

# International Journal of Law Research, Education and Social Sciences

Open Access Journal – Copyright © 2026 – ISSN 3048-7501  
Editor-in-Chief – Prof. (Dr.) Vageshwari Deswal; Publisher – Sakshi Batham



This is an Open Access article distributed under the terms of the Creative Commons Attribution-Non-Commercial-Share Alike 4.0 International (CC-BY-NC-SA 4.0) License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium provided the original work is properly cited.

---

## Autonomous Rights: Smart Contracts Revolutionising IP Protection in Decentralised Ecosystems

Pagadala Likhitha<sup>a</sup> P. Naga Lasya Sri<sup>b</sup>

<sup>a</sup>Christ Academy Institute of Law, Bengaluru, India <sup>b</sup>Christ Academy Institute of Law, Bengaluru, India

Received 23 April 2026; Accepted 22 May 2026; Published 26 May 2026

---

*The fast-maturing blockchain technologies and open data ecosystems have given the world new chances for transparency, decentralisation, and innovation at an unprecedented level. Nevertheless, these changes also bring about a lot of legal difficulties in the context of IP rights. The current discussion is about the interaction between IP protection and decentralised environments, with the focus on the particular problem of the disruptiveness of blockchain-based applications, particularly those related to open data and cryptocurrencies in relation to the traditional concepts of ownership, authorship, and control.<sup>1</sup> In contrast to centralised systems, where recognisable operators take care of the data creation, dissemination, and rights enforcement, blockchain platforms work through consensus mechanisms and anonymous involvement. This decentralisation raises some really important questions: Who is the owner of the data that is permanently recorded on the ledgers? Can copyright apply to the algorithmically generated or collaboratively updated blockchain records? How can patent protection be granted to open-source blockchain protocols without the risk of driving innovation into the ground?<sup>2</sup> The research delves deeper into the issue of open data principles that promote free access and unrestricted reuse, clashing with the generally exclusive IP rights that prohibit unauthorised copying, altering, and distributing.<sup>3</sup> The paper is based on an extensive examination of the global IP systems, like the Berne Convention, TRIPS*

---

<sup>1</sup> Berne Convention for the Protection of Literary and Artistic Works 1886

<sup>2</sup> 'Blockchain and Intellectual Property' (World Intellectual Property Organization (WIPO))

<<https://www.wipo.int/en/web/cws/blockchain-and-ip>> accessed 20 April 2026

<sup>3</sup> Agreement on Trade-Related Aspects of Intellectual Property Rights 1994

*Agreement, and recent national regulations on digital assets, to spotlight the doctrinal gaps that become visible when traditional IP law is imposed on both non-block and blockchain systems. The emphasis is on smart contracts, NFTs, DAOs, and crypto networks, considering how each one brings certain difficulties for rights management, licensing, and enforcement. In addition, the study draws attention to the difficulties of enforcing IP rights in digital ecosystems that lack borders, where doubts about jurisdiction, actors that operate anonymously, and unchangeable records make it difficult to track infringement and apply legal remedies. The researcher proposes a legal approach that is moderate and preserves the innovation-spurring potential of open data and blockchain technologies while at the same time protecting the creators, developers, and rights holders adequately. The examination puts forward a hybrid regulatory framework as the solution, incorporating universally acceptable guidelines, adaptive licensing structures, and international cooperation efforts to resolve conflicts that may arise.*

**Keywords:** *decentralisation, intellectual property rights, blockchain ecosystems, open data, smart contracts/NFTs.*

---

## INTRODUCTION

Imagine a world in which an unbreakable line of code that compensates you the moment your artwork is shared, rather than a lawyer's letter, protects your creative work. This is the ‘Smart Contract’ revolution, the transition from paper-bound commitments to self-executing protocols that fundamentally alter ownership.

