GILBERT +TOBIN

BLOCKCHAIN: HYPE OR MAJOR DISRUPTOR? A COPYRIGHT LAWYERS' GUIDE

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CONTENTS

INTRODUCTION – THE PRACTICAL CHALLENGES OF MANAGING COPYRIGHT IN A DIGITAL WORLD

Managing copyright in today's digital world is becoming incredibly complex. Does blockchain create new options for managing copyright and other rights in relation to content? Is blockchain just a solution looking for a problem, or is there something more to it?

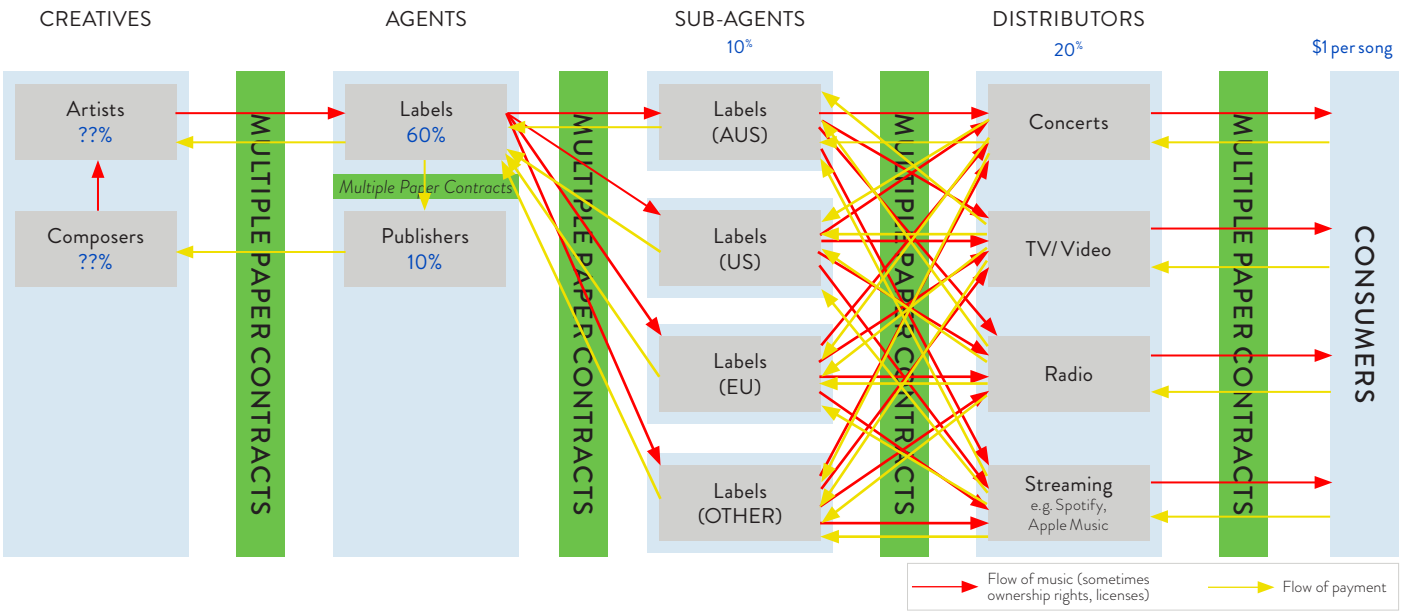
Some of the key practical challenges lie in:

- tracking the rights attached to each item of content – which can be a very complex and intricate matrix of content rights;
- tracking and controlling the use of each item of content; and
- managing the payment streams attaching to those content rights: (i) calculating the payments owing to each rights holder; and (ii) transferring that money to the rights holder, which currently involves extensive delays in payment.

The potential to create new types of digital rights for content has grown exponentially, with multiple digital rights now being attached to a single item of content. However, the capacity for tools to track and manage this complex matrix of rights has not evolved at the same rate:

- the underlying record that establishes the rights attaching to each item of content is still paper-based in many cases;
- an army of resources is required to track the content rights and usage, calculate the associated payment entitlements for rights holders, and ensure that payment ultimately reaches the correct rights holder – with little transparency around these processes;
- the ease with which content can be anonymously pirated remains an ever-present issue in maintaining genuine sources of copyright ownership and rights; and
- there has been very little improvement in the time taken for payment to reach the ultimate rights holders.

