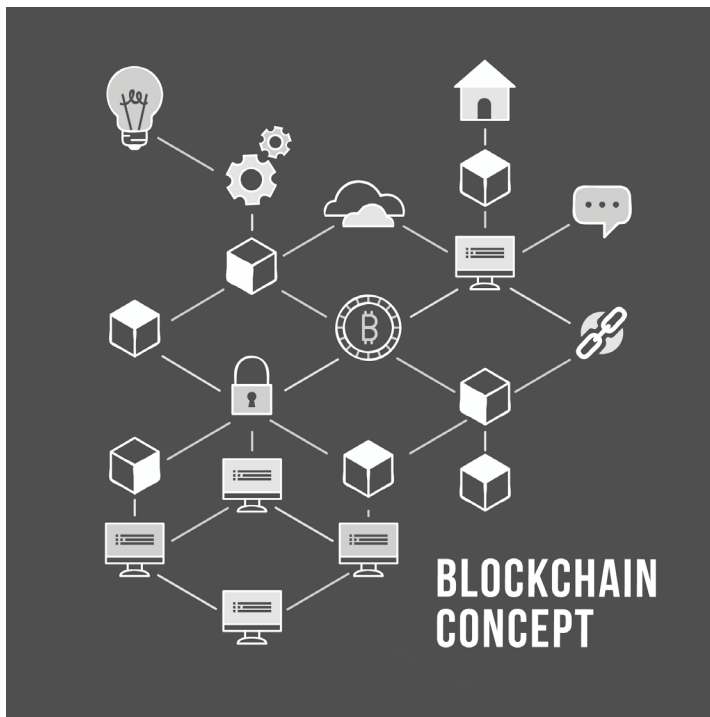


Blockchain Technology: Opportunities for Media and Creative Industries

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This report aims to explore blockchain technology and its potential in social, economic and artistic contexts, from its origin to the present days. Blockchain can be an important opportunity for those authors and artists with less visibility not only to stand out in a market dominated by industry monopolies but also to take an active part in distribution and monetisation of their work. In the context of disintermediation, blockchain's allegedly wide potential promises to disrupt creative industries and the media industry in general.



Introduction

Blockchain technology is a relevant topic that undoubtedly marks modern day economy, society and technology. Blockchain positions itself as a potential solution for solving security and trust issues in the IoT (Internet of Things). It also opens a range of different opportunities for functioning and transforming of digital markets and the internet itself.

Moreover, blockchain may soon be used for the storage of important social information, for instance, the electronic voting systems implemented in the city of Moscow based on blockchain technology assure electoral transparency (Scroxtan, 2017).

Nevertheless, this technology is surrounded by controversy and difference of opinions between those who advocate that blockchain can completely amend the internet paradigm and the society in general, and those that simply condemn it to failure (Tapscott and Tapscott, 2016).

Often associated to crypto-currencies - being even mistaken with bitcoin - blockchain technology currently surpasses bitcoin's own relevance due to the possibilities of use that it offers in diverse sectors such as the financial, health, music, entertainment ones among others (Tucker, 2018).

In this sense, the author argues that it is paramount to approach the fundamentals of this emerging technology, from its origins in cryptography and in the *cypherpunk* movement, and envisage its possible implementation for the benefit of creative and media industries.

In its essence, blockchain consists of an online database whose information is stored in a

successive chain of blocks. In each conducted transaction, the information is attached to the following block and a new record is generated. The latter is capable of being confirmed by every computer (knots) of the blockchain network (Casey and Vigna, 2018:13). Every registration is unchangeable, and each knot can verify the veracity and transparency of transactions. In this way, blockchain network participants trust each other not due to moral issues, but through the transparent and consensual functioning, provided by the technological system. Decentralising the confidence factor along with the concepts of disintermediation, transparency, privacy and online security arguably underlie blockchain technology (Herian, 2018). One of the most promising aspects of blockchain lies in the fight against the excessive centralisation of services and data by tech giants such as Google, Facebook or Amazon, that users place confidence in, sometimes disregarding their own privacy and property rights, in exchange for a convenient and mainly free service (Casey and Vigna, 2018:14).

