

HOW TO USE DIGITAL CURRENCY AS A MUSIC INDUSTRY STANDARD?

Connecting Currency with Music

By Jennifer Buglione

Submitted to the Department of **Global Entertainment and Music Business**
Berklee College of Music

In partial fulfillment of the requirements for the degree of Master of Arts

Alexander Perrin, Supervisor

Emilien Moyon, Program Director

July 2015

TABLE OF CONTENTS

Abstract	Page 3
Introduction	Page 4
Part I: Literature Review	Pages 4-8
Part II: Methodology	Pages 8-9
Part III: Results & Discussion	Pages 9-13
Case Study #1 PeerTracks	Pages 9-10
Case Study #2: Song Coin	Page 10
Trends	Pages 11-13
Conclusion	Pages 13-14
Bibliography	Pages 15-16
Appendix	Page 17

Abstract

The purpose of this research is to explore the world of digital currency and how it's being used in the music industry. It's not a secret that since the dawn of the Internet, the world as we know it is in a continuous state of change. Every industry is moving from physical to digital, including our payment systems. Consumers are spending more time and money on the Internet, which has led to innovations in digital currencies as recognized ways to pay for online content or physical products. These digital currencies may allow for innovation, and quite possibly revolution, in a music industry plagued by piracy, low royalty payouts and an overall indifference to pay for music, a once highly valued product. This research project aims to suggest how the music industry can use digital currency as a standard.

The literature review will explore the history of digital payments, review the current state of the digital currency world, analyze the most successful forms of cryptocurrency and what's become the standard in today's technology ecosystem. Two case studies and ten expert interviews will be the focal point of the research, exploring music related companies that are using some form of digital currency and asking the crypto enthusiasts where and how the music industry can benefit.

The results of this study concluded that the technology behind digital currency is where the music industry can find success. Through the use of blockchain technology, the music industry can begin to change how payments of royalty payouts while empowering musicians especially Indie musicians. Secondly, implementing smaller fees or micropayments proves valuable. Finally, as you can see the volatile nature of Bitcoin's price makes using the cryptocurrency less attractive to the mass market therefore creating a niche which may not succeed.

Introduction

In 2013, digital revenue from music sales increased by 4.3% and globally 39% from digital revenues alone.¹ Though digital revenue has seen an increase, overall paying for recorded music is down.² Meanwhile, royalty payouts from streaming services are extremely low and artists are looking for more money because they are receiving less than a penny per stream.³ All three of these points are some of the biggest issues that face the struggling music industry today. Where there is a problem one must find a solution through technological advancements of our society. While identifying the issues, the research will dive into the types of opportunities we can use with digital currency and how it can be applied to the music industry.

Part I: Literature Review

A. History and Landscape of Digital Currency

Before evaluating everything related to digital currency, specifically Bitcoin, we need to begin with the definition of money. The official definition of money, as defined by the Merriam Webster Dictionary, is defined as “something generally accepted as a medium of exchange, a measure of value, or a means of payment.” From that definition we can deduce that virtually anything can become money because money is rooted in perceived value. Ancient peoples started with cow shells, later shifted to coins, and eventually invented the paper money that is still the norm worldwide.⁴ Today, modern society has become increasingly reliant on technology and is shifting towards becoming a strictly digital society.

¹ IFPI, Digital Music Revenues 2013

² IFPI, Digital Music Revenues 2013

³ Digital Music News, A Quick Summary of Streaming

⁴ PBS, NOVA, The History of Money

Our currencies and objects of value are transitioning just the same, leading to the digital currencies and cryptocurrencies seen emerging and evolving in real time.⁵

Floridian Oncologist Douglas Jackson first popularized the term “digital currency” in the early dot-com days of the 1990’s. Back then the digital currency (known as e-gold) was backed by incremental pieces of actual gold.⁶ Using gold incrementally can be recognized as the first step towards the micro-transactions we see with Bitcoin today. Before E-gold collapsed it was known as a high-end international currency, allowing more global transactions to occur as the e-commerce world flourished. It’s value once peaked at \$85 million dollars and was seen in use across 165 different countries, comparable to a PayPal of that period.⁷ E-gold eventually met its demise, as members of the U.S. Federal government began to find that early cyber criminals were using the company to funnel money into anonymous accounts.⁸

