Financing new creative enterprise through blockchain technology: opportunities and policy implications

O'Dair M and Owen R, Middlesex University

Shorter running title: Financing new creative enterprise through blockchain technology

Contact: Marcus O'Dair, Associate Professor, Music and Innovation, Middlesex University, The Burroughs, Hendon, London, NW4 4BT, UK.
Email: m.odair@mdx.ac.uk.

One-sentence summary: Blockchain technology represents an emerging source of venture capital crowdfunding for creative ventures, specifically in the music industry.

Key points:

- Although music streaming is often portrayed as a success story, the internet has in fact been something of a false dawn for the recorded music industry – particularly for emerging musicians.
- New music ventures might obtain alternative entrepreneurial finance through token sales or Initial Coin Offerings.
- Policymakers can play a role in developing this form of seed finance for the creative industries and beyond.

J.E.L. and **E.F.M. classification codes**: G23, G28, L24, L26, L82, O33

Introduction

Token sales, or Initial Coin Offerings (ICOs), are a novel means of using blockchain to raise seed finance for new ventures. Neglected to date are the important questions token sales raise for the funding of new ventures in the creative industries, for instance the music industry. Ten years after the Global Financial Crisis (GFC) of 2008, the financing landscape globally remains difficult for new ventures, due to the credit rationing and retreat of banks and venture capitalists from (VCs) early stage venture finance where there is a lack of proven business track record (Wilson and Silver, 2013; Lee et al, 2015). Many new types of finance, including various forms of crowdfunding, incubator/accelerator, asset finance, online public feeder investment markets and social funding have emerged (Bloch et al, 2018). Arguably, however, they have had limited impact on creative sectors and notably the recorded music industry – the focus of this paper.

New ventures experience information asymmetries (IA) relating to an imbalance of market knowledge between themselves and potential investors (Carpenter and Petersen, 2002), making them particularly vulnerable to investor agency failures. The seed investment market is littered with such failures: Akerlof's (1970) so-called 'lemon' investments. IAs may be most critical for the most innovative and creative new ventures, since this is the most difficult market for investors to understand (Fraser, 2011). Traditionally this has been overcome not only by independent record labels but also by smart, hands-on, industry expert angel investors (Mason and Harrison, 2015). However, a problem here is the relatively limited availability and access of angel finance: only a small proportion of individuals have the high net worth, time and knowledge to invest in this way. In part, this problem has been overcome through the emergence, post-GFC, of crowdfunding, which enables a greater number of people with smaller amounts of disposable income to invest. However, despite the proliferation of new forms of seed venture funding, the creative sector and recorded music industry in particular remains relatively poorly funded.

This paper focuses on the music industry, where the evolution of the internet has offered something of a false dawn to new musicians. Whilst high profile platforms such as YouTube offer new musicians the opportunity to showcase their work, they have also contributed to the notion and proliferation of free music and undervaluation of recorded music. Furthermore, in such a highly competitive market it remains very difficult for new artists to gain recognition. Whilst online music streaming has halted the typical annual decline in global revenues for recorded music, with recorded music revenues increasing from $14.3 billion in 2014, to $15.7 billion in 2016 (IFPI, 2017), the successful financing of new ventures has tended to favour existing artists with track records. 99% of streaming income reportedly goes to the most popular 10% of tracks (Krukowski, 2018). As such, the music industry remains pyramidal, with a relatively small number of established artists, often signed to major labels, earning the vast amount of industry income whilst the vast majority earn little or nothing.

A major problem for emerging types of finance is the establishment of a trusted network channel of information between the new venture and the investor. Lerner (2010) and, more latterly, Lingelbach (2015) have discussed the importance of stable institutional, legal and regulatory structures to encourage equity investment and the same is likely to be the case for all forms of crowdfunding – particularly equity CF,

which may take many years to provide repayment. Therefore, establishing trust in the platform mechanism (Li and Owen, 2016) is important in encouraging investors. In a similar way, we would expect that the blockchain mechanisms and any intermediaries operating to promote new ventures would have to offer appropriate trust signals – such as regulatory compliance.

The two questions addressed in this paper are: (i) How blockchain might finance new recorded music ventures? And (ii) what role policy might play in developing this form of seed finance in this industry? The paper proceeds by examining the theoretical literature relating to seed venture finance, the role that blockchain might play in financing new creative industry activities, with a focus on recorded music industry and examination of existing case examples, before discussing the wider implications for policy and regulation.

Information asymmetries: the need for alternative start-up finance in the music industry

It is long recognised (Macmillan, 1931) that financing gaps exist for new and young ventures. Evolving entrepreneurial finance theory suggests that IA between new venture founders and potential investors is the main cause. For fear of loss of market primacy (Baldock, 2015), founders are unable or unwilling to provide sufficient information to explain why their venture should receive investment and this is most prevalent amongst innovative ventures (Carpenter and Petersen, 2002, Hsu, 2004). Indeed, Fraser (2011) suggests that this is particularly problematic for new creative ventures, such as in the music industry. If we exclude economic cyclical credit rationing factors which are likely to exacerbate the innovative/creative new venture funding gap (Cowling et al, 2012; Lee et al, 2015), the problem is best explored in terms of the demand-side and supply-side relationship and interactions between new ventures and capital market intermediaries (North et al 2013; Baldock et al, 2015; Owen et al, 2017).

A further important part of the investor/new venture trust mechanism is the existence of a stable investment environment which protects and encourages both parties to cooperate and engenders trust through established institutional and regulatory frameworks (Lingelbach, 2015). This is particularly important for equity investments which may not fully reward investors for many years and to what Gilson (2003) has referred as simultaneity theory for engineering venture capital. Subsequently, Lerner (2010) described the need for global harmonious laws and regulations which attract inward investment and for example, Mason and Owen (2016) refer to the use of investor tax break incentives such as the UK Seed Enterprise Investment Scheme (SEIS). The US JOBS Act (2013) has been instrumental in establishing equity CF in that country and also demonstrating a global lead to providing a regulatory framework for this emerging investment industry (Bruton et al, 2015). Therefore, the global investment framework offered by blockchain is likely to remain considerably restricted from wider market acceptance until international standards and regulations are in place.

