Blockchain technology and the Canadian media industry
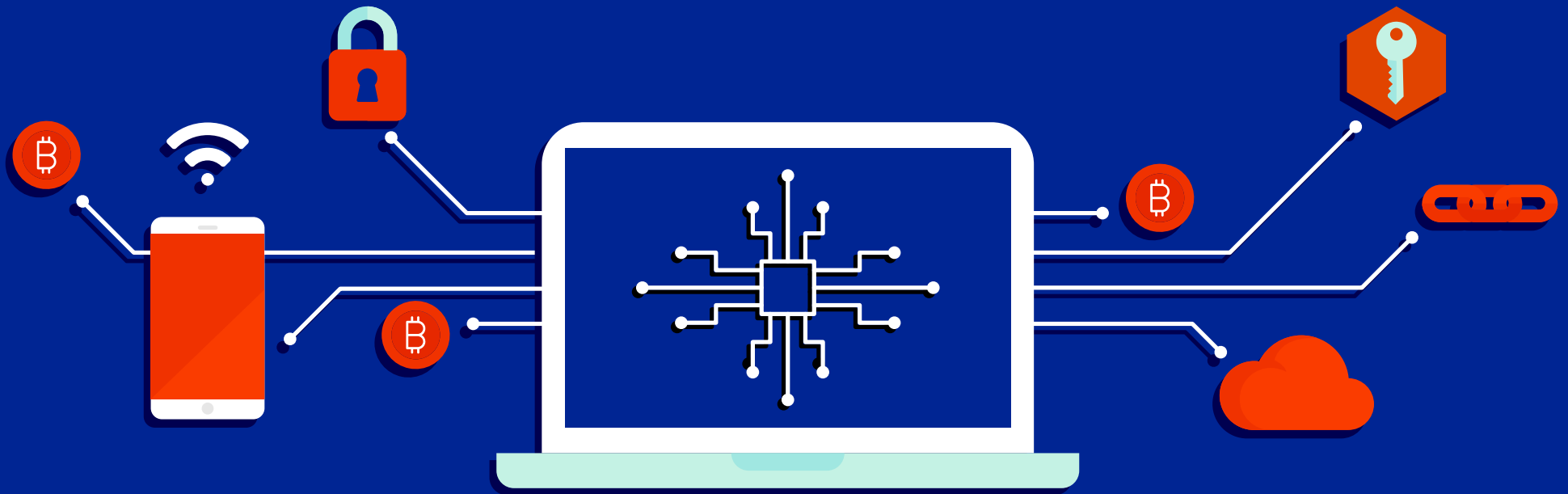
Blockchains and their potential impact on the film, television, and digital media sectors

About Telefilm Canada

Telefilm is dedicated to the cultural, commercial, and industrial success of Canada's audiovisual industry. Through funding and promotion programs, Telefilm supports dynamic companies and creative talent at home and around the world. Telefilm also makes recommendations regarding the certification of audiovisual treaty coproductions to the Minister of Canadian Heritage, and administers the programs of the Canada Media Fund. Launched in 2012, the Talent Fund, which Telefilm also administers, accepts private donations principally to support emerging talent.

About the Canada Media Fund

The Canada Media Fund (CMF) fosters, promotes, develops, and finances the production of Canadian content and relevant applications for all audiovisual media platforms. The CMF guides Canadian content towards a competitive global environment by fostering industry innovation, rewarding success, enabling a diversity of voices, and promoting access to content through industry and private sector partnerships. The CMF delivers financial support to the Canadian television and digital media industries through two streams of funding. The Convergent Stream supports the creation of convergent television and digital media content for consumption by Canadians anytime, anywhere. The Experimental Stream encourages the development of innovative, interactive digital media content and software applications.

About the Pôle médias HEC Montréal

The principal mission of the Pôle médias HEC Montréal is to improve the quality of media management in Canada and around the world. To achieve this, the Pôle médias targets two main groups: managers in the media industry facing new ethical, economic, cultural, and technological challenges, and managers from all economic sectors learning to cope in the new digital universe, where relations with customers, consumers, and the general public have changed considerably. Through a pooling of HEC faculty competencies and collaboration with many industry players and the international academic community, the Pôle médias is an international reference in matters of knowledge transfer and media management training.

About Manuel Badel

Manuel Badel is a consultant specializing in financing, production, and business models in the digital media industry. With a focus on innovation, he quickly dove into understanding and experimenting with blockchains in the media sector. Today a CIO Certified Blockchain Professional, he is frequently called upon to participate in discussions in Canada and elsewhere in the world concerning the potential connections between blockchains and the creative industries. With a degree in finance, marketing, and electronic commerce from HEC Montréal, and project management training from McGill University, Badel has been a consultant and manager with Telefilm Canada, associate director of program administration for the CMF, and director of film and television tax credits at the SODEC.

About Brigitte Doucet

Brigitte Doucet has been a legal adviser and manager in the cultural sector for almost 25 years. With a strong background as a professional copywriter, she recently obtained her certification as an accredited copywriter. Formerly a computer programmer and well versed in technology, she has consistently tracked the evolution of digital technology in the media industry. She has been a commissioner at the Copyright Board of Canada, assistant director-general at the Association québécoise de la production médiatique (AQPM), and director of tax assistance at the SODEC, among other positions. Ms. Doucet began offering consulting services to cultural organizations two years ago.

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Objectives of this report

Blockchains are an innovation whose potential impact on the way companies create, transfer, and store value generates interest and enthusiasm, while simultaneously raising questions and doubts.

This document proposes some areas to consider and some answers to questions such as: what is a blockchain? How might this technology help the media industry overcome certain challenges? What are the obstacles to adoption?

Finally, this report sheds some light on the media industry's perception by including key observations from consultations undertaken with a broad range of stakeholders.

Blockchain technology and its applications in the film, television, and digital media sectors are evolving constantly. Telefilm Canada and the Canada Media Fund will continue to monitor developments closely.

Methodology

The data provided in this report is the result of research carried out by the author, who conducted interviews with 80 individuals, 70% of whom are professionals from the film, television, and digital media sectors. These stakeholders are or represent the different players in the Canadian industry's production and distribution chain: producers, creators, distributors, broadcasters, public and private funders, and representatives from unions and support organizations, including business incubators. Additionally, experts in blockchain technology were consulted, as were experts from the regulatory, legal, and financial sectors. Most of the interviewees are Canadian.

Interviews were carried out between January and November 2018. Canadian participants were chosen based on representative criteria, including language, region, area of activity (film, television, digital media, and video games), expertise (production, distribution) and points of view. International interviewees were selected based on their contributions relative to the subject of blockchain technology.

A literature review on the subject of blockchains in general and of their application in the media industry in particular was carried out using sources primarily from the United States and the United Kingdom, and to a lesser extent France, Germany, and Canada. The author also participated in a variety of conferences on the subject held in Canada, the United States, and Europe.

Note to readers

Throughout this report, the term media industry denotes the fields of film, television, digital media, and video games, which are grouped together because they are related, although their business models can differ and they all have different value chains.

