



OVERCOMING A MARKET FAILURE: Fine Art & Museum Licensing

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Abstract:

The early adopters and biggest movers in blockchain may not be where you expect. They're probably in the backroom of what may be considered a dusty, old institution—like a museum.

For centuries, museums have catalogued, celebrated, informed and protected the very record of human achievement that is art. Together museums maintain the ownership registries of billions of objects, entwined with the intellectual property rights of creators and subjects. And yet, the system they employ today to manage collection access and distribution is still a pre-Internet business process.

Museums may not be considered at the forefront of technological innovation, but if you look a little deeper, their role in art licensing presents a use case for blockchain technology that can unlock all kinds of possibilities for rights holders. This is an ecosystem of owners, creators and enthusiasts established over centuries, working within an analog registry ready to be transformed. Implementation of blockchain technology and smart contracts can unlock access for academics and creatives alike, expanding reach and market opportunity for museums, artists, and rights holders.



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The Art & Culture Opportunity

Art is a permanent record and celebration of the history of human achievement. It must be maintained, proliferated, advanced and shared to help us all better understand our collective humanity. Museums and libraries are the record keepers of human achievement; and we trust these institutions because we revere the critical role they play in society. We also visit them. 850 million visits a year in the United States alone says the American Alliance of Museums.¹ If we can extrapolate globally, maybe as many as 2.5 billion visits per year. Big numbers, right? Maybe not big enough. With a world population in 2017 of 7.6 billion, estimated to grow to 9.8 billion by 2050, that leaves almost two thirds of the world behind in exposure to art & culture.²

And while this is happening, we're experiencing the single biggest revolution in access, exchange, and creation of information in the history of civilization: the Internet, mobile, social media, artificial intelligence, blockchain, VR and AR. Without a doubt, this is just the beginning of what we will see in the world of accelerated sharing and creation of content by 2050.

Cultural institutions around the world are acutely aware of the opportunity to distribute art and culture beyond their walls via the web. In the United States alone, the Metropolitan Museum of Art, MoMA, J. Paul Getty Museum, National Gallery and the Smithsonian Museums are releasing imagery and data sets for anyone to use, for free, via Open Access initiatives. This is an important step in accelerating the distribution of art imagery and associated metadata.

Museums are motivated and encouraged to increase digital access to their collections. However, despite the fact that they own the original works, they do not control all of the IP. Herein lies the central problem: *you can't gift what isn't yours to give.*

Will this underlying problem ultimately limit digital access to art and culture? On the surface, if an institution doesn't control all of the rights, it would appear they must default to restricting access to protect themselves from the risk of infringing on other rights holders. This is what happens today with copyrighted works—they are excluded from Open Access initiatives.

There is an alternate path for IP holders and content owners. A closer look at emerging uses of blockchain technology paired with smart contracts reveals the paradox: *by increasing options for control, we can expand access and creative reuse.*

¹ American Alliance of Museums, "Did You Know Fact Sheet 2017."

<http://www.aam-us.org/docs/default-source/museums-advocacy-day/museum-facts-infographic-2017>

² World Population Prospects: The 2017 Revision, published by the UN Department of Economic and Social Affairs, <https://www.un.org/development/desa/en/news/population/world-population-prospects-2017.html>

Instead of a museum blocking access because a work is under copyright, what would happen if the artist could step in when there is a request for use—and have their say? What if the museum could trust that usage rights would only be granted when everyone with a legitimate stake agrees?

Within a digital ecosystem where all parties can trust and verify, the opportunity for smart tools that allow direct access for creative reuse can emerge. This kind of individualized control hinges upon the ability to identify, record, and share information on intellectual property.

