

artchain

art assets secured on the blockchain

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artchain – art unchain'd

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'Ruskin said: "Great nations write their autobiographies in three manuscripts: the book of their deeds, the book of their words, and the book of their art. Not one of these books can be understood unless we read the two others, but of the three the only trustworthy one is the last." On the whole, I think this is true. If I had to say which was telling the truth about society: a speech by a minister of housing, or the actual buildings put up in his time, I should believe the latter.'

– Kenneth Clark, [*Civilisation, A Personal View*](#).

abstract

The art industry is rife with undetected fraud. Currently, the art market suffers from incompleteness of information due a lack of trust among its participants. Establishing the authenticity of art assets is expensive and often disputed which leads to artificially raised costs of conveyancing in an attempt to protect – imperfectly – against fraud. Transaction of art assets is regulated neither by deed nor by a public 'art registry' unlike similar tangible asset classes – land & vehicles – which are exchanged more reliably & frictionlessly. Such certification cannot exist using legacy technology due to the compromises of private information it would entail. The unique property of the blockchain is its ability to provide immutable proof that x is y using a distributed ledger, unmatched cryptographic security, and smart contract conveyancing. **artchain** – a gold standard certification system for art assets – can harmonise the art market with its analogues, preserve the security of private ownership information, and provide all counterparties the guarantee that they will come out of a transaction with satisfaction. Once **artchain** has been established, the art market can be securitised, which has heretofore been an impossibility. This is the Blockchain Revolution. Together, with the new consensus **artchain** can provide, we can build a coalition of art industry professionals and participants facing the future of mutual self-regulation of transactions and provenance.

introduction

Our art is both a record of our history and a prisoner of it. Clark identifies this tension between what art says and what is said about art which is nowhere more visible than in today's art market where *deeds* do not yet exist, *words* are always under scrutiny, and *art* is valued without sure guarantees of authenticity. Authenticity is prized, but provenance is bitterly fought over and often discredited.¹ The aesthetic value of an artwork in the eye of the viewer is undisputed², but its history is always questionable – and in fact often questioned under the time pressure of an impending sale at great expense.

This document presents **artchain**, a revolutionary new software platform applying the unique properties of the blockchain to transform the art industry from a low trust environment to a trustless environment. The means by which art assets are authenticated and transacted are inefficient and costly due to that lack of trust. All participants in the art industry suffer from this inefficiency and have a vested interest in rendering the sale and ownership of art more transparent. **artchain** assigns every art asset a unique digital certificate proving its authenticity and logs every transaction publicly, forming an audit trail tracing each artwork in its life as an asset. **artchain** is still under development. our aim is to form a coalition of art industry professionals and participants facing the future. please contact us for further details of how to join the Blockchain Revolution or take up a place on our advisory board so that together we can shape the digital future of the art industry.

First, a short history.

The 2008 Financial Crisis and the Bitcoin Blockchain

The Bitcoin Blockchain is the 'first living and successful working example of a decentralised payment system.'³ It continues to be the largest, most reliable, and most profitable distributed ledger that has been taken up publicly, gaining in strength; as of the time of writing 1 Bitcoin is now valued at around £525/\$700. Since at its inception in 2009 it commanded zero monetary value, this is an unprecedented meteoric rise among asset classes coming into being. At the *Internet of Value Conference* held last week at the

¹ see a worked example from the time of writing (16.11.2016)
report - The Art Newspaper:
<http://theartnewspaper.com/news/amsterdam-museum-rejects-van-gogh-s-lost-sketchbook/>
pro - Abrams and Chronicle - publisher:
<http://abramsandchronicle.co.uk/press-and-news/vincent-van-gogh-the-lost-arles-sketchbook>
contra - Van Gogh Museum - appraisal authority:
<https://www.vangoghmuseum.nl/en/news-and-press/press-releases/found-sketchbook-with-drawings-is-not-by-van-gogh-according-to-van-gogh-museum>
dissenter: <http://www.vangoghcontroversy.com/analysis.htm>

² controlling for the authenticity of the artwork's materials and technique, which themselves are often forged.

³ Diacle: Bitcoin & the Cambrian Blockchain Explosion, 18.08.2016
(<http://diacle.com/index.php/2016/08/15/bitcoin-and-the-cambrian-event/>)

University of Cambridge and to which **artchain** contributed, Chandler Guo⁴, Chinese bitcoin mining magnate - predicted that 1 Bitcoin would reach a value of \$1 million - 'If everyone would have just one, the Bitcoin value would go to \$1m.'⁵ If his prediction proves true, based as it is on the mathematical properties of bitcoin - its limited supply in an environment of elastic demand - then it is destined to become the international currency of settlement. Despite the controversies attached to it in its early stages, the Bitcoin Blockchain has critical mass and must be respected for that positioning as one of the few promising stores of value in today's times of economic stress. Part of Bitcoin's success is due to the Blockchain allowing a trusted execution environment to come into existence for the first time which eliminates the friction previously endemic to all transactions and which held back the realisation of value.

