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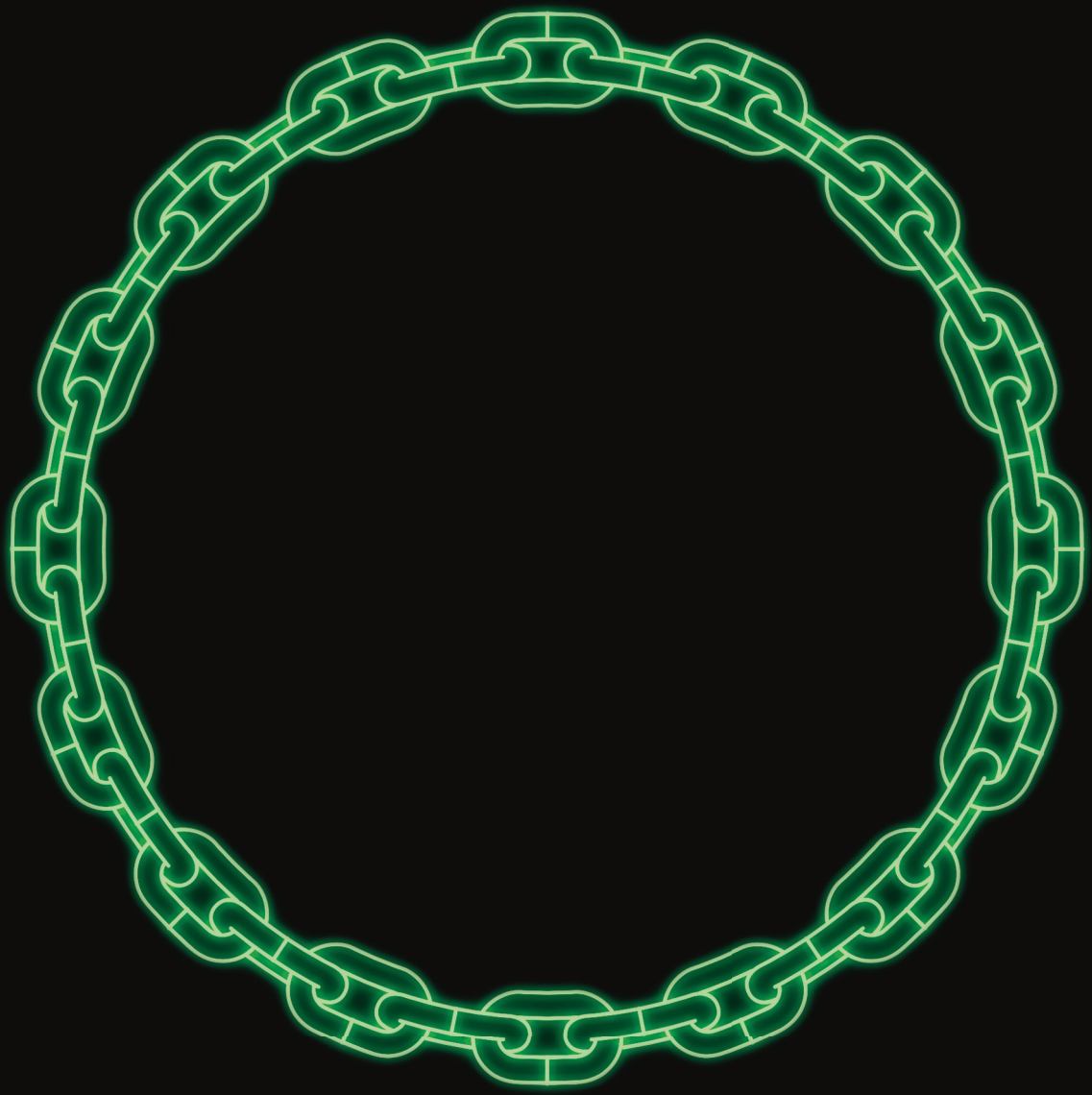

Blockchain @ Media

A new Game Changer
for the Media Industry?

blockchain
INSTITUTE

Content

Introduction

Blockchain is currently one of the most widely discussed and hyped technologies. There are only a few industries that are not either excited or worried about the concept, as use cases, proof-of-concepts, and fully-fledged businesses based on blockchain principles are emerging at an increasing pace. This much is certain: blockchain has the potential to disrupt existing but also to enable new business models.

This is particularly true for the media industries, which have been heavily affected by the ubiquitous availability and the subsequent "commoditisation" of content and undermined by widespread piracy of intellectual property (IP). Today, media users are largely accus-tomed to having free access to a wide variety of content, and most of them are still reluctant to pay subscription fees for "premium" content behind paywalls. In addition, all media segments have suffered significantly from digitization, since content can be copied and distributed easily and without loss of quality. So far, the introduction of Digital Rights Management systems has not substantially reduced copyright infringements. The ensuing revenue "leakage" has been only partially recovered through new consumption models such as all-you-can-consumer streaming subscriptions and micro-payments for articles.

Blockchain-based technologies have the potential to resolve some of the current challenges:

- Paid content can receive a boost from new, micropayment-based pricing models
- Monetization options emerge for an increasingly fragmented content inventory (e.g. blogs, news bites, photos)
- Allocation of advertising budgets becomes more accurate and targeted as media usage can be directly linked to the respective content items
- Copyright infringements and piracy would be nearly impossible

However, the technology and the mechanisms are still young and evolving, and industry-wide adoption of standards is most probably still a few years off.