Example: Today's music industry - Complexity of Value Chains



There are enormous challenges in collating all the information required to manage content rights (over the life of the content), and ensure that interested parties can rely on the accuracy of that information. Multiple organisations are running their own systems and managing their own records of copyright activities. There are time lags in the data recorded on each system, and there are inevitably errors and inconsistencies in the various records. This requires constant multiple exchange updates to reconcile records – leading to resource demands, delays and overhead costs. In many cases, we also need to pay third parties to audit those records to establish trust and confidence in the final outcomes.

Copyright utopia?

So, what would copyright utopia look like in today's digital world? What are the options for managing copyright more effectively and efficiently?

Ideally, we would have a single electronic dashboard that all parties can trust which:

+ contains a real-time digital record of the rights associated with each item of content (without any time lags);
+ records the associated usage of that content (e.g. via an electronic feed from external databases);
+ automates the calculation and payments owed to the rights holders on a real-time basis (or as close as possible to when actual usage occurs); and
+ is largely automated, minimising the resources required to oversee and scrutinise these processes.

Despite the enormous strides in digital technologies, this copyright utopia hasn't been possible to date. No-one has been able to create a single database which all participants can trust to manage their content rights and automate payments on a timely and accurate basis.

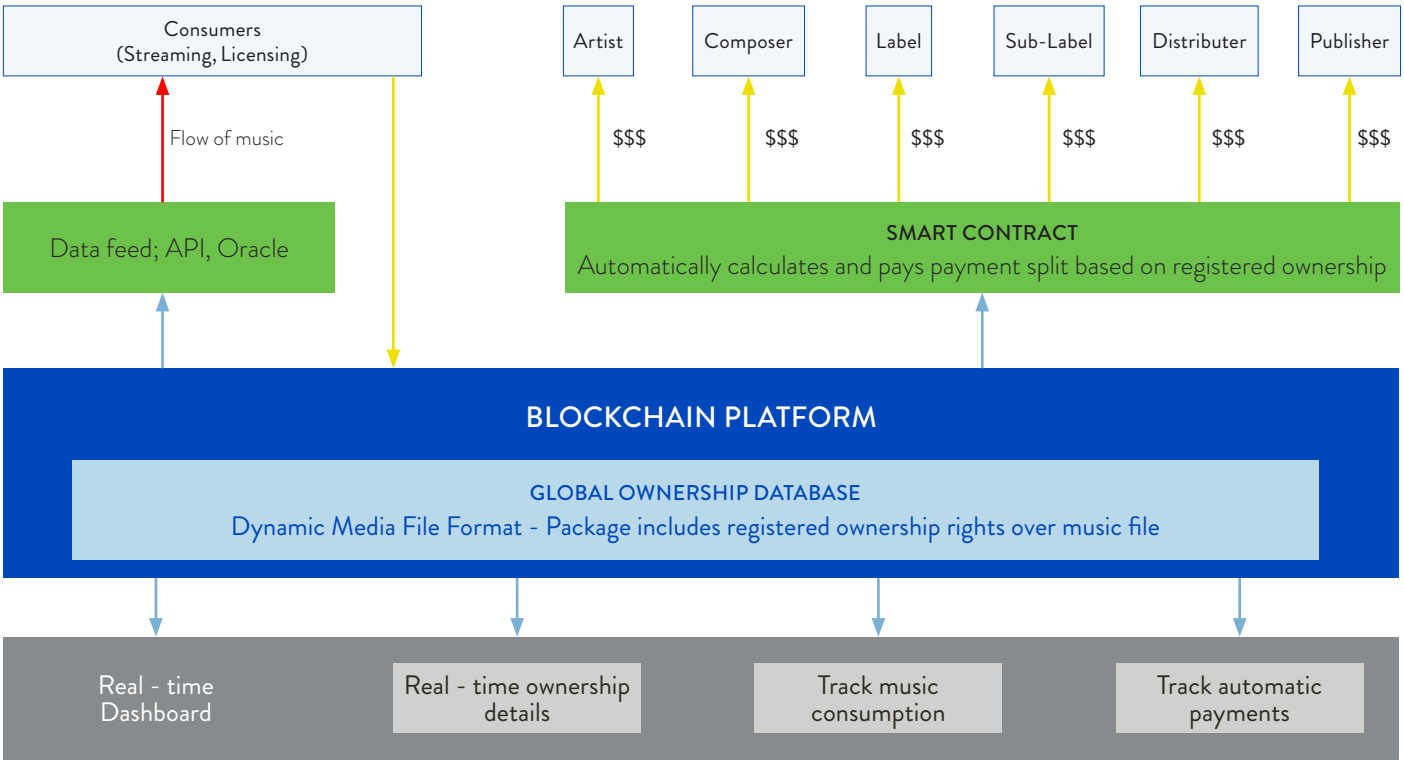
WHAT CAN BLOCKCHAIN OFFER?