The story of art since 2008 is not dissimilar to that of bitcoin in that, along with gold, bitcoin and art have both proven worthwhile investments in reaction to the international economic crisis. Art is the portable, tangible, noncommodified asset class of choice to hedge against collapsing economies and turbulent markets. Today art weathers the storm as a store of value, remaining afloat for the long haul on the seas of uncertainty.

'Today, the bitcoin economy is larger than the economies of some of the world's smaller nations.'⁶ Bitcoin has roundly demonstrated in its short 7 year life thus far that since their unmooring from the anchors of the gold standard in the mid-20th century, governments have allowed an evolutionary niche to lie open in the currency space. Bitcoin moved to fill it. Bitcoin is 'an electronic payment system based on cryptographic proof instead of trust allowing any two willing parties to transact directly with each other without the need for a trusted third party.' Central banks proved unreliable guarantors of the currencies they issue in 2008, because they prioritised objectives of political economy over that of trust in their currencies. Quantitative easing in the trillions of dollars propped up the ailing banking sector but punished all other holders of those currencies through no fault of their own. The Blockchain Revolution was enabled by the advent of computing technologists becoming sufficiently confident that the internet hosted enough bandwidth to guarantee their transactions in such a way that they could not be corrupted - a distributed ledger. The first distributed ledger was a currency, Bitcoin. The best analogue is email and the internet. Bitcoin is to the Blockchain as email was to the internet - the first application which changed the world - in this case 'programmable money'. Distributed ledgers are much more reliable than any person or committee because their promises cannot be broken simply because a rump decides that political-economic expediency overrides the parameters under which trust is exchanged. Since central banks are no longer a trusted third party, people wishing to trade honestly have sidestepped their previous monopoly on means of exchange.

⁴ <http://www.chandlerguo.com>

⁵ https://youtu.be/Zh_mQl2B6es

<https://cointelegraph.com/news/bitcoin-can-reach-10000-or-even-1-mln-chandler-guo-explains-how>

⁶ Brito & Castillo: *Bitcoin - a Primer for Policymakers*, 2013.

(https://www.mercatus.org/system/files/Brito_BitcoinPrimer.pdf)

But the blockchain is not a digital currency, or some innovative but fundamentally trivial system of digital accounting or bookkeeping designed to regulate such a currency. Blockchain is a much more powerful tool than Bitcoin itself which, focussed by the new technologies which channel its potential, is fast becoming the fundamental interoperability layer for the oncoming Internet of Value which is set to change our fundamental concepts of where value inheres and how it is stored and exchanged. Bitcoin is a digital revival of a smart analogue to the gold standard, whereas the blockchain can find quantifiable value above zero for every action, inaction, and unit of data, every quality may be quantified and made interchangeable with one another.

The Power of the Blockchain

All this chaos and dispute can be laid to rest, though. With the advent of blockchain technology we have finally entered the age of recorded history. Not recorded by man, but by machine. If you asked Samuel Pepys, the great diarist, what he was doing on a certain day - say, February 1, 1669 - he would be able to tell you. He would go to a certain building, enter a certain room, arrive at a certain bookcase, select a certain bookshelf, withdraw a certain volume, turn to a certain page and there potentially find written what he was doing. In this case, he was, or claimed to be, at Robert Streeter's - a history painter - where he met Christopher Wren, for whom the artist was producing a painted ceiling at his first architectural work - the Sheldonian Theatre, Oxford.⁷ We have to rely on Pepys' vanity, imperfect memory, and precis of the massive data set contained in his day down to his short narrative of the day's chief occurrences. We rely on the authority of the diaries as a factual account of the life of the diarist due to the social conventions which we believe to inhere in diary writing - writing for oneself, not needing to lie in a private text, and so on - along with corroboration from cross-references to other claimed factual accounts to establish trust in the text as a work of reportage rather than a creation of the imagination. If you asked Pepys what he was doing at 16:47:28 on that day he would, if asked at the remove of some years and relying on the diary more than the memory, perhaps not be able to tell you with any certainty. He met Wren in the day, then Bellasis, had 'a little dinner', then went on an abortive trip to the theatre with his wife which failed due to one of the actors having been beaten by thugs the previous night. We as readers certainly cannot derive that granular detail from the diaries, which are all that is now left of Pepys the man.

Imagine having not a selection of details transformed into a narrative by a governing - and limiting - consciousness which wipes all the other details from history, but the historical data itself preserved complete so that any observer can find any detail and create their own

⁷ 'Thence he carried me to Mr. Streeter's, the famous history-painter over the way, whom I have often heard of, but did never see him before; and there I found him, and Dr. Wren, and several Virtuoso's, looking upon the paintings which he is making for the new Theatre at Oxford: and, indeed, they look as if they would be very fine, and the rest think better than those of Rubens in the Banqueting-house at White Hall, but I do not so fully think so. But they will certainly be very noble; and I am mightily pleased to have the fortune to see this man and his work, which is very famous.' (pepysdiary.com/diary/1669/02/01/)

precis of relevant information out of that selection. Total recall is the unique property of the blockchain, and **artchain** is one of the first major financial applications of that potential.