A fundamental problem in the creative industries is that new ventures typically require relatively small amounts of investment, which do not justify the level of due

diligence required by financial intermediaries. This gives rise to the financing gap because investors will prefer to fund at a later stage when market traction is less opaque and better understood, and when less risk is attached to the investment (Berger and Udell, 1998). Therefore, early stage investment is highly volatile and frequently unsuccessful due to agency failures (Akerlof, 1970), whereby insufficiently informed investors back 'lemons' rather than 'gems'. Two forms of agency failure are commonly noted: adverse selection where lemons are picked because of lack of market knowledge and moral hazard where venture founders do not manage the business as well as expected.

Over time, the investment market has evolved to overcome these problems through intermediary developments. Uzzi (1997, 1999) refers to network ties between new ventures and financiers, whereby trust is developed, and relationship banking approaches (Udell, 2004) have been perceived as helping to bridge the finance gap and deliver more stable, sustainable investment. However, these approaches favour existing businesses, or spin-outs, with track records. A more common early-stage equity investment approach is therefore to take a so-called 'smart money' approach (Mason and Harrison, 2015; Baldock and Mason, 2015). This has involved business angels, seed venture capitalists (VCs) and accelerators investing in sectors in which they have expertise and in new ventures where they can take a hands-on approach to managing and guiding the business – thus avoiding moral hazard. Such approaches have worked particularly well for new digitech ventures, with shorter investment horizons, but are yet to demonstrate development for new music ventures.

Independent record labels might be expected to fill this gap, but some do not even offer artists an advance; furthermore, many artists are operating without a record label, a phenomenon that is not necessarily as empowering as it is sometimes depicted. The conventional wisdom is that the so-called 'digital revolution' has transformed the music industry, at least for those aspects primarily associated with recorded music. This is typically presented as bad news for record companies but good news for artists: journalists and popular press authors proclaim a do-it-yourself (DIY) revolution in which 'the artist can communicate, interact, market and sell directly to the fan' and 'record labels, radio and television become mostly irrelevant' (Owsinski 2009: ix). Some scholars, notably Wikström (2013), also espouse this view of a radically new music economy in which artists, rather than record labels, are in control. Yet this viewpoint has been challenged by Rogers (2013), who insists that the Internet has *not* fundamentally altered power relations: for all the DIY, direct-to-fan rhetoric, a handful of very large corporations in fact continue to dominate. We may hear claims for the democratisation of production and circulation of music, but Hesmondhalgh (2013: 346-7) argues that stories of artists achieving success 'via the web', without the assistance of 'the music industry', rarely stand up to scrutiny. If there *was* a shift of power away from record labels in the first decade of the twenty-first century, Hesmondhalgh suggests, it was not towards artists but rather towards technology companies such as Apple and Amazon; power remains 'in the hands of a few institutional entities' (2013: 348). With the rise of digital audio workstations, and platforms such as Soundcloud, Bandcamp and YouTube, it has never been easier to record and distribute music. With lower barriers to entry, however, has come increased competition. Without the resources of a major record label, or at least a large independent, this music is likely to remain way down in the 'long tail' (Anderson 2006).

It is true that some artists have attracted attention for innovative approaches to releasing music. The British rock band, Radiohead, adopted an 'honesty box', or 'pay what you like', pricing mechanism for their 2007 album, *In Rainbows*, while the American industrial band Nine Inch Nails, essentially a Trent Reznor solo act, released their 2008 album, *Ghosts I-IV*, under a license that allowed fans to remix and redistribute its songs as they chose. What is often overlooked, however, is that these were not debut albums: both Reznor and Radiohead benefitted immeasurably from the exposure they had already achieved when signed to major record labels. Equally significantly, Radiohead went on to license *In Rainbows* to record labels for a more traditional CD release, while Reznor went on to sign a new deal with a major label, acknowledging that 'complete independent releasing has its great points but also comes with shortcomings' (Wikström 2013: 2). The DIY approach, then, poses challenges even for established artists; for emerging artists, it is more problematic still. For Hesmondhalgh, this is because only record labels (or their tech company equivalents) have the necessary resources:

> The problem, as ever, remained one of circulation: how to let people know of the existence and desirability of the product? And how, in the business school jargon, to achieve 'product differentiation'? Most people still became aware of musical recordings via radio, television and other 'old' media. And the surest way to gain access to such old media was via a contract with a vertically integrated major record company, which had the resources, and occasionally the expertise, to target appropriate consumers (Hesmondhalgh 2013: 348).

Macklemore and Ryan Lewis, an American hip-hop duo, may have reached number one on the US Billboard Hot 100 chart in 2013 with a track released on Macklemore's own record label, for instance, yet the single was in fact distributed by a company owned by a major record label. Similarly, while it is true that Michael Omari, the British grime artist better known as Stormzy, topped the UK album charts without a record label in 2017, he had a deal with the same, major-label-owned distributor – and, as we go to press, it has been announced that Omari has signed a deal with Atlantic Records. All artists can self-release and self-distribute music, then, but the vast majority of those who have the option are still working with major labels – or their tech giant equivalents. American hip-hop artist Chancelor Jonathan Bennett, who produces music under the name Chance the Rapper, made headlines for winning three Grammy awards in 2017 as an unsigned artist – yet he had the backing of Apple, worth several times more than all three major record labels combined. Currently, then, while a few artists attract an early stage corporate investment from major labels and music publishers, most receive angel-type investment from smaller 'independent' record labels and publishers – or they engage in bootstrapping activity (Mac an Bhaird and Lucy, 2015), working for free or for very low pay, self-funding recording and live performances whilst hoping to catch the eye of an independent or corporate investor. This inevitably leaves new artists vulnerable to protracted periods of poor pay and failure to secure funding for potentially successful projects.