The terms producer, broadcaster, and distributor, which are used to facilitate reading of the text, refer to the production, broadcasting, and distribution businesses, except in cases where the context refers specifically to a physical person.

The term creator refers to anyone who is part of the creative process of a final work that is ready for distribution, and who is a copyright holder of the work. In the audiovisual sector, this primarily includes screenwriters, directors, composers, artists, and producers. In the video game and digital media sectors, this term also refers to programmers and video game publishers. Finally, the term creation is used in a broad context to refer to the entire process.

Blockchain: A future technology for content distribution?

One day, creators may have the flexibility to decide how their works will be used and consumed, while still ensuring a rapidly generated revenue stream that is directly related to commercialization. Blockchain technology may well represent a way to achieve just that.

Whether in the fields of film, television, or digital media (including virtual and augmented reality and video games), the creator of a work would be identified and recorded in a digital registry service specializing in the management of intellectual property. A smart contract with automated transaction-level clause enforcement would also determine the rights and uses available for the work. These registry services, comparable to decentralized databases with multiple access points, would be secured and tamper resistant.

New connections between creators and their audiences could be developed and new forms of partnerships could become the norm. We could see the emergence of a new class of investors or joint rightsholders who would also have a vested interest in the success of a work. Their contributions could be monetized and be exchangeable for virtual currencies.

Thanks to the traceability of the transactions related to their works, creators could work in a more transparent and integrated manner. Such traceability could enable direct payment of royalties to rightsholders in real time, but more importantly, could also facilitate the overall management of income distribution. Consequently, public and private funders would be able to minimize their risk and recoup investments more efficiently. Blockchain technology could make all of this possible.

This scenario is not as far-fetched as it may seem. Certain aspects of it are quite possible and could become a reality in the short to medium term. Others remain more hypothetical, but could emerge over a period of years or even decades. Nonetheless, a story like this gives us a foretaste of some of the advantages of blockchain technology, if it were to be adapted to the media industry. **The technology is already being tested and is generating both excitement and scepticism.**

Whatever the current reactions to it and its potential applications, blockchain technology cannot be ignored, now or in the future. How could this vision of the future of content distribution become a reality and benefit the industry and audiences? We will attempt to explain just that in this report.

What is a blockchain?

The term blockchain is even less understood than the technology's original application in the field of cryptocurrency and its iconic currency, Bitcoin. Klaus Schwab, founder and president of the World Economic Forum, defines it in broad terms in his book, The *Fourth Industrial Revolution*: *"In essence, the blockchain is a shared, programmable, cryptographically secure and therefore trusted ledger which no single user controls and which can be inspected by anyone."*

Essentially a data storage and transmission system, a blockchain is a database of transactions that uses Distributed Ledger Technology,[1] whose particularity is that it is managed over a decentralized, peer-to-peer network. The data in question are said to be unalterable and resistant to modification, since they are "sealed" in interconnected blocks, making up a chain. Note that a blockchain is a registry, not a warehouse. The data registered are transactions processed in relation to specific content. The blockchain does not store the content itself, whether that be a work of some kind or a cryptocurrency. Click here for a more detailed description of blockchains.

Consensus is required for a blockchain to work. Indeed, the notion is fundamental to its underlying philosophy. The members of the blockchain ecosystem must agree on a common set of principles. They adhere to and contribute to a Consensus Protocol[2], thus determining how the network is governed.

Types of blockchains

Blockchains can be private, public, or of a hybrid type known as a consortium blockchain.

+ A **public** blockchain contains content (data and transactions) that is public, accessible to all, and does not require permission for use, as is the case with Bitcoin.

+ A blockchain is **private** when its access is restricted to authorized users, whether they be select individuals or a group, such as industry stakeholders, a business, or a government institution.

+ Lastly, a blockchain is a **hybrid** or **consortium blockchain** when it is accessible to a group of organizations or individuals who share a common interest and who have been authorized to access all of its content, whereas the public has only limited access to it.

With a private blockchain, user access can be adapted, depending on the scope of the content available and how it is handled. For example, one user may have read only access to some data, while another user may be able to modify the data.

1 Distributed ledger technology (DLT) refers to static or dynamic information that can be simultaneously recorded and synchronized across several computers. It is also known as a "shared ledger."

2 Known as "distributed consensus," this refers to a set of rules, conditions, and instructions that control the way a system works. These protocols are developed to ensure the reliability of a distributed registry.

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Chapter 2

Issues facing the media industry and potential blockchain solutions

The ability to identify and track content for the purpose of limiting unauthorized use, monetizing authorized use, and measuring performance is at the heart of the media industry's concerns and the promise of blockchain technology.

Since works are now digital, they are more easily copied and forged. Copying a music file or video has, for the most part, become child's play. An encrypted file that is registered in a blockchain can be pirated, but it is much more difficult to do.
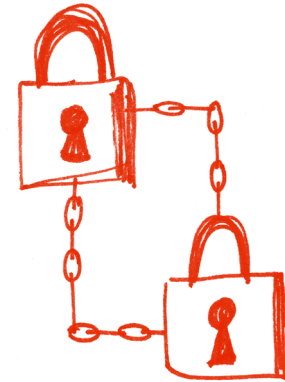
Blockchains and information systems

Blockchains enable information to be shared between stakeholders. With the digitization of content and the proliferation of formats and distribution channels, information systems that offer quick and reliable tracking have considerable appeal.

a) Authenticating and protecting intellectual property

All content (works, related products, rightsholders, etc.) is identified by metadata using standardized identification codes (such as IPI, ISAN, ISNI, and ISSN) or proprietary codes (like Amazon's ASIN or Google's Content ID). However, identification codes do not guarantee the existence, uniqueness, or the reciprocity of a relationship linking a rightsholder to a work or a product.

Blockchains make it possible to record different types of proof related to the ownership of a work (authorship, rights, authenticity, or provenance) by validating and timestamping transactions. They offer *increased protection against piracy and identify fraud and theft*, because once a producing body (an individual, a group, or an organization) and work are authenticated, ownership titles are recorded in the blockchain, and are then distributed and become consultable over the network.

Platforms that protect intellectual property

Veredictum develops applications that register videos in blockchains to counteract piracy in the film industry. The platform offers its subscribers an anti-piracy solution: video content is uploaded to the platform, ownership is certified and a unique identifier is assigned to the video, licencing terms are defined, and then distribution of the video can be scheduled according to the parameters selected. Presuming that piracy will take place, Veredictum's system searches for, downloads, and evaluates suspicious videos and then sends the results to the subscriber.

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b) Developing digital rights management tools

Digital rights management (DRM) is central to the value of blockchains and the immediate opportunities they offer. DRM is complementary to the registry and digital authentication of a work and its rightsholders. One clear advantage of using it is obviously recognition of rights and rightsholders for each paid or unpaid transaction (exchanges, shares, views, playbacks), whether for a single work or a work that is part of an album or compilation.

DRM is even more important in a context in which:

+ Distribution platforms are proliferating and distribution itself is becoming fragmented – from traditional television to movie theatres and new subscription video-on-demand platforms (Crave TV, Club Illico, Gem, Tout.tv Extra, etc.) and new players like Facebook, Snap, and Instagram, who are also getting into the video streaming business.