Central

Decentral

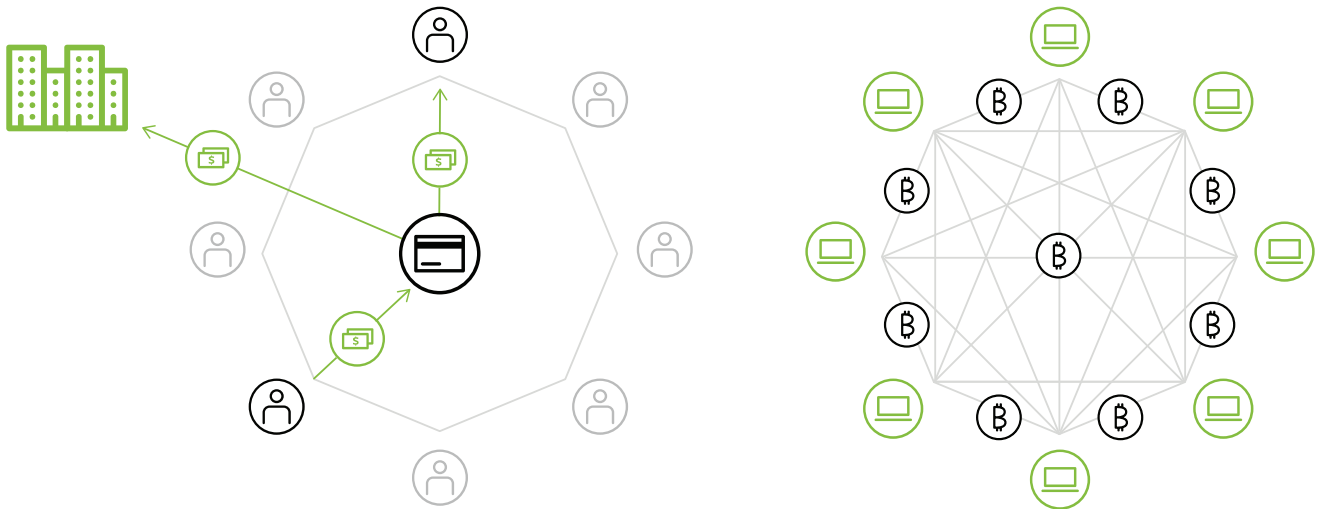

Figure 1: Central transactions versus decentral transactions

What is a blockchain?
Before going into the industry specifics, let's clarify what a blockchain is:

"A blockchain is a digital, immutable, distributed ledger that chronologically records transactions in near real time. The prerequisite for each subsequent transaction to be added to the ledger is the respective consensus of the network participants (called nodes), thereby creating a continuous mechanism of control regarding manipulation, errors, and data quality."

The first blockchain transaction was created by Satoshi Nakamoto in 2009. Originally conceived to serve as the underlying technology for the cryptocurrency Bitcoin, the technology offers innumerable further application areas. Blockchain enables the settlement of transactions in a network without a central authority, thereby increasing the speed and reducing the costs of transactions.

To better understand the underlying processes it is useful to memorise the five key characteristics of a blockchain:

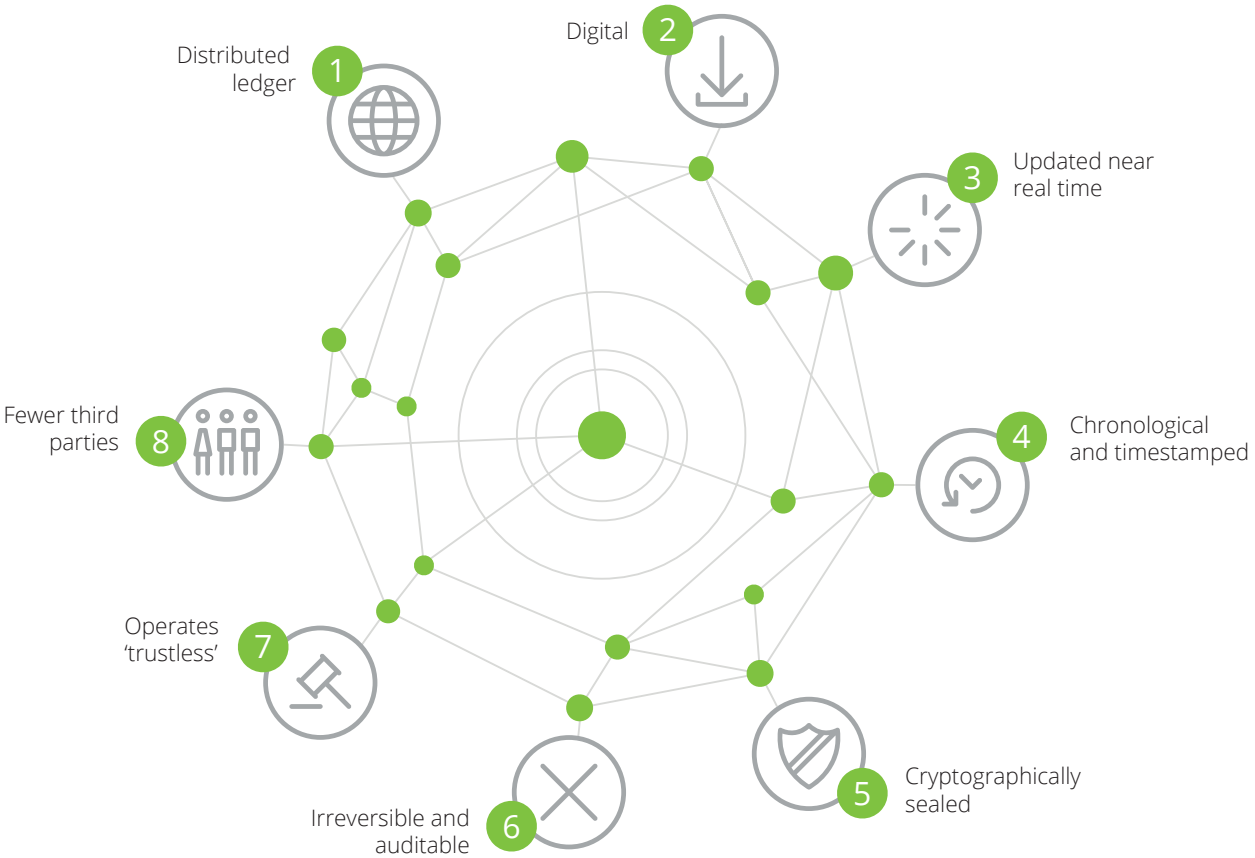

Figure 2: Key characteristics of blockchain

Distributed
Identical copies of all records are shared in the blockchain. Participants can independently verify information. Verification processes are not dependent on a centralised authority. If one node fails, the remaining ones can continue to operate ensuring availability and reliability.

Digitised
Almost any type of information can be expressed in digital format and subsequently be referenced through a ledger entry.

Consensus-based
Participants in the network collectively authenticate and approve transactions to the blockchain. There are different methods of reaching the consensus. Generally speaking, a majority of network participants has to agree to the transaction's correctness, and rules can be tailored to circumstances.

Chronologically updated
The blockchain is permanently timestamped, each block points to and refers to the data stored in the previous block in the chain, so all blocks are linked to each other.

Cryptographically sealed

Sealed in the chain, blocks can no longer be changed: the prevention of deletion, editing, or copying creates true digital assets.

These multiplied and decentralised blockchain processes lead to a high level of robustness and trust. Every participant in the network has the ability to verify the correctness of transactions. Network consensus methods and cryptographic technology are used to validate transactions. Thus trust is not established externally by a central authority or an auditor but continuously in the network. Furthermore, the decentralised storage in a blockchain is known to be very failure-resistant. Even in the event of the failure of a large number of network participants, the blockchain remains available, eliminating the single point of failure. New information stored in a blockchain is immutable. Its method of recordkeeping prevents deletion or reversal of transactions once added to the blockchain, once further blocks have been added.

A relatively recent but potentially key concept especially for media companies is the concept of "smart contracts", which are essentially computer code stored in a blockchain that can perform actions under specific circumstances.

Ethereum, the second-largest blockchain network by market capitalisation, was the first platform to introduce the concept of a smart contract that could be deployed and executed in a distributed blockchain network. The Ethereum protocol is public so the terms of each contract can be viewed by anyone accessing the Ethereum blockchain network.

Smart contracts enable counterparties to automate transaction tasks that are typically performed manually and that require the involvement of third-party intermediaries. Smart contract technology can result in processes that are faster and more accurate and cost-efficient.

Smart contracts cover a large number of contractual application areas that can profit from increased reliability, faster transaction processing, lower costs, and fewer manual process steps via intermediaries. Smart Property for the Internet of Things, copyright law, or financial derivatives will benefit from more efficient processing of legal content, to name a few.

The use cases for the media and music industries discussed below are all built around these unique blockchain characteristics as enablers for more reliable, tamper-proof, and failure-resistant applications.

Time to change?

How blockchain can impact media

In recent years, a set of heterogeneous players has become established along the media value chain: artists as the primary creators of content, aggregators, and platform providers plus (depending on the country and type of media) a collecting body handling royalty payments.

With the advent of blockchain this industry structure could change signi icantly. Blockchain technology permits bypassing content aggregators, platform providers, and royalty collection associations to a large extent. Thus market power shifts to the copyright owners.

While some applications of blockchain technology may still seem farfetched and require further technological advancements, payment-focused use cases have already been proved to work. Parts of the media value chain are therefore already endangered by new blockchain-based payment and contract options. These can fundamentally reset pricing, advertising, revenue sharing, and royalty payment processes.

Payments or advertising revenues no longer need to be centrally collected. Payment transactions become less costly and the distribution of revenues is automated, based on predefined smart contracts.

The five illustrative use cases below are intended to trigger thinking on how powerful the blockchain concept can be in and for media.