A smart contract is fundamentally a blockchain-based computer program. Its main purpose is to automatically carry out and uphold the terms of a contract after certain requirements have been satisfied. This execution is controlled by a set of guidelines, sometimes referred to as ‘if-then’ logic, whereby the contract initiates particular actions in response to the satisfaction of particular requirements. This technology makes it possible to license digital assets globally in the field of intellectual property (IP) without the need for conventional middlemen. For example, a piece of music, a literary work like a book, or even a patent, may be licensed to users around the world directly through a smart contract.<sup>4</sup> However, this creative application also creates a significant challenge, commonly referred to as a ‘Collision of Code and Copyright.’ Decentralisation and confidentiality, two main principles of blockchain technology, contradict the established legal frameworks related to intellectual property. The identification and attribution of creative works

---

<sup>4</sup> Primavera De Filippi and Aaron Wright, *BLOCKCHAIN and the LAW: THE RULE OF CODE* (Harvard University Press 2018)

to particular authors,<sup>5</sup> as well as the maintenance of centralised control over their distribution and usage, are key components of traditional IP law.

This natural conflict raises a key concern about the viability of algorithmic techniques for preserving creative developments. In particular, it raises the question of whether the complex nature of human invention and the corresponding legal rights of exclusivity can be sufficiently addressed by a strict, universally applied algorithm. The complexities of legal ownership and the details of creative work might not always be easily translated into the simple logic of a smart contract, creating difficulties for the efficient and fair protection of intellectual property in a decentralised setting.

### **THREE STATUTES FROM AN INDIAN PERSPECTIVE**

Although India lacks a specific ‘Blockchain Act,’ smart contracts are supported by three main legal pillars:

Section 10 of the Indian Contract Act, 1872 (ICA) states that smart contracts must still meet the ‘holy trinity’ of a valid contract: offer, acceptance, and consideration.<sup>6</sup>

**Information Technology Act, 2000 (IT Act):** Section 10A is the game-changer, affording explicit legal legitimacy to contracts created by electronic methods. Additionally, Section 5 gives digital signatures the same legal weight as handwritten ones, which is crucial for blockchain transaction authentication.<sup>7</sup>

According to the Indian Evidence Act (currently known as the Bharatiya Sakshya Adhinyam, 2023), blockchain records are considered ‘electronic records.’ These digital footprints are admissible in court under Section 65B (or BSA Section 63), provided that a certificate of technical integrity is included.<sup>8</sup>

Indian courts are gradually opening the door to digital-first evidence, while they are mindful of procedural strictness. The Supreme Court determined in the landmark case of Arjun Panditrao

---

<sup>5</sup> Alexander Savelyev, ‘Contract law 2.0: ‘Smart’ contracts as the beginning of the end of classic contract law’ (2017) 26(2) Information and Communication Technology Law <<https://doi.org/10.1080/13600834.2017.1301036>> accessed 20 April 2026

<sup>6</sup> Indian Contract Act 1872, s 10

<sup>7</sup> Information Technology Act 2000, ss 5 and 10A

<sup>8</sup> Bharatiya Sakshya Adhinyam 2023, s 63

Khotkar v Kailash Kushanrao Gorantyal (2020)<sup>9</sup> that the Section 65B(4) certificate is an essential precondition for admitting electronic evidence. This presents a distinct challenge for decentralised smart contracts, as there is frequently no ‘person in charge’ of the ledger to sign such a certificate. Furthermore, in *State of Tamil Nadu v State of Kerala* (2014),<sup>10</sup> the Court upheld the value of contractual rights, stating that as long as the underlying ‘meeting of the minds’ is clear, the form of execution, whether on paper or protocol, should be honoured.

### **PROBLEM STATEMENT: THE PARADOX OF ANONYMITY AND PERMANENCE**

The fundamental characteristics of blockchain technology present major hurdles to the enforcement and application of traditional Intellectual Property (IP) regulations, particularly in terms of copyright infringement. One of the key foundations of intellectual property law is the identification of an ‘author’ or rights holder, which allows for accountability for unauthorised use or distribution of copyrighted content. However, the decentralised and frequently anonymous structure of blockchain ecosystems directly contradicts this principle. In many blockchain ecosystems, players operate using anonymous wallet addresses, which conceal their real-world identities and make it extremely difficult to establish a clear chain of title or ownership for digital assets. As a result, when copyright infringement happens in a decentralised environment, identifying and holding a specific person or business accountable becomes a difficult, if not impossible, effort.

