



# WHITEPAPER

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[CHRAINREADS.COM](https://chainreads.com)



# Abstract

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We present a novel usage of blockchain technology in the electronic book (e-book) trade. We argue that the current state-of-affairs for book sales is untenable due to equity issues. These equity issues are (a) financial access for authors, (b) biased discovery of books, and (c) imbalance in the relationship between booksellers, publishers, agents, and authors.

We demonstrate that blockchain technology can be part of the solution to these challenges. Specifically, by using blockchain for royalty payments, authors will have more equitable access to the financial benefits of their books, regardless of their geographical location. The censorship-resistant, borderless, and tamper-proof nature of blockchain will better enable authors to be paid fairly on a world-wide basis. Additionally, as a mechanism of recognizing legitimate license for readers to own, give, or sell a copy of a book via a non-fungible-token (NFT), blockchain supports author copyrights in a way that traditional e-books currently do not allow.

The capabilities are demonstrated via a live proof-of-concept website, [www.chainreads.com](http://www.chainreads.com). This website offers a science-fiction trilogy for sale, purchasable via credit card or crypto, with optional NFT redemption.

- Rick Talbot, Severn, ON, Canada, October 24, 2022



A vertical photograph on the left side of the page shows a person from the waist down, holding a very tall stack of books. The person is wearing blue jeans and sneakers. The background is a library with wooden bookshelves filled with books and a window with a decorative frame at the top.

# Introduction

Chainreads.com is a proof-of-concept business that demonstrates how blockchain technology can address some long-standing issues in the e-book industry and the book business as a whole. With blockchain to facilitate payment, authors they can receive royalties regardless of their geographical location. Rather than wait for months to receive payments, authors can receive payments more regularly, with lowered transaction fees, and without the need for a bank account.

The borderless nature of blockchain helps to solve a major problem for authors who live outside of North America – difficulty receiving payment. Will the next great English-language novel be written by an author in Nigeria or Afghanistan without a traditional bank account or an IRS International Tax Identification Number (ITIN)? Our business model allows all authors to exist on a level playing field with their American counterparts.

# Practical Benefits

## GLOBAL REACH

More than 1 billion people lack access to a bank account. Will the next amazing English-language novel be written by one of the 60 million people in Nigeria without reliable banking access? Using blockchain for payments allows an author to receive payment regardless of their location, directly to their smart phone. Note that many countries have skipped physical land line telephone network development, and smart phone use is rapidly becoming ubiquitous.

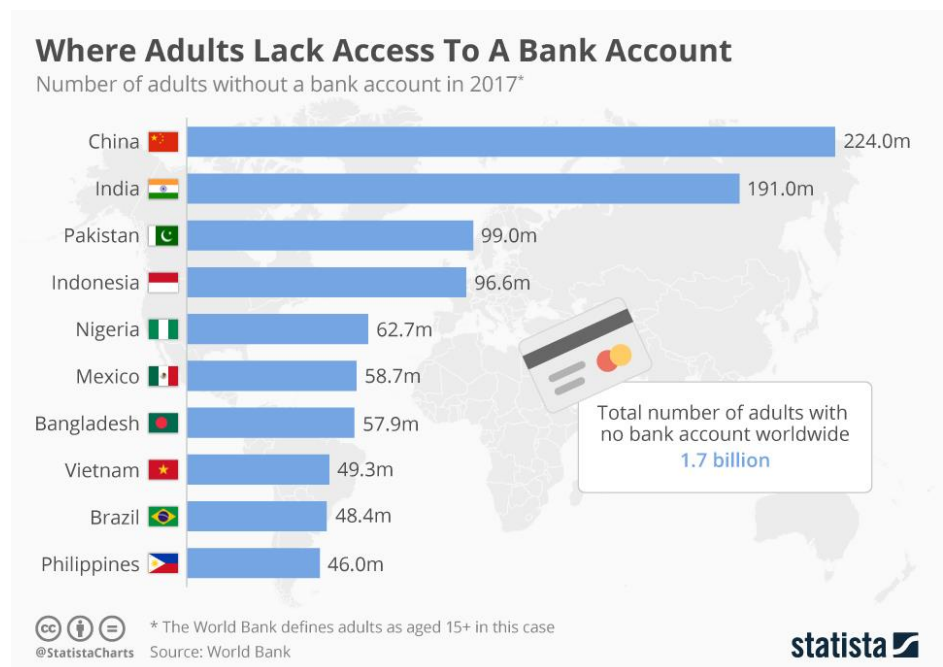


Figure 1 - Number of people without bank accounts, 2017. Source:

<https://www.statista.com/chart/14192/where-adults-lack-access-to-a-bank-account/>

See also: [2017 Findex full report chapter2.pdf \(worldbank.org\)](#)

## FASTER PAYMENT

It takes days, to weeks, to receive a cheque overseas. It then takes days or weeks for the cheque to be processed. Traditional electronic transfer systems like Western Union are faster, but come with higher costs, as well as risks since they are not everywhere and not always trusted or reliable. Blockchain based payments can be completed in seconds, sending funds directly to the recipient smart phone.

## BETTER ROYALTIES

Blockchain as a payment vehicle can be used to reduce costs, under the right circumstances. To be sure, payment costs are not the number one cost that a book seller or publisher has to contend with, but anywhere that we can reduce costs means we can increase royalties to authors.

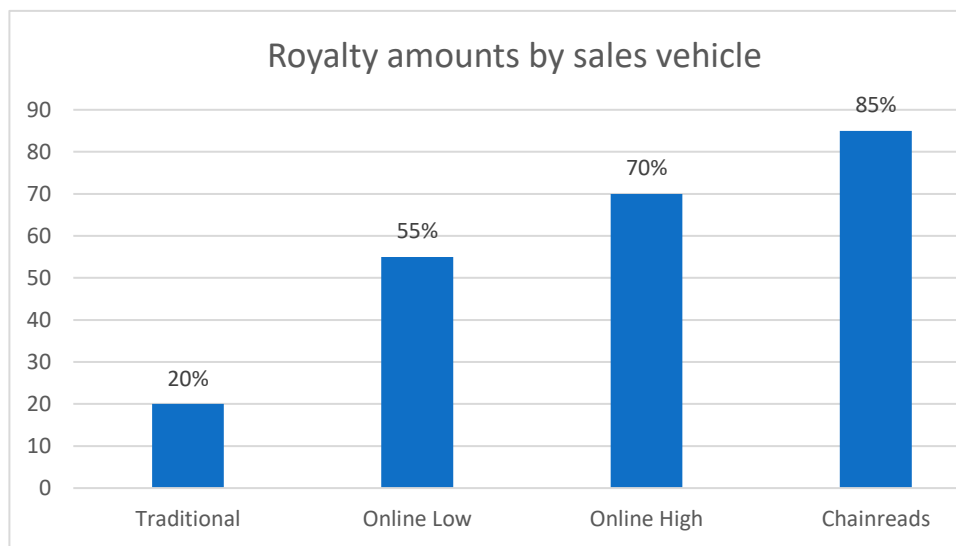


Figure 2 - Chainreads business model royalties compared to traditional and online publishing.



# Blockchain Overview

**At its core, this is all that blockchain is: a way to transfer data that represents something, to someone else, with certainty that the transaction is legitimate and will arrive at the intended destination.**

Blockchain is a technology that allows for an accounting ledger to be transacted on the public internet. [1] This is contrasted to a private accounting ledger such as the one kept by the accounting department of any business. The key to this being useful is that the transactions are fast, low-cost, and tamper-proof. If these things are true, then it can be used to account for the flow of data or currency between parties in a way that is more convenient and cheaper than (for example) Western Union or VISA. The implications are especially profound in the developing world where the costs of transferring funds are prohibitive and where billions of people do not have bank accounts. At its core, this is all

that blockchain is: a way to transfer data that represents something, to someone else, with certainty that the transaction is legitimate and will arrive at the intended destination.