Solving the Transparency Problem: Walker Evans & Coca-Cola

Let's say a museum curator starts with an idea to compare works of art that include depictions of the iconic Coca-Cola logo. She researches and finds examples of [Walker Evans](#), [Robert Rauschenberg](#), [Andy Warhol](#), and [Ai Weiwei](#), among others. Once the works for the exhibition have been chosen and agreed to be loaned, the institution's licensing team sends requests to the museums that own the works, seeking permission to reproduce images for publication in the exhibition catalog, marketing materials, posters and other merchandise. With the Walker Evans photograph, there is a version at the Library of Congress flagged as public domain (he was hired by the United States government to make the photographs). The Met also has a version, which is not included under their Open Access policy, despite indications that it should be in the public domain. Confusion means research is necessary, as is more time. The research continues, and the licensing team recognizes that not only are they going to navigate copyright permissions from estates and living artists, they are dealing with a prominent and active trademark. They'll need to go to Coca-Cola to get permission for use.



For most, this can strike a bit of panic. Do we have time for this? Do we have the budget for this? Whom do we call? Is there anything else we should be worried about?

Photography Credit: Evans, Walker, photographer. New Orleans downtown street. Louisiana. Dec. Photograph. Retrieved from the Library of Congress, www.loc.gov/item/2017759415/

Now imagine a different world, one where the answers are clear. The objects owned by museums are recorded on a digital ledger shared across museums. They all have access to the same information—simultaneously. When a change is made (or new information is found) it updates across the ledger for all to see. And, the intellectual property inherent in the work is recorded alongside it. *A transparent IP supply chain where we can see all the rights holders tied to the work of art*—the owner, copyright holder, the entity that holds the trademark, people depicted, even the photographer hired to capture the work. This is the essence of how a blockchain ledger could work.

Why is this so hard to do?

Coca-Cola is an obvious example—we all recognize the brand. But how about other layers of rights that may not be so obvious? Just because they're not evident to the untrained eye, doesn't mean that they don't exist. This only makes the challenge more difficult, and the hesitation to use the work greater. It's very easy to say: let's just find something else.

Giving up and picking something “easier” is happening, even among curators and scholars. Nearly 40% of scholarship in modern and contemporary art is impeded or even abandoned due to the complexity and time required to research, access and license works under copyright. The risk of not being able to publish is too high.³ The College Art Association reports that securing rights can add months, or even years, to a research publication.⁴

Here are other factors that complicate:

- **Copyright Determination:**

At the most basic level, when someone creates a work, they hold the copyright for a certain duration, and then the work goes into the public domain. However, the duration of copyright varies. Determination requires research on factors that can include when and where the work was created, when it was first listed for sale, and whether a copyright was renewed. Additionally, with licensing, the location of where the work will be reproduced triggers the applicable nation's copyright laws, which change over time. As an example, in the United States the copyright laws have expanded since 1976, including extension of copyright and changes in the modes by which damages are collected.⁵ “The dilemma is quickly exacerbated in the online environment, where a

³Copyright, Permissions, and Fair Use among Visual Artists and the Academic and Museum Visual Arts Communities: An Issues Report (CAA) 2014, p. 49. <http://www.collegeart.org/pdf/FairUseIssuesReport.pdf>

⁴Copyright, Permissions, and Fair Use among Visual Artists and the Academic and Museum Visual Arts Communities: An Issues Report (CAA) (CAA) 2014, p. 52. <http://www.collegeart.org/pdf/FairUseIssuesReport.pdf>

⁵ *Copyright, Permissions, and Fair Use among Visual Artists and the Academic and Museum Visual Arts Communities: An Issues Report (CAA) 2014*, pp. 24-25. <http://www.collegeart.org/pdf/FairUseIssuesReport.pdf>

statement of public domain could prove false under the laws of a country with different rules and laws, but where many users may be located.”⁶

- **Fear of being wrong—and getting sued:**

Determining copyright is already difficult for a publisher working on a project intended for a traditional print publication in a specific country. Now factor in digital media—and the rapid rate of distribution. Copyright scholar, Dr. Elizabeth Townsend Gard, explains: “In the 21st century, many laws have become so complex, particularly in an Internet age of multiple jurisdictions, that few average people can understand our laws. Lawyers themselves have trouble sorting through which laws apply, and if you have questions regarding copyright and posting works on the Internet, one could conceivably need to consult 220 different laws, for example, just to assure a work is in the public domain. Humans cannot perform this task. Code must come to our aid.”⁷ For most institutions, it is simply not worth the time or risk of being wrong.

