

Institution: Middlesex University		
Unit of Assessment: UoA 34 – Communication, Cultural and Media Studies, Library and Information Management		
Title of case study: Blockchain and the Creative Industries: Investigating, Demystifying and Promoting the Uses of Distributed Ledger Technology		
Period when the underpinning research was undertaken: January 2016 - 2018		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Marcus O'Dair	Associate Professor in Music and Innovation	2012 – December 2018
Richard Osborne	Senior Lecturer in Popular Music	2010 - present
Zuleika Beaven	Senior Lecturer in Arts Management	2014 - present
Period when the claimed impact occurred: January 2016 – 31 December 2020		
Is this case study continued from a case study submitted in 2014? N		
<p>1. Summary of the impact</p> <p>Research by the Blockchain for the Creative Industries (BCI) cluster at Middlesex University investigated the potential opportunities and challenges which blockchain technology offered the music industry. The key output of this work was the report <i>Music on the Blockchain (2016) (MOTB)</i>, acclaimed as 'the most in-depth look so far at how the music industry can benefit from Blockchain technology' [5.1a]. Beneficiaries of this research have included creators; digital entrepreneurs, incumbent music businesses; and governmental authorities. Impacts across the music sector have been delivered by:</p> <ul style="list-style-type: none"> • Informing understanding – <i>MOTB</i> received acclaim for the breadth and clarity of the report • Shaping debate – <i>MOTB</i> became a 'go-to point of reference', informing discussions on issues at the heart of the music industry in the UK • Enabling international awareness – <i>MOTB</i> helped promote Britain's creative industry sector • Informing UK Government policy on data management • Influencing decision-making – <i>MOTB</i> allowed informed decisions on the use of blockchain • Inspiring innovation – several new blockchain initiatives have resulted from <i>MOTB</i>. 		
<p>2. Underpinning research</p> <p>BCI was formed by O'Dair, Osborne and Beaven in early 2016 to examine the potential blockchain held for the creative industries. This distributed online ledger was being positioned as having the capacity to revolutionize a number of different industries due its decentralized nature, the immutability of its content, and its means of achieving consensus due to the shared responsibility of participants. The research trajectory began with work by O'Dair and Beaven which identified areas where blockchain could be transformative for the music industry, but also introduced a note of caution highlighting barriers to, and potential disadvantages of, adoption [3.1]. Building on initial findings, the BCI team embarked on a project working with David Neilson (a computer scientist at Middlesex University), Paul Pacifico (then CEO of the music industry trade body, Featured Artists Coalition [FAC]) and Nick Mason (the drummer with Pink Floyd). Its aims were to: 1) work in an inter-disciplinary manner to expand BCI's understanding of the technology; 2) partner with music industry professionals to gain insights regarding the potential interest in, and utility of, blockchain; 3) make a timely intervention in a fast developing area. It resulted in <i>MOTB</i> [3.2] the first publicly available report on this subject. The authors' intention was to disseminate their research findings and articulate complex issues relating to blockchain in an accessible manner that could communicate to potential adopters and sponsors of the technology. There was a desire to balance the interests of start-ups (who were evangelical about the technology) and incumbents (who were resistant to disruption), whilst also reaching out to musicians and music companies who could benefit from blockchain applications.</p> <p><i>MOTB</i> identified four areas where blockchain technology could have greatest potential for the music industry:</p>		

- 1) The provision of a networked database for music copyright information (*MOTB* details instances where musicians and start-ups had experimented with storing recording and copyright data via blockchain, but it advocates beyond this to suggest that the technology could potentially provide a global database that would unite copyright information relating to songs and recordings);
- 2) Facilitating fast, frictionless royalty payments (blockchain could provide musicians and songwriters with royalty payments at the moment their work is accessed, rather than needing to wait for their royalties to pass through collection societies, each of which would seek an administration fee);
- 3) Offering contractual transparency (blockchain had the potential to provide more accurate royalty information, as well make that information readily available to stakeholders);
- 4) Providing access to alternative sources of capital (blockchain could help artists to secure venture capital investment through its ability to provide transparent record of transactions and facilitate smart contracts).