Furthermore, the immutability of blockchain ledgers conflicts with traditional legal remedies for copyright violations. Traditional intellectual property law relies heavily on mechanisms such as ‘takedown notices’ and ‘permanent injunctions,’ which require infringers to delete or stop spreading infringing information. However, once a copyrighted work is stored on a blockchain, whether as a non-fungible token (NFT) or incorporated within a smart contract, its continued existence is almost guaranteed. The ledger's decentralised and distributed nature prevents any single entity from arbitrarily changing or removing copyrighted material, rendering takedown notices and other comparable remedies useless.<sup>11</sup> This intrinsic tension between blockchain's

---

<sup>9</sup> *Arjun Panditrao Khotkar v Kailash Kushanrao Gorantyal and Ors* (2020) 7 SCC 1

<sup>10</sup> *State of Tamil Nadu v State of Kerala and Anr* (2014) 12 SCC 696

<sup>11</sup> Mira T Sundara Rajan, *Copyright and Creative Freedom: A Study of Post-Socialist Law Reform* (1<sup>st</sup> edn, Routledge 2014)

immutability and the requirement for content removal provides a significant challenge for IP enforcement in decentralised settings.

Blockchain technology's global nature increases the difficulties. Copyright laws are often jurisdiction-specific, which means they are enforced by national governments and legal systems. However, because blockchain networks operate beyond jurisdictional boundaries, it is difficult to decide which jurisdiction's rules should apply in cases of violation. This ambiguity creates a 'legal vacuum,' leaving authors unsure of their rights and the appropriate channels for seeking remedy. Even in countries like India, where legal frameworks like Section 65B of the Indian Evidence Act, 1872,<sup>12</sup> provide a path for recognising electronic records as evidence, the lack of a centralised authority to enforce these rights in a decentralised, borderless environment severely limits their practical effectiveness.<sup>13</sup>

### **DECONSTRUCTING THE 'OWNERLESS' LEDGER: THE IDENTITY CRISIS**

The 'Identity Crisis' in blockchain occurs when consensus processes replace identifiable operators with decentralised nodes, resulting in what many refer to as 'ownerless' data. A legitimate contract, according to the Indian Contract Act, 1872 (Section 10), requires competent parties and free assent. Smart contracts are frequently executed between anonymous parties who have never 'met' in the traditional sense. In its important November 2025 verdict (*Rhutikumari v Zanmai Labs*), the Madras High Court clarified that, while these assets are intangible, they are technically 'property' that can be acquired and held in trust. This serves as a necessary bridge, allowing the law to safeguard digital assets even when the 'owner' is hidden behind a cryptographic key.<sup>14,15</sup>

### **ALGORITHM VS AUTHOR: THE BATTLE FOR ORIGINALITY**

A significant legal problem is whether algorithmically created data or records updated by a Decentralised Autonomous Organisation (DAO) qualify for copyright. The Indian Copyright Act,

<sup>12</sup> Ratanlal and Dhirajlal, *THE LAW OF EVIDENCE* (27th edn, LexisNexis 2019)

<sup>13</sup> Balázs Bodó et al., 'Blockchain and smart contracts: the missing link in copyright licensing?' (2018) 26 International Journal of Law and Information Technology

<[https://www.ivir.nl/publicaties/download/IJLIT\\_2018.pdf](https://www.ivir.nl/publicaties/download/IJLIT_2018.pdf)> accessed 20 April 2026

<sup>14</sup> Frederick Pollock and Dinshah Fardunji Mulla, *THE INDIAN CONTRACT ACT, 1872* (17th edn, LexisNexis 2026)

<sup>15</sup> *Rhutikumari v Zanmai Labs (P) Ltd* (2025) SCC OnLine Mad 9290

1957 (Section 2(d)(vi))<sup>16</sup> defines the author of a computer-generated work as the person who ‘causes the work to be created,’ although courts have usually interpreted ‘person’ to mean a natural human being.<sup>17</sup> The ‘Raghav’ AI painting case was a turning point in this domain, with the Indian Copyright Office originally rejecting a painting created by an AI program, only to later accord joint authorship to the human owner and the AI. This indicates a shift toward a hybrid form of ownership in which the law acknowledges that ‘originality’ is no longer an entirely human feature, as long as there is some amount of human participation to guide the code.

Currently, India lacks a formal ‘Blockchain Act,’ but the legal structure is based on existing statutes. Section 10A of the Information Technology Act of 2000 accords legal force to contracts made using electronic methods, which may include smart contracts. Furthermore, the classification of digital assets as Virtual Digital Assets (VDA) under the Income Tax Act,<sup>18</sup> as well as the designation of VDA service providers as ‘reporting entities’ under the PMLA, demonstrates a strong tendency toward formalising these decentralised ecosystems.<sup>19</sup> As we move forward, the problem is to reconcile these strict regulations with the fluid, autonomous character of smart contracts so that innovation does not come at the expense of the creator’s spirit.