+ The borders of the media content business are changing and disappearing. For example, Netflix and Amazon Prime now broadcast more and more of their content worldwide;

+ Content sharing has become commonplace, as demonstrated by YouTube's resounding success;

+ Tools that make it possible to modify and appropriate content are readily accessible, constantly updated and ever more powerful.

DRM is a management tool that is built around a **smart contract**, which is based on a computer protocol that allows an agreement to be verified and applied. The coded contract includes all the key elements concerning a work. It is a sort of chain of title that is automated and dynamic: automated in the sense that clauses are established and conditions fulfilled before an action is authorized, and dynamic because it can also automatically trigger certain actions or operations that go beyond confirmation.

The rightsholder establishes the clauses of a smart contract as part of a blockchain's parameters and operating procedures. In the media industry, one example would be broadcast licences or distribution and sales agreements. Keep in mind that a smart contract does not replace a traditional contract. Rather, it allows the contract's appropriate clauses to be executed.

The idea behind using blockchains is to create *a real-time experience that tracks the evolution of a production's consumption, its distribution channels, and the related cash flow*. Although the media production sector might be somewhat sceptical about the real transparency and efficiency that blockchains may provide, the opportunity is very attractive and worth investigating.

Since contracts are ever-needed in the media industry and can be combined in multiple ways across the different stakeholders in a chain of title, it is our systems for managing rights and licencing and distributing revenues that could benefit the most from a solution that features transaction tracking and the implementation of smart contracts to automate the application of traditional contracts.

The Blockchain TFO project: a first Canadian prototype

Groupe Média TFO has launched the first formal blockchain project in the Canadian broadcast sector. The Blockchain TFO[3] seeks to reinvent the way digital media is managed, from financing to launch. The tool will facilitate relationships and transactions between stakeholders, and in particular the distribution of revenue from licensing to investors and rightsholders. The project's success will depend on buy-in by the parties involved.

Simplifying the complex management of revenue reports

This sort of automation is even more interesting for value chain stakeholders, as they are obliged to manage an increasing number of reports on sales and income sources.

Processing sales reports can involve a lengthy, costly effort (multiple information sources, different report formats, different periods covered, inconsistent recovery models, etc.). Things become even more complex when multiple agents with multiple platforms and territories are involved. Resources are mobilized over a period of several years, even if the largest portion of the revenues (particularly in the case of a film) are generated in the first few weeks or months of exploitation.

A blockchain could facilitate the deployment of an automated system that would increase process speed and efficiency, while at the same time reducing risks (non-payment by or even the bankruptcy of an intermediary or even simply wildly fluctuating exchange rates). Although an agreement might not necessarily require an immediate transfer of money, the pertinent information would always be available, providing a global picture of a work's exploitation.

Despite certain misgivings, many industry players agree that blockchain technology's primary benefit lies in the promise of a transparent system for revenue reporting. The challenge will lie in obtaining buy-in from the different parties involved, who will want to protect the confidentiality of certain data, by offering them a secure solution that restricts access to that data to authorized persons only. That is where blockchains come in.

c) Enabling more collaborative work environments

As with DRM, collaborative working environments could benefit from blockchain-based technologies. The production cycle, whether it be for film, television, or video games, is often long and complex, involving a multitude of phases ranging from pre-development to production, post-production, marketing and promotion, and the final cost audit.

A permissioned blockchain could establish processes and define precise roles for individuals who may have to collaborate remotely, working in different time zones, and who may not even know each other. Blockchains allow the distributed recording of activities, tasks, and production phases. They also make it possible to consult information in near real time, which would improve project management operations.

Collaborative VOD

In the video on demand (VOD) sector, Vevue is a peer-to-peer platform that seeks to encourage digital production and distribution by a diversity of creators. Via the Vevue application, a task may involve filming a place or an event on demand. To that end, a requestor geolocalizes the place or event in question, specifies the need/objective, and proposes a payment in cryptocurrency. On the other end, a provider searches for or receives the request and produces the video in exchange for the payment offered. The videos are usually quite short, often resulting in micropayments. It's all about optimizing available resources, using a simple supply and demand model.

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Blockchains and new business models

The consumption of cultural and entertainment content has changed dramatically in just a few years and continues to do so. Pay-as-you-go has emerged, platforms have proliferated, social media has assumed a remarkably significant role in our lives, and content streaming has become the norm, with major impacts on funding and revenue models, on distributors and traditional broadcasters, and on creators and the creative process.

What might new solutions that allow the adaptation of project financing look like? The potential of cryptocurrency and digital tokens that can be connected to a blockchain offers some entirely new opportunities with regard to microtransactions, from fundraising to finance a project, to project monetization and royalty payment.

a) New approaches to financing and monetization

Another benefit promised by blockchain technology that is starting to emerge is the financing of projects and content built around new monetization models. Hence, content developers have access to new sources of revenue and the public can invest in projects that are not necessarily available to them through traditional funding models. We are entering **a more evolved phase of crowdfunding**, since tokens and cryptocurrency can now be set up to offer a variety of benefits to their owners and the projects they are designed to support.

Microtransactions

In their book Blockchain Revolution, Don and Alex Tapscott, two of Canada's and the world's leading experts on blockchains, suggest that blockchains could be used to allow micrometering[4] of streaming content.

In the music industry, since 2003, it has been possible to purchase and download a piece of music for 99¢ from Apple's iTunes Store. This revolutionized the sale of music by democratizing micropayments in the cultural industries. Pay-as-you-go purchases like purchases from iTunes could take the "micro" idea even further in time: cryptocurrencies make it possible to process payments significantly smaller than one one-hundredth of a fiat-currency,[5] an amount that certainly qualifies as very "micro". To paraphrase Ryo Takahashi,[6] blockchains could be used to offer units of content in exchange for a corresponding price point. For example, it would be possible to pay for only a few seconds of a song for use in a film trailer.

To this we can add the promise of less costly transactions, since they are disintermediated and carried out based on a common currency, eliminating the need for exchange rates.

Blockchains may have the capacity to manage high transaction volumes; although they need a lot of electrical power, which we will discuss later, such possibilities open the door to new ways of monetizing media content or "portions" of content, like certain images, shots, or musical excerpts.

Crowdfunding reimagined

Can blockchains become a sort of complement, or in some instances a substitute, for traditional financing? The concept of an ICO or an Initial Coin Offering[7] may be the way to achieve just that.

An ICO can consist of the issuing of digital assets or tokens that can be exchanged against cryptocurrencies or fiat-currencies. Tokens can represent an ownership interest in a project or service or usage rights and related benefits in that project or service. In the first instance, they are defined and regulated by financial regulators as securities and known as *security tokens*, and in the second, as services or utilities known as *utility tokens*.

Tokens can be designed entirely by their issuing body, because they are the materialization of a smart contract.[8] This contract defines the terms of acquisition, use, performance, and disposal of the token. Depending on its features, a token can be exchanged over digital token platforms against other tokens, cryptocurrencies, or more rarely for now, fiat-currencies. The exchange is based on a rate that generally depends on supply and demand. Their value, which is established at the outset, is intended to depend on the benefits advertised by the issuer of the ICO. This value evolves based on the popularity and results of the project or service.