- **Multiple IP Owners:**

With images of art, there are often multiple copyright holders, and others who have their intellectual (or physical) property represented within the image. The person depicted in a portrait has their right to publicity. The logo in the background may be an active trademark. The photographer’s composition is also protectable by copyright.”⁸ And in many cases, the original object is owned by a collector or institution possessing tight control over viewing—meaning, you need their permission to access their physical property.⁹

- **Dynamic and detailed nature of rights**

Just like copyright, duration and location come into play in other types of IP. Right of publicity laws vary by country. Trademarks require research. Are they registered, and where? Did it expire or was it renewed? And was it renewed not just once, but according to the required schedule?

- **Donor Restrictions and Museum Policies**

Museums acquire works through purchase and donation. These agreements may come

⁶ Kenneth Crews, “Museum Policies and Art Images: Conflicting Objectives and Copyright Overreaching,” *Fordham Intellectual Property, Media & Entertainment Law Journal*, Vol. 22, July 1, 2012, pp. 811-12.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2120210

⁷ Elizabeth Townsend Gard, *The Durationator® Copyright Experiment*, p. 3.

⁸ Kenneth Crews, “Museum Policies and Art Images: Conflicting Objectives and Copyright Overreaching,” p. 804.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2120210

⁹ Kenneth Crews, “Museum Policies and Art Images: Conflicting Objectives and Copyright Overreaching,” pp. 803-4.

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2120210

with terms set by the artist or the donor. If the museum accepts the terms of purchase or donation, they are obligated to enforce any restrictions.¹⁰ In our Walker Evans example, the photograph created while he worked for the U.S. Farm Security Administration/Office of War is in the public domain, yet not all of the works from this period are included in The Metropolitan’s Open Access initiative. Works donated to The Met by the [Walker Evans Archive](#) are restricted while those donated to The Met from [Ford Motor Company Collection](#) are not.

- **Connected relationships and reputations:**

The world of artists, scholars, curators, collectors and museums are intertwined. Personal, professional and economic relationships all play a role. Exhibition development relies on access to collection and object loan research. Copyright of artists is guarded, as is a museum’s own IP on new publications about these very artists. Donors are cultivated and their wishes respected in exchange for their gifts. The museum's working relationships with artists in their collection are of paramount importance, and special care must be taken not to upset this balance. This interdependence makes for an ecosystem where people are incentivized to seek permission, develop relationships, and proceed with caution—whether you’re requesting or granting permissions.¹¹

- **Data, but not linked data:**

Museums are research institutions, and they capture all kinds of detail on the objects in their collections. Registrars track a work’s provenance and exhibition loan history. Curators and collections specialists research and record the history of academic publishing regarding the work, details and notes on the object, artist, and relationships to other works. Information is sometimes captured in digital asset management tools, but practically none of these institutions have open or linked databases to allow for the kind of real-time data sharing that speed connections and reduce double (or manual) entry between institutions. Despite the inherent need for sharing in the ecosystem, they are effectively siloed.

- **Middlemen not a good fit and take a large cut:**

Museums may turn to third-party aggregators like Bridgeman, Art Resource or Scala to help facilitate and expedite licensing permissions for frequently requested works by professional users in exchange for 50-60% of the revenue. However, they can’t truly outsource this job; with layers of rights complexity inherent in the works, the majority of

¹⁰ Kenneth Crews, “Museum Policies and Art Images: Conflicting Objectives and Copyright Overreaching,” p. 832. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2120210

¹¹ *Copyright, Permissions, and Fair Use among Visual Artists and the Academic and Museum Visual Arts Communities: An Issues Report (CAA) 2014*, pp. 36-37. <http://www.collegeart.org/pdf/FairUseIssuesReport.pdf>

requests still require manual review of contracts and with many approval by the museum.