Crowdfunding is sometimes proposed as an alternative finance source: the American singer-songwriter Amanda Palmer famously raised $1,192,793 on the Kickstarter crowdfunding platform for her 2012 album *Theatre Is Evil.* It is true that the alternative investment activity brought about through the rise of crowdfunding post-

GFC (Lehner, 2014) has offered a potential opportunity. Palmer's success is unusual, however: as of January 2018, just under half (49.45%) the music projects on Kickstarter have been successfully funded, and the sums raised are typically far smaller than that raised by Palmer. Like Radiohead and Reznor, Palmer's innovative release strategy also benefitted very significantly from the fact that she already had a substantial fanbase, built up when signed to a major label imprint with her 'Brechtian punk cabaret' duo, the Dresden Dolls. Even an apparently 'alternative' source of finance such as crowdfunding, then, is not as promising for emerging artists as is sometimes suggested. Jegeleviciute and Valanciene (2014) identify five models of crowdfunding: donation, reward, debt, equity and royalty. Music crowdfunding has largely been restricted to a 'reward' model, in which funders receive a pre-determined product or service for their contribution. This is problematic as it appeals only to a relatively limited number of committed fans in certain genres, whose support is semi-philanthropic. Fraud is also a challenge, in that 'in general, the parties [in the 'reward' model] do not consider it a legally binding obligation to provide the goods and do not classify it as a sale' (De Buysere et al 2012). Sustainability is also an issue, as a strong reliance on the emotional investment of fans can result in cynicism towards future campaigns if artists are perceived to disengage from fans once the project is complete (Coleman 2015); there is a danger of 'going to the well one too many times' (Davidson and Poor 2014). Importantly, the 'reward' model does not offer funders a fair share of value. For musicians, then, and emerging musicians in particular, the DIY potential of the digital era is being restricted by a lack of access to capital – and traditional crowdfunding has not proved a viable alternative.

Ultimately, new artists remain unlikely to break out of their local market, in which they may be known through live performance, or from an equally small online market developed through posting recorded music that is consumed for free. Indeed, the inability of new artists to signal their value to the finance markets is another component of the information asymmetry which contributes to entrepreneurial finance gaps for early stage ventures (Mueller et al, 2012). This alongside pecking order (Myers and Majluf, 1984) preferences, which typically favour external debt finance over equity, can be seen as contributing to the demand-side failure hypothesis (Owen et al, 2017), which indicates that a major part of the early stage finance gap is down to the poor knowledge and application skills of the new entrepreneurs. The suggestion here, then, is that new creative artists would benefit from improved investor readiness, which would enable them to better consider, seek/apply and access a far wider range of external finance options (Mason and Kwok, 2010).

Accessing start-up finance through blockchain technology

Blockchain technology is a type of distributed ledger 'composed of a chain of cryptographically linked "blocks" contained in batched transactions' (Hileman and Rauchs, 2017: 11). The technology first emerged underpinning the digital currency, bitcoin (Nakamoto, 2008); although it is now acknowledged that blockchain's importance extends far beyond bitcoin (Kewell and Peter Michael Ward 2017), it remains most widely discussed in the context of financial services. Yet blockchain technology provides an exciting application space for innovation in diverse domains (Adams et al 2017), including social and solidarity-based finance (Scott et al 2017), global development (Kewell et al 2017), and business and management (White 2017).

Blockchains and other distributed ledger technologies are creating fresh opportunities for value creation and capture (Maull et al 2017), disrupting governance structures (Shermin 2017) and reconfiguring the global economy (Manski 2017).

Blockchains could also have a significant impact on the creative industries, including digital art (McConaghy et al 2017) and the music industry (O'Dair and Beaven 2017). The technology has been adopted by music start-ups in a range of contexts, from combating 'secondary ticketing' (Aventus, Guts, Hello Sugoi) to addressing the challenges of metadata and licensing (Jaak, Blokur, Dot Blockchain Music). As Dredge (2017) argues, there is no such thing as 'a standard blockchain music start-up':

> Some… companies are working on Bandcamp-style D2C [direct to consumer] platforms for artists, while others are Spotify-style streaming services. Some are trying to crack the age-old industry problem of a global database of rights, while others hope to encode those rights into the music itself, akin (although this can be a controversial point) to a DRM [digital rights management] wrapper. And these are just the ones we have obvious existing non-blockchain examples to compare them to (Dredge 2017: 1-2).

Dredge (2018) profiles a grand total of 36 music start-ups utilising blockchain technology, from Aventus, a ticketing company, to Zimrii Music, a platform offering smart contracts, analytics and crowdfunding features to independent artists. And even that list of 36 is not exhaustive: other music blockchain start-ups include Singular DTV, Tokit, Current and Singular X (Singular DTV 2018). It is difficult to generalise about these companies as they vary considerably. For Dredge, the time has come to stop talking about them as unified by their use of blockchain technology; instead, he argues, we should classify them by the use to which they are putting this technology. 'Are they a streaming service? A distribution platform for artists? A ticketing service?' (Dredge 2018: 10). Dredge quotes Phil Barry, originally of Ujo Music and now CEO of Blokur: 'It is easy to get distracted by focusing too much on blockchain technology itself rather than the product or service. Ultimately, what matters is whether a problem is being solved' (Dredge 2018: 10).

O'Dair *et al* (2016) have suggested that blockchain technology also has the potential to encourage music seed funding, in three main ways. First, 'the transparency inherent in delivery of music via blockchain technology could improve investor ability to monitor activity and investment outcomes, facilitating the modelling of likely returns and potentially affecting the pricing of capital' (O'Dair *et al* 2016, 14). To date, alternative funding models such as the UK's Seed Enterprise Investment Scheme (SEIS) tax breaks and its underpinning of crowdfunding investment, private seed VC and business angel activities have made limited impact for artists attempting to operate without a record label, due in part to the difficulty of understanding a clear pathway to profitability for some artists and of effectively assessing, and therefore pricing, capital. Secondly, O'Dair *et al* state that blockchain technology could support the emergence of 'artist accelerators', akin to technology start-ups:

> The possibility for fully automated monitoring of artists throughout their careers, via smart contracts, could make this 'accelerator' model relevant to artists, opening up the sector to new sources of capital seeking high-risk and

> highly scalable businesses for seed or venture capital. The opportunity to 'hot house' a group of emerging artists, offering access to resources, mentoring, facilities and networking in exchange for a small stake in their future sound recording income, paid automatically via smart contracts ['programmable transactions' executed on a blockchain], might become a viable business model for portfolio investors (O'Dair *et al* 2016, 14).