In the context of blockchain technology, the market offers functioning creative and media industry products and services. This article provides an overview of these products that serve as an alternative to online services. Therefore, this article aims at answering the following questions: 1) How can creative industries and the media benefit from the blockchain technology? 2) Will the blockchain technology be able to support the activity of emerging creative artists through disintermediation?

The context the basic foundations of blockchain and bitcoin creation can be traced back to the *cypherpunk* movement¹. This movement emerged in the end of 1980s, and according to the *Cypherpunk's Manifesto*

1 - Note that the *cypherpunk* movement differs from *cyberpunk* (a subgenre of science fiction).

to, its fundamental basis lies in the freedom of speech, free access to information, protection of online privacy through the use of technology and cryptography, as well as making *open source software* available (Hughes, 1993).

One of the basic principles of blockchain technology is to use an intelligent algorithm to solve a dilemma described in computer science, which involves the transmission of messages in a secure way, known as “Byzantine generals’ problem” (Martins, 2018:46). In 2008, blockchain technology solved the issue of trust in decentralized networks through the resolution of an existing double spending fatal problem that prevented the practical validation of technology in financial contexts (Martins, 2008:39).

The academic article by the author Satoshi Nakamoto (an alias of an unknown author) published at bitcoin.org in 2008 titled: *Bitcoin: A Peer-to-Peer Electronic Cash System* (Nakamoto, 2008), ushered the first blockchain *killer app*: The bitcoin. This article demonstrated that blockchain’s viability has a support of an autonomous value exchange system, arguing that the bitcoin is a “decentralized network of payments which is supported in a set of technologies and algorithms, with the generic designation of blockchain” (Martins, 2018: 55).

The blockchains may be assumed as private or public. The private ones have restricted access and/or conditional access to the source-code, being owned by closed groups or companies. On the other hand, the public ones were conceived in an open and decentralized way, allowing that any knot may be a part of the network and have the equal hierarchic level. Therefore, it is a decentralized network of computers which “use a common proto-

col assumed by all users that allows them to record transactions in the ledger of the database” (Preuskschat, 2017: 28). Furthermore, Preuskschat (2017:7) mentions that thanks to blockchain, the current information on the internet will reach a new evolutionary step titled “the internet of value”. This internet evolution permits to grant digital representation to any store of value, including creative content, physical and intangible assets (Casey and Vigna, 2018:14), such as titles, records, certifications, archives, songs, in a digital and decentralized way, without having a third party acting as an intermediary.

Potential Benefits of Blockchain for Creative Producers

Apart from the crypto-currency universe, blockchain technology has several applications that may be used to establish the ownership of tangible assets like land and real estate objects, or to certify the authenticity of luxury, food and pharmaceutical items. In the field of intangible assets that is applicable to the creations of creative industries and media sectors, therefore the blockchain technology can constitute an important opportunity for authors with less exposure to the market, allowing them to protect their intellectual rights and receive direct and transparent remuneration without intermediaries. It may also allow these authors to directly take part in the distribution process of their creations by sharing their works and receiving income in the forms of micropayments and virtual currency, as well as by accessing the track record of how their creations, e.g. books, are used.

These transactions are made possible through the use of *smart contracts* (small, intelligent contracts between an author

and a consumer) carried out in the blockchain network (Casey and Vigna, 2018:16). The blockchain network allows an attribution of a reputation system that cannot be falsified and generates a good conduct in the dealings. Some artists have already started using the blockchain technology to promote themselves. This is the case of singer/songwriter Imogen Heap who created her own blockchain - Mycelia2 (Perez, 2016), and also of singer Bjork who, in 2017, made her album available for purchase accepting crypto-currencies as a method of payment (Chapman, 2017).