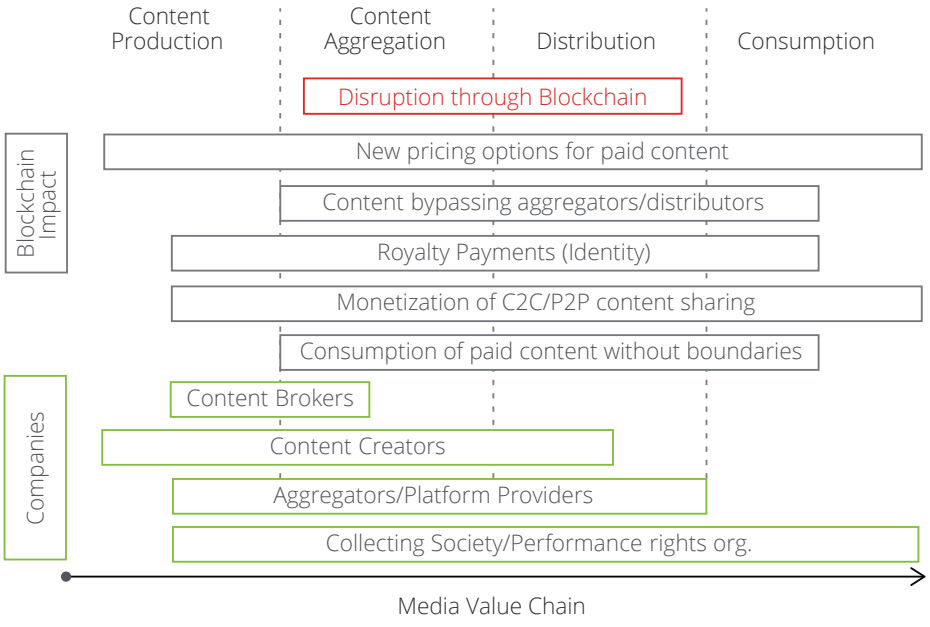

Figure 3: Blockchain's primary relevance in the media value chain

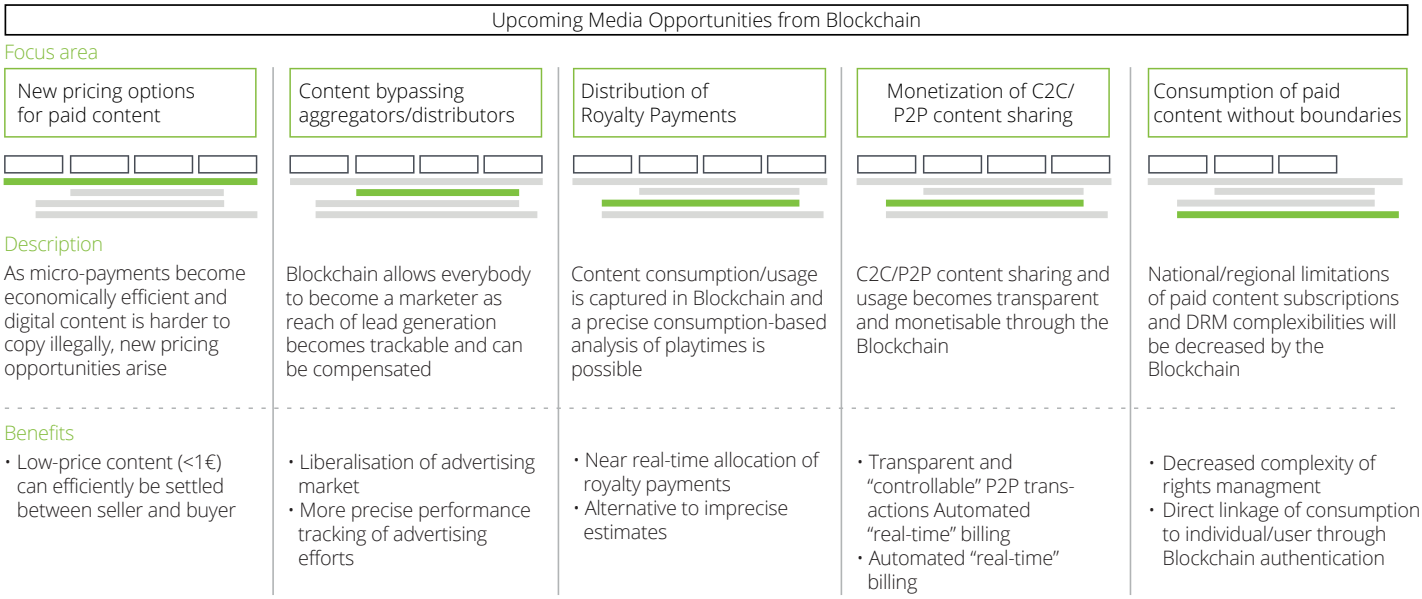

Figure 4: Blockchain-based Opportunities

How it could be done

Having learned about blockchain technology in general and its particular relevance for the media industry, our five blockchain-based use cases will show how changes could soon become reality.

„We are at an amazing point in history for artists. A revolution is going to happen, and the next year it's going to take over. It's the ability of artists to have the control and the say of what they do with their music at large. The answer to this is in the blockchain."

-Imogen Heap, British singer and songwriter

Use Case #1 –

New pricing options for paid content

Consumers demand an individual content experience – they want to consume (video) blogs, pictures, single articles, news bites or short form videos from their preferred sources to complement the established content portfolio (TV, Newspapers, Radio etc.), and the success of music and video streaming services has even intensified this trend.

Becoming more and more accustomed to "digital" business models, consumers expect "per-use" payment models, instead of paying a monthly/yearly fee for an online subscription to one particular newspaper/ (Pay-)TV channel.