Finally, O'Dair *et al* suggest that 'blockchain technology could have a significantly effect on crowdfunding, with artists issuing their own shares or tokens and smart contracts guaranteeing that pledge contributions would be returned were funding targets not met' (O'Dair *et al* 2016, 14).

The explosion of 'token sales' since 2016, when O'Dair *et al* published their report, has drawn attention, in particular, to the final model that they identify: crowdfunding on the blockchain. Popularly, though somewhat problematically, known as 'initial coin offerings' or ICOs, token sales are essentially crowdfunding campaigns in which investors receive 'tokens' in return for a contribution in cryptocurrency – such as bitcoin, if deploying the Bitcoin blockchain, or ether, for projects utilising the alternative Ethereum blockchain. (These are two of the most prominent cryptocurrencies; there are numerous others.) Token sales face three significant challenges. Firstly, the current interest in token sales has the hallmarks of a speculative bubble. Secondly, they face considerable legal and regulatory uncertainty. And thirdly, token sales vary wildly, with only a minority of tokens offering fractional ownership in the value of the underlying organisation. 'Some tokens are similar to currencies, others are more like securities, and others have properties that are entirely new' (Conley 2017: 1). At the same time, token sales are undoubtedly a noteworthy development in terms of access to capital and, though this is a novel means of raising finance, the sums raised are already significant: over $4 billion to date (Russolillo 2017). Strikingly, start-ups raised more money from token sales in 2017 than through traditional VC funding. The ramifications for start-up finance, in sectors including music and other creative industries, could be highly significant.

Some individual artists have already used blockchain technology to issue their own tokens. The first to do so was the American singer-songwriter Tatiana Moroz, who issued Tatianacoin in 2014. In 2017, André Anjos, a Portuguese dance music artist who goes by the moniker RAC, also released a token. Unlike bitcoin and ether, however, neither of these coins has a significant financial value: the artists in question seem to regard them as tools to drive fan engagement rather than as sources of capital. Yet for Denis Jašarević, a Slovenian electronic music producer and DJ better known as Gramatik, issuing an artist coin has very much been a means of raising capital. Jašarević launched his GRMTK token in 2017 and, in just 24 hours, raised a sum, in ether, at the time worth $2.25 million. Some who purchased GRMTK tokens may simply have been speculating: they are likely to sell their tokens if and when they have sufficiently increased in value. Others may be attracted by the fact that Jašarević is working with Singular DTV, 'a blockchain entertainment studio' that itself raised $7.5 Million in ether – in just 17 minutes – via a token sale in 2017. What is noteworthy about Jašarevic's project, however, is that the GRMTK token does appear to have an underlying utility: unlike the 'reward' model crowdfunders examined earlier in this paper, token holders are entitled to a share of Gramatik's future revenue:

> GRMTK isn't just a cryptocurrency, it's much more than that, now my audience can share in my inspiration and success by also owning the rights and royalties of my music and anything I create and distribute on my upcoming channel. If you hold 100 GRMTK tokens, then you own 100 tokens worth of the rights and royalties of the music and projects I create (Bein 2017).

To date, other music ventures that use blockchain technology as a means of raising capital have tended to be companies rather than individual artists. Aventus, for example, is a London-based start-up using blockchain technology to build an open-source standard for ticketing, in an attempt to counter ticket touting and counterfeit tickets. In 2017, in a token sale that lasted just seven minutes, the company raised, in ether, the equivalent of approximately $18.7 million. Like GRMTK, their token – AventCoin, or AVT – has underlying utility: it is used to align the incentives of network participants. Specifically, AVT is used in two broad scenarios: to provide 'stake-weighted voting to verify events and applications on the protocol, as a means of de-siloing of the event ticketing industry' and to provide 'stake-weighted matching of buyers and sellers in the secondary market, as part of preventing unregulated touting' (Aventus 2017).

A third instance of a music start-up using blockchain technology to raise capital is Viberate, 'a crowdsourced live music ecosystem and blockchain-based marketplace' which matches musicians to booking agents and event organisers. In 2017, in a token sale lasting less than five minutes, Viberate raised approximately $10.7 million in ether. Again, their token, VIB, has utility: it can be used for global community activation, to access to premium industry contacts, to buy merchandise, to pay booking fees, for advertising opportunities on the Viberate website, and, finally, to purchase tickets. Users who contribute to the company's database, or who promote their service on social media, can also be rewarded with VIB.

What is clear from these three brief case studies is that significant sums can be raised via token sales – often in a matter of minutes. To date, the use of token sales to raise capital in the music industry has tended to be by companies, rather than individual artists. The case of Denis Jašarević, however, demonstrates the potential for artists to use token sales to access a much wider range of external finance options. At the same time, the token sale is no silver bullet. Information asymmetries persist – and, since only sellers can accurately assess the value of a token through examining a project before a sale, there is a danger of 'lemon' tokens, as a recent Allen and Overy report noted:

> The flow of information is mostly one-sided, from seller to buyer, and in many cases social influencers are leveraged to maximise on the overall hyped market sentiment that 'cryptocurrencies are on an upward trend'. Therefore, the token buying public, who may know little or nothing about the issuing organisation and the technical concepts behind the offering, can only trust that the issuer and its spokespersons are truthful, competent and committed to delivering what is stated. No one, apart from the issuer can truly know the answer to this, and as the issuer has no fiduciary duty to the token holders, they can pretty much say anything to maximise interest in the ICO and the ongoing demand for the issued tokens! (Sehra *et al* 2017, 19)

'All signs,' Sehra *et al* (2017, 21) conclude, 'point to the ICO and token market suffering from lemon conditions'.