Enter Satoshi Nakamoto’s white paper in 2008 titled **Bitcoin: A Peer-to-Peer Electronic Cash System**. Nakamoto’s paper detailed a new way of thinking, pushing for the elimination of middlemen [banks], giving the user a more transparent view of the value chain of their money.⁹ While most currencies are validated by something with physically perceived value, Bitcoin is uniquely backed by complex cryptographic math equations. Essentially, value is created from the 0’s and 1’s of data from binary code in a computer, and therefore is used as a form of currency. The Bitcoin transactions are recorded on the blockchain, a virtual public ledger that is not controlled by any outside entity. This topic is also known as

⁵ TechRepublic, 10 Things You Need to Know

⁶ Wired, The History of E-Gold

⁷ Wired, The History of E-Gold

⁸ Wired, The History of E-Gold

⁹ Satoshi Nakamoto, Bitcoin: A Peer-to-Peer Electronic Cash System

decentralization. Fans of Bitcoin and most digital currencies argue that the decentralized nature is the heart.

These concepts only scratch the surface of understanding how Bitcoin works and operates. For example, one can't simply just acquire Bitcoin. A Bitcoin wallet software such as Coinbase or Xapo is needed in order to acquire, as well as initiate and process Bitcoin transactions. Once you have your wallet, you will receive a unique Bitcoin address, with which you may purchase Bitcoin with local currency for use. Retailer's physical and digital alike are now accepting Bitcoin as form of payment.

There are a few important points to note about the Bitcoin wallet. Primarily, note that it acts as your personal identifier. Users receive a public address, as stated earlier, in order for transactions to be verified and to confirm a unique individual's identity.¹⁰ Additionally, Bitcoin miners play an important function as well. Bitcoin miners are people with supercomputers who solve the complex cryptographic problems and verify transactions. Since transactions from all over the world are verified, a block is created and continues, eventually creating a chain, the blockchain. Miners who solve the cryptographic problems first will receive Bitcoin's as a reward. **See Diagram 1.** One of the biggest positives of using any cryptocurrency is the fact that it makes global transactions much simpler.

As it stands Bitcoin generated an enormous amount of buzz when its value peaked at around \$1,200 in November 2013, but eventually huge losses followed. As of June 2015 it's worth around \$250. According to economic experts the biggest issue with bitcoin is the security

¹⁰ Digital Gold, Nathaniel Popper

problems and volatile worth of the cryptocurrency.¹¹ If the market isn't using Bitcoin, its value or worth is low.

You cannot mention Bitcoin without talking about two of its most pivotal and game changing moments, starring Mt. Gox and Silk Road. In 2013, a Japanese Bitcoin exchange company, Mt. Gox, became the premiere destination of Bitcoin transactions, composing about 70% of Bitcoin business.¹² By February 2014, Mt. Gox later filed for bankruptcy. Due to an undetected theft the company lost over 740,000 Bitcoin worth close to \$750M belonging to their clients.¹³ Silk Road was the underground illegal marketplace, where anonymous users could purchase anything from fake identification cards to illegal substances using Bitcoin.

Both companies failed in the end, and each underwent justice department investigations in countries across the world. Eventually, Silk Road founder, Ross Ulbricht was indicted and convicted and public perception began to change with the negative press piling up from these two massive incidences. Since this controversy, Bitcoin's price has been able to remain steady during 2015, with one BTC currently valued and holding steady at \$250 USD.¹⁴ Some questions that begin to arise are how can the music industry benefit from using Bitcoin to purchase recorded music or can the blockchain create transparency and efficiency for payments to artists.

Thinking about the history of the music industry and looking at the evolutions of how artists are paid, how labels are paid, and how the industry makes money in its entirety, one can ask the question, is there simpler and more efficient method? How will it work? Will artists be

¹¹ Digital Gold, Nathaniel Popper

¹² Wall Street Journal, 5 Things about Mt. Gox's Crisis

¹³ Inside Bitcoins. "The Mt. Gox Post Bankruptcy Claims:"

¹⁴ CoinDesk, Homepage

able to make a sustainable income off of their recorded music? Alec Wren, Audio Visual Technician and Audio Engineer states:

The current music industry is very disjointed, with so many intermediaries that do not communicate well or at all with one another. Music streaming/purchasing services, copyright and royalty services are currently all centralized. This results in slow payments out to artists without providing them with a clear and accurate (publically verifiable) breakdown of the payment, all while the companies absorb their elegant fee for carrying out such service – slow, cumbersome, expensive and too ambiguous. This simply doesn't suffice for the information age we live in today.