Benefits

- Increased willingness to pay especially younger digital natives are more willing to pay a few cents for a music track they favour than to be charged a flat monthly subscription
- Copyright tracking becomes more accurate, as does allocation to media copyright holders and the subsequent distribution of royalty payments
- Efficiency increases, since costly monitoring of contractual agreements and complex distribution of profits are not necessary.

The subsequent increase in the number of transactions for each usage will also directly affect the transaction costs in current billing systems and models. Transaction costs made it difficult to market low-priced content items or small bundles competitively and with a profit.

Blockchain-enabled micro-payments can help publishers to monetise this flexibility-seeking group of customers. With the help of a blockchain, individual articles or other pieces of content could be sold for cent-prices without disproportionate trans-action costs.

Micro-payments boost paid content

The blockchain makes even micro-cent payments cost-efficient. Current crypto-currencies, such as Bitcoin or Ethereum permit transactions as small as fractions of cents. It is thus an enabler for penny-price content purchases, such as paying for reading a single news article or strea-ming a single song. Also, traditionally ad-sponsored content such as YouTube videos can be monetised with an "ad-free" alternative for a small fee. Moreover, the combination of clearly-defined ownership rights and the ability to track sales permits the launch of totally new pricing models.

Thanks to blockchain, the distribution and monetisation of bite-sized content becomes much more fluid and prevalent. Blockchains enable copyright owners to track the usage of their material. It also ensures they receive their fair share of proceeds calculated and collected accurately and cost-efficiently.

Impact on digital content

The blockchain significantly affects the way in which media companies organise their workforce and payment schemes, e.g. articles posted on a news website could be directly linked to their respective authors. This way, profit-sharing could permit the featuring of articles not just by well-known columnists, but equally ones by freelancers. Micro-payments permit new print media pricing models that can attract new customer segments who are reluctant to purchase relatively expensive subscriptions for access to a broad range of content. Instead, a blockchain-enabled online news website could charge readers for its articles by the article – for a small price of only a few cents per read. This way, ad-free content can be offered to users who are sensitive about advertising and prefer to pay a small amount of money instead.

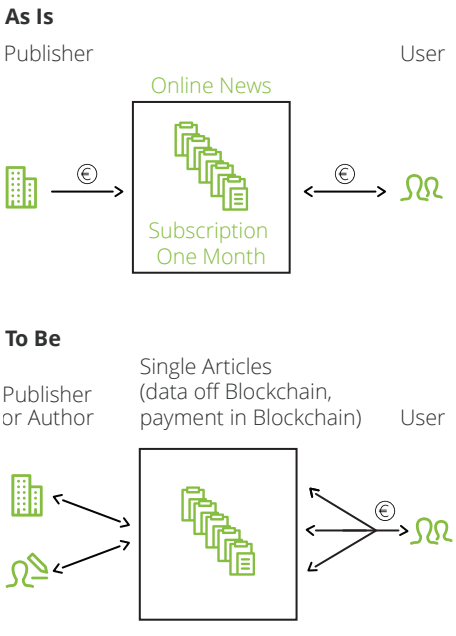

Figure 5: Micro-payments for digital content

Challenges

- Transaction quantity is massive because a large quantity of historical data needs to be retained at the blockchain nodes, due to the number of transactions
- Common blockchain standards still need to be agreed on
- Initial user registration is in-evitable. Users have to register and provide payment details to activate pay-per-click.

Use Case #2 –

Content bypassing aggregators

Paid content is increasingly gaining traction, but the monetisation of online media still heavily depends on advertising. As there is no overall willingness to pay for digital content, ad-based distribution models will remain important in the next decade. So far, the digital adverting ecosystem is complex and involves numerous stake-holders. There are several intermediaries between the content creator and the potential advertiser. The slice of the monetisation cake for the initial creator of digital content becomes smaller with every additional party involved. For emer- ging media assets such as blogs or user-generated content, the complexity of es-tablished advertising processes can even generally impede ad-based monetisation.

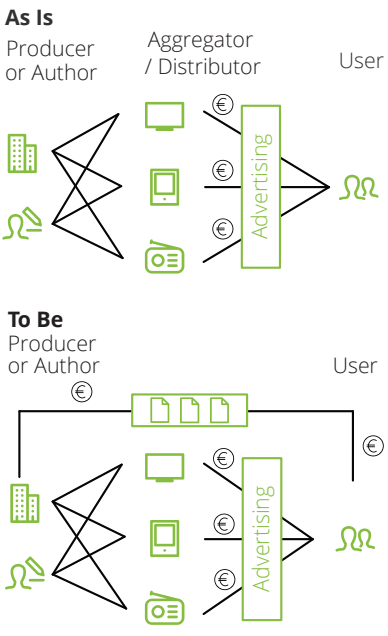

Figure 6: Direct media customer interaction

Blockchain facilitates customer relationships

Based on the blockchain, everyone from leading media houses to small bloggers can easily generate advertising revenues. As blockchains permit an exact tracking of content usage, it also enables a di-rect allocation of advertising budgets. Together with new, blockchain-enabled micro-payments, content creators are able to establish direct relationships with their customers. In an extreme scenario, aggregators could even become obsolete in the future.