Market Failure

Without a clear digital ledger of intellectual property, few have the time or patience to try to use images from the world of fine art and museums.

For those involved in museum licensing, they cannot imagine having the extra time to reach, let alone serve, new customers. Museums are still mostly siloed, lacking the interoperability required to share the burden of managing the massive amount of data with which we entrust them. They have to negotiate contracts, research copyright and consult rights holders before they can release content. Some insist on proof of copyright permission from artists prior to releasing imagery, yet can't (or won't) provide contact information to get the clearance. Others stand behind murky statements such as "this may be subject to copyright or other third party restrictions." In essence, by asking the party licensing the image to validate their own ability to use it, museums are passing along all liability. It's like saying, "I'll sell you my property, but you have to prove I have the title. And if it isn't mine, you'll be the one to get sued."

For those outside of the museum ecosystem seeking access to use fine art images, it means confusion and frustration. If a clear rights ledger existed, smart contracts could reduce that friction, allowing the matchmaking to begin.

Every day, museum curators and scholars require access to third party-controlled objects and images—their work depends on it. At the most basic level, those third parties include a museum that owns the physical object and the artist who retains the copyright. Curators and scholars have no choice but to go through these third parties. It's not like they can throw up their hands and use model released stock photography. The same can't be said for professionals working with art and photography outside academia. The permissions process academics continue to follow is too slow and too complex to navigate. This "friction" keeps the majority of art locked within academic circles, despite major efforts to open up collections and even give images away without a fee for any application. A VP of licensing at the global advertising agency, McCann New York, recently explained she wouldn't use Open Access content from a museum—precisely because it was free. Without a contract or a receipt, there's no way she could prove that she actually had the right to use the image. Rather, she places trust in stock photo houses like Getty Images, which can provide a license history and also sell her insurance should a rights issue arise.

Simply put: people are afraid of infringing the rights of IP owners. This is hindering the development of this ecosystem as a market and stopping people from using imagery from museums and artists.

Looking at other industries can provide insight on how market segments can be “unlocked” when technology makes options clear and transactions simpler and verified. With the launch of Airbnb, homeowners were given a new means to rent out rooms to travelers. Airbnb created easy tools for hosts, providing flexibility, security, and confidence that they would get paid and be protected if any issue should arise. It is counterintuitive to think people can make money by only renting on certain days of the week—or even by insisting on reviewing and “pre-approving” every request. That’s certainly not how it works with traditional hotels. However, by using technology to address the underlying issues of control, flexibility, and trust, owners started listing spaces on their terms. Guests were able to connect with hosts directly and easily request a stay. And with this shift, Airbnb unlocked the largest hotel inventory in the world.¹²

The concept of renting out rooms wasn’t new, but the tools did not exist to make it easy for homeowners to reach and easily transact online with a qualified pool of travelers. Today’s content licensing aggregators, such as Art Resource, Bridgeman, even Getty Images, operate within the framework of licensing the work of large collections to redistribute content to professional users online. On the surface, they appear to be a platform like Airbnb that connects creative professionals and content owners. Seemingly a great low-effort “side hustle” or incremental income for a museum looking to increase revenue on underutilized assets. However, these these types of companies function as middlemen—not matchmaking platforms like Airbnb, Uber or even YouTube.

Whereas Airbnb and Uber provide flexibility to participate on friendly terms, content licensing agreements often require long term agreements and offer low royalty rates for the content owner. The content owner grants a set of rights to the aggregator for a set period of time (typically years)—in specific regions—for a set royalty rate. Content owners give these aggregators the right to sub-license, allowing the aggregator to set prices and terms for use. In exchange, the aggregator promotes the works, and when licensed, they take between 50-80% of the revenue. Compare that with Airbnb, which takes 3% of the price set by the host to cover processing payments.