The research also raised questions about some of the claims being made for the technology, notably that blockchain would give artists increased control over pricing and terms of use, that it would be used to create a 'fair trade' music ecosystem, and that it would bring about the demise of existing record labels and collective management organizations. In addition, significant barriers to adoption were highlighted, including the need to address governance and regulation to ensure the integrity of data, and also the need for adoption to reach critical mass. The findings warned that the potential of blockchain could take many years to unfold, and the best chance of it being adopted by large corporations would be for blockchain to be viewed as a supplementary, rather than disruptive, technology.

MOTB concludes with an agenda for further research, including the need to address the extent to which blockchain could co-exist with extant contractual and copyright systems, and the importance of providing case studies that would explore the constraints and affordances of the technology. This work was pursued in the book chapter by O'Dair and Kensuke Ito of the University of Tokyo [3.3], which examines the operation and implementation of blockchain copyright solutions. It also contains the research report by O'Dair [3.4], which was commissioned by the Blockchain Research Institute to investigate means by which blockchain could enable creators to utilize their intellectual property rights, improve their royalty payments, and explore new business models. The BCI outputs led to O'Dair receiving EPSRC Fellowship funding from Digital Catapult to conduct further research into the application of blockchain to the creative industries. This resulted in a monograph [3.5], which provides case studies of start-ups operating in the domains of ticketing, music rights, journalism, book publishing, gaming, film distribution and fine art dealership. This book concludes with a series of policy recommendations for how the UK government could support, and prosper from, the development of blockchain businesses. These include the needs to: establish a cross-departmental blockchain working group; set up blockchain innovation hubs around the UK; invest in the blockchain talent pipeline in schools and universities, and; to take the lead in establishing global blockchain governance.

3. References to the research

- 3.1 O'Dair, M. and Beaven, Z (2017), 'The Networked Record Industry: How Blockchain Technology could Transform the Record Industry', *Strategic Change: Briefings in Entrepreneurial Finance* [Journal article] <https://eprints.mdx.ac.uk/26121/> [Evidence of quality: rigorous peer review process]
- 3.2 O'Dair, M., Beavan, Z., Neilsen, D., Osborne, R. and Pacifico, P. (2016), *Music on the Blockchain* [Research report] <https://eprints.mdx.ac.uk/20574/> [Evidence of quality: O'Dair invited to give talks on the report to the music trade body IMPALA in Copenhagen (2017), at the conference for Italian music trade body PMI in Milan (2017), and at the Tech UK conference on *Blockchain and the Creative Industries* (2017); referenced by the British Standards Institute in *Distributed Ledger Technologies/Blockchain: Challenges, Opportunities and the Prospects for Standards* (2017): <https://www.bsigroup.com/en-GB/Innovation/dlt/>, the Inter-American Development Bank in *The Impact of Digital Innovation and Blockchain on the Music Industry* (2017): <https://publications.iadb.org/publications/english/document/The-Impact-of-Digital-Innovation-and-Blockchain-on-the-Music-Industry.pdf>, and TechUK in *Playing Catch Up: Incorporating*

Distributed Ledgers into the Technology Stake and Repurposing the Wider Ecosystem, London: TechUK; employed by the Copyright Society of the USA as part of their Continuing Legal Education materials for lawyers]

