo mixes the same way. Wale uses

Dropbox, a service which can be used either for free (up to a certain level) or as a

feepaying service if more capacity in needed. By comparison, Lord Alge uses a

dedicated server. Whilst compared with the financial resources which Wale has at his

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disposal, it would seem that Lord Alge would take this approach as he can afford to. However, many filesharing services such as DropBox can suffer at the hands of hackers and are not always perceived as completely secure (Geere 2014). For Lord Alge working with high profile recording acts, this is an important consideration. If recorded material from one of the acts for which Lord Alge is working were to be hacked, it could be quickly available globally. This would present a significant economic problem for the record company, and secondarily tarnish Lord Alge's reputation. This reflects the vulnerability of digital media which is proving a challenge for many organisations and in particular, for entertainment companies. Here, digital work-in-progress files fly around the world effortlessly yet the timing of release of the final product to consumers is absolutely crucial to commercial success. As evidence of this, to try to mitigate risk in music recording particularly, the Content Delivery and Security Association run a Music Recording Studio Security Programme, which accredits individual recording studios, based upon the robustness of their media storage and sharing methods.

Communication

For Chris Lord Alge, much of his work is done with Producers who are well established with critical acclaim and commercial success. Examples include Howard Benson for whom he has mixed more than a hundred records. It also includes Rob Cavello, producer of Green Day, the Goo Dolls and The Dave Matthews Band. Other notables include Don Gilmore, Matt Serletic and Bryan Gallimore. Such is his status (and the challenges of performing schedules), the musicians are involved very little in

the process, the relationship with producer being the most important. Lord Alge produces six mixes for each track (master mix, vocal up, TV mix, instrumental, lead vocal accapella, backing vocal acapella), uploads them and awaits the sign-off. Many of his interviews refer to the need for empathy with the client and in an interview with Nigel Jopson for Record Production, he refers to a successful mix demonstrating his ability to 'synchronise myself with them again' (Jopson, in RecordProduction.com).

Similarly, Wale enages in discusion via email or Skype with clients before being contracted and receiving the digital files via Dropbox. He states that although the Internet facilitates his work, 75% of his work comes from what he calls 'word of mouth'. In interview, he talks at length of particular genres which he has ended up working in, partly deliberately, partly by accident. For example, his initial interest in recording extreme metal lead to him mixing large numbers of projects in that genre. Subsequently, he has also specialised in mixing '80's Synth pop' - this happening only because he started playing in a band of this genre and a number of projects emerged from this link. As a practitioner in his early 20s, he laughingly refers to the request to mix it 'like Depeche Mode' with his response of 'who are Depeche Mode?'

Expertise and role definition

As a new phenomema, examining the remote mix engineer's specialised expertise and role definition is central to this examination. At the same time as the need for a remote mix engineer seems to have increased, both of these practitioners have been developing their own approach to the task.

Chris Lord Alge's path to mix specialist started with using his mother's tape recorder as tea boy, assistant engineer, house engineer, freelance engineer and producer, then specialist. Therefore, although he 'just' does mixing, he has an in depth understanding of the technical, logistical, creative and psychological issues involved in making records. This experience has ranged from engineering, producing, programming and playing instruments such as keyboards.

He is therefore not fearful of making changes to a mix which may to many seem to over-stretch his responsibility. Examples of this include the replacement of drum sounds with samples, changing the arrangement of songs and so on. In particular, the presentation of potentially hundreds of ProTools tracked files which are then laid off to 48 tracks shows signifcant editing and decision-making which are not merely of a mix nature. If his expertise were limited to mixing, he would have neither the ability nor the credibility to do this. However, his extensive and varied experience of the other processes of record production (or Tapscott and Williams' 'peer-production'), allow him to backwardly integrate his expertise.

By comparison, Wade learned the basis of his craft by studying an undergraduate degree in Music Technology (though he freely admits that this did little to help him develop the practical skills of recording or mixing). He has never worked for anyone else and certainly not been exposed to the mentoring role of which Lord Alge speaks so highly.

It is also the case however that Wale's role oversteps the defined mix process. For example, he is willing to replace not only drum samples but complete kits, change

arrangements, or add string parts. He notes in interview that on several occasions, he has replayed guitar parts (stating 'I can tell what they are trying to do, they just couldn't do it in time or in tune') and the client has not even noticed. On another occasion, a recording engineer had quantised the kick and snare though the overhead microphone tracks still contained the unquantised kick and snare. Dealing with this entailed Wale spending two days moving individual drum hits around simply because of poor track-laying practice.