The reality is, when aggregators license on behalf of the content owner, they need to be able to act quickly. The more content they can find without rights issues, the simpler the transaction for the aggregator and the end customer. They want to mitigate rights issues as much as

¹² Avery Hartman, “Airbnb now has more listings worldwide than the top five hotel brands combined,” *Business Insider*, August 10, 2017. <http://www.businessinsider.com/airbnb-total-worldwide-listings-2017-8?r=UK&IR=T>

possible—which often results in more generic content. They look for evidence of model releases and property releases, while erasing trademarks or steering away from works with rights complexity. In addition, to further protect themselves, aggregators push the risk of usage on to the end user. To increase licensing opportunities and revenues, they sell additional services including rights clearances and supplemental insurance should an issue arise. These strategies are about risk management—providing the end user with a feeling of security, but ultimately is a solution that provides more revenue to the middleman.

These are all antiquated strategies of making digital content available. However, today’s technology allows a different approach, centered around clarity and transparency of facts. “Smart contracts enable the creation of what we call open networked enterprises based on a new set of business models, or old business models with a blockchain twist.”¹³ Imagine if we use technology to identify and clarify rights: a definitive and transparent answer on copyright status, whether a trademark is active, if publicity rights are in play, and when permissions are needed. How many rights holders can participate in this kind of ecosystem?

Emergent Technology Applied to Art

There are dozens of much-hyped applications of blockchain technology beyond cryptocurrency making headlines—from financial services and healthcare to diamond tracking. A number of disruptive startups have emerged aiming to use technology to bring greater awareness, transparency and accessibility to the purchase, collection and certification of original works of art. The appeal is understandable: the global art market is estimated to be worth \$56 billion per year, and the sales channels are changing.¹⁴

In their recent book, *Blockchain Revolution*, Don and Alex Tapscott quote Verisart founder, Robert Norton: “The art world is not broken. It just relies too much on middlemen to ensure trust and liquidity...the advent of a world-wide ledger coupled with powerful encryption to mask identities of buyer and seller will be attractive to the art world.”¹⁵ Using the Bitcoin blockchain and museum certification standards, **Verisart** gives artists a mechanism to assign certificates of authenticity to the art and collectibles, allowing artists to register original works and then record provenance (transfers of ownership) on a distributed ledger. Buyer and seller information is protected and private, and image recognition is used to discover forgeries in real time.

¹³ Don Tapscott and Alex Tapscott, *Blockchain Revolution: How the Technology Behind Bitcoin is Changing Money, Business and the World*, 2016, Penguin Random House LLC, p. 21.

¹⁴ Clare McAndrew, *The Art Market 2017*, Art Basel & UBS, 2017, p. 15.

¹⁵ Don Tapscott and Alex Tapscott, *Blockchain Revolution*, p. 132.

They're not alone in the pursuit for blockchain solutions to protect an artist's copyright. **Ascribe**, also a platform for artists and art sellers, is employing blockchain technology to create an unbreakable link between artists and their digital work, allowing the artist to register digital works, lock their attribution, issue certificates of authenticity, and designate digital limited editions. For art sellers using Ascribe to source and resell digital works, it allows for a simplified workflow of curating and selling. **Mediachain** is an open source initiative to connect creators and their media. Their blockchain application solves issues of attribution, allowing creators and developers to collaborate and control their data over a decentralized database architecture.¹⁶ Before being acquired in 2017 by Spotify, Mediachain suggested their blockchain protocol could be used to realize the vision of linked open data among cultural heritage institutions, resolving challenges of metadata interoperability and preservation.¹⁷ Lastly, **Binded's** own mission statement is to "democratize copyright" by creating a unique cryptographic hash for each copyright record on the Bitcoin blockchain. The user then receives a digital certificate recording the registration and confirmation of their IP on the ledger.