In theory, thanks to ICOs, *projects will find new sources of funding; the public, hoping for an attractive return or simply wanting to support an artist, author, subject, or cause, will have access to new types of investments*. This takes the public's role well beyond that of simple spectator.

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Braid: A genre film financed using tokens

In 2017-18, filmmaker Mitzi Peirone succeeded in financing an independent film by using a blockchain and digital tokens, a U.S. first. Essentially, the strategy behind the horror film Braid was to allow people to invest instead of donating. The objective was to raise $1.4M in exchange for a return of 15% on the first $1.95M in profits and a return of 30% on profits greater than that amount. According to the filmmaker, the campaign reached its target in less than two weeks, and the film was shown in movie theatres and screened at several events, including the prestigious Tribeca Film Festival. As a horror/suspense film, Braid's appeal to genre afficionados certainly helped build a fan base and attract investors.

Tokens at the centre of an integrated financing and marketing strategy: The *Atari* case

Atari is an American biographical film project on Nolan Bushnell, who founded the iconic video game console company in the 1970s. The project is seeking to raise about three-quarters of an estimated production budget of US$40M by issuing digital tokens: the Bushnell Tokens.

The basic idea is to test new methods, but it also represents an opportunity to leverage the community effect: we know that the video game industry is populated by fans, as much in the production of video games as in their consumption. It is possible to share with these fans by issuing security and utility tokens. Given the current regulatory system in place in the United States, financing is subject to certain constraints, including one that significantly limits the quantity of tokens made available to the general public. Indeed, nearly 95% of the assets are set aside for *accredited investors*. This case is even more interesting since it is the first with a large budget, thereby moving blockchain testing beyond the small-budget independent film niche.

The first tokens issued are security tokens, for which investors benefit from an exclusive recoupment tier on gross revenues. These tokens finance the production phase of the project. Utility tokens, which come with their own set of exclusive investor benefits, fund marketing and support the sharing and community aspects of the project. The film's commercial success is expected to have an impact on the value of the tokens (likely exchangeable in a secondary market), certainly making the Atari project an experiment to watch for in 2019-2020.

Content sales supported by tokens

Blockchains help us envision new methods of funding, but we must also consider content monetization. In the industry, we can speak of a film, an episode from a series, a video game, music used in a series, a piece of animation, a virtual reality object created for a marketplace of objects, a character created for a video game, computer-based resources used for video streaming or online gaming, etc. All of these digital products could be bought and sold on a blockchain, using cryptocurrencies or, more rarely for the moment, as mentioned above, fiat-currencies.

🔍 The Steemit example

Steemit is an online publishing platform, accessible to the public, which compensates creators for the use of their content with digital tokens known as Steem tokens. At the time of writing, an amount equivalent to US$40M had been paid out to creators in the form of Steem tokens since June of 2016.

Unique tokens: precise identification of each asset or piece of digital content

Generally, in a process using tokens, all tokens have identical features. When they are part of a transaction, the focus is on how many tokens have been exchanged, not which tokens. A new blockchain standard[9] was recently established for the creation of unique tokens. These tokens are unique in the sense that any two assets are always different from one another. This standard creates a database on the blockchain that not only records transactions, such as the transfer of ownership of something, but also the precise path each single asset takes as it travels between owners. This type of innovation in smart contracts makes unique tokens rare and valuable.

🔍 Cryptokitties: rare things can be very valuable

CryptoKitties is a game developed in Canada that allows players to collect and barter for virtual cats. The cats can be bred and can "give birth" to new genetically unique Cryptokitties. Kittens are bought and sold at auctions. Cryptokitties are unique tokens that are undividable and cannot be replicated.

The first generation of Cryptokitties was limited to 50,000 kittens and, as announced in December of 2017, the median cost of each was US$25.04. Since each kitten is unique, its appearance, features, and value can vary significantly. For example, a young cat whose fertility cycles occur more closely together would sell for more than an older cat. One Cryptokitty sold for US$100,000 in 2017.

Cryptokitties did not use an ICO for its financing, instead choosing to retain 3.7% of each transaction completed in its marketplace. In March, 2018, Cryptokitties announced that it had secured US$12M in venture capital financing.

In the media industry, a blockchain using the unique token standard could allow each authorized use of a work to be identified (for example, each digital copy sold or distributed), determine its value, and facilitate monetization in fiat-currency or cryptocurrency. It could also measure the work's consumption, as well as providing a description of its consumers. Lastly, it could play a crucial role in the fight against piracy, thanks to the permanence and traceability of the transactions.

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9 The ERC-721 standard (http://erc721.org/) was established for the creation of non-fungible (NFT) or unique tokens.

b) Supporting content marketing and audience loyalty

The use of tokens, combining the raising of capital with potential revenues from a diversity of backers, has the potential to increase the communities of interest phenomenon (supported by social media), which benefits a production's marketing and distribution, as well as its visibility and commercial success.

The token becomes an integral part of financing, marketing, and monetization. Presales and a limited number of tokens create a notion of scarcity and instill a sense of belonging. Indeed, it is in the interest of the backers of an ICO that the project be successful, so that they can eventually reap the benefits connected with the tokens they own, or hope that their financial value will increase over the initial purchase cost. These first purchasers are key to the success of an ICO and of a project. In the case of a film, for example, this original issue could greatly assist the film's production. Tokens issued later on could be used in support of its marketing strategy.

In the video game industry, players, who spend a lot of time on gaming, could find it very interesting to have rewards (digital tokens) that are based on the amount of time spent playing and can be exchanged outside of the game's platform. Some good examples to consider are the gaming marketplace *Gameflip*, which introduced the Flip Token, the eSport game *FirstBlood*, which rewards players with digital tokens, and the virtual reality platform *Decentraland*, which allows its players to create and monetize content.

In the music field, several artists have tried the direct distribution approach (Imogen Heap to start with, then Björk, Grammatik, and others). Although the production, distribution, and consumption contexts are different from film, television, and video games, these proofs of concept, which are fairly conclusive overall, are worth considering.

However, these "tests" relied on existing audiences the artist had already acquired. This is an important nuance: the fan base was already there. A project without a built-in audience might have a harder time communicating with potential fans. At first glance, then, blockchains are more of a transactional solution than a promotional one, if there is no capacity to build and retain a community of interest.

c) Driving new digital distribution platforms

Blockchain experts are beginning to use the term BVoD (Blockchain Video on Demand) in the place of VoD and SVoD.

The traditional video-on-demand (VOD) market is seeing tremendous growth and blockchain solutions are naturally looking to capitalize on it. VOD viewing platforms (especially subscription platforms) generate one of the largest revenue shares in the industry. In fact, we are seeing a multi-screen transformation of distribution cycles, particularly in terms of roll-out schedules. For example, it is becoming more and more common for new television series to launch on VOD rather than via traditional television platforms.