The most effective way to fix a lemons market, according to Narayanan *et al* (2016, 183), is though regulation. What, then, are the risk mitigation options available to policymakers, both in terms of blockchain technology in general and specifically in relation to token sales?

Implications for policymakers

The 'cypherpunks', to whose anarcho-libertarian ideology blockchain technology is indebted (Golumbia 2016), are inherently opposed to regulation: as Narayanan *et al* (2016, 183) state, 'regulation often gets a bad name, especially among the kind of people who tend to like bitcoin.' From the corporate sector, too, the usual refrain is that policymaker interference will stifle innovation (Britto and Castillo 2016, 69). Yet is a laissez-faire approach to blockchain technology appropriate? Guadamaz and Marsden (2015, 12) state that the lack of regulation to date has served to encourage scams and fraudsters. Part of the problem is that bitcoin and other cryptocurrencies exist in a legal grey area (Grinberg 2011, 207); while to one regulator, a cryptocurrency might look like a money transmittal system, to others, it resembles a commodity or non-voting capital share of stock (Evans 2015, 108). Another problem is that regulating a cryptocurrency such as bitcoin is almost impossible – and even if it *were* possible, it is likely that another cryptocurrency would simply replace it (Kaplanov 2012, 167). None of this, however, means that regulation should be ignored. As Narayanan *et al* (2016, 188) put it, 'if bitcoin is big enough to matter, then it is big enough to be regulated'. Given their interest in maintaining capital controls, in preventing money laundering, and in preventing the sorts of crime (kidnapping, extortion, tax evasion) that can be carried out using cryptocurrencies, government interest in blockchain technology seems inevitable (Narayanan *et al* 2016, 178-9). There is also the danger that, for all the rhetoric of decentralisation, blockchain-based systems could evolve into oligarchies without appropriate institutional protection (Boucher 2017, 23).

What then are the options for policymakers? Lessig (2006) states that online activity is regulated by legal and digital rules, and a theory of regulation should address both aspects. This is also the position of Lehdonvirta and Ali (2016), who make a further distinction between governance (rule-making by participants in a given system) and regulation (rule-making by external authorities). Regulation of a *permissioned* ledger, Lehdonvirta and Ali suggest, is relatively straightforward: it is simply a case of imposing legal obligations on the proprietor. They concede, however, that regulation of an *unpermissioned* ledger such as bitcoin is significantly more challenging, since there is no single legal entity in control of the system. Instead, the only practical option is to regulate the intermediaries, such as exchanges and wallet providers. Guadamaz and Marsden (2015, 11-12) reach a similar conclusion, since allowing virtual currency providers to serve as regulators has not proved successful, and neither have attempts at prohibition, while the introduction of a central body to provide regulation runs counter to the ethos of cryptocurrencies. It is also possible for governments to provide support for users of virtual currencies to agree upon and

enforce their own rules of conduct, Guadamaz and Marsden suggest, but this is likely to be only partially effective. Like Lehdonvirta and Ali, then, Guadamaz and Marsden conclude that selective regulation, for instance through taxation or regulation of intermediaries, is the most promising option.

For a sense of how selective regulation might look in practice, we can turn to the New York BitLicense, proposed by the New York Department of Financial Services in 2014 and issued the following year. Business that require a BitLicense are required to provide information on ownership; finances and insurance; and on their business plan. They also have to pay a fee. The requirements, then, are substantial, analogous to the sort of requirements for a mutual fund or publicly traded stock (Narayanan *et al* 2016, 188). The license, then, was an understandable attempt to regulate the space, but the consequence was that numerous blockchain businesses simply ceased doing business in New York State (Roberts 2015, De Castillo 2015). For a globally distributed technology such as blockchain, regional, and even national, solutions are only ever going to be partially effective. As Boucher states:

> The decentralised, cross-boundary character of blockchain raises jurisdictional issues as it seems to diffuse institutional accountability and legal responsibility in an unprecedented manner, rendering the need for a more harmonised regulatory approach at the transnational level more pertinent compared with a local or regional one (Boucher 2017, 23).

The best option for blockchain stewardship, then, may well be the multistakeholder approach advocated by Tapscott and Tapscott (2017). Their argument runs as follows:

> We cannot leave governance of such complex global innovations solely either to governments or to the private sector: political and commercial interests have proven insufficient to ensure that this new resource serves society. Rather, and more than ever, we need multistakeholders to collaborate as equals and provide global leadership. We need all three pillars of modern civilization – the private sector, the public sector and civil society – to participate in stewarding this new global resource (Tapscott and Tapscott 2017, 28).

Certainly, policymakers will need to proceed carefully, perhaps adopting the stage-by-stage process set out by Lehdonvirta and Castronova (2014), which begins with *interest aggregation* before proceeding to *policy process* (with the involvement of members of the public as well as rigorous testing); policy *implementation*; and, finally, *policy assessment*. Some attempt to regulate the blockchain space, however, does seem necessary, not least since 'smart contracts', or programmable transactions implemented on a blockchain, pose new types of problem. 'Decentralised autonomous organisations', or DAOs, essentially bundles of smart contracts that could exist almost completely independent of human intervention, are more problematic still, existing in a regulatory grey zone that may not offer liability, protection or accountability guarantees (Boucher 2017). Indeed, Wright and De Filippi (2015) suggest that the widespread adoption of blockchain technology will require a new legal paradigm: what they call *Lex Cryptographia*. Blockchain technology, Wright and De Filippi assert, could make individual behaviour more difficult to regulate through national laws and regulations, while markets created or maintained by DAOs will not readily

allow for government interventions. The open nature of blockchain-based architecture is a significant challenge too. At the same time, Wright and De Filippi state, there is a danger that regulation 'can undercut the powerful interconnectivity of the Internet and traditional notions of free expression' (2015, 57). Regulation should be encouraged, agrees Kiviat (2015, 607), but policymakers should exercise caution and precision in tailoring its scope.