Transparency of transactions related to creative work enables a producer to know who accessed the work, which profit it generated or even who accessed the content services, like small passages of a song or parts of a movie, for further use in creative products. For instance, the Basic Attention Token (BAT)³ platform, which connects authors and users through the browser Brave, opens a privileged channel of exchange between them by skirting the traditional survival scheme through advertising. By means of blockchain technology, several alternative online service platforms have been created. They gradually gained more and more users by putting the "power of cryptography in the hands of the individual" (Coelho, 2017).

For instance, the **Viberate**⁴ platform is a live music ecosystem of crowdsourcing and an online market which is based on the blockchain technology. Viberate works simultaneously as a showcase for artists without agents. In addition to that, the **Sia platform**⁵ also provides a decentralized storage of information in blockchain, thus freeing users from censorship or control on behalf of entities that run data centers.

The **LBRY**⁶ protocol has similar goals; it is a channel for sharing digital content with a focus on video, which serves as an alternative to YouTube, while the latter is criticised by both creators and consumers for its practices of curatorship and editorial philosophy. Another domain, the **Creativechain**⁷ platform, helps users sell, purchase and exchange assets between each other by avoiding any intermediaries. Creativechain acts in a transparent, public, incorruptible, and censorship-proof way by offering a system for intellectual property registration and specialised legal support. Intelligent contracts are generated for that (cryptographically signed, they guarantee an easy and economical alternative to traditional cultural and creative provision of service contracts). A similar service is offered by the **Valtitude**⁸ platform, which offers its users an opportunity to search the record of inventions, works of art, contracts and NDAs,

2 - Blockchain Mycelia provides online services of interactive music and can be accessed here: <http://myceliaformusic.org>

3 - Platform Basic Attention Token (BAT) can be accessed here: <https://brave.com>

4 - Viberate platform can be accessed here: <https://www.viberate.io/>

5 - Sia platform can be accessed here: <https://sia.tech>

6 - LBRY platform can be accessed here: <https://lbry.io/what>

7 - *White paper* on the Creative Chain platform is available here: <https://www.creativechain.org/whitepaper>

8 - Valtitude platform can be accessed here: <https://www.ipchainedatabase.com>



that have been approved by the World Intellectual Property Organization. This aspect points to a significant potential of blockchain, which is in allowing the registration, look-up and validation of records of authorship or ownership in an easy, fast, unchangeable, safe and – above all – a cost-efficient way. In order to capitalise on that advantage in the context of copyright registration, such platforms as **Binded**⁹ and **Ascribe**¹⁰ allow authors to record digital images in the blockchain of bitcoin. After submission and validation of images, a client not only receives a cryptographic register which will function as a chronological proof of authorship, but is also attributed a digital certificate of authenticity for his/her work.

Conclusion

The blockchain technology currently surpasses the potential of the crypto-currency universe. To fully understand the potential of blockchain, one needs to go a few decades back, to its emergence in the *cyberpunk* movements and to the use of cryptography. blockchain can also become an alternative tool for the creative industries and the media, thanks to its functioning in a trustworthy, transparent, anonymous, fast, and particularly cost-efficient way, which artists and authors can benefit from.

The lack of regulation has been one of the main limitations to blockchain's implementation and its adoption by individual creative producers. However, thanks to blockchain creative authors can still obtain profits generated by their work directly and faster, they can also understand where and in which situations their products are used, by surveying the entire process of artistic creation.

It is evident that blockchain technology has an unsurpassable potential. Nevertheless, in order to be adopted by more people, it needs to improve and develop in several ways, from finding a solution for high data processing and the subsequent energetic impact of it, as well as the speed of access to information that, in comparison with other centralised technologies, is still inferior. Mass adoption of blockchain technology might occur in the near future not only due to its convenience, but also due to a network effect. Alongside the rise of social networks, whenever the number of users grows, to a great extent, influenced by social recommendation, the mass adoption of blockchain may be fuelled by users' conscious decision to implement better standards of individual privacy protection.

9 - Binded platform can be accessed here: <https://binded.com>

10 - Ascribe platform's terms of service are available from this address: <https://www.ascribe.io/terms>

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