Some blockchain-enabled VOD platforms

SlateChain is a digital media broadcast network in development that will offer Binge, a blockchain VOD platform, accompanied by tokens known as Slates. Binge's objective is to offer creators fair compensation in real time in the form of Slate tokens. Consumers who share ads and post comments on social media about what they are watching would be rewarded with Slates.

LiveTree ADEPT (Advanced Decentralized Entertainment Platform for Transparent Distribution) distributes content via its Blossom platform, a decentralized digital rights management system. Works are tracked throughout their entire lifecycle, from creation to distribution. Consumers, suppliers, distributors, funders, and creators are connected via smart contracts, which they negotiate. LiveTree ADEPT offers creators different distribution schemes (its Blossom platform, online distribution, or traditional distribution).

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Blockchains: A new kind of intermediary to support independent creator-entrepreneurs

Independent creator-entrepreneurs must wear several different hats, including those of content creator, manager, and marketing specialist. Blockchains could provide them with tools to make their work easier, through the use of smart contracts that automate a substantial number of transactions and other operations.

Breaker's decentralized application offering

Founded in 2016 as SingularDTV and initially defined as a blockchain entertainment studio, Breaker was built with the artist in mind as a rights management system and peer-to-peer distribution platform. In January 2019, Breaker launched the beta version of its decentralized blockchain-powered entertainment application (DApp). Breaker's founders, Zach Lebeau and Kim Jackson, explain: "Breaker evokes change and freedom from past restrictions." The intention underlying Breaker's DApp is to empower artists and rights holders through more transparency and deeper connections to their audiences. Breaker's DApp and additional services provide creators with tools to better finance, produce, promote and market their works.

Additional services (as of March 2019) include:

+ Tokit: A tokenization engine that enables creators to easily create tokens to automate royalty and residual payouts.

+ Rentalist: A marketplace intended to facilitate contacts between creators, production crews and specialists for the rental of equipment. Still under development, Rentalist operates its business only in New York until further notice.

Breaker also provides audiences with access to licensed video and music content as well as exclusive original productions.

Blockchains: challenges and obstacles

Having taken a look at the advantages that blockchains can offer the media industry, let's now consider the environmental factors that might be barriers to adoption and implementation: perceptions of blockchains, technological challenges, and regulatory issues.

Perceptions and understanding the technology

Blockchain technology seeks to be disruptive in the area of content distribution, affecting infrastructures and potentially threatening intermediaries. Blockchain applications are growing but their results are not yet tangible.

The domination of the bitcoin

Essentially seen as speculative, cryptocurrencies, and in particular the bitcoin, get bad press. This undermines the technology's credibility: as we have seen, there is significant confusion between cryptocurrencies and blockchains. Of course, without blockchains, there can be no cryptocurrencies, but the reverse is not the case. Cryptocurrencies can adversely affect perceptions of blockchain technology, even if not all cryptocurrencies, including those related to specific industries and purposes, have a speculative dimension.

Misunderstood concepts and a lack of conclusive examples

The lack of understanding of the technology naturally gives rise to scepticism and even mistrust. It seems clear that confidence can only be built if opportunities for awareness and learning are increased.

There is also a need for more compelling examples of applications to convince industry stakeholders and consumers of the tangible benefits of blockchains. In particular, products and services developed using blockchains should offer an easy-to-use, intuitive, and customizable user experience, which attracts the attention of new users.

Decentralization raises doubts

Decentralization is a paradigm that raises some questions: is a distributed database really more secure? Why should we even give up partial control? How will disputes be settled? Just how effective is transparency? And if it is, how do we reconcile business needs with transparency?

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Technological challenges

Integration of a blockchain-based approach from the start of a project —

A blockchain's features are optimized when it is used throughout a project's lifecycle. For example, where content distribution is concerned, it would involve recording ownership of the work, associating a smart contract and a token with it, and then distributing it over a platform using the same blockchain protocol each step of the way. This doesn't rule out using it later in the process (like on platforms such as Breaker.io, which builds its catalogues using existing films or films already in production), but the ideal blockchain is, at least for the moment, more often used on projects that integrate its approach and parameters (including the use of tokens) from the outset.

Interoperability —

Blockchains are not the solution to the inability of systems and technologies to work together, which we are seeing elsewhere these days, like the incompatibility between Apple's iOS and Google's Android. Nevertheless, blockchains can co-exist with systems that are based on different technologies and protocols.

Interoperability is required at two levels: a blockchain must be able to communicate and interact with existing systems and with other blockchains. In the first case, solutions like the start-up Balanc3, which allows digital tokens to interact with existing accounting systems, are beginning to emerge. In the second, we find secondary blockchains (sidechains), which use permissions to act like connectors between several blockchains, and other initiatives that are trying to establish a common language for blockchain protocols. This is particularly important since blockchain protocols are proliferating and competing with one another, which is good for innovation, but also hampers large-scale adoption of the technology.

Standardization —

Along the same lines as interoperability, tokens must conform to a certain number of standards to ensure their portability[10] and liquidity,[11] among other specifications.

As already explained, a standard has been set for tokens.[12]

In the past, every service and project had to reinvent a token to create theirs, which caused errors and incompatibilities. Current and future standards will be crucial to enable a more widespread use of tokens.

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[10] The ability to function in different environments without the need for conversion. For example, tokens collected in a video game that can then be used in another game.

[11] The ability for tokens to be converted from virtual values to the equivalent in real values.

[12] ERC-20

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Scalability ——

Scalability, or the ability of a technology to evolve gradually as adoption increases, presents a challenge on two levels:

+ **Handling ever increasing volumes of data and transactions.** For example, if a VOD platform has to handle a large number of payment operations, it is not clear yet that it could be done at the same speed as traditional payment processing. However, it is interesting to note that three-quarters of blockchain patent applications published in mid-2018 (about 530) were related to data processing and exchange, particularly payment architecture. Start-ups and large corporations (banks in particular, including JPMorgan Chase, Bank of America, and the Royal Bank of Canada) are getting into the blockchain solution business.

+ **Adapt the governance of a blockchain as it evolves.** Consider the hypothetical example of a blockchain consortium in the media industry. Blockchain governance must be able to evolve according to how large the network gets and the stakeholders who are added or removed. The interests of each party must be considered so that there is buy-in and consensus. Current and future tests will certainly be informative and quite possibly defining in this regard.

Lack of experienced resources ——

Developers are still rare in Canada. The hourly rate for a blockchain developer is in the range of $150, which is a barrier to experimentation. There is also a severe shortage of developers who have a good understanding of blockchain technology, as well as practical experience in the media industry and its structures (financing, production, distribution).

Security ——

Security remains a substantial concern. Why would a blockchain be more secure than a centralized database? Blockchains are secure in that they ensure the integrity and authenticity of data, while providing ongoing protection for transaction history. Take for example, the creation of blockchain-based digital identities that could replace the use of multiple passwords, which are more vulnerable to cyberattack and fraud. In spite of its promise, blockchains are not infallible. In fact, any technology can become obsolete, attract the attention of hackers, or become compromised.