Other startups are addressing attribution and developing related cryptocurrencies for sales and revenue opportunities within their platform. **Artlery** is a new service designed around an art-backed cryptocurrency with its valuation based on analytics and reputation. Artists can share or sell works through the platform. To foster a sense of community, patrons and artists alike can be stakeholders, receiving a share of the resale royalties for a given work. **Codex**, a new startup is also employing blockchain technology to help register and track the provenance of art and collectibles. Their application Biddable allows private bidding with their cryptocurrency and smart escrow contracts to deter reneging.¹⁸ **Maecenas** is a platform that allows art investors to purchase large-scale investments in tokenized portions using their cryptocurrency ART.¹⁹

New blockchain based licensing platforms are also emerging in the world of photography, video and other branded content assets traditionally distributed by stock photography aggregators. **Monegraph**, a portmanteau of "monetized graphics", utilizes the Bitcoin blockchain to enable licensing and revenue sharing opportunities for professional photographers, videographers, musicians and media owners. Creators can build distribution channels and sell or license their works with customizable contracts or pre-set agreements, along with flexibility for parsing out

¹⁶ Sarah Perez, Spotify Acquires Blockchain Startup Mediachain to Solve Music's Attribution Problem, *TechCrunch*, April 26, 2017.

<https://techcrunch.com/2017/04/26/spotify-acquires-blockchain-startup-mediachain-to-solve-musics-attribution-problem/>

¹⁷ Denis Nazarov, *Bringing Cultural Metadata to Life*, March 3, 2016.

<https://blog.mediachain.io/bringing-cultural-metadata-to-life-12cc118b2298>

¹⁸ Diana Ngo, "Codex Unveils Blockchain Protocol Arts Collectibles Traceability," *Coin Journal*, January 17, 2018.

<https://coinjournal.net/codex-unveils-blockchain-protocol-arts-collectibles-traceability/>

¹⁹ John Buck, Meet Maecenas: The Decentralized Platform for Art Trading, *Coinspeaker*, September 29, 2017.

<https://www.coinspeaker.com/2017/09/29/meet-maecenas-decentralized-platform-art-trading/>

royalty payments to models, agents or other stakeholders.²⁰ **KODAKOne**, a new rights management service from Kodak allows photographers to register and license their photographs on their platform, with instant royalty payments made via the platform's cryptocurrency KODAKCoin.

All efforts to make it easier for artists today to protect their copyright and to monetize their works, create more transparency, and lower the barriers to entry to the art market are laudable. It is critical that living artists can demonstrate control of their works and protect their value. It is also easy to see why startups would want to link the value of a new cryptocurrency to the buying and collecting of art and collectibles—a traditional category of ownership which is understood to increase in value over time. And it's nice that high net worth individuals can more easily and privately purchase art directly through these apps. But is this really the biggest problem facing the art world today?

Significant works of art are housed in private collections and museums. And the reality is, not everyone shares the same the same ability to access and experience these works—even in the United States. There are 5 billion people in the world today who don't (or can't) go to museums to experience art and learn about its value to society. The problem is both geographical (people are unable to visit) and a failure of technology (people are unable to search and use digital assets). As our sources of information continue to shift to digital, and we don't address issues of rights and access, how much history will be lost or censored, simply because it is out of reach?

Transforming Intellectual Property in the Backroom

The early adopters and biggest movers in blockchain may emerge from places you might not expect. Advances will probably come from the backroom of what may be considered a dusty, old institution—not unlike a museum.

New technologies are often first adopted in the backroom within an established ecosystem. This is evidenced in the early history of the Internet, originally a distributed network of university computers with email functionality at its core. Out of this network, the TCP/IP protocol was formulated in the 1970s as a way to standardize and improve the reliability and speed of electronic communications. In the 1980's, companies such as HP, Sun and others used the TCP/IP protocol for internal networks, laying the foundation for the eventual explosion of the World Wide Web in the 1990s.²¹

²⁰ Monegraph, *Monegraph Releases eCommerce Platform for Media Owners*, Press Release, February 2016. <https://www.prnewswire.com/news-releases/monegraph-releases-ecommerce-platform-for-media-owners-300215498.html>

²¹ Marco Iansiti and Karim R. Lakhani, "The Truth About Blockchain," *Harvard Business Review*, January-February 2017. <https://hbr.org/2017/01/the-truth-about-blockchain>

“Blockchain is a *foundational* technology: It has the potential to create new foundations for our economic and social systems.”²² And the first blockchain use cases with real-world impact are coming from old school giants looking to transform the way they’ve typically done business. In October of 2016, Walmart, IBM and Tsinghua University began testing blockchain technology in the ‘backrooms’ of their operations to address food safety.²³ It started with an analysis of their very foundation: supply chain.