As soon as artists tie up digital copies of their songs or videos in a blockchain they will be able to sell them directly to their fans without any intermediaries such as record labels. Moreover, a fair allocation of revenues from music streaming becomes possible, whether advertising- or paid con-tent-based. Artists can market their songs independently of big platform providers wherever they want, since a blockchain per-mits easy tracking of usage and deduction of the associated payments.

Shifts of power

Will aggregators soon become obsolete? Probably not, because media consumers still need to discover new content. Further on, the collection and aggregation of content will remain an important stage of the media value chain. However, power in the media industry will probably shift back to the artists, and the dominating role of huge platform providers will decline. The business model of large advertising networks is also endangered. In a blockchain age, the allocation of advertising budgets can be directly measured and billed. The flat marketing of advertising space will come to an end.

Aggregators need to reposition

Overall, blockchain is a serious game changer for the media and digital advertising industry. CEOs might need to reposition their companies for the new era. Media business models have to be adjusted to new balances of power. With fair billing models, aggregators can meet the requirements of content producers in good time. In this manner they will be seen as a fair partner in the blockchain age too. Smart search and recommendation functionalities will secure the significance of platform providers in the medium term.

Challenges

- Content aggregators and advertising networks are likely to lose their dominant market position in the media world.
- Monetisation of content becomes more democratic and entry hurdles could vanish.

Benefits

- Blockchain permits direct customer relationships between fans and artists.
- Marketing performance and impact become more accurately measurable.
- Existing complex media and advertising ecosystems become simple and transparent.

Use Case #3 –

Distribution of royalty payments

Today, the distribution of royalty payments builds on multiple contracts between artists, producers, and music publishing houses. For instance whenever a song is played on TV, radio, at events or is streamed online, the rights holders should receive a royalty payment in a contractually defined split. In order to ensure that this is happening, the national copyright col-lection bodies act as a collection platform for copyright holders and compensate the eligible parties.

However, contractual complexities can complicate the settlement activities, leading to opaque proceeds ("black box"). The share of royalty payments distributed in this manner relates to music consumption that cannot (yet) be linked to the rights holder. That can be a playlist at a wedding, music played in a store, or music in a YouTube video. At the moment, the collecting body gathers airplay statistics and uses that same relative distribution factor for the royalties that are not directly associated with a rights holder. As a result, the payments distributed are mere proxies, and e.g. lesser-known artists with only a few dedicated statistics are potentially not being compensated with a fair share of royalties overall.

Blockchain permits for transparent royalty distribution

With the help of a blockchain, the distribution of royalties could become more efficient and transparent. This would include a music directory with the original digital music file – associated with all relevant identities of people involved in the content creation. It is also possible to store instructions in form of smart contracts that specify how the artists are to be compensated and how sales proceeds are to be divided among all eligible parties. Preferably, an embedded blockchain-based mechanism tracks usage on streaming services, radio stations, television etc. and automatically accumulates credits or disburses actual payments to the respective copyright owners.

Challenges

- Large amounts of historical data to be retained at the blockchain nodes due to the number of "transactions" (airplays, streams, club-rotations etc.) across all music consumption channels
- Common blockchain platform and interoperable blockchain standards need to be agreed upon by the many relevant participants
- The position of a trusted third party might not be granted to collection associations by market participants

Benefits

- Near real-time and exact allocation and distribution of royalty payments according to usage, based on smart contracts - no more black boxes
- Cost efficiency – no costly tracking and monitoring systems for music usage required, as every consumption/usage will be tracked in the blockchain
- New role of collection associations – blockchain platform provider and verification of smart contract details through collection associations as trusted third parties

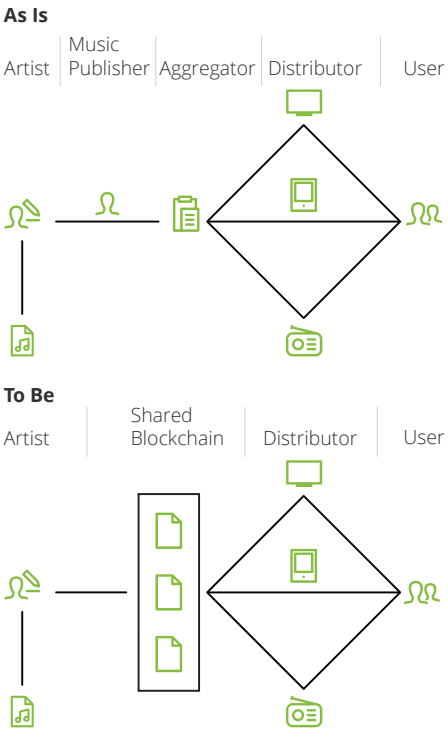

Figure 7: Potential change in distribution of royalty payments

Opportunities and threats for collection associations

Collection associations could use a blockchain to create a permissioned blockchain ecosystem for musical rights. Based on a broad consensus amongst the parties involved, the industry bodies would act as "gatekeepers" to grant and/or withdraw access to the closed ecosystem. In addition, collection associations, typically acting domestically for one or a handful of countries, could use a blockchain as an enabler to enter new markets, since established measurement and disbursement mechanisms in use with radio stations, broadcasters, and other parties which, for instance, play music commercially, could become obsolete through the introduction of smart contracts. In a different scenario, blockchain could also become a threat to traditional collecting bodies. Up to now they have been 'chasing' certain commercial users who "do not pay their bills", as exemplified by YouTubers illegally using copyrighted music in their videos, or royalty dues incurred by an event DJ. With the help of blockchain, every play of a song is recognised, counted, with royalties tracked and allocated to specific users. The role of the collecting body, collecting and distributing royalty payments, could soon become obsolete, as blockchain-based smart contracts take over the work instead.