Security holes are most likely to crop up at the level of the applications, including smart contracts. Software and technical bugs are the most likely points of entry for hackers.[13] Of course, the more sensitive the data or the more valuable the digital assets, the more likely an attack becomes. Preventive measures and cyberattack detection and response measures would need to be established, as with cybersecurity in general.

The decentralization of information in different blocks across a network is equally important to the security of a blockchain, but this security relies heavily on the reliability of **decentralized cloud storage** services. These services harness different computer resources for distributed storage across a network, while more traditional cloud storage solutions use the storage capacity of a single server. Decentralized cloud storage solutions like Storj or Filecoin have begun to emerge. They compete with centralized server-based services like DropBox and others. Overall, decentralization provides better security than centralization, since it would be necessary to hack several cloud-based services to carry out an attack, which is not impossible, but remains marginal.

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13 Examples of piracy: the DAO (Decentralized Autonomous Organisation) Platform, which runs on Ethereum, lost $50M to a major hacking event in 2015; in 2017, more than $7M was pirated from the ICO of CoinDash, and a few days later, nearly $32M was stolen from Parity users (https://www.forbes.com/sites/daveywinder/2018/12/31/how-hackers-stole-1b-from-cryptocurrency-exchanges-in-2018/#fb1d2e64d879).
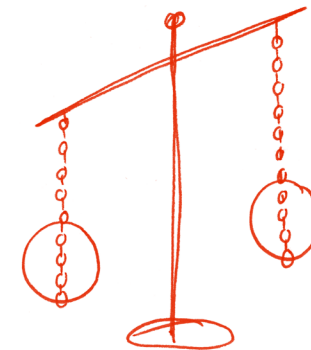
Regulatory and legal uncertainty

It is in this area that we find the most sensitive issue. Several studies[14] have shown that *it is regulatory uncertainty, and not technological challenges, that are of particular concern to decision makers from companies across all industries.*

For the moment, regulatory authorities, particularly those in Canadian provinces (the Ontario Securities Commission, the Quebec Autorité des marchés financiers, etc.) and in the United States (the Securities and Exchange Commission), are remaining cautious. As of September 2018 in Canada, regulatory authorities had approved only two ICO/ITOs: TokenFounder in Ontario and Impak Finances in Quebec. Both are related to the financial sector. As they are tasked with protecting investors and promoting confidence in the markets, the authorities responsible for overseeing the securities and financial markets are imposing strict criteria and stringent requirements. A token is often defined as a security, and as such is treated as an investment.

Organizations like the Blockchain Research Institute and the Blockchain Association of Canada are doing everything possible to ensure that tokens are understood correctly and that regulation does not stifle innovation.

The issue of liquidity is also central and is related to regulations: the ability to convert digital assets with virtual values into fiat-currency equivalents.

From a legal standpoint, many questions are arising or will arise: how to make sure that an asset can be legally connected to a digital token; how to ensure the legality of a smart contract, its execution, and the existence of consequences for the parties; how to ensure that a smart contract conforms with the laws applicable to the media industry; how to ensure that fraud and other unlawful acts are prosecuted... Other significant obstacles to examine include jurisdictional differences; the complexity of translating a multitude of traditional production and distribution contracts into smart contracts; the complexity of correcting errors or modifying contracts... And finally, will we one day have a legal framework that can be applied uniformly across different networks and in different countries without a central monitoring authority?[15]

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14 For example:
    emarketer.com/content/what-is-blockchain-s-biggest-barrier,
    pwc.com/gx/en/issues/blockchain/blockchain-in-business.html,
    www2.deloitte.com/us/en/pages/consulting/articles/innovation-blockchain-survey.html

15 To know more about the legal aspects of blockchains:
    www.dlapiper.com/en/denmark/insights/publications/2017/06/blockchain-background-challenges-legal-issues/

BLOCKCHAIN TECHNOLOGY AND THE CANADIAN MEDIA INDUSTRY

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CHAPTER 3 | BLOCKCHAINS: CHALLENGES AND OBSTACLES

The potential conflict between blockchains and the protection of personal information

Today, several jurisdictions in the world are adopting tighter restrictions concerning the protection of personal information, such as the European Union's General Data Protection Regulation (GDPR) or the current revision to the Personal Information Protection and Electronic Documents Act (PIPEDA) in Canada. These increased regulatory requirements will affect companies that collect and store personal data, including content companies and their suppliers.

These measures may become problematic for the adoption of blockchains in the industry. Some of the fundamental characteristics of blockchains (interoperability, traceability, and decentralization) may conflict with certain rights, including privacy rights and the right to be forgotten.[16]

At this time, it is difficult to foresee the impacts and different possibilities, given the highly experimental nature of blockchains, but the parties concerned are aware of the potential issues.

An energy intensive technology

At the beginning of 2018 in Quebec, the electricity needs of companies in the blockchain technology sector, especially those working with cryptocurrencies, exceeded Hydro-Québec's short- and medium-term capacities. The consensus protocols used by a public cryptocurrency blockchain like Bitcoin use a complex algorithm that requires considerable calculating power from computers that are very energy intensive. However, the demand for electricity could be considerably smaller in the case of a private or consortium blockchain, since consensus is only required from a limited number of participants. Hydro-Québec would like to make a small quantity of better-priced megawatts available to its blockchain clients, while reserving the right to select the projects it considers the most promising and interesting for Quebec.

In British Columbia, the Canadian company DMG Blockchain decided to build its own electrical substation in a city in the southern part of the province.[17]

Electricity suppliers will need to understand and anticipate the impact of blockchain technology on energy supplies. Research into less energy intensive blockchains is already underway.

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16   Refers to the right to request the erasure of personal information on the web and the right to prevent it from being referenced by search engines.

17   motherboard.vice.com/en_us/article/9kmnba/cryptocurrency-miners-canada-building-their-own-electricity-infrastructure-dmg

Perspectives of Canadian media industry stakeholders

Background

Canada is one of the countries in the world that has, from the beginning, shown the most interest and curiosity in the field of blockchain technology. Of particular note is the Ethereum protocol, developed in Toronto, which is behind the Ether, the second most funded cryptocurrency after Bitcoin, and more importantly, the smart contract. Also notable are the Blockchain Research Institute and the Blockchain Association of Canada, two organizations that foster advancement in the development of blockchain technology in the country.
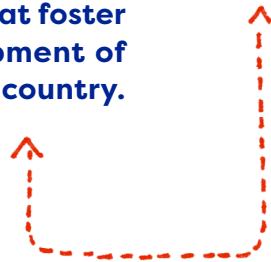
In the media industry, development has been more limited. However, there is the example of Blockchain TFO, which could be considered the first structured institutional project in the Canadian broadcast sector.

Note that there is very little indifference to this technology, and curiosity is rampant. Along with artificial intelligence, big data, and the Internet of Things, it is one of those phenomena that we all talk about, even though we don't really understand how it works or, more importantly, its concrete applications in the industry.

Blockchains and the great promise of what they can do certainly generate interest. The terms "disintermediation" and "traceability" are the most commonly used in describing them.

Nevertheless, the technology also raises some questions: how can we implement it concretely or even see a working application of it? In short, how does it become "tangible"?