- 3.3** Ito, K. and O'Dair, M (2019), 'A Critical Examination of the Application of Blockchain Technology for Intellectual Property Management', in *Business Transformation Through Blockchain: Volume 2*, ed. by Treiblmaier, H. and Beck, R., London: Palgrave Macmillan [Book chapter] ISBN 978-3-319-99057-6 [Evidence of quality: rigorous peer review process]
- 3.4** O'Dair, M. (2017), 'How Blockchain is Transforming the Creative Industries: Copyright and Rights Management in the Second Era of the Internet', *Blockchain Research Institute* [Research report] <https://eprints.mdx.ac.uk/id/eprint/25163> [evidence of quality: rigorous peer review process; O'Dair invited to present findings at the Blockchain Research Institute All Member Summit in New York (2018)]
- 3.5** O'Dair, M. (2019), *Distributed Creativity: How Blockchain Technology will Transform the Creative Economy*, London: Palgrave Macmillan [Authored book] ISBN 978-3-030-00189-6; doi:[10.1007/978-3-030-00190-2](https://doi.org/10.1007/978-3-030-00190-2) [evidence of quality: rigorous peer review process; research received peer-reviewed EPSRC funding; O'Dair invited to present findings to the All Party Parliamentary Group on Blockchain (16 October 2018)]. The book was made possible by Digital Catapult EPSRC Fellowship (Researcher in Residence programme). £19,094.40 awarded by EPSRC (via University of Nottingham). 1 October 2017 — 31 March 2018.

N.B. Although references 3.3. and 3.5 were published after O'Dair's departure from Middlesex University, they were completed and submitted for publication while he was employed by the institution.

4. Details of the impact

The discourse surrounding blockchain posed a number of challenges for the music industry. First, the technology was being discussed in an arcane manner, employing terminology that was oriented towards finance and computing, rather than the music business. Second, the potential uses and limitations of the technology to the music industry had not been outlined clearly. Third, some established businesses and institutions were alarmed by discussion of a 'transformative' and 'disruptive' technology. A specific aim of the BCI team was therefore a clear dissemination strategy for its research material, which would be accessible to music creators, trade bodies, incumbent organizations and entrepreneurial start-ups. This was primarily realised via *Music on the Blockchain* (MOTB), which was developed in conjunction with industry stakeholders. The insights communicated by this, as well as those from the wider body of work resulted in the following impacts:

Influencing understanding

MOTB was launched at Sonos Studios in July 2016, with a promotional event that featured panels incorporating industry figureheads, practitioners, academics, entrepreneurs, and financiers with an interest in this field. It subsequently received considerable publicity both in the UK and abroad. As well as being documented in a number of articles, it was also promoted by Ed Vaizey (then serving as Minister for Culture) in his tech weekly mailout. In addition, O'Dair was interviewed about MOTB on the *BBC Click* programme for the World Service 9 July 2016: <https://www.bbc.co.uk/programmes/p03zq4cb>, and he promoted the report via articles for *Distributed* magazine, *The Conversation* (7.7.16) and the website of the technology innovation centre, Digital Catapult (9.8.16).

MOTB successfully communicated complex issues relating to the application of Blockchain within the music industry and was welcomed for its accessibility. Richard Kastelein [5.1a], writing for *Blockchain News*, stated that it 'succinctly dissects the threats and opportunities, challenges and approaches to potential success'. Andrew Levich [5.1b], writing for *Coinfox*, noted MOTB's warnings that this would 'be no easy journey'. Alan Cross [5.1c] stated in *A Journal of Musical Things* that, 'Before it can be proclaimed the latest and greatest possible savior and solution to the music industry's woes, more people (including fans and artists) need to understand the concept of a blockchain. Thankfully, the University of Middlesex and the Featured Artists Coalition have released a report on the technology'.