To sum up, collection associations must immediately start thinking about how to adapt their business model and how to establish attractive permissioned blockchain ecosystems on a global scale.

Use Case #4 –

Secure and transparent C2C sales

Blockchain has the potential for content rights owners to enable additional revenue streams by leveraging consumer-to-consumer sales.

Thus while the idea of peer-to-peer content sharing is not new, it is and has been a serious threat to music creatives and movie/TV producers in the past. Peer-to-peer networks and the respective exchange of (media) files is almost impossible to control due to the sheer number of exchanges and of users exchanging files.

For example, a subscriber records a show on DVD which a friend without a subscription is interested in. Giving or selling this DVD to someone without a subscription is theoretically illegal but an established practice.

Attempts to legalise file exchanges and to monetise the transactions and contents have failed, owing to lack of customer interest and acceptance. Also due to the success of streaming media, platforms like Napster have changed their business model towards flat fee and all-you-can-eat consumption models for streaming services.

Nevertheless, illegal file sharing still remains a major problem for media companies, while the blockchain has the potential to solve that problem. With a blockchain, content owners have full control and visibility of the consumption and number of uses of individual songs and/ or movies. Therefore piracy and copyright infringements are nearly impossible. In addition, the transparency of blockchain enables content owners to "control" peer-to-peer content distribution and thus to create new business models such as consumer-to-consumer marketing of content. For example, now a subscriber can access their blockchain content and share it with a friend. The subscription holder will then be charged directly with the fee for the specific content they shared. This permits easy and legal sharing of paid content among users, and forms an additional source of revenue for aggregators and copyright holders. The same logic applies to physical copies that are shared among consumers, if the physical asset is authorised on a blockchain.

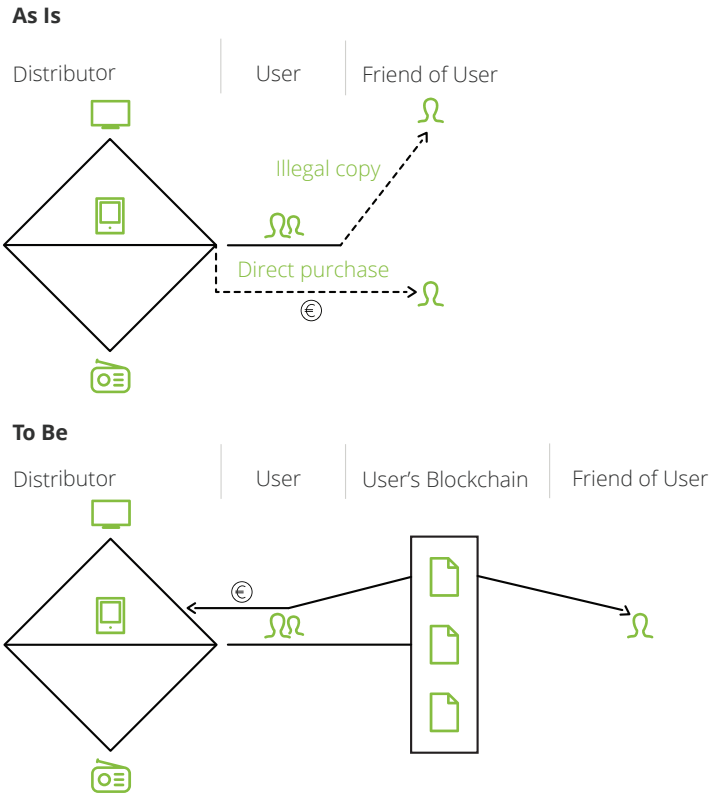

Figure 8: Secure and traceable C2C / P2P content sharing

Challenges for aggregators

In order to participate in C2C transactions, media aggregators (such as (Pay-) TV players and music streaming providers) will still play a role in the marketing of contents. Nevertheless, we expect the dynamics of the market to change in the long run due to the "democratising" effect of blockchain. The aggregator role will shift towards curated discovery platforms to find new content and will lose their "gate-keeper" role, as monetisation and real-time billing will be available to content owners via blockchain.

Benefits for content owners

Content owners can fully leverage, control, and monetise all copyright assets that are recorded in the blockchain. In addition, illegal file sharing and other copyright infringements will be impossible, due to the transparency of the blockchain details through collection associations as trusted third parties.

Benefits for consumers

- The blockchain records every usage of a specified content and enables real-time and fully transparent consumption-based pricing mechanisms. Consumers do not have to pay a monthly up-front fee, instead, only the actual usage will be billed to consumers.
- Due to the very low transaction costs in the blockchain, consumption-based business-models are also applicable to micropayments.

Use Case #5 –

Consumption of paid content without boundaries

The last use case deals with a situation that many subscribers of paid content subscriptions (e.g. for pay TV, VoD, streaming services) have witnessed in the past. They cannot access the contents they subscribed to once they are in another country/region, for example during business travel or on vacation.