It seems clear that interest in and knowledge of this technology vary and that interest does not necessarily mean understanding. The industry has been vocal about the need for awareness, demonstrations, and practical applications.

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Points of interest and perceived benefits

Although our sample size does not allow for generalizations, we found that, among the stakeholders consulted, the groups most likely to be interested in blockchains and the most optimistic about their potential are: small businesses and start-ups, digital sector companies (particularly video game and multimedia installation businesses), and content creation companies.

Included in the most frequently cited benefits:

+ Authentication, digital rights management, and traceability of distribution operations, combined with inalterability of data.

+ The ability to innovate and better control project funding and content monetization.

+ Greater market access for companies that have difficulty showcasing their potential to decision makers and intermediaries.

+ The opportunity to interact more closely with audiences, develop partnerships, and build communities of interest.

Broadly speaking, the blockchain applications that garner the most interest are those that appear the most realistic and tangible to industry stakeholders. Also of interest are applications that might improve existing systems rather than replace them altogether.

The main perceived benefit: better integrated and more efficient information systems

This is the first advantage industry players see when considering blockchains, well ahead of the potential for funding. Access to data, audience analysis, the capacity to distribute revenues more quickly and efficiently, and the ability to better manage marketing are elements central to every discussion.

The interviews left the general impression that the key issue is revenues. The proliferation of platforms, piracy, the opaqueness of certain types of distribution and at the same time the tremendous opportunities that digital offers, add up to a crucial need for increased control over marketing. This need, felt by creators and producers alike, is just as important to distributors, who understand that using a blockchain does not necessarily mean disintermediation, and that it could be a useful information system for their activities (automation of transactions and distribution reports, for example). Blockchains are often seen as tools for collaboration. Lastly, they are of great interest to investors and funding agencies seeking to measure public and/or commercial success and where applicable, recoup monies invested.

Blockchains supporting diversity and discoverability

The research and interviews carried out in preparation for this report showed that many stakeholders in the Canadian documentary sector, Indigenous communities, and cultural communities, among others, are interested in the potential of blockchains and how they might facilitate access to funding and audience building. Communities of interest are very important to productions coming from these groups, both in Canada and internationally. These groups believe that blockchains could become an excellent means of reaching their communities of interest and the general public. At the international level, interest is in creating connections, developing audiences organically, and increasing revenues.

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Challenges and issues

a) Information systems applications

Issues related to privacy, governance, and performance

In the content production sector particularly, there are doubts about the real traceability of blockchains and the true benefit of transparency. Who decides on and monitors transparency? And is transparency that beneficial or even realistic in an industry where the protection of rights and privacy surrounding agreements are so important? Transparency is a good thing, but the data must be reliable. Who is allowed to enter or modify data in a blockchain? It is a blockchain's governance and authentication scheme that ensures its reliability.

If there is no centralized authority, how will disputes be resolved? Who "polices" the system? Is a mechanism for consensus really feasible? How would one be implemented? The question of the true impact of disintermediation also arises. Would it not just mean transferring control to another type of intermediary? Producers and representative organizations (associations and unions) raise the question of it essentially being a "takeover" of control. What if it were really about a loss of control? Notably, this issue is brought up by production companies who are in a solid enough position to manage distribution of works in which they hold rights. And finally, how would a decentralized database be more secure and effective than one that is centralized?

Issues of interoperability and adaptability

In spite of the general understanding of the advantages associated with increased transparency, the notion of a decentralized database is perplexing at several different levels. What interoperability can be achieved between existing systems and a blockchain solution, and what about interoperability with other blockchains?

Furthermore, the media industry is in large part project-based. Projects have a beginning and an end and can evolve. How can automated contracts and unalterable data be compatible with an ever-changing context? For example, funders often amend contracts during and at the end of a project. Without calling into question the blockchain approach, it is unclear when and how the technology could be integrated into this sort of situation.

The technological challenge is mentioned much less than the challenge of understanding the nature of the business, its environment and stakeholders, and its rules and processes. Integrating the technology into the media industry will require a solid understanding of the sector and expertise in its business processes.

b) New business models

Uncertainty related to the use of cryptocurrencies and tokens

Often, our first thought when we consider setting up a blockchain is that it will require a cryptocurrency. Of course, this sort of belief has a negative impact on the way producers, distributors, and institutions view the technology.

The concept behind tokens is unfamiliar, thus creating doubts for many people, particularly for those who are the furthest removed from the digital industry. The lack of concrete examples (supported by results) of token use in the media sector means we can't accurately predict how a token strategy would work or how it would create monetary value. Even if it is clear that, as in the case of shares, a token's value can be tied to a project's success (the notion of success also has to be clearly defined), there are questions around the exchange of this value. If tokens represented an investment or contribution to a project, how would they be tradeable? What guarantee is there concerning the maintenance of a value and its rate of exchange against a fiat-currency? Why opt for tokens? Some are doubtful that we can achieve a widespread understanding of token-based decentralized systems. Producers must be cautious when reacting to a strategy that could entail an additional level of financial risk that they would not want to or cannot assume. This is particularly true in the documentary sector, which is showing strong interest in the use of token-based systems, and therefore in the creation of communities of interest, but which already deals with significant funding challenges.

The impact of tokens on traditional public and private funding

Assuming that regulatory bodies are favorable to issuing tokens that correspond to shares in a production, the question that arises is how tokens will coexist with tax credits.

A production's eligibility for the different tax credit schemes presupposes that the project's producer owns its rights. What impact would fragmenting these rights across a multitude of investors, including the producer, have? In the case of a utility token, considered a good or a service (utilities), there might not be any problem. With investment tokens, which are considered a share in property (a security), the situation could be considerably more complicated, unless the investment does not involve partial ownership of the rights.

These questions could also all be raised with regard to any public or private financing fund, where producer ownership of a project's rights is a criterion for eligibility.

Assuming that the question of eligibility will be resolved, tax credit measures stipulate that certain monies received for project financing can lead to a reduction in the potential tax credit amount that is eligible. How will monies received in exchange for tokens be defined? And those exchanged for cryptocurrencies? Will they be considered investments that reduce the production costs that are eligible for tax credits? The Canada Revenue Agency has published a notice indicating that the tax rules related to barter transactions apply when digital currency is used to purchase goods or services.

For the moment, it is wise to think that a project would need to choose one or the other: financing through tax credits (representing an average of 27% of the financial structure of a film or television show[18]) or financing raised by issuing investment tokens or cryptocurrencies.

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18   Profile 2017 – Economic Report on the Screen-based Media Production Industry in Canada, Exhibit 3-8, p. 37
     cmpa.ca/wp-content/uploads/2018/12/Profile-2017-.pdf

Issues raised by distributors

In the video game industry, although many games are distributed via platforms, game development studios, in their roles as publishers, see blockchain as an important opportunity for improving relations with their markets. The same also applies to digital content producers (of webseries, for example).