Blockchain means different things to different people. In addition to the public blockchain models, we are now seeing the emergence of private shared ledgers, which are adaptations of blockchain for the corporate environment. Private shared ledger models are less complex than public blockchain, and more "fit for purpose" for the corporate environment. In this article, we use the term blockchain to cover the range from public blockchain through to private shared ledgers.

A blockchain is a database – an electronic file where data is kept, and shared between multiple participants. However, it is not like any other database:

- There is no central storage of data recorded on the blockchain – instead, the record is "distributed", and each participant holds an identical local copy.
- New or updated records are added to the blockchain via "consensus" – there are many different consensus methods available. The choice of consensus method will depend on the commercial and practical requirements of the participants involved.
- No single participant has control over the blockchain. Control is decentralised - and consensus is required to update the blockchain. This makes the blockchain tamper-proof, i.e. no-one can interfere with the blockchain or shared ledger, and transactions can't be "undone" or "reversed" through fraud or other unauthorised activities.
- This enables the blockchain to be trusted as the "source of truth" – and in legal terms, the blockchain could be treated as the definitive register of legal rights in relation to content.
- Because the blockchain can be relied on as the source of truth, there is no need to reconcile multiple databases. This has resulted in blockchain being referred to as a "trust machine" or a "transparency machine".

As a result, blockchain has the potential to achieve copyright utopia, providing real-time transparency in relation to all of the information required to manage copyright.



WHAT IS THE ROLE OF SMART CONTRACTS IN THE BLOCKCHAIN ENVIRONMENT?

Given the tamper-proof environment of trust created by blockchain, smart contracts are emerging as one of the key building blocks for managing digital rights:

- At a practical level, smart contracts provide the logic on the blockchain – as the blockchain itself is just a ledger or electronic record. Smart contracts execute the processes required to effect changes on the blockchain ledger – and some of those processes may be based on agreed legal terms.
- Smart contracts can also provide the "communications layer" on the blockchain, facilitating communications with external sources of real-time data (e.g. feeds from external databases which record content usage).

Smart contracts involve more than just converting commercial arrangements and legal terms into computer programs – they also generate a digital record of each "change of state" throughout the life of a contract. This creates transparency, traceability and auditability of commercial and contractual activities over the life of the asset – and it could be applied to track all activities relating to the creation, usage and management of content rights.

In addition, smart contracts are "self-executing" and "self-enforcing" on the blockchain. Participants can trust the results of this automated processing – which could never happen in a traditional environment without a central gatekeeper to manage the database. This provides the potential to fully automate the calculation and transfer of payments owing to content rights holders in a way that is transparent, reliable and trusted.

Potential use of blockchain for managing IP rights

Blockchain could be used to capture chain of title of a piece of IP (i.e all historical transfers)

Blockchain could be used to manage licensed rights: territory/ duration type

Blockchain could automatically disable licensee access to the IP once the licence rights expires

Blockchain technology can substantially reduce transaction and enforcement costs

BLOCKCHAIN: HYPE OR MAJOR DISRUPTOR?

