
SMART CONTRACTS: SELF-EXECUTING, SELF-EXEMPTING? RETHINKING CONTRACTUAL DOCTRINES IN THE DIGITAL AGE

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I. Introduction

A smart contract does not *promise* to perform, it performs. Once it is deployed on a blockchain, a piece of self-executing code transfers an asset, releases an escrow or liquidates a position the instant a pre-defined condition is satisfied without the possibility of renegotiation¹.

The term itself is a misnomer: a smart contract is neither smart in the Artificial sense nor is it necessarily a contract in the legal sense. It is a program whose output may or may not correspond to an enforceable obligation depending upon the system asked to evaluate it.²

Indian commentary has largely treated the recognition of smart contracts as a question of formal validity. Can a code constitute an “agreement” under Section 10 of the Information Technology Act, 2000 (“IT Act”)³ extends recognition to contracts “formed through electronic means”⁴ The dominant view is that formal question is largely resolved: nothing in Indian law bars electronic contracts and Section 10A was enacted precisely to remove such barriers⁵. This consensus, however, concentrates on the easier half of the problem.

This paper argues that the harder and more consequential problem is not formation, but consequence. A smart contract’s defining feature is that it is irreversible, automatic and has near – instantaneous execution. This is something the ICA’s doctrines of consent, certainty and discharge were not built to accommodate. The paper develops and build on two linked arguments. The first part of the argument defines a *formation crisis* where the code-based mechanics of smart contracts produce an outward semblance of an offer and acceptance while

¹ Primavera De Filippi & Aaron Wright, *Blockchain and the Law: The Rule of Code* 72–76 (Harvard Univ. Press 2018).

² Eliza Mik, *Smart Contracts: Terminology, Technical Limitations and Real World Complexity*, 9 *Law, Innovation & Tech.* 269, 270–72 (2017).

³ Information Technology Act, No. 21 of 2000, § 10A, India Code (2000).

⁴ Indian Contract Act, No. 9 of 1872, § 10, India Code (1872).

⁵ Nishith Desai Assocs., *Blockchain and the Law* 14–16 (2019).

undermining the substantive enquiry into free consent that Section 13-22 of the ICA mandate and raise a separate certainty problem under Section 29 when execution depends on unverified oracle data.

The second part identifies a *irreversibility crisis*: self-execution forecloses the temporal window in which the frustration doctrine under Section 56 operates, so that the smart contract is, in effect, self-exempting, it discharges itself before any party can invoke the supervening impossibility framework that would excuse a counterparty from a paralleling paper contract.

II. The Formation Crisis

A. The statutory framework

The ICA's threshold requirements for contractual validity are well-settled. Section 10 demands free consent, competent parties, lawful consideration and a lawful object⁶. Section 13 defines consent as parties "agreeing upon the same thing in the same sense"; the requirement of *consensus ad idem*⁷. Section 14 qualifies this by requiring that consent be free, meaning not vitiated by coercion under Section 15, undue influence under Section 16, fraud under Section 17, misrepresentation under Section 18, or mistake under Sections 20-22⁸. Section 29 independently voids agreements whose meaning is not certain or capable of being made certain⁹. These provisions together constitute a consent centered framework that presupposes a deliberate, human moment of agreement capable of judicial scrutiny after the fact.

Section 10A of the IT Act partially bridges the digital divide by providing that contract "shall not be deemed unenforceable solely on the ground that electronic form or means was used¹⁰. Sections 3,4 and 5 of the IT Act further validate electronic records and digital signatures as legally equivalent to their paper counterparts¹¹. In principle, a smart contract's publication on a blockchain may constitute the offer and a counterparty's on-chain action – signing a transaction, depositing a crypto asset may constitute an acceptance which satisfies the sequence required by Sections 2(a) through 2(h) of the ICA¹².

⁶ Indian Contract Act, supra note 3, § 10.

⁷ Id. § 13.

⁸ Id. §§ 14–22.

⁹ Id. § 29.

¹⁰ IT Act, supra note 4, § 10A

¹¹ Id. §§ 3–5

¹² Indian Contract Act, supra note 3, §§ 2(a)–(h).

B. The Consent Gap

The problem with mapping is that it resolves form not substance. Code is typically illegible to a non-technical counterparty. When a party interacts with a smart contract through a front-end interface, as virtually all retail users do, the interface abstracts away the operative code. The part's ostensible acceptance is directed at a natural language summary or a graphical representation, not at the code that will govern performance. This produces a structural disclosing: *consensus ad idem* is achieved, at best, at the interface level, while execution is controlled at the code level. Where these two levels diverge, which they may through coding error, oracle manipulation, or deliberate front-end misrepresentation, the "meeting of minds" the ICA contemplates does not correspond to the performance the code will deliver¹³.

This gap is quantitatively different from the informal asymmetry familiar in standard form and click wrap contracts, which Indian courts have tolerated partly because they can be read and partly because the agreed obligations remain performable or refusable by human actors. A smart contract's terms are selfenforced: the code executes regardless of whether the legal conditions are met. Mistake as to the operative terms of the code would ordinarily be void under Section 20 of the ICA¹⁴, however, in places where the execution has already occurred, voidness operates only retrospectively, and restitution, rather than non-performance, becomes the only available relief. Section 65 of the ICA, which provides for restitution of benefit received under a void contract, was not designed for situations in which performance is irreversible¹