Having examined policy implications for blockchain technology in general, it is now necessary to examine possible policymaker responses to the specific subject of token sales. Tokens can vary widely: a token may represent a share in a company or a prepayment voucher for future services; it may not offer any discernible value at all. A key question is whether tokens have *utility* or whether they are better understood as *securities*. This is one reason that the utility of the tokens examined earlier – VIB, GRMTK and AVT – is important, and also one reason that they are unusual: utility tokens might represent less than 10% of the total number of tokens issued (Kharif 2017). If the other 90% of tokens fit the definition of securities then, according to the Securities and Exchange Commission in the United States, they are subject to investor disclosure and registration requirements (SEC 2017). From a UK perspective, token sales are typically beyond the remit of the Financial Conduct Authority (FCA), not least because sales often take place overseas. The FCA has set out some of the resulting challenges: token sales offer no investor protection; tokens tend to be volatile in terms of financial value; there is a danger of fraud; there is often inadequate documentation; and finally, since token sales are often for projects in their very early stages, there is a reasonable chance that investors will lose any money invested (FCA 2017). As Boucher (2017, 21) states, equity offerings in blockchain companies 'may place companies within the existing securities market' and its associated rules and obligations; 'by operating outside of a regulatory framework, blockchain-based organisations that are not incorporated or legally recognised may be at risk of investment fraud and malicious hacks, and their members could be exposed to liabilities as partners'.

It is perhaps unsurprising, then, that, while cypherpunks and corporates alike my traditionally resist regulation, there is in fact evidence that many would welcome some increase in the regulation of token sales (PWC 2017). While new legislation, or more active application of existing regulation, is likely to increase costs, it is also likely to open the asset class to new categories of investors and therefore a deeper pool of capital (Sehra *et al* 2017). It seems clear that clarity from policymakers attracts business: Hong Kong, Singapore and Switzerland are considered areas of excellence for token sales because they offer 'regulatory clarity and an established ecosystem of service providers and talent' (PWC 2017, 10). Given the progress made by countries including Singapore and Dubai, notes Lord Holmes, the United Kingdom has work to do if it wishes to secure its position as a global leader in technology-based innovation (2017: 1).

One final point: policymakers need to recognise that blockchain technology has the ability to transform the creative industries, as well as areas such as financial services, healthcare and insurance. It may be true that the main sectors for token sales in 2017 were infrastructure (38.4%), trading and investing (13.8%), finance (10.1%), data storage (9.4%) and payments (7.1%); the only creative industry to feature at all, is gaming and VR, at 4%, while music and other creative ventures fall within the 17.2%

'other' category (PWC 2017). Yet as is clear from the VIB, GRMTK and AVT tokens, significant sums have been raised in music too. More importantly, blockchain technology is not only being used to finance new creative ventures, the subject examined in this paper, but also to introduce traceability and transparency into fashion supply chains; to securely link digital assets, from visual images to music files, to associated authorship information; and to license content via smart contracts. The creative industries are acknowledged as a great strength of the United Kingdom – indeed, the phrase itself is the invention of Tony Blair's Labour Government (Flew 2012). Yet the creative industries are not mentioned in the Government Office for Science 2016 report on blockchain and distributed ledger technology, nor in the follow-up by Holmes (2017). Under the DCMS umbrella, 'digital' is grouped with 'culture' and 'media'. It is time to join up the thinking.

Conclusions

The paper has demonstrated the potential of blockchain technology, and specifically token sales, as an emerging source of VC crowdfunding. To date, however, its application in the music industry has been limited, especially among musicians. The clear challenge for the future of blockchain as a seed finance mechanism for new music ventures is to achieve widespread public consumer credibility. Two apparent avenues for future development which may indeed enable new artists to raise CF on the blockchain are (i) the development of effective light touch regulation that can enhance investor confidence and gain blockchain industry buy-in, and (ii) the development of intermediary ('infomediary') services which offer promotional platforms to emerging artists. The two appear interrelated, since the regulation of intermediary services would appear to be the most effective way of instilling investor confidence and avoiding the perils of a lemon market and token sale crash if and when the current bubble bursts.

Whilst these new infomediary services are not the focus of this paper, they offer potential for promotion and trust development in the same way that online services such as Uber or Airbnb have offered the transport and holiday rental markets respectively. While much of the rhetoric around blockchain technology relates to disintermediation, we see this as a 'thinning' of intermediaries rather than their complete removal. We await the development of new music intermediaries in music that go beyond the current streaming services. The challenge is to find sustainable, value-creating approaches, in which incentives are fully aligned. If properly designed and offering genuine utility, tokens could be fundamental to such approaches. The challenge for policy makers, meanwhile, is to encourage such ventures in the UK – a global leader in the creative industries.

References

Adams, R., Parry, G. & Ward, P. (2017). The future of money and further applications of the blockchain. *Strategic Change: Briefings in Entrepreneurial Finance*, *27(5),* 417-422.

Akerlof, G.A. (1970). The market for lemons, quality uncertainty and the market mechanism. *Quarterly Journal of Economics, 84(3)*, 488–500.

Aventus. (2017). A closer look at the Aventus token. Accessed online 02.03.18, https://blog.aventus.io/a-closer-look-at-the-aventus-token-avt-e13fce16acf3

Baldock, R. (2015). What is the role of public feeder markets in developing technology-bases small firms? An exploration of the motivations for listing on AIM since the GFC. *Venture Capital: An International Journal of Entrepreneurial Finance 17(1-2)*, 87-112.

Baldock, R, Deakins, D & Savic, M (2015). Finance pathways for innovative SMEs: The new UK finance escalator. Paper to the Institute for Small Business and Entrepreneurship (ISBE) conference, Glasgow 11-12 November.