Common criticisms of blockchain are critiquing specific implementation or use-cases, not the underlying technology. Here are two examples:

- We hear that blockchain is bad for the environment due to the CO2 generated by ‘mining’ equipment. This is true of blockchains that operate via ‘Proof of Work’, such as Bitcoin. This is not the case with ‘Proof of Stake’ or other blockchains that do not require intensive computing effort to validate their authenticity.
- Non-fungible-tokens (NFT) are an over-hyped bubble, where people willingly pay hundreds to thousands of dollars for an image. NFT technology has valid use cases, specifically where holding the ‘token’ signifies that a person has a right to the digital object that it represents – an image, a book, or any other object that has value in being held by an individual. In other words, the issue with NFTs is not with the technology itself.

These criticisms are not applicable to chainreads.com. Our use case for NFTs is to represent rights to a book, and not as an object of speculation. We have chosen to operate on a carbon-neutral blockchain (Algorand), making it no worse (and possibly better than) using a credit card processor for payments handling. In fact, the estimated CO2 produced to complete a block of the Algorand blockchain is 0.000008 KWh versus 930 KWh for Bitcoin and 70 KWh for Ethereum. [2]

# Blockchain for Payments

Blockchain offers several advantages for payment as compared with traditional methods such as wire-transfer, cheques, or Western Union:

International transfer companies such as Western Union and others, charge a fee for international transfers that is onerous for small amounts, and takes much needed cash out of the hands of the recipients. Regardless of the method used, all traditional payment methods involve delay, especially to non-Western countries and the unbanked.

The blockchain we have chosen (Algorand), processes payments in 5 seconds, with a cost of 0.001 Algos (about 1/10<sup>th</sup> of a cent USD based on a \$1 price per Algo). [3]

As of 2017, more than 1.7 billion people did not have bank accounts. [4] This makes receiving payments for work done almost impossible. There are also many who are 'underbanked' which means that their access to banking services are limited.

Also important is the limited trust placed in banking institutions in some countries. For example, when the United States left Afghanistan in 2021, many locals switched to cryptocurrency because they did not trust the incoming Taliban government to maintain the integrity of the banking system. [5]

The above issues of (a) limited access to bank accounts, (b) bank reliability, and (c) excessive fees, together contribute to an inequity where non-Western authors are disadvantaged when attempting to publish and be paid for their work.

In addition to these problems, most ebook retailers are based in the United States, which means that international authors (anyone outside the United States) will pay a withholding tax on their payments, losing a large portion of their possible payment. Some countries have a treaty whereby a non-US citizen can apply for an ITIN (International Taxpayer Identification Number) and thus avoid the withholding tax. This requires the use of an IRS-approved *Certifying Acceptance Agent* to validate the applicant's identity, which comes at an additional cost. [6] Chainreads.com will be domiciled in Canada, which does not place withholding taxes or require international authors to fill out tax forms to be paid. Sales taxes are not imposed on sales outside Canada. [7]

**The issues of (a) limited access to bank accounts, (b) bank reliability, and (c) excessive fees, together contribute to an inequity where non-Western authors are disadvantaged when attempting to publish and be paid for their work.**

Finally, access to blockchain only requires a smartphone or personal computer that can install the blockchain app, and access to the internet. Developing countries are deploying cellular internet infrastructure at an increasing rate, and both phones and computers are becoming more affordable. The barrier for adoption is rapidly decreasing. We can use the number of blockchain wallets to measure adoption rates. The data show that the total number of wallets increased by about 20% between February 2021 and February 2022. [8]

Chainreads.com readers will be able to buy books using cryptocurrency, but we will also provide a traditional credit card payment method, to ensure that the maximum number of customers can purchase books without obstacles. Authors will be able to be paid frequently and with a higher payout percentage than current e-book retailers can offer.