The potential for blockchain to transform copyright management and media distribution is already being actively explored by a number of companies in this space. We set out below some examples of the practical use cases that are emerging for the management of copyright and other intellectual property rights. By way of introduction, we summarise the key characteristics and functions of each example in the following table:

Company	Media + Rights Packaging	Ownership Registration	Distribution	Payments	Blockchain Implementation?
dotBlockchain Media	●	●			●
Muse Blockchain		●	●	●	●
Bittunes		●	●	●	●
Mycelia		●	●	●	●
Mediachain		●		●	●
Veredictum.io	●	●	●		●
Singular DTV		●	●	●	●
Binded		●			●

dotBlockchain Media (Music)

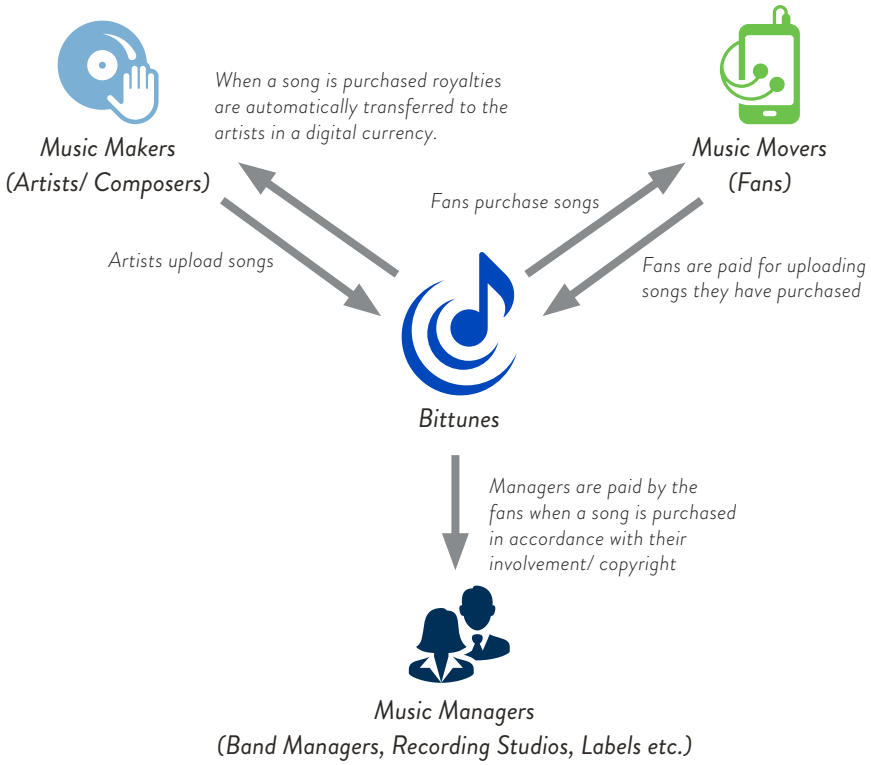
+ dotBlockchain Media is heading down the copyright utopia path with a new file format for music which ensures that critical ownership information about a piece of music is permanently anchored to the digital version (e.g. composer, publisher, aggregator, label, performer) in a new dynamic file format. It is proposed that this information will ultimately be registered on a blockchain.
+ The technology operates as a wrapper file, which means that this information can't be stripped from the file – as compared with codec media files such as .mp3 and .wmv, from which metadata can be stripped and the file re-uploaded as if it were the original.
+ The next developments in the pipeline for dotBlockchain Media are:
  - Bundler App: an application which can bundle the appropriate rights to current media files and create them as new .bc files.
  - Cloud Data Plugins: an .api to allow data lookup, media escrow, and rights clearances in the platform architecture.
  - Blockchain Plugins: bridge plugins to allow .bc files to be registered in a blockchain environment.

Muse Blockchain (Music)

- Muse is solving the current "who to pay?" dilemma by creating a global copyright database on blockchain. This allows music to be registered on a blockchain, with the appropriate content ownership data attached.
- Muse is also implementing a royalty payment smart contract, which automatically calculates revenue entitlements for rights holders, and pays the correct amount to each rights holder - based on the registered content rights details.
- The smart contract calculations are based on data feeds from streaming platforms, which enable Muse to track how often the music is played and how much is owed in royalties to each rights holder.
- Muse's technology is underpinning the Peertacks streaming platform, which plans to create "artist tokens" (similar to Bitcoin) to facilitate payment to content creators. The value of this token depends on the popularity of the artist.