There are two important factors to note in Wade's role, which stand apart from that of Lord Alge though. Firstly, many of the recordings which Wale receives are, by his own admission, not always of the best quality. They have either been made under severe time restrictions in a studio, or been produced by the client themselves using some form of Digital Audio Workstation such as Cubase or Logic. It would seem therefore that their experience does not match that of the technology which they are using. A restricted budget is also pivotal even if they belong to the third of Wale's clients who are signed to record labels. So despite the plethora of advice even in widely-read magazines such as *Sound on Sound*, they hope that it can be 'fixed in the

mix'. Clearly this cannot be done, as is evident from Wale's work in replacing parts - this is actually a revisitation of the recording process (relating to the questions of consent and authenticity which Lindeman raises). Secondly and crucially, most of Wale's projects do not involve a producer - commonly the musician or band themselves liaise with him and enter into a contract for him to mix their work. The problematic nature of their recordings suggests that being in the aspirant phase of their careers; they are actually most in need of a producer to oversee quality of production. In working with Wale however, the heightened need for a producer, and the problems of not having one mean that there is ample opportunity for Wale to integrate backwards into that role.

Figure 2 puts these role definitions in a diagramatic form. As can be seen, the work of the remote mix engineer can be considered within the whole process of production, which can be broken down into the elements of tracking, mixing and mastering. Due to the nature of their work, and the extended control and influence which they have, contrary to first impressions, the impact of their work is not limited to mixing. In fact, in accordance with Lindeman (1988, 94), they have the technical capablity to change what took place in the track-laying session. In the case of Lord Alge, this is through the extensive editing and decision-making which he has carte-blanche freedom to do due to his relationship with the producer. In the case of Wale, he literally revisits recordings and changes parts without the clients even being aware of it. In the absence of a producer, and in working with less experienced musicians, his role has greater expanse to that of Lord Alge in that he has extensive freedom on one hand, though relatively high expectations of what he can achieve from his clients.

The rise of the remote mix engineer: technology, expertise, star – diagrams

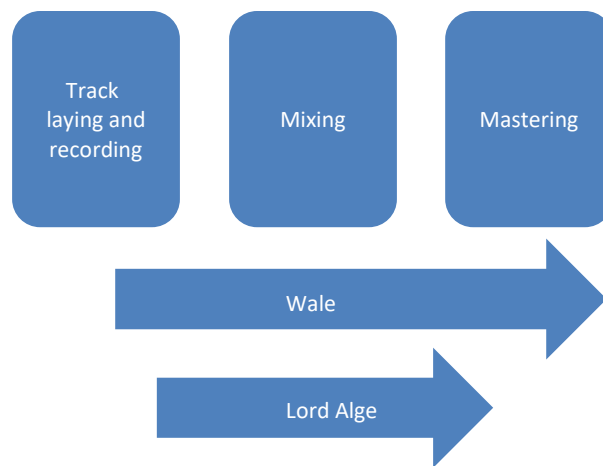New figure 2 for 'The rise of the remote mix engineer: technology, expertise, star

Track laying and recording   Mixing   Mastering

Wale

Lord Alge

Figure 2 Expertise and role definition as part of process

Star approach

When considering the work of remote mix engineers, a number have emerged as leaders or even stars of their world in recent year. Lord Alge can certainly be considered to be amongst them, alongside other notables such as Mark 'Spike' Stent and Cenzo Townsend. Typically, these figures have notoriety in the music and audio press, are often featured in interviews and master classes, and are used in the endorsement of mixing-related products. High profile is a new phenomenon for mix engineers, let alone remote mix engineers. This highlights the question as to why, given that the recording engineers and producers involved in most projects have a good grasp of how the mix should sound (and the capability to achieve it) themselves, they chose to risk involving another practitioner.

Risk is in fact, the central tenet, and particularly pertinent, given that the music industry has always been and is perhaps more so now, a risky business. According to Frith (1988, 33), 90% of records make a loss whilst according to Kretschmer et al (2001, 425), 10% of records released account for 90% of turnover for labels. Whilst risk is endemic in any industry, music seems to be particularly risky with a seeming absence of certainty over what records will be commercially successful. It seems unlikely that high budget recording projects would wish to involve more risk, and so contrary to this, it would seem that involving a 'star' remote mix engineer is actually a strategy to mitigate against risk. On this point, Marshall (2013: 584) who has explored the role of 'stars' in the recording industry states that, 'stars are a key way in which labels attempt to make music markets more predictable'. In this case, the involvement

of a 'star' remote mix engineer (alongside a 'star' producer) indicates commitment on the part of the record label and a notion that achieving the best mix possible will bring commercial and critical success. It has to be noted that this notion of the remote mix engineer as a star in their field does have to be based on capability in the task though (as shown by Lord Alge and Wale's development into the role) rather than mere profile. If they were not capable in the task, then the risk would be greater rather than less. This concept ties in with Rojek's work on celebrity (2001, 29-45). Out of the three ways of understanding celebrity (subjectivist, structuralist, poststucturalist), the remote mix engineer should be seen as subjectivist. That is, their celebrity or star status is based upon their inherent characteristics and talent, in this case, mixing of multitrack recordings.