However, for most distributors working exclusively in film and television, interest in decentralized databases is not as obvious. How will a blockchain solution guarantee increased security and transparency? Concerning the former, we have provided some answers in the preceding chapter. For the latter, some might argue that platforms like iTunes and Amazon already make daily sales numbers available, although there is admittedly a gap in data related to their consumers. Of course, the platforms do not share consumer data due to its high value.

The distribution sector recognizes the usefulness of a system that tracks sales and that has the capacity to improve administrative efficiency. However, implementation of such a system is not clear – through the use of a common blockchain? What happens when one link in the value chain decides not to participate? The question of interoperability between two blockchains and between a blockchain and the "outside world" is key.

For these reasons, initially, testing applications connected to information systems is more likely to spark interest than exploring new business models.

Conclusion

The sandbox strategy

Return on investment is, of course, a key concern for decision makers. "Why question everything if the system works? It may not be perfect, but it works." There are currently many blockchain projects in development, but there is still much uncertainty concerning their results. The performance and real success of new "100% blockchain" projects is difficult to ascertain.

So where do we start? Should a group of producers and distributors just jump right in? Or should a government institution interested in innovation partner with the private sector to pave the way? Or should a key industry leader conduct tests and gradually encourage its partners, suppliers, and clients to do the same?

It seems clear that the way to proceed is for a consortium or partnership, open to taking some financial risks in innovation, should seek to establish a "sandbox" for experimentation. The case of the CMF supported Blockchain TFO prototype is a good example.

The sandbox

In an environment of regulatory uncertainty, the "sandbox" approach would involve creating a closed environment, which would provide protection for participants.

The OSCLaunchPad is a good illustration of this idea. Seeking to align regulations with innovation, the OSC LaunchPad assists financial technology firms in avoiding costly surprises and speeding up implementation schedules, while fulfilling its mandate to protect investors and promote confidence in Ontario markets.

An emulation of the OSC's approach could help to advance the technology.

A variety of opportunities

In the case of a permissioned blockchain, a governance structure that ensures authentication, validation, and authorization is essential. Key established institutions have a role to play as catalysts. Buy-in from industry stakeholders will ensure that the quality and credibility of this governance is established and that other players are encouraged to take part.

At the end of 2016, the National Research Council of Canada (NRC) launched its first ever live test of blockchain technology within the Government of Canada. This first project involved the fully transparent management of government contracts. Henceforth, the NRC's grants and contributions data are displayed publicly and transparently on the explore-catena.com platform.

The Blockchain Game Alliance (BGA) was established in September 2018. This consortium of businesses from the video game and blockchain industries, which includes firms like Ubisoft and ConsenSys, have given themselves the double objective of creating a platform where game developers and players can learn about best practices in applying blockchains in video game development, and paving the way to new modes of creating and playing video games.

What about the media industry?

Still clearly in the experimental phase, blockchains could be gradually tested in the media industry. Applications focused on digital rights management could the first area to garner interest, since they pertain to the traceability of assets, authentication, the fight against piracy, the measurability of consumption, and the automation of processes. These applications are more directly connected to the industry's immediate concerns (protection, transparency, cash flow, and the reduction of administrative costs).

It might take a little longer to establish new business models. The relative level of risk is greater and the advantages still unknown. Young entrepreneurs and start-ups in the media industry are more interested in these types of applications.
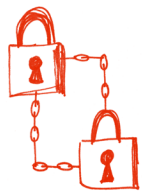
To evaluate the potential that blockchains offer, joint testing involving a variety of industry players – for example, our "sandbox" analogy, taking the form of a blockchain consortium – would be preferable and more realistic than isolated initiatives, if we hope to foster a better collective understanding of the technology and ensure that common interests are put forward. In this way, conclusive outcomes could be useful and advantageous to the entire industry. Of course, collaboration and sharing of information between industry stakeholders would be crucial to the successful completion of such tests.

If the Internet of Value, as it has been identified and described, comes into being, it could take more than a decade before we begin to see the viable existence and spread of the most revolutionary applications. In a context of technological transformation, globalization of activities and markets, and proliferation of distribution platforms, the industry must remain attentive to the evolution of blockchain technology and the related opportunities, which sometimes emerge very rapidly. It must prepare for the arrival of new players and new business models.
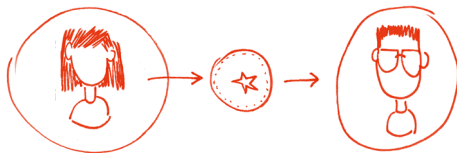
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Sketchnote

THE OPPORTUNITIES

PROTECT INTELLECTUAL PROPERTY

IMPROVE RIGHTS MANAGEMENT

ENHANCE TRACKING OF DISTRIBUTION
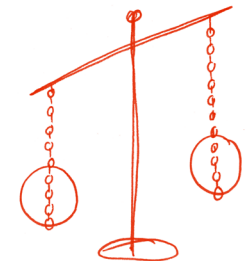
FINANCE → MONETIZE → ENGAGE

THE CHALLENGES

PERCEPTIONS AND UNDERSTANDING

TECHNOLOGICAL CHALLENGES

INDUSTRY CONSENSUS

REGULATORY UNCERTAINTY

List of interviews

Representatives of the following organizations were interviewed for the preparation of this report.

+ Accenture

+ Access Copyright

+ Affordance

+ Aird & Berlis LLP

+ Alliance numérique

+ Alliance of Canadian Cinema, Television and Radio Artists (ACTRA)

+ Artisti

+ Association des réalisateurs et des réalisatrices du Québec (ARRQ)

+ Association québécoise de la production médiatique (AQPM)

+ Attraction Distribution

+ Attraction Studios

+ Balanc3

+ Big Couch

+ Black Wealth Media

+ Blockchain Association of Canada

+ Blockchain Canada

+ Blockchain Research Institute

+ Breaker.io

+ Canadian Film Centre

+ Canadian Media Producers Association (CMPA)

+ CBC/Radio-Canada

+ Centre for International Governance Innovation

+ Cirque du Soleil

+ Concordia University

+ ConsenSys

+ Digihub Shawinigan

+ Elevation Pictures

+ Ethereum Movie Venture

+ European Film Market (EFM)-Berlinale

+ Fonds Bell

+ Fonds de solidarité FTQ

+ Gowling WLG

+ Groupe Média TFO

+ Gusto

+ Hays Specialist Recruitment Canada

+ iKAST

+ Independent Film & Television Alliance (IFTA)

+ Interactive Ontario

+ International Innovation Film Festival

+ Irdeto

+ IVEP

+ Kassiwi Média

+ Middlesex University

+ Ministère de la Culture et des Communications du Québec

+ MLS Legal

+ Moment Factory

+ Mongrel Media

+ Office National du Film / National Film Board (ONF/NFB)

+ OVA

+ Picks

+ RBC Banque Royale / RBC Royal Bank

+ Société de développement des entreprises culturelles (SODEC)

+ Storytek

+ The Cellarius Universe

+ Three Lefts

+ Timechain

+ Token Foundry

+ Turbulent

+ Ubisoft Montréal

+ Union des artistes (UDA)

+ Vision Tree

+ White Rabbit

+ Women in Blockchain, Southern California

+ xN Québec

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