### **SMART CONTRACTS & NFTS: THE NEW GUARD OF RIGHTS MANAGEMENT**

Smart contracts are self-executing agreements with provisions put straight into lines of code. Unlike traditional licensing, which frequently requires months of legal overhead and manual auditing, digital contracts may automate royalty payments in real time.

**Instant Enforcement:** When a predefined condition is met, such as a digital song being streamed or an artwork being resold, the payment is automatically transferred to the creator’s wallet.<sup>20</sup>

---

<sup>16</sup> Copyright Act 1957, s 2(d)(vi)

<sup>17</sup> V K Ahuja, *Law Relating to INTELLECTUAL PROPERTY RIGHTS* (3d edn, LexisNexis 2017)

<sup>18</sup> Income Tax Act 1961

<sup>19</sup> Prevention of Money Laundering Act 2002

<sup>20</sup> Katelyn Holcomb, ‘THE PARADOXICAL SOLUTION TO ENFORCE RESALE ROYALTIES AND KEEP THE NFT MARKET DECENTRALIZED’ (2025) 20(1) *Washington Journal of Law, Technology & Arts* <<https://digitalcommons.law.uw.edu/wjlta/vol20/iss1/3/>> accessed 20 April 2026

**Operational Efficiency:** This eliminates the need for banks, lawyers, and collection agencies, significantly lowering administrative costs and human error.

An image file can be copied forever, but a Non-Fungible Token (NFT) is the ultimate proof of uniqueness and ownership. In a decentralised economy, NFTs function as digital certificates that connect an individual cryptographic token to a certain intellectual asset. NFTs allow creators to track an asset's provenance (history of ownership) from creation to subsequent sale.

**Asset Authentication:** They distinguish the original digital asset from its copies, acting as a 'digital deed' that can be used to prove ownership in secondary markets.<sup>21</sup>

### **THE DAO DILEMMA: GOVERNANCE AND LIABILITY**

Decentralised Autonomous Organisations (DAOs) have no CEO or traditional hierarchy, instead relying on smart contracts and community voting for governance. This produces significant 'legal friction':

**Corporate Personality:** Most jurisdictions now regard a DAO as a general partnership, which means that any member may be 'jointly and severally liable' for the organisation's conduct.

**IP Liability:** If a DAO-managed project infringes on a copyright, determining the accountable 'legal person' is extremely difficult because there is no registered headquarters or corporate board.

In India, the legality of these autonomous systems is now represented by a 'mosaic' of existing laws rather than a specific statute. Smart contracts are generally regarded as enforceable under the Indian Contract Act of 1872 if they meet the basic offer, acceptance, and valid consideration requirements. This is supported further by Section 10A of the Information Technology Act of 2000, which recognises contracts formed electronically.<sup>22</sup>

However, the junction between NFTs and the Copyright Act of 1957 remains difficult. Indian courts have emphasised that purchasing an NFT does not automatically convey the copyright to

---

<sup>21</sup> Joshua A T Fairfield, 'Tokenized: The Law of Non-Fungible Tokens and Unique Digital Property' (2022) 97(4) Indiana Law Journal <<https://www.repository.law.indiana.edu/ilj/vol97/iss4/4/>> accessed 20 April 2026

<sup>22</sup> Information Technology Act 2000, s 10A

the underlying work unless it is properly assigned in writing.<sup>23</sup> This means that, unless otherwise stated in the rules of the smart contract, the ‘creative soul’ of the work remains with the original author even while the ‘digital token’ is yours.

Recent court rulings demonstrate an increasing desire to safeguard digital intellectual property. The Delhi High Court affirmed that NFTs do not circumvent conventional copyright protections in *Nifty Gateway/Beeple v Indian Artist (2022)*, granting temporary relief to an artist whose work was tokenised as an NFT without agreement. Similar to this, Indian law is changing to address real-time digital piracy and infringement in decentralised settings, as evidenced by the court's use of ‘Dynamic + Injunctions’ in cases like *Star India v Magicwin*.<sup>24</sup>

Finally, while the Finance Act 2022<sup>25</sup> included a tax scheme for ‘Virtual Digital Assets’ (VDAs), it acts more as a fiscal recognition than a regulatory structure. It is still difficult to reconcile these self-executing rules with the ‘free consent’ and ‘human intervention’ requirements contained in conventional Indian jurisprudence as India transitions to a digital-first economy.