Bittunes (Music)

- Bittunes is an "independent digital music market" for:
  - (1) artists/composers (Music Makers);
  - (2) fans (Music Movers); and
  - (3) service providers, including band managers, recording studios and labels (Music Managers).
- The Music Makers upload their music onto the platform, and Music Movers then purchase it. The Music Makers and Music Managers are paid automatically, depending on the agreed split of royalties. All payments are made instantaneously using digital currencies. Once a fan or Music Mover has purchased music, they can then receive payment for hosting a song (similar to peers in torrenting), so that other people can purchase the music. In effect, fans are becoming music distributors.
- There are also many social features built into the platform, including messaging between parties, and submitting requests and offers to Music Makers. Currently the platform is only compatible with the Android system.



Mycelia (Music)

- Mycelia was founded by Grammy award-winning artist Imogen Heap. The goal of this platform is to ensure that all parties involved in creating music are paid and acknowledged fairly and correctly.
- Mycelia records detailed information for music on the blockchain, including:
  - ownership and copyright information; and
  - ancillary data (such as the song's credits, lyrics, instruments used and any musicians who feature).
- The platform also utilises smart contracts to determine the terms on which music can be downloaded or used by third parties (advertisers, retail shops etc.) and to calculate revenue entitlements from creation of the song.
- The platform is currently still very much a work in progress, with no demo available.

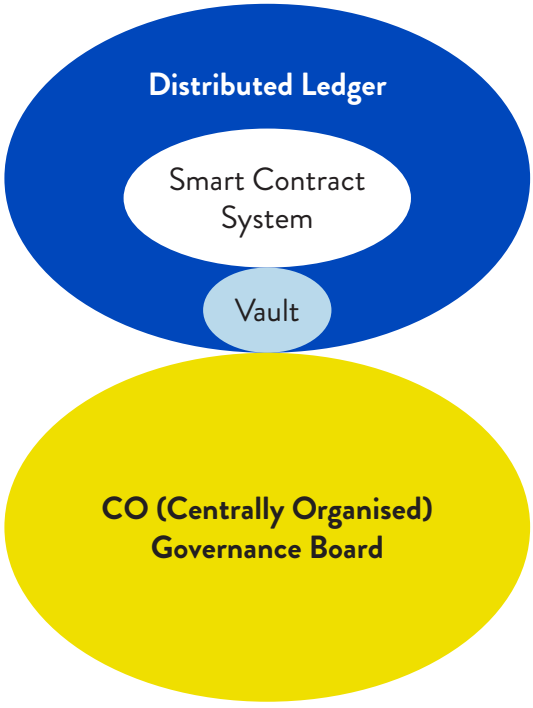
Mediachain (Multimedia)

- Mediachain is a blockchain solution that is designed to share information across multiple applications and organisations (while retaining the original ownership details of the author).
- Mediachain has recently been acquired by Spotify. Currently, billions of songs that are streamed through Spotify do not have the right metadata stored, and as a result the royalty entitlements are not paid to the ultimate content owners.
- MediaChain aims to ensure that payments are made in a more transparent and efficient manner. Spotify plans to use Mediachain to ensure that the correct amount is paid to each rights holder every time that a track is played.

SingularDTV (Multimedia)

- SingularDTV is a blockchain platform for video content, which facilitates payment to content creators in the form of digital tokens.
- The platform allows creators to distribute content through the Transactional Video On Demand (TVOD) Portal for viewer consumption. The internal Smart Contract System tracks this consumption and then distributes revenue to the relevant token holders (IP holders).
- SingularDTV is informally known as a decentralised 'Netflix' on Ethereum. It is a Centrally Organised Distributed Entity (CODE), as equity in the consortium is shared between the token holders, while management decisions are made by a central organisation or governance board.

Centrally Organised Distributed Entity (CODE)



Veredictum.io (Multimedia)