The reasons:

- Licenses for content are usually sold country by country and therefore access from another country/territory is prohibited by the licensor
- In addition, DRM systems are not seamlessly integrated between different countries. Therefore the respective subscription rights and packages are not accessible in other countries.

Nevertheless players are currently rolling out models whereby subscriptions and access to content are not limited to specific countries/regions. But that can only be attained if the aggregator has acquired the rights for all geographic areas and the DRM systems are integrated. The blockchain is not a technical prerequisite for this endeavor since more sophisticated Digital Rights Management systems are also capable of dealing with complexities like multi-country access.

Nevertheless the blockchain has the potential to make DRM systems obsolete or at least to reduce the complexity of these systems, because every transaction/consumption is tracked in the blockchain and directly linked to a user. The payment will be automatically initiated according to the underlying smart contract terms for the content.

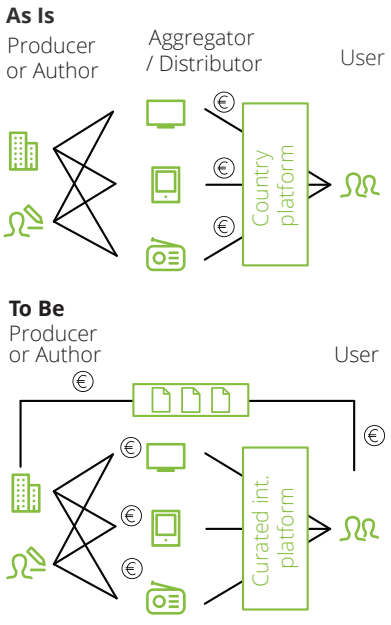

Figure 9: International access to paid content

Challenges

- Transformation from currently-installed DRM and billing systems towards multi-country access and integration of blockchain functionalities is fraught with complexities
- Players could become obsolete as aggregators since content owners will have the ability to market and sell their intellectual property directly to consumers.

Benefits

- Improved customer experience through "seamless" subscription models across different geographic areas
- Less complex and real-time billing
- Transparent and "self-executing" rights management due to underlying smart contracts.

Takeaways for Media Players

In a nutshell, blockchain's potential benefits for the media industry primarily relate to payment transactions and copyright tracking. Possible applications and technical innovations will have a far-reaching impact: content creators may be able to keep close track of their play-times, royalties and advertising revenues could be shared in an exact and timely manner based on consumption, and low-cost content could be purchased efficiently, even if priced at mere fractions of cents.

However, there are several fundamental issues and technical obstacles which may undermine the realisation of our use cases:

- Trust in blockchain technologies and platforms
- Opaqueness of blockchain platforms and standards due to quickly-changing market participants
- Usability and reach of blockchain technologies in everyday environments
- Interoperability of platforms and various standards needs to be secured

In addition, the amount of historical data stored by blockchain nodes could quickly become unwieldy and challenging due to a large number of "transactions".

To conclude, media players need to consider blockchain-based applications and their potential impact on the whole industry: micropayment-based pricing options for paid content, a shift of market power caused by content bypassing aggregators, and an improved distribution of royalty payments, to name just a few.

To ensure timely and appropriate measures, we recommend an immediate review of the individual consequences for the existing business. In addition, companies should lose no time in identifying applicable blockchain-based opportunities as a fundamental component of their future business strategy.

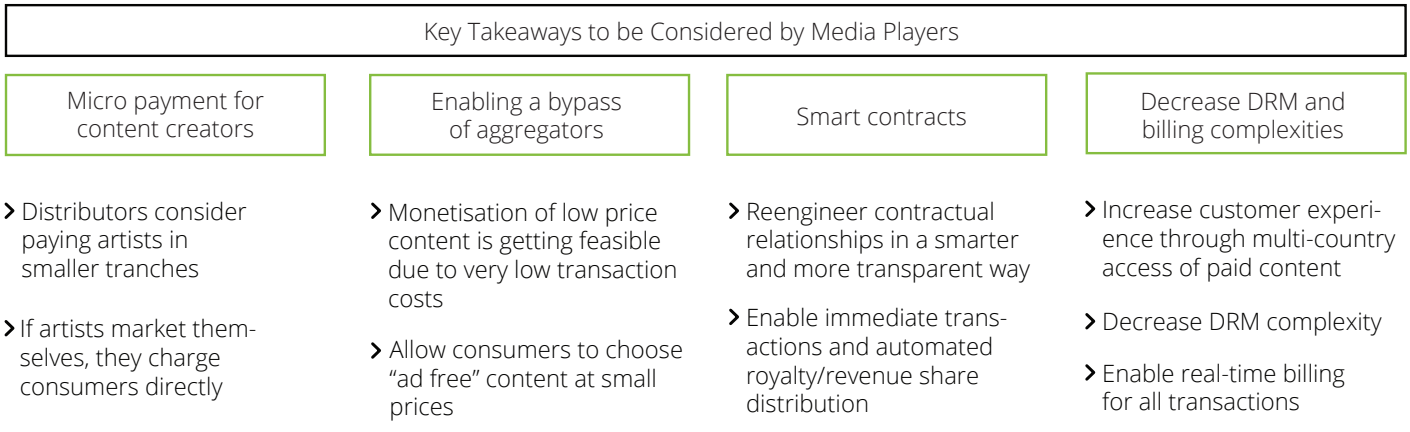

Figure 10: Takeaways for Media Players

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