Further evidence of 'star' status can be seen from the branding of audio plug-ins particularly by Lord Alge. The company Waves produces digital plug-ins most of which tend to emulate effects or particular pieces of equipment. However, they also produce plug-ins which are branded as emulations of the techniques of particular practitioners. Typical of these are the Butch Vig (Record Producer), Eddie Kramer (Record Producer) and Tony Masserati (Mix Engineer) ranges. Based around the concept that these practitioners have their own 'sound', the attraction of these plug-ins is being able to emulate that sound quickly and at a lower cost then trying to emulate their studio set-ups. Such ranges are however, limited to those practitioners who have achieved particular notoriety for their expertise. Their presence further supports the notion that remote mix engineers such as Lord Alge have star status in the field.

Discussion and summary

Whilst the ability to exchange large session files due to increased Internet bandwidth capacity is facilitating the rise of the remote mix engineer, this paper has shown that there is more to the phenomena.

At the aspirant end of the recording market, the rise is in response to the typical recording projects which now takes place. Musicians and bands are now more likely to make their own recordings as the cost of recording equipment continues to fall. However, they may not have much recording expertise, they may be recording in compromised acoustic environments, and probably have little support or guidance such as that given by a producer in the recording process. Even if they are fortunate enough to record in a professional studio, time is usually at a premium and the quality of the recording is often compromised. Ironically, the services of a producer are absent at the point in their careers where they could have biggest impact. The remote mix engineer therefore fulfils the need to ensure the quality of the end product, and by virtue of only involving them at that stage, to do so at as low a cost as possible. The compromised quality of recordings however, means that often the role is actually backwardly integrated to that of a producer.

At the higher end of the market, the quality of recording, acoustic environment and involvement of a producer means that the tracking is higher quality. There is then a more complex rationale for their involvement. The answer seems to be twofold – firstly that the remote mix engineer adds something sonically to the end product, and secondly, that their involvement is a sign of commitment, a way of minimising risk thus increasing the chances of commercial and critical success. On the first point, the

extensive experience and concentration on one facet of music production means that practitioners can mix to a higher standard than that of others. Furthermore, in the use of particular equipment and a consistent approach, a further sonic differentiation is added. On the second point, commissioning a high-end remote mix engineer indicates high commitment to a project and the idea that nothing has been left to chance. This is a further way to mitigate against the risk inherent in the music business, particularly with high budget global recording acts. For those involved in the latter stages of production, marketing and distribution, this adds to the defining of a particular recording as being of the highest standard attainable.

There are also common facets to both cases studied here. Firstly, in common with Izhaki's point, mixing can be so complex that it is often best left to a specialist even when the musicians, producer and track-laying engineer have a good understanding of the process themselves. However, that 'specialist' needs to have extensive capability and appreciation of all facets of the recording and production process such as that which Lord Alge developed through his 'time-served' progression, and Wale through his formal education. The role often backwardly integrates into that of recording, and this can only be done effectively with the required expertise and credibility. There is therefore a paradox here – the 'specialist' remote mix engineer often has to be a 'generalist' first. Secondly, technology plays an important part in two ways – both in the equipment and environment used to mix, and also in the exchange of files used in mixing. The choice of equipment can have a significant impact and this bundled together with the expertise of the remote mix engineer is often much of the attraction. Where these offer something which the musicians or producer do not possess themselves, the benefits are increased. It seems that remote mix engineers take care to

envelop their expertise in a technology environment which will suit their aims and philosophy on mixing. Furthermore, the technology of file-sharing over the Internet is at the heart of the work of the remote mix engineer – it is this which allows them to work with clients irrespective of their geography. Lastly, despite the seemingly large reliance on technology, relationships are very much at the heart of the work of the remote mix engineer. For example, Lord Alge works with the same high profile producers time and time again, having built upon considerable trust with them. Similarly, Wale's work though facilitated by the Internet is usually borne through word of mouth and he is well known in particular genres and networks for his expertise.

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