By creating a simplified global standard as it relates to royalties, splits and licensing musicians can focus on the creation of music and create more value of their product.

Part II: Methodology

For this research, using qualitative research methods were the best option because the cryptocurrency world is still in its infancy stages. Therefore early adopters and pioneers are currently shaping and developing the industry. The primary data collected focuses on different companies that in the crypto-marketplace, two exemplified the most innovation using Bitcoin or blockchain technology were chosen for further examination. One in depth case study was conducted on the company, PeerTracks in which each business model, value proposition and special features were analyzed. Founding members of each company were interviewed with 10 open-ended questions that focused on the economics, current landscape and upcoming challenges that come with using digital currency. Applying this approach allowed for a wider analysis of the ecosystem in order to identify key trends thus answering the initial research question.

Continuing to search for a broad range of experts, the same 10 open-ended questions were sent to an additional 8 professionals, making 10 interviewees in total. These individuals were

chosen based off their expertise and knowledge within the music, financial and technology industries. The 8 executives received the questionnaire by email with a turn around time of 48-72 hours. Each of their responses were analyzed and compared to the initial findings from the literature review. A summary table highlighting the top 5 questions from most of the interviews will also be created and displayed. Secondary data referenced throughout the study include research about the history of Bitcoin and the future of digital payments, as well as current news, laws, and events surrounding cryptocurrency.

Part III: Results & Discussion

Case Study: PeerTracks

PeerTracks is a company that has created its own decentralized musical ecosystem. Co-founded by Eddie Corral and Cedric Cobban, the company was formed in 2014 and officially launched in 2015. Both co-founders envisioned a system that allows artists to generate a new revenue stream while empowering their own network of fans. The company's core focuses on incentivizing the "superfans" by making them promoters, honing in on the importance of Peer-2-Peer activity through the use of individual *ArtistCoins*. Let's consider a hypothetical situation: if you follow a punk band, we'll call them BandX, and are a loyal fan because you attend all shows and purchase all merchandise sold. BandX is a member of PeerTracks and developed its own limited quantity *ArtistCoin* called BandXCoin. For an example, say as a superfan, you want to be part of an experience BandX can reward you with 5 BandXCoin per dollar of merchandise. You then realize that BandX will offer you a virtual VIP session if you own 5 or more BandXCoin. In an interview with CryptoJunction, Cobban states: "The more music and merchandise artists sell on PeerTracks, the greater the value of their *Artistcoins*, so both the artist's and fan's interests are aligned and incentivized in a completely new way." PeerTracks considers themselves as a streaming service as well as an

online retail store. Interestingly enough, PeerTracks does not use Bitcoin, but they do use the decentralized blockchain technology. Another important feature of PeerTracks is when a user wants to download music or stream an artists' music, payments the user makes for that purchase go directly to the artist with no additional fees and minimal turn around time because of the blockchain. Though the company is still in its beginning phases, the Parisian/Canadian hub has shown significant growth and potential to break the traditional barriers within the music industry.

Case Study: SongCoin

SongCoin, a company dedicated to be the unofficial alternative currency in the music world in 2014. The premise for the creation of SongCoin was to make international transactions for music simpler along with introducing additional features like tipping and a user rewards system for purchasing things like concert tickets or merchandise. Founder, David Prince stated, "we're looking at providing people with a way to not pay transaction fees, not go through international wires, and a way for people to just kind of have something pretty much alternative to a dollar."¹⁵ Another big advantage of using something like SongCoin is the transparency in which you get when using the cryptocurrency. You physically can see all parties involved in the purchase and you can track all the splits if necessary. It takes the complication out of processing and being paid. "Once we have a major Indie band involved with our enterprise, and we see some market adoption then we will start to challenge the existing music revenue streams," states Prince in a CryptoCurrency News interview.¹⁶ Currently as of June 2015, SongCoin is experiencing technical issues.