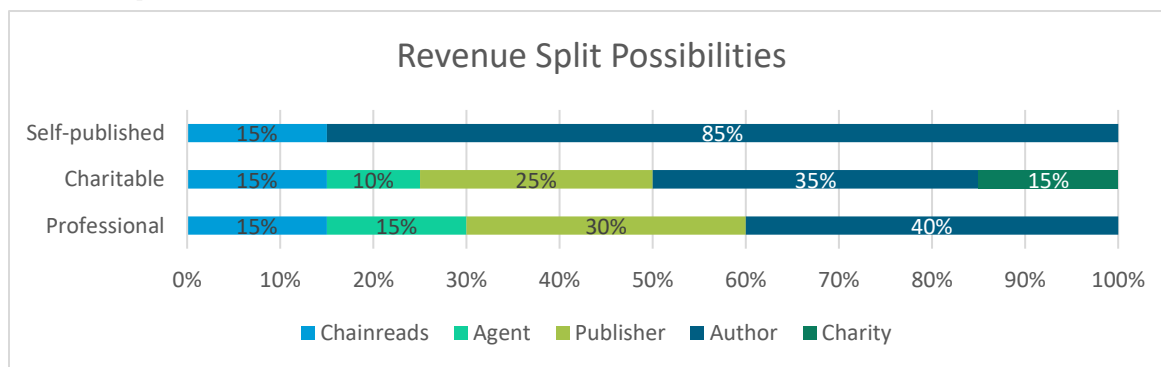


# Blockchain for Collaboration

Blockchain provides an opportunity to authors, agents, and publishers (collectively referred to below as ‘industry professionals’) to work together in new ways that have not been possible previously.

Because of the low cost of transacting payments on the Algorand network (about 1/10<sup>th</sup> of a cent), it is feasible to allow industry professionals to be paid directly for each book sold, and in a way that is customizable per-book. Algorand also allows for 5 parties to be paid in a single ‘atomic transaction’, which enables these new ways of collaborating. [9]

For example, an author could publish a book with a pre-defined split of revenue but into the contract. Here are three possibilities:



This capability has not yet been built into the chainreads.com site, but is a possibility for future development.





# Blockchain for Copyright

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Copyright has two practical purposes. The first is to recognize that a creator has ownership over something that is reproduceable (a film, a book, a photograph) and the second is the right to be compensated for that reproduction. Further, the ability to control the number of copies that are made and how the creator is compensated for resale or secondary-market sales, are an extension of copyright.

Today, copyright in the book business rewards authors with royalties when an e-book or physical book is sold. There are no royalties for used book sales – this is infeasible with physical books and the current e-book market is not set up to do this.

With blockchain it is possible to enable a digital book market for e-books. For example, ‘Cooking with Ruis’ can be resold from one reader to another, by transferring an NFT (non-fungible-token) between people. The NFT can include within it rules that state that the original author receives a percentage of the NFT sale, sent to the authors blockchain account. This can either on a used book website which acts as the intermediary, or directly between readers.

This is a new way to respect the copyright of authors, because unlike physical books or traditional e-books, the copyright itself is encoded in the NFT on the blockchain. This means that the book business can respect authors copyrights in a much more transparent and complete way than we do today.

Note that this is not a copy protection scheme. An NFT itself cannot be copied, but an ebook file (such as a PDF) can be copied. The purpose of an NFT is not to prevent illegal copying, rather it is to make legal sale and resale more respectful of copyright and more convenient for readers. There will always be a means to illegally copy works – there has yet to be a copy protection scheme that has not been circumvented (for example, an audio CD copy protection technique was circumvented by drawing on the disc with a marker. [10]) We assert that the best way to combat piracy is with ease of use, so that there is less motivation to make illegal copies.

# Conclusion

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Blockchain has the potential to transform the way books are sold, with benefits for both readers and authors.

Our proof-of-concept website [www.chainreads.com](http://www.chainreads.com) demonstrates some of the potential of blockchain, specifically easing payments to authors, and NFTs as a token of legitimacy that can enable new ways of interacting with digital books.

In the appendix that follows, we cover some of the capabilities of Chainreads in more detail.

**Blockchain has the potential to transform the way books are sold, with benefits for both readers and authors.**

# Appendix

The [chainreads.com](https://chainreads.com) website was created as a live proof-of-concept. The goal of the site is to provide an example of how an e-book can be purchased online, and how an NFT can be easily generated.

As discussed elsewhere in this document, there are many possibilities for the book trade that have not yet been incorporated into [chainreads.com](https://chainreads.com).

One of the future capabilities to be explored includes resale of NFTs as used books, potentially resulting in author royalties. Another is developing smart contracts that programmatically shares royalties between multiple parties whenever a book is sold.

This would enable, as we showed in the example earlier, for the author, agent, publisher, and an additional party such as a charity, to be automatically paid proportionally according to the smart contract in a fully automated, auditable, and cost-effective manner.