Baldock, R. & Mason, C. (2015). UK Government equity schemes, post-GFC: The roles of the Enterprise Capital Funds and Angel Co-investment Fund in the new UK finance escalator. *Venture Capital*, *17(1-2)*: 59-86

Bein K. (2017). Gramatik celebrates successful cryptocurrency launch, becomes first tokenized artist. *Billboard*. Accessed online 02.03.18, https://www.billboard.com/articles/news/dance/8046200/gramatik-cryptocurrency-launch-video

Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking and Finance*, *22*: 613–673.

Block, J. H., Colombo, M. G., Cumming, D. J., & Vismara, S. (2018). New players in entrepreneurial finance and why they are there. *Small Business Economics: An Entrepreneurship Journal*, *1–12*. doi:10.1007/s11187-016-9826-6

Boucher, P. (2017). How blockchain technology could change our lives. European Parliamentary Research Service.

Brito, J., & Castillo, A. (2016). *Bitcoin: a primer for policymakers, second edition*. Arlington, Virginia: Mercatus Centre, George Mason University.

Bruton, G., Khavul, S., Siegel, D. & Wright, M. (2015). Alternatives in seeding entrepreneurship: microfinance, crowdfunding, and peer-to-peer innovation, *Entrepreneurship Theory and Practice*.

Carpenter, R. E., & Peterson, B. C. (2002). Capital market imperfections, high-tech investment, and new equity financing. *The Economic Journal*, *112*: 54–72.

Cowling, M., Liu, W. & Ledger, A. (2012). Small business financing in the UK before and during the current financial crisis. *International Small Business Journal, 30(7)*: 778–800.

De Castillo, M. (2015). The 'Great Bitcoin Exodus' has totally changed New York's bitcoin ecosystem. *New York Business Journal*. Accessed online 02.03.18, https://www.bizjournals.com/newyork/news/2015/08/12/the-great-bitcoin-exodus-has-totally-changed-new.html

Dredge, S. (2017). Block 'n' roll: The new kids on the blockchain. *Music Ally*, *407*: 1-15.

Dredge, S. (2018). Blocked up: What does blockchain's difficult 2018 mean for music? *Music Ally*, *414*: 1-10.

Evans, C. (2015). The blind economists and the elephant: Bitcoin and monetary separation. *Southwestern Journal of Economics, 10(1)*: 106-122.

FCA. (2017). Initial coin offerings. Accessed online 02.03.18, https://www.fca.org.uk/news/statements/initial-coin-offerings

Flew, T. (2012). *The creative industries: Culture and policy*. London: Sage.

Fraser, S (2011). Access to finance for creative industry businesses. Final Report with IFF research for DCMS & BIS.

Gilson, R. J. (2003). Engineering a venture capital market: Lessons from the American experience. *Stanford Law Review, 55*: 1067-1068.

Hsu, D (2004). What do entrepreneurs pay for venture capital affiliation? *Journal of Finance 59(4)*: 1805–1844.

Golumbia, D. (2016). The politics of bitcoin: Software as right-wing extremism. Minneapolis: University of Minnesota Press.

Grinberg, R. (2011). Bitcoin: An innovative alternative digital currency. *Hastings Science & Technology Law Journal, 4*: 159-208.

Guadamaz, A., & Marsden, C. (2015). Blockchains and bitcoin: Regulatory responses. *First Monday, 20(12)*.

Holmes, C. (2017). Distributed ledger technologies for public good: leadership, collaboration and innovation. Accessed online 02.03.18, http://chrisholmes.co.uk/wp-content/uploads/2017/11/Distributed-Ledger-Technologies-for-Public-Good_leadership-collaboration-and-innovation.pdf

Kaplanov, N. (2012). Nerdy money: Bitcoin, the private digital currency, and the case against its regulation. *Loyola Consumer Law Review, 25(1).*

Kewell, B., Adams, R. & Parry, G. (2017). Blockchain for good? *Strategic Change: Briefings in Entrepreneurial Finance*, *27: 5*: 429-438.

Kewell, B. & Ward, P. M. (2017). Blockchain futures: With or without bitcoin? *Strategic Change: Briefings in Entrepreneurial Finance*, *27: 5*: 491-498.

Kharif, O. (2017). Only one in 10 tokens is in use following Initial Coin Offerings. *Bloomberg*. Accessed online 02.03.18, https://www.bloomberg.com/news/articles/2017-10-23/only-one-in-10-tokens-is-in-use-following-initial-coin-offerings

Kiviat, T. (2015). Beyond bitcoin: Issues in regulating blockchain transactions. *Duke Law Journal, 65*: 569-608

Krukowski, D. (2018). How to be a responsible music fan in the age of streaming. *Pitchfork*. Accessed online 02.03.18, https://pitchfork.com/features/oped/how-to-be-a-responsible-music-fan-in-the-age-of-streaming/

Lee, N., Sameen, H. & Cowling, M. (2015). Access to finance for innovative SMEs since the financial crisis. *Research Policy*, *44(2)*: 370-380.

Lehdonvirta, V., & Ali, R. (2016). Governance and regulation. *Distributed ledger technology: Beyond blockchain*. Accessed online 02.03.18, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/492972/gs-16-1-distributed-ledger-technology.pdf

Lehdonvirta, V., & Castronova, E. 2014. *Virtual economies: Design and analysis*. Cambridge, Mass and London: MIT.

Lehner, O. M. (2014). The formation and interplay of social capital in crowdfunded social ventures. *Entrepreneurship & Regional Development, 26(5-6)*: 478-499.

Lerner, J. (2010). The future of public efforts to boost entrepreneurship and venture capital. *Small Business Economics 35 (3)*: 255–264.

Lingelbach, D. (2015). Developing venture capital when institutions change. *Venture Capital: An International Journal of Entrepreneurial Finance, 17(4):* 327-363.

Mac an Bhaird, C., & T. Lynn. (2015). Seeding the cloud: Financial bootstrapping in the computer software sector. *Venture Capital: An International Journal of Entrepreneurial Finance (17)*.

Lessig, L. (2006). *Code and other laws of cyberspace: Version 2.0*. New York: Basic Books.

Macmillan Committee, 1931. Report on the Committee on Finance and Industry, Cmnd 3897. London: HMSO.