¹⁵ Billboard, SongCoin wants to be Music's Alternative Currency

¹⁶ Crypto Coin News, SongCoin Reveals Plans to Disrupt Music Industry

Trends

The Importance of the Blockchain in Music

Blockchain technology is, as mentioned earlier, the heart and core of Bitcoin. It allows for all and any transactions to be recorded on a public ledger. The ledger acts like a middleman and eliminates the need for a governing body, better known as being decentralized. If we apply something like this to the music industry, it could potentially transform some of archaic systems already in place.

Looking at the innovation of smart contracts proves the overall potential of the blockchain. In an article with Fast Company's FastCoLabs states that a smart contract can be defined as such:

“...these automated contracts work like any other computer program's if-then statements. They just happen to be doing it in a way that interacts with real-world assets. When a pre-programmed condition is triggered, the smart contract executes the corresponding contractual clause.”

Smart contracts are using the blockchain technology to initiate the agreements, ultimately saving money and including fewer parties in the process. Let's apply this to the music industry. Contracts in the music industry, ranging from management contracts to publishing agreements, can be complicated and technical. Most likely you will have a plethora of stakeholders involved and it takes time and review. Entertainment Lawyer Martin Frascogna, who published a blog on smart contracts for MIDEM, explains the relevance of smart contracts, stating that “recording agreements can be digitally cross referenced to label bylaws, crossed against publishing agreements, sales figures, and so forth.”¹⁷ Applying this type of system to the music industry on a mass scale could level the playing field, as far as lawyers are concerned. Artists would become more empowered and essentially have the

¹⁷ Midem blog, 3 Reasons Contracts are Doomed

ability to be their own lawyers. Smart contracts using the blockchain are just scratching the surface, as the potential of the technology is much more expansive. Though as the technological world advances, a question that can be raised is how will the surrounding industries keep up? How will the PRO's (Performing Rights Organization) be affected? Is the blockchain safe? Will the law be an issue?

According to George Howard, Associate Professor of Music Business Management at Berklee College of Music, there's an easier way to track the creation of a musical work. He stated that, "the blockchain holds promise in terms of creating a system in which – via a public registration of a work to the blockchain - a public record of a work is created that runs with the work so that when it's transferred, derivatives are created..." Creating this system as George stated can revolutionize the necessity for intermediaries in the music business.

The Micro Ecosystem in Music

The micro ecosystem in music is a place where companies and transactions use incremental or small payments for specific purchases. We see this type of model when talking about Bitcoin. When using the digital currency, Bitcoin, instead paying with one BTC you're paying a fraction of one BTC. Let's break that down a bit more. In the editorial world currently you are seeing places such as WordPress are allowing members to be tipped via micropayments. These tips are micro rewards/payments used to compensate the creators of content that consumers enjoy. Currently SongCoin wants to offer a feature of tipping an artist you like as mentioned earlier. According to Wong Joon Ian, Journalist at CoinDesk, there's an opportunity, "the case for micropayments seem strong. It could be a way for independent artists to easily and quickly get paid a fair amount for their music. However for that to happen mass adoption by listeners and fans of digital currency must first occur." Will

micropayments become a standard to stream and view music? Can this type of business model prove a higher ROI than the streaming services?

Conclusion

In short, can the ever-changing music industry use digital currency as a universal purchasing standard? Will the music ecosystem adapt to using digital currency just like money or will there be a continued stream of innovation where the traditional systems are challenged?

As technology continues to advance and our species relies on technology, things like Bitcoin will be circulated to the masses. Using the blockchain technology can make digital payments more seamless and fair for musicians, and creating a decentralized and transparent system is what the music industry needs.

The use of digital currency is here to stay. Digital currencies will be used like traditional currencies and innovate through its unique as a technology. Perhaps we will see a more gamification approach while using digital currency. Also, using incremental micropayments for recorded music or musical services are offered will begin to become more frequent over time.