**The [chainreads.com](https://chainreads.com) website was created as a live proof-of-concept. The goal of the site is to provide an example of how an e-book can be purchased online, and how an NFT can be easily generated.**

## CRYPTO NOT REQUIRED

The first decision we made was to *not* require cryptocurrency as the means of payment. Most people do not use crypto today, and besides, the proposition for this website is the use of blockchain and NFTs to improve the book business for authors and readers. None of this *requires* that readers purchase via crypto.

This is why we use a standard checkout process, backed by Square for credit card and Nowpayments for crypto.

## EASY NFT REDEMPTION

The second decision was to make it easy for people to download their books as well as receive their NFTs. The book is downloadable immediately after purchase. Then, the NFT can be easily redeemed when desired. The NFT includes a copy of the download link as well as license information. To make receipt of the NFT easy, we've created a series of simple walkthrough videos.

Because there is a minimum amount of Algos required to receive an NFT, we also created a tool where anyone who has made a purchase can receive a one-time deposit of 0.2 Algo tokens to their Algorand wallet. This is actually a lot – a transaction costs 0.001 Algos, so 0.2 Algo tokens provides 'fuel' for about 200 transactions. We decided to do this in order to further ease the process of redeeming an NFT – simply install the wallet, receive your free 0.2 Algos, and then make the NFT redemption. The entire process is very fast – a transaction on the Algorand network completes in about 6 seconds.



Notice that the conscious decisions we've made in how the website functions means that we've *purposely decoupled* the book purchase from the NFT process. This is how it should be, because in our opinion an NFT is not the item itself. It is simply a token that points to the item and describes its use rights and copyright status.

## EMBEDDED LICENSE FILE

This is also why we decided to embed a license file within the zip file e-book download. This makes the zip file self-contained for those who do not redeem the NFT but who made a purchase. Remember - an NFT is not a copy protection system, but it does confer rights under copyright law.

The license file is a text file in the YAML format. YAML is a standard that is easy for people to read while still being ingestible by computer programs. Within the license file we store information about the book: the author, the ISBN, and copyright information.

Here is a sample license file:

```
#Chainreads.com NTF license file v1.0.
#This license file is in YAML format. For more info on YAML see
https://www.w3schools.io/file/yaml-introduction/ and
https://www.redhat.com/sysadmin/yaml-beginners
Overview: The license rights below are granted for the following works as long as an
individual holds the NFT in their digital wallet.
Title: Acts of Love in Faraway Places
ISBN: 978-0-9881371-4-1
Copyright: copyright (c) 2022 by Rick Talbot. All rights reserved.
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digital wallet. Delete any personal copies of the ebook once you have done this.
Rights not granted with NFT:
- all other rights, such as right to make a film or make additional copies, are not
granted except where allowed by copyright law.
License contact: To contact the license holder to arrange rights not listed above (for
example live performance rights) the contact info is:
- info@ricktalbot.com
#end of license file
```

# NO CUSTOM TOKEN OR COIN

Early in the ideation phase of this project, we explored the idea of a token for the site, and ruled it out entirely. The question before us was: what capabilities would a token add that *wouldn't* be possible without it? The answer was nothing - for governance, if we decided to employ some sort of community governance model, we could easily do that without a token. And as for requiring or asking people to invest in our own token, that looks suspiciously like offering shares while bypassing equities laws. IT professional Molly White has written an excellent [article](#) on the problems with these kinds of dangerous setups. [11]

## EQUITY AND ETHICS

To be clear, Blockchain technology is early in adoption and the purpose of this site is to show an example of a responsible use, with the potential for positive improvements in social and financial equality (or equity).

As outlined in [this HBR article](#), there are ethical issues that must be addressed honestly. [12] We must ensure that this new technology doesn't enrich some at the expense of others - we have enough areas where the system is rigged. Let's not create another. Let's find the best use of this technology, to ensure privacy, transparency, and to put in place policies that make it resistant to abuse or oligarchic concentration of power.

## FINAL NOTE

We hope that this whitepaper, and the Chainreads.com proof of concept site positively contribute to the evolution of blockchain and the book industry.

- Rick Talbot, Severn, ON, Canada, October 24, 2022

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