In their study, Walmart and IBM combined mobile and blockchain to revamp their data management processes across a complex network that includes farmers, brokers, distributors, processors, retailers, regulators, and their customers. This meant a taking a deep look at friction-filled critical processes of record keeping, painful and filled with minutia: paperwork, tracking, contracts, signatures, and usually a few sets of middlemen and a third party for verification.

The impact of their research is serious, and literally may save lives. In 2006, spinach was removed for store shelves for two weeks after an E. coli outbreak. 199 people from 26 states were infected, and 3 died. Millions of dollars were lost by grocery stores and farmers—even though their product was not infected.²⁴ With their blockchain solution, what previously took two weeks of research to identify the source of a problem is now available in seconds. This kind of supply chain breakthrough represents upside all around for food producers, distributors and their customers: increased control (safety, efficiency and savings) and increased access (shared information with customers), and probably lower prices. By August 2017, nine other giants including Nestle, Unilever, Kroger and Tyson Foods joined their blockchain coalition.²⁵

Walmart utilized [Hyperledger Fabric](#), a blockchain created by IBM, now housed under the Linux Foundation’s Hyperledger group. The Hyperledger Fabric protocol has a few key differences from Bitcoin, Ethereum and other cryptocurrency or token-based blockchain applications. With Hyperledger Fabric, cryptocurrencies or tokens are not required. Networks can be permissioned, and they support smart contracts that can be scalable and confidential. Each institution and participant represents a node on the distributed blockchain network, sharing secure information in real time. The central theme behind the adoption of this kind of blockchain ledger is that

²² Marco Iansiti and Karim R. Lakhani, “The Truth About Blockchain,” *Harvard Business Review*, January-February 2017. <https://hbr.org/2017/01/the-truth-about-blockchain>

²³ IBM Press Release, *Walmart, IBM and Tsinghua University Explore the Use of Blockchain to Help Bring Safer Food to Dinner Tables Across China*, October 19, 2016. <https://www-03.ibm.com/press/us/en/pressrelease/50816.wss>

²⁴ *Center for Disease Control, Multistate Outbreak of E. coli O157:H7 Infections Linked to Fresh Spinach (FINAL UPDATE)*, October 6, 2006. <https://www.cdc.gov/ecoli/2006/spinach-10-2006.html>

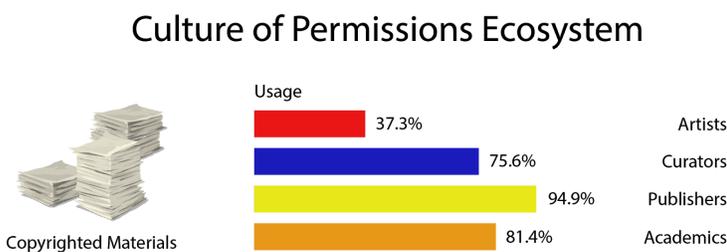
²⁵ Robert Hackett, “Walmart and 9 Food Giants Team Up on IBM Blockchain Plans,” *Fortune*, August 22, 2017. <http://fortune.com/2017/08/22/walmart-blockchain-ibm-food-nestle-unilever-tyson-dole/>

multi-institution networks need technology for business solutions and efficiency—they’re not looking to create new forms of digital currency. Rather, they seek solutions that can address the need to track real world objects and contracts, adding transparency to process and governance, and implementing smart contracts that can be trusted to self-execute when designated terms are met. Clearly there will be more “tokenless” blockchain initiatives to follow. As Aryan Nava, Founder, Blockchain Mind explains: “Use cases of blockchain solving everyday business problems will soon surpass the cryptocurrency market applications.”²⁶

Museum Licensing: The ideal high value niche use-case for smart contracts

Museums may not be considered to be at the forefront of technological innovation, but if you look a little deeper, their role in art licensing presents a use case for blockchain technology that may unlock all kinds of possibilities for rights holders and institutions.