“The fees being smaller than credit card fees allow an artist to keep the same price but make more per sale. It also becomes viable to sell your music at a cheaper price and still make as much income as before. This second option (lowering of prices) also makes buying music more economically feasible for more users and can switch many people,”

stated Cedric Cobban when asked about the role of micropayments. These important trends are ushering in the next iteration of the music businesses. In an interview with the United Kingdom's *The Guardian*, U2 front man, Bono stated, “Spotify are giving up 70% of all their revenues to rights owners. It's just that people don't know where the money is because the record labels haven't been transparent.” Meaning that as musicians are being paid for their music it's taking time and most artists cannot understand why they haven't made much money off of streams when millions of people may or may not have streamed their music.

The best way the music industry can use digital currency as a music industry standard is to do one of three things: One – Simplify the role of the collecting societies by using the blockchain to create and follow the music. If an artist can create a song and follow the value chain globally, it may ease their concerns. It can also help give the artist a better understanding of how their royalty splits work out in a more transparent way. Even though Bitcoin made a real splash, the use of the cryptocurrency will not solve the issues simply because Bitcoin has a limited quantity but most importantly because the price will continue to fluctuate aggressively. Two – Use micropayments as a standard amongst all streaming services. Instead of using a Freemium model, implement a nominal charge to listen or view music. Finally, another option on how digital currency can be used is by creating software that can combine both the blockchain and micropayments while somehow seamlessly embedding it into music. If an integration is seamless the learning curve may be smaller for users and musicians alike.

Bibliography

American Banker. 2015. "Why Banks are Testing Bitcoins Blockchain without Bitcoin." June 1. <http://www.americanbanker.com/news/bank-technology/why-banks-are-testing-bitcoins-blockchain-without-bitcoin-1074622-1.html>

Andre Hagiou and Nathan Beach, "Bitcoin: The Future of Digital Payments," Harvard Business School (July 2014): 3-20.

Billboard Magazine. 2014. SongCoin wants to be Music's Alternative Currency. February 26. <http://www.billboard.com/biz/articles/news/digital-and-mobile/5915780/songcoin-wants-to-be-musics-alternative-currency>

Billboard Magazine. 2014 "Mastodon, 50 Cent First Mainstream Acts to Accept Bitcoin Payments." June 11. <http://www.billboard.com/articles/news/6114229/mastodon-50-cent-first-mainstream-acts-to-accept-bitcoin-payments>

Bitcoin Magazine. 2014. "Bitcoin Revolutionizing Consumers Buying Music." Last Modified June 14. <http://bitcoinmagazine.com/14005/bitcoin-revolutionizing-consumers-buy-music/>

CoinDesk. 2015. <http://www.coindesk.com/> June 29. Homepage

CryptoJunction. 2014. "PeerTracks Revolutionary One Stop Music Platform Powered by Bitshares." November 26. <https://cryptojunction.com/peertracks-revolutionary-one-stop-music-platform-powered-bitshares/>

Crypto Coins News. 2014. "SongCoin Reveals Plans to Disrupt Music Industry." November 9. <https://www.cryptocoinsnews.com/songcoin-reveals-plans-disrupt-music-industry/>

Digital Music News. 2013. A Quick Summary of what Streaming Services are Paying Artists. December 13. <http://www.digitalmusicnews.com/permalink/2013/12/13/quicksummarystreaming>

Economist Magazine. 2014. "How do Bitcoin Transactions Work?" Last Modified January 9. Accessed December 2014.

Economist Magazine. 2013. "Mining Digital Gold." April 13. <http://www.economist.com/news/finance-and-economics/21576149-even-if-it-crashes-bitcoin-may-make-dent-financial-world-mining-digital>

FastCoLabs. 2014. "Smart Contracts Could be Cryptocurrency's Killer App." September 17. <http://www.fastcolabs.com/3035723/app-economy/smart-contracts-could-be-cryptocurrencys-killer-app>

The Guardian. 2013. "Zoe Keating Spotify Streaming Royalties." August 19.
<http://www.theguardian.com/technology/2013/aug/19/zoe-keating-spotify-streaming-royalties>

The Guardian. 2015. "Bono Apple Spotify Digital Music." Jan 15.
<http://www.theguardian.com/technology/2015/jan/05/bono-apple-spotify-digital-music>

Midem Blog. 2015. "3 Reasons Contracts are Doom." March 19.
<http://blog.midem.com/2015/03/martin-frascogna-3-reasons-contracts-are-doomed/#.VZRaAhNViko>

Inside Bitcoins. 2015. "The Mt. Gox Post Bankruptcy Claims: a Detailed Guide." May 8.
<http://insidebitcoins.com/news/the-mt-gox-post-bankruptcy-claims-a-detailed-guide/32357>

Satoshi Nakamoto, 2008. "Bitcoin P2P E-Cash Paper," October 31.
<http://article.gmane.org/gmane.comp.encryption.general/12588>, accessed April 25.