The Question of Provenance

Art has only one weakness. That weakness is provenance; questions of authenticity. But the immense power of trust distributed on the blockchain can transmute art's only weakness into its strength by providing what currently does not and cannot exist with legacy technology: a secure, gold standard certification system by which artworks are authenticated, exchanged, tracked and traced, securitised, and insured, regulated by deed and logged against an immutable and incorruptible private registry.

Art can only be mine if my property right to it is legitimate. If I purchase a fake, a forgery, an unlicensed copy, or stolen goods, then my title is void and my investment worthless. If the appraisal is incorrect or disputed, my costs increase exponentially. My ship sinks.

The ownership and exchange of tangible asset classes holding similar value such as land and vehicles are regulated in advanced economies by deeds logged on a public registry: *land deeds* and a *Land Registry*, and numberplates, V5 Papers, and the *DVLA Database*, respectively in Britain. Art is unable to follow this model using legacy technologies. A public registry would be a thieves' bible and lead to the loss of sensitive information. The lack of a public registry prevents the free flow of information in the art market, leading to inefficiencies, increased costs, and enabling fraud. The combination of proprietary and public information held encrypted on the blockchain allows us to bridge this gap with **artchain** technology.

Blockchain is an 'open, global, private, censorship resistant, transactional, and transnational network.'⁸ It acts as an indelible registry of truth. **artchain** is building a blockchain system to provide the art industry with a single forum to debate and verify by consensus questions of provenance, audit trail of previous owners, authenticity, legitimacy of sale, identification and flagging of forgeries and fakes, unlicensed copies, and stolen goods which currently all combine to make the art industry (and especially the secondary market) low-trust and hence inefficient for all parties involved in the supply chain – artists, collectors, dealers, galleries, auction houses, appraisers, foundations, museums, corporations, governments, insurers, financiers.

The power of the blockchain lies in that it is 'not a system of proof by appeal to authority or to its author, but a system of independent and neutral mathematical proof which stands on its own.'⁹ We are leaving the seemingly neverending age of illegitimate authority - authority taken by force or coercion by a power broker because he has more complete information

⁸ Antonopoulos.

⁹ Antonopoulos.

than the party he dominates. We are entering what Erich Fromm called in the early 20th C. the age of 'legitimate authority' - a temporary, tentative, contingent, renewable, but ad hoc responsibility granted by one's peers thanks to competence in a particular field. Power used to be taken from the weak by the strong, imposed by dominance on those held in thrall for as long as the strong maintained that power base. Power under a consensus model emanates in true democratic fashion from those voting that they find your version of consensus, or your additions to the whole as being additive to their experience. Power is granted by the public to its servant as a means of making problem solving more efficient, and only for that purpose. This is the age of distributed trust, which can result in legitimate authority - I delegate my power temporarily and against certain conditions to a party who can help me do something I cannot, will not, or do not have enough time to do, but without allowing that party control over me or the information I delegate to him. Consensus as a governing concept rather than authority changes the focus and level of debate across society. **artchain** can harness that new paradigm to provide clarity and transparency in the art industry and between its participants, who can now voluntarily enter into an incorruptible regulatory framework to secure the value of provenance.

The artchain solution

We realise that the primary market certification problem is easy to solve. For an artwork which has yet to be sold and is in the possession of the originating artist, one simply asks the artist the question 'what did you make?' Out of this initial self-appraisal we certify an entry on the **artchain** which will then act as a passport to the work's future life as an asset. **artchain** sales in the primary art market are accompanied by v. 1.0 prototype **artchain** certificates live on the Blockchain, seeding a pilot scheme into the market to demonstrate to the art industry and finance the efficacy of digital certification while providing our clients buying contemporary art an unmatched assurance of authenticity which itself is transferrable directly to a subsequent buyer as a deed.

As we develop the full secure **artchain** certification platform we will offer certification for secondary market work. Bringing together appraisers, authenticators, and foundations with art owners, **artchain** provenance certificates will provide a standardised assurance of authenticity for current or future sales, transferrable between owners as a property deed. The smart contract technology by which the Blockchain executes its transactions allows for unsurpassed transparency and security between counterparties, who do not have to trust one another, but rather each only has to trust the **artchain** system to preserve their interests. Each party – buyer, seller, intermediaries, legal and financial professionals – must sign off that they have fulfilled their responsibilities, done their due diligence, and gained their compensation, each clause in the contract reviewed by the appropriate participants. Unless and until all clauses are met, the computer program cannot execute, and hence the property deed cannot transfer between counterparties and the money cannot leave an escrow account; a backstop against any party emerging from the transaction unsatisfied.

We intend to partner with institutions in the insurance sector to transform that assurance into an insurance certificate, in so doing lowering the cost of premiums due to the increased guarantee of authenticity. As **artchain** certificates achieve critical mass in the art space we will partner with the private banking sector to provide finance and the efficient securing of loans against art assets using deeds as collateral in a comparable manner to that of car loans and mortgages. Governments and finance houses are now taking seriously the potential of the blockchain. The art industry needs to keep pace with their peers.