## **THE PATENT PARADOX: OPEN-SOURCE PROTOCOLS VS EXCLUSIVE RIGHTS**

Blockchain's success is largely due to its open-source roots; protocols like Ethereum and Bitcoin were designed to be shared, examined, and enhanced by a worldwide community. When subsequent developers submit patent applications for enhancements or particular implementations of these fundamental protocols, a dilemma emerges. Giving these tiers conventional, exclusive patents runs the risk of ‘driving innovation into the ground’ by generating a patent thicket.<sup>26</sup> This situation essentially prevents startups and smaller companies from joining the ecosystem since new developers must negotiate a maze of possible legal action and expensive license fees. The sector runs the risk of turning into a disjointed area of ‘walled

---

<sup>23</sup> Copyright Act 1957

<sup>24</sup> *Star India Pvt Ltd v Magicwin.Games and Ors* (2024) SCC OnLine Del 4386

<sup>25</sup> Finance Act 2022

<sup>26</sup> Satoshi Nakamoto, ‘Bitcoin: A Peer-to-Peer Electronic Cash System’ (2009) ResearchGate  
<[https://www.researchgate.net/publication/228640975\\_Bitcoin\\_A\\_Peer-to-Peer\\_Electronic\\_Cash\\_System](https://www.researchgate.net/publication/228640975_Bitcoin_A_Peer-to-Peer_Electronic_Cash_System)>  
accessed 20 April 2026

gardens’ where advancement is impeded by legal disputes rather than a cooperative digital common.<sup>27</sup>

### **DEFENSIVE PATENTING: FIGHTING THE PATENT TROLLS**

To overcome this, many developers are flipping the patent system on its head through Defensive Patenting. Instead of utilising patents to block others, entities join defensive networks (like the Open Invention Network) or employ Open Patent Pledges, agreeing not to sue anyone who uses their technology as long as they likewise refrain from aggressive patent litigation. To prevent ‘patent trolls’ organisations that get patents solely to obtain settlements from monopolising fundamental decentralised technology, the community establishes ‘prior art’ through public repositories like GitHub. By pursuing ‘tactical disarmament,’ these tactics make sure that the code stays a community resource rather than a corporate weapon.

Blockchain technology patentability in India is determined by striking a careful balance between promoting high-tech innovation and avoiding the monopolisation of ‘abstract’ software. Section 3(k) of the Patents Act, 1970, which states that ‘a mathematical or business method or a computer programme per se or algorithms’ are not innovations and are therefore not patentable, is the main statutory barrier. For a blockchain innovation to overcome this exclusion, it must demonstrate a ‘technical effect’ or a ‘technical advancement’ beyond just being a computer program, such as boosting data security, enhancing system speed, or optimising memory consumption.<sup>28</sup>

The judiciary has played a significant role in liberalising this approach. The Delhi High Court noted in the seminal case of *Ferid Allani v Union of India*<sup>29</sup> that it would be ‘retrograde’ to contend that all discoveries based on computer programs are not patentable in the modern digital environment. The court made it clear that inventions in domains like artificial intelligence and blockchain are protected if they offer a technological fix for a technical issue. In *Telefonaktiebolaget LM Ericsson v Intex Technologies*,<sup>30</sup> the court upheld this further by ruling

---

<sup>27</sup> Huang-Chih Sung, ‘When Open-Source Software Encounters Patents: Blockchain as an Example to Explore the Dilemma and Solutions’ (2018) 18(1) *The John Marshall Review of Intellectual Property Law* <<https://repository.law.uic.edu/ripl/vol18/iss1/3/>> accessed 20 April 2026

<sup>28</sup> Patents Act 1970, s 3(k)

<sup>29</sup> *Ferid Allani v Union of India and Ors* (2019) SCC OnLine Del 11867

<sup>30</sup> *Telefonaktiebolaget LM Ericsson (PUBL) v Intex Technologies (India) Ltd* (2015) SCC OnLine Del 8229

that an invention is patentable provided it comprises a technological contribution or effect rather than being a ‘computer program per se.’