Museums interact with other museums, artists and copyright holders in a well established ecosystem with certain protocols and processes. More than 75% of curators and academics use copyrighted works in their own scholarship.²⁷ They share research, they share objects, and they license each other’s media. They are by definition, record keepers. They house and create deep data about their objects. And today, it can take months to secure a license between museums due to the complexity of identifying rights, checking contracts, and monitoring restrictions—all done through manual processes of email, spreadsheets, and PDFs, or worse yet, paper contracts in storage.



In their book *Blockchain Revolution* the Tapscotts rightly point out: “We are a species that survives by its ideas and not its instincts. We all benefit when creative industries thrive and when the creatives themselves can make a living.”²⁸ Art and material culture licensing presents an opportunity to transform an established process of analog contracts and business rules into a digital ecosystem of rights holders that utilize smart contracts to manage and license their IP.

²⁶ Aryan Nava, Founder and Chief Strategy officer of Blockchain Mind, President of BLOCKTORQUE and Blockchain/Ethereum/Hyperledger trainer at KnowledgeHut. Personal interview. February 2018.

²⁷ *Copyright, Permissions, and Fair Use among Visual Artists and the Academic and Museum Visual Arts Communities: An Issues Report (CAA)* 2014, p. 24. <http://www.collegeart.org/pdf/FairUseIssuesReport.pdf>

²⁸ Don Tapscott and Alex Tapscott, *Blockchain Revolution*, p. 249.

Implementation of a blockchain ledger of objects across museum collections would add clarity to research, speeding access and opportunities for insights. By adding smart contracts for licensing, both researchers and creatives can benefit—expanding reach and market opportunity for museums, artists, and rights holders.

There are a few steps required for this kind of transformation:

Step 1: Get rights determined and tracked

IP Supply Chain: All of the parties that have a stake in the work—from property to copyright to right of publicity to trademarks.

Step 2: Let IP owners set their rules for access

Rights holders set their own terms—independently and simultaneously

Step 3: Let the smart contracts do the work

When and if those terms are met, contracts self-execute, payments are made, and valuable content is released.

Summary

For centuries, museums have catalogued, celebrated, informed and protected the very record of human achievement that is art. Together museums maintain the ownership registries of billions of objects, entwined with the intellectual property rights of creators and subjects. And yet, the system they employ today to manage collection access and distribution is still largely a pre-Internet business process. There is an ecosystem of owners, creators and enthusiasts established over centuries, working within an analog registry ready to be transformed. This is where we should look to innovate, automate and improve with blockchain technology.

The IP Paradox: access to art hinges on more IP control

Museums are heeding the call to open up their collections for access on the Internet, and keenly aware of the rights of copyright holders and limit access to the public domain. However, there is more in play than just copyright. How can rights holders have their say?

Open and secure supply chain: a shared real-time digital ledger of IP

This would be a ground-breaking first step toward creating an open, but still secure ledger of intellectual property ownership with valuable, dynamic data for cultural institutions.

Transparency, accuracy and trust: give museums the tools they need to manage IP

This would provide massive efficiencies in the licensing process, while making it possible for millions of people on the web to secure a verifiable license for the billions of important images, whose rights are now languishing in dark, murky oceans of hidden but valuable data.

Museums represent an ideal use case for smart contracts: an established network of professionals and antiquated business processes, ripe for innovation through blockchain ledgers and smart contract technology.

The result: correcting a failed market, which will unleash one of the most important sources of content, inspiration and learning on earth.

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