PC Magazine Australia. 2014 "Are Micropayments the way Forward for Journalism." Last Modified July 8. <http://au.pcmag.com/micropayments/12977/feature/one-aussies-bid-to-save-the-media-industry>

Tech Republic. 2014. "10 Things You Should Know About Bitcoin and Digital Currencies." Last Modified May 21. Accessed December 2014. <http://www.techrepublic.com/article/10-things-you-should-know-about-bitcoin-and-digital-currencies/>

The International Federation of Phonographic Industry. 2014. "IFPI Music Subscription Revenues." <http://www.ifpi.org/news/music-subscription-revenues-help-drive-growth-in-most-major-markets>

PBS: NOVA. 1996. "The History of Money." Accessed March 10.
<http://www.pbs.org/wgbh/nova/ancient/history-money.html>

Popper, Nathaniel. *Digital Gold: Bitcoin and the Inside Story of the Misfits and the Millionaires trying to Reinvent Money*. New York: Harper Collins, 2015.

Wall Street Journal. 2014. "5 Things About Mt. Gox's Crisis." Last Modified February 25.
<http://blogs.wsj.com/briefly/2014/02/25/5-things-about-mt-goxs-crisis/>

Weismann, Miriam, and Smith, Antoinette. 2014. "Are You Ready for Digital Currency?" *The Journal of Accounting and Corporate Finance*. Accessed December 1, 2014. Accessed pages 17-21. DOI 10.1002/jcaf.21999

Wired Magazine. 2009. "Bouillon Bandits: The Rise and Fall of E-Gold." June 9.
<http://www.wired.com/2009/06/e-gold/> Accessed June 7.

Appendix

Diagram 1

How a Bitcoin transaction works

Bob, an online merchant, decides to begin accepting bitcoins as payment. Alice, a buyer, has bitcoins and wants to purchase merchandise from Bob.

WALLETS AND ADDRESSES



Bob and Alice both have Bitcoin "wallets" on their computers.



Wallets are files that provide access to multiple Bitcoin addresses.



An address is a string of letters and numbers, such as 1HULMwZEPkEPeCh43BeKjLYbLCWrDpN.



Bob creates a new Bitcoin address for Alice to send her payment to.

CREATING A NEW ADDRESS

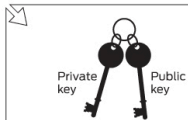


Each address has its own balance of bitcoins.

SUBMITTING A PAYMENT



Alice tells her Bitcoin client that she'd like to transfer the purchase amount to Bob's address.



Public Key Cryptography 101
When Bob creates a new address, what he's really doing is generating a "cryptographic key pair," composed of a private key and a public key. If you sign a message with a private key (which only you know), it can be verified by using the matching public key (which is known to anyone). Bob's new Bitcoin address represents a unique public key, and the corresponding private key is stored in his wallet. The public key allows anyone to verify that a message signed with the private key is valid.

It's tempting to think of addresses as bank accounts, but they work a bit differently. Bitcoin users can create as many addresses as they wish and in fact are encouraged to create a new one for every new transaction to increase privacy. So long as no one knows which addresses are Alice's, her anonymity is protected.

VERIFYING THE TRANSACTION



Gary, Garth, and Glenn are Bitcoin miners.

Their computers bundle the transactions of the past 10 minutes into a new "transaction block."

The miners' computers are set up to calculate cryptographic hash functions.

Private key



Alice's wallet holds the private key for each of her addresses. The Bitcoin client signs her transaction request with the private key of the address she's transferring bitcoins from.



Public key

Anyone on the network can now use the public key to verify that the transaction request is actually coming from the legitimate account owner.