Manski, S. 2017. Building the blockchain world: Technological commonwealth or just more of the same? *Strategic Change: Briefings in Entrepreneurial Finance*, *27: 5*: 511-522.

Mason, C. & Harrison, R. (2015). Business angel investment activity in the financial crisis: UK evidence and policy implications. *Environment and Planning C: Government and Policy, 33*: 43-60.

Mason, C., & Kwok, J. (2010). Investment readiness programmes and access to finance: a critical review of design issues. *Local Economy, 25(4):* 269-292.

Mason, C. & Owen, R. (2016). Developing a globalisation of venture capital thesis: How are small, peripheral economies seeking to establish sustainable venture capital ecosystems? Paper to Entfin conference, University of Lyon July 8-9th.

Maull, R., Godsiff, P., Mulligan, C., Brown, A. & Kewell, B. 2017. Distributed ledger technology: Applications and implications. *Strategic Change: Briefings in Entrepreneurial Finance, 27: 5:* 481-490.

McConaghy, M., McMullen, G., Parry, G., McConaghy, T. & Holtzman, D. 2017. Visibility and digital art: Blockchain as an ownership layer on the Internet. *Strategic change: Briefings in entrepreneurial finance, 27: 5:* 461-470.

Mueller, C., Westhead, P., & Wright, M. (2012). Formal venture capital acquisition: can entrepreneurs compensate for the spatial proximity benefits of South East England and 'star' golden-triangle universities?. *Environment and Planning A (44):* 281-296

Myers S, & Majluf N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13:* 187-221.

Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder., S. (2016). *Bitcoin and cryptocurrency technologies: A comprehensive introduction.* Princeton and Oxford: Princeton University Press.

North, D., Baldock, R. and Ullah, F. 2013. Funding the growth of UK technology-based small firms since the financial crash: are there breakages in the finance escalator? *Venture Capital 15(3):* 237–260.

O'Dair, M. & Beaven, Z. 2017. The networked record industry: How blockchain technology could transform the record industry. *Strategic Change: Briefings in Entrepreneurial Finance, 27:* 5: 471-480.

Owen, R., Botelho, T., & Anwar, O. (2017). Exploring the success and barriers to SME finance and its potential role in achieving growth. Enterprise Research Centre (ERC) Research Paper No.53, January.

PWC. (2017). Introduction to token sales (ICO) best practices. Accessed online 02.03.18, https://www.pwccn.com/en/financial-services/publications/introduction-to-token-sales-ico-best-practices.pdf

Roberts, D. (2015). Behind the 'exodus' of bitcoin start-ups from New York. *Fortune*. Accessed online 02.03.18, http://fortune.com/2015/08/14/bitcoin-startups-leave-new-york-bitlicense/

Scott, B., Loonam, J. & Kumar, V. 2017. Exploring the rise of blockchain technology: Towards distributed collaborative organizations. *Strategic Change: Briefings in Entrepreneurial Finance, 27: 5:* 423-428.

SEC. (2017). Securities Exchange Act of 1934, release number 81207. Accessed online 02.03.18, https://www.sec.gov/litigation/investreport/34-81207.pdf

Sehra, A., Smith, P., & Gomes, P. (2017). Economics of initial coin offerings. Accessed online 02.03.18, http://www.allenovery.com/SiteCollectionDocuments/ICO-Article-Nivaura-20170822-0951%20%20-%20Final%20Draft.pdf

Shermin, V. 2017. Disrupting governance with blockchains and smart contracts. *Strategic Change: Briefings in Entrepreneurial Finance, 27: 5*: 499-510.

Singular DTV. (2018). The state of music and blockchain, 2018. Accessed online 07.08.18, https://medium.com/singulardtv/the-state-of-music-and-blockchain-2018-a13eb6d50d8b?mc_cid=d0cd6a777c&mc_eid=7764b179d1

Tapscott, D., & Tapscott, A. (2017). Realising the potential of blockchain: A multistakeholder approach to the stewardship of blockchain and cryptocurrencies. World Economic Forum. Accessed online 02.03.18, http://www3.weforum.org/docs/WEF_Realizing_Potential_Blockchain.pdf

Udell, G. F. (2004). Bank mergers and acquisitions: the impact of small business lending Proceedings, Paper 915, Federal Reserve Bank of Chicago.

Uzzi, B. (1997). Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly, 42(1):* 35-67.

Uzzi, B. (1999), Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing, *American Sociological Review*: 481-505.

White, G. R. T. 2017. Future applications of blockchain in business and management: A Delphi study. *Strategic Change: Briefings in Entrepreneurial Finance*, *27: 5*: 439-452.

Wilson, K., & Silva, F. (2013). Policies for seed and early stage finance: Findings from the 2012 OECD finance questionnaire. OECD Science, Technology and Industry Policy Papers No. 9.

Wright, A., & De Filippi, P. (2015). Decentralised blockchain technology and the rise of Lex Cryptographia. Accessed online 02.03.18, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2580664

Xiao L. & Owen (Baldock) R. (2016). The role of trust in influencing the equity crowdfunding platform development path: an exploratory study of AngelCrunch in China. Paper to the Institute of Small Business and Entrepreneurship, Paris 10-11th November 2016.

Author biographies

Marcus O'Dair is Associate Professor in Music and Innovation at Middlesex University in London. He is convenor of the Blockchain for Creative Industries cluster, and an associate editor of the Frontiers in Blockchain journal. He is also a member of the Blockchain Research Institute and serves on DLT working groups for techUK and the BSI. A former session musician with Passenger, he has also released three acclaimed albums and toured Europe as one half of Grasscut.

Robyn Owen is Associate Professor of Entrepreneurial Finance, at the Centre for Enterprise and Economic Development Research (CEEDR), Middlesex University Business School. She is also co-chair of the Institite for Small Business and Entrepreneurship (ISBE) Entrepreneurial Finance Special Interest Group and a Research Fellow at the ESRC funded Centre for Understanding Sustainable Prosperity, University of Surrey. She is also a pianist and composer.