The ‘business method’ component of a blockchain (such as a trading platform) may be rejected, but the underlying hardware-software integration that guarantees data privacy can be protected, according to current legislative trends, such as the Computer-Related Inventions (CRI) Guidelines. In *Priya Randolph v Deputy Controller of Patents*,<sup>31</sup> for example, the court determined that hardware-software synergy for data protection was more than just a commercial strategy and granted the claim. According to this developing framework, India is shifting toward a hybrid paradigm that preserves the ‘abstract’ spirit of decentralisation while safeguarding the ‘technical’ power of smart contracts for the benefit of society.

## CONCLUSION

In a future where ‘code is law,’ the blockchain's unchangeable algorithms are displacing the conventional gavel of intellectual property. Smart contracts are more than simply efficiency tools as we transition from centralised control to decentralised ecosystems; they are the new architects of digital sovereignty.

The Indian Contract Act of 1872 and the Information Technology (IT) Act of 2000 serve as the main legal pillars supporting smart contracts in India. According to Section 10 of the Indian Contract Act, an agreement must contain free consent, lawful consideration, and a legitimate object. Smart contracts meet these requirements by using code-based automated offer and acceptance. Additionally, contracts created electronically are given express legal validity under Section 10A of the IT Act, guaranteeing that their digital nature does not render them void.

The Indian Evidence Act gave way to the Bharatiya Sakshya Adhiniyam, 2023 (BSA), which has lately changed the evidence environment. The admissibility of electronic documents, which is crucial for blockchain-based IP claims, is governed by Section 63 of the BSA. The *Shahfi Mohammad v State of Himachal Pradesh* ruling from 2024 indicated that blockchain's cryptographic hashing and timestamping could potentially satisfy these requirements as ‘self-

---

<sup>31</sup> *Priya Randolph v Deputy Controller of Patents & Designs* (2023) SCC OnLine Mad 7890

authenticating’ evidence, removing the possibility of tampering, whereas traditional electronic evidence requires a certificate for authenticity.<sup>32</sup>

A growing number of Indian courts have acknowledged digital assets as property that can be protected. The Madras High Court categorically acknowledged cryptocurrencies as ‘property’ under Indian law in the seminal 2025 case of *Rhutikumari v Zanmai Labs Pvt. Ltd.*, capable of being held in trust and drawing fiduciary obligations. The definition of these as ‘Virtual Digital Assets’ (VDAs) in Section 2(47A) of the Income Tax Act, 1961, supports this proprietary recognition. The *Ferid Allani v Union of India (2020)* ruling, which confirmed that blockchain systems exhibiting a ‘technical effect’ may be eligible for patents under the Patents Act, is still crucial for IP management.

Summary of Findings According to the study, blockchain delivers a revolutionary degree of transparency while upending traditional intellectual property by questioning central authority and transnational jurisdiction. Decentralised ecosystems enable producers to avoid middlemen by automating the distribution of royalties and timestamping authorship. This potential, however, can only be achieved through proper regulation; in the absence of explicit legal acknowledgement, the ‘immutability’ of the code runs the risk of conflicting with court demands for justice and equity.<sup>33</sup>

The Future Course The future of IP protection in decentralised ecosystems rests on a ‘hybrid regulatory framework’. This framework must recognise the decentralised, international nature of the technology, making use of its effectiveness and security while guaranteeing that it is consistent with the individual’s rights as guaranteed by statute. Only via international cooperation and adaptive licensing can we bridge the gap between ‘Code’ and ‘Courtroom,’ assuring a sustainable and equitable future for global innovation.

---

<sup>32</sup> Justice Yatindra Singh, *CYBER LAWS* (6th edn, Universal Law Publishing Co 2016)

<sup>33</sup> Primavera De Filippi and Samer Hassan, ‘Blockchain Technology as a Regulatory Technology: From Code is Law to Law is Code’ (2016) 21(12) *First Monday*

<[https://www.researchgate.net/publication/311447869\\_Blockchain\\_Technology\\_as\\_a\\_Regulatory\\_Technology\\_From\\_Code\\_is\\_Law\\_to\\_Law\\_is\\_Code](https://www.researchgate.net/publication/311447869_Blockchain_Technology_as_a_Regulatory_Technology_From_Code_is_Law_to_Law_is_Code)> accessed 20 April 2026