Shaping debate

Phil Barry of the blockchain company Blokur stated that *MOTB* was the ‘first really serious piece of work’ on its subject and that ‘it arrived at a time when it was a chaotic scene in terms of no one really knew what was going to be the main application of blockchain’ [5.2a]. Therefore, what was useful about the report was its ability to ‘narrow down and categorize the specific use cases and treat them separately and evaluate them separately’ [5.2a]. He has commended the work for distinguishing ‘between the fantasy and the application’ [5.2a]. Barry debated *MOTB*’s four recommendations for blockchain’s utility at a conference convened by the digital music business information and strategy company Music Ally in March 2017, as part of a panel addressing blockchain’s potential to solve music industry problems of transparency and efficiency [5.3]. These recommendations were explored further in an article written by Dan Tapscott and the musician Imogen Heap for the *Huffington Post* [5.1d], which addressed in some depth *MOTB*’s suggestions that blockchain could facilitate a network database and contractual transparency. FAC’s involvement led to the report being discussed at the 2016 away day for UK Music, the campaigning and lobbying group that represents all sectors of the UK music industry. Paul Pacifico, who is now CEO of the trade body for independent recording sector, the Association of Independent Music (AIM), stated in 2020 that *MOTB* had ‘an immediate and direct impact on the conversations that were happening, not just in the UK, but throughout the independent music community in Europe’ [5.2b]. Pacifico believes that in addition to providing technological solutions, blockchain initiated ‘a genuine and fundamental shift in the debate at the heart of the music industry’ in which musicians and songwriters became more active in questioning its economic structure [5.2b]. *MOTB* was important in this respect, as it ‘landed in the middle of that moment, as a kind of go-to point of reference in all of those conversations’ [5.2b].

Enabling international awareness

Tony Hughes of the Department of International Trade has stated that *MOTB* was ‘very valuable’ in indicating blockchain’s potential, as its coverage of potential applications enabled the uses of the technology to become ‘more cemented in a reality’ [5.2c]. It crystalized discussions about the utility of the technology for the creative industries and ‘set limits’ on its applications [5.2c]. *MOTB* was published a month after the UK voted in favour of leaving the European Union. Hughes employed the report to illustrate the attractiveness of Britain’s creative industry sector to foreign investors, as it demonstrated that the country remained ‘very good at that intersection between the creative arts, design and technology’ [5.2c]. This was ‘incredibly important’ after the EU vote, when some investors had ‘thought the UK was just closed for business’ [5.2c].

Informing Government policy

The work of the BCI cluster had an impact on policy documents. After publication of *MOTB*, O’Dair met with David Humphries (Head of Research at the Intellectual Property Office [IPO]) and Dr Hyojung Sun (Ulster University), who were working on the IPO report *Music 2025: The Music Data Dilemma*, which investigates issues facing the music industry in improving data management. Humphries commented that O’Dair’s ‘willingness to share his research in advance of publication was useful in shaping the project, providing helpful and nuanced insight into the benefits and disbenefits of blockchain’ [5.4a]. Sun noted how this visit ‘informed the research team greatly in providing a more balanced view of blockchain technology in music’ [5.4b]. Demonstrating the relevance of the BCI research to wider debates, O’Dair was invited to present the policy recommendations outlined in his monograph at the convening of the UK Government’s All Party Parliamentary Group on Blockchain on 16 October 2018. These recommendations have been reiterated by TechUK in their report *Blockchain in Action* [5.5], which is aimed at start-up technology companies and addresses actions that need to be undertaken to unleash blockchain’s full potential.

Influencing decision making

On 15 June 2017, O’Dair gave an invited talk to IMPALA, the pan-European representative organization for the independent music sector. Pacifico regards this talk as fostering ‘a sense of open-mindedness to adoption’ after which the independent community began working with blockchain companies such as Blokur and Jaak [5.2a]. He has also stated that the report ‘directly led’ to AIM forming a strategic partnership with Digital Catapult, whereby the two organizations have explored the potential of digital technologies for the music industry [5.2a].

Some readers of *MOTB*, however, took heed of its warnings about limitations and barriers to adoption. Carlotta De Ninni, CEO of *Creative Passport*, a company that is providing a verified digital identification system for musicians, has stated that she opted not to use blockchain for its underlying technology, as she agreed with the report's assessment that it 'was not yet sufficiently mature' [5.4c]. In relation to the utility of blockchain for incumbent companies, Erik Beijhoff of Spotify has stated that *MOTB* 'cut through to the core of the usefulness of what that type of technology could be' [5.2d]. Spotify were exploring the potential of blockchain and found the report's warnings about governance to be one of the 'key takeaways' [5.2d].