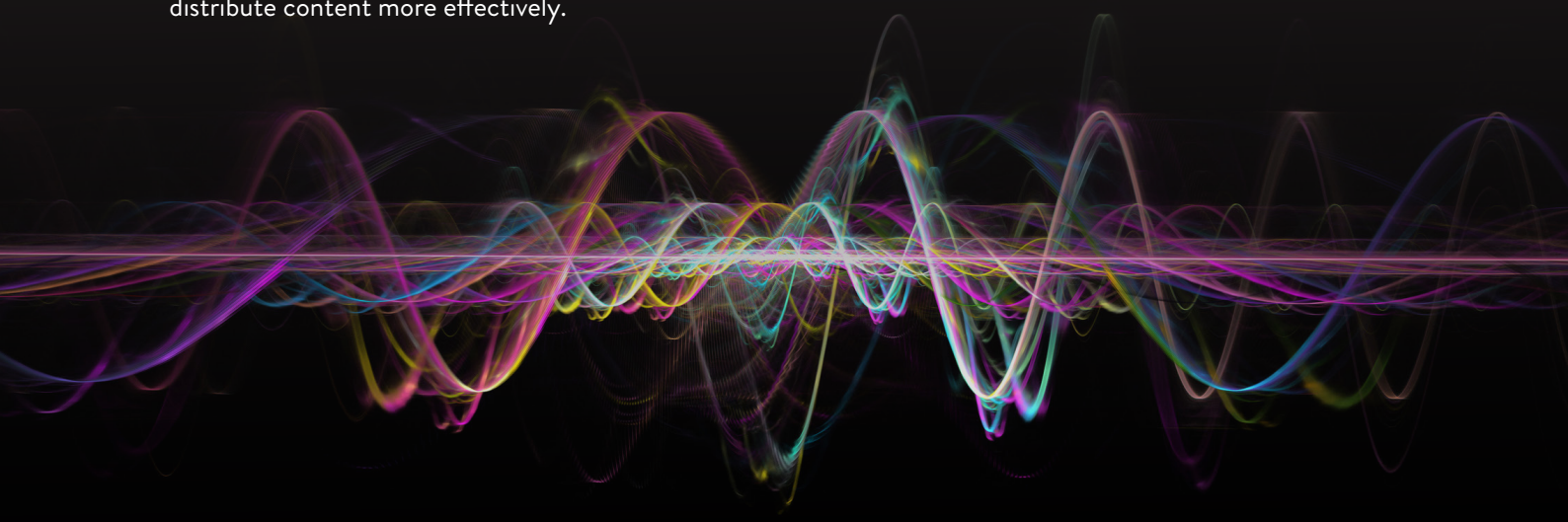
+ Veredictum are developing a decentralised anti-piracy and distribution platform for the film and TV industry. The platform is designed to hit the very drivers of piracy – the inability to get access to content, when you want it, how you want it at a price point that is fair and to the lack of effective tracking and deterrents.
+ This is done by registering the ownership and distribution rights of video based content and digitally fingerprinting video files with those rights. The fingerprinted video can then be located and tracked and ownership automatically identified, enabling the appropriate remedial action to be taken.
+ To help search for pirated content, Veredictum are using the creative community as a whole to help deal with the biggest problem facing the creative community's very existence, with a structure very similar to Berkley University's SETI project – the search for extra-terrestrial intelligence – where data from Berkley's radio telescope is remotely processed by around 3m people worldwide.
+ The second part of the platform is to enable the same search and detect network to act as a white-hat peer-to-peer distribution structure all within a marketplace that brings together content producers directly in touch with market influencers and their audiences to establish a more cost effective price point established through a "group-buying" structure – leveraging the power of the crowd to protect and distribute content more effectively.

Binded (Visual)

+ Binded is focused on protecting the intellectual property rights of photographers and visual artists. The artist takes a photo of their work, and this photo is then embedded in the blockchain, creating a permanent and public record of the artist's copyright.
+ Binded does not register the copyright. However, in the event of a dispute, the artist could use the Binded permanent record to prove ownership.
+ Binded also searches the web, on the artist's behalf, to automatically find copyright infringements of their photos. The artist is then notified and can chose what action they want to take.

Conclusion

While many of the preceding examples are still in development, it is our view that blockchain is the most significant technical and commercial revolution to emerge in the last 20 years. We are bordering on the precipice of copyright utopia, as the potential expands for blockchain to substantially re-engineer the complexities of copyright management, with far greater transparency, simplicity and rigour.



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Tim is the founder of Veredictum.io, an early stage start-up that deals with smart ownership and distribution of media. He has a corporate finance and banking background. He has been involved with internet ventures since February 12th 1995 at 2.16pm (yes it was a cathartic moment for him). He set up an internet cafe-bar and restaurant and web design house which he sold in 2001. He has been screen-writing for 15 years and three years ago he wrote, directed and produced a multi-award winning feature film. In early 2015 Tim started his dive into Blockchain and has never looked back.

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