Inspiring innovation

MOTB was significant in inspiring several blockchain initiatives. Andrew Melchior, chief technology officer for Massive Attack, stated that the report was responsible for the group adopting the technology for the 2018 re-release of their album *Mezzanine*. He worked with Blokur on a project that enabled creators to remix the album and use a blockchain application to negotiate royalty payments. Jason Robert, who set up the blockchain-powered ticketing platform HelloSugio in 2017, stated that 'I stumbled upon a paper written by a team of researchers at the Middlesex University of London called "Music on the Blockchain," and that changed everything. [...] [I]t became clear to me that event tickets, as verifiable assets, could help solve one of the problems regarding event fraud and all of the games that are played in the secondary ticket market' [5.6]. Bloomen, a EU Horizon 2020 project that researched applications of blockchain in the creative industries, cited *MOTB* as influencing its development [5.7]. Mirko Lorenz, who worked as innovation manager on this project, described the report as being a 'cornerstone' in that it laid the foundation for possible uses of the technology and illustrated to Bloomen what they could do to 'change markets [...] like paying musicians directly' [5.2e]. Bloomen embarked on a pilot study in 2018, working with collection societies in Italy and Finland to develop a networked database for music copyright information. Drawing on the advice of *MOTB*, as well as the suggestion of O'Dair and Ito that blockchain solutions should emphasise 'incentive design' [3.3], Bloomen aimed to provide solutions that could be integrated with the ecosystems of the music industry, rather than creating a disruptive model that would encounter resistance from incumbent companies.

5. Sources to corroborate the impact

5.1 Online Reports (2016-2017): *Blockchain News*:

<http://web.archive.org/web/20200809060421/https://www.the-blockchain.com/2016/08/10/middlesex-university-releases-music-on-the-blockchain-report/> [5.1a]; *Coinfox*: <http://www.coinfox.info/news/5886-research-blockchain-to-change-music-but-not-like-bitcoin>; [5.1b]; *A Journal of Musical Things*: <https://www.ajournalofmusicalthings.com/curious-blockchain-check-new-report/>; [5.1c]; *Huffington Post*: https://www.huffpost.com/entry/blockchain-could-be-music_b_12199748?guccounter=1 [5.1d]

5.2 Audio Statements (2020): Phil Barry [5.2a] quotes can be found at 13.26-13.31, 13.32-13.44, 14.03-14.12, 15.55-16.00; Paul Pacifico [5.2b] quotes can be found at 1.22-1.32, 3.50-3.54, 5.39-5.40, 7.35-7.46, 8.09-8.14 ; Tony Hughes [5.2c] quotes can be found at 17.22-17.29, 19.00-19.02, 27.40-27.43, 29.18-29.19, 30.10-30.14; Eric Beijhoff [5.2d] quotes can be found at 10.22-10.23, 10.36-10.44; Mirko Lorenz [5.2e] quotes can be found at 33.40-33.45, 34.25-34.26.

5.3 Barry, P. (2017), 'Demystifying Blockchain: "Call it Sex Chocolate or Something!"', *Music Ally*, 3 March: <https://musically.com/2017/03/03/demystifying-blockchain-by-larm-sex-chocolate/>

5.4 Written Statements (2020): Davie Humphries [5.4a]; Hyojung Sun [5.4b]; Carlotta De Ninni [5.4c]

5.5 TechUK (2019), *Blockchain in Action: Embracing the Potential*, London: TechUK

5.6 Gralla, P. (2017), 'Rock and Roll and Blockchain', *Enterprise.next*, <https://www.hpe.com/us/en/insights/videos/blockchain-and-the-music-industry-1807.html>

5.7 Bloomen (n.d.), 'Music on the Blockchain', *Bloomen: Blockchain for Creative Work*: <https://bloomen.io/music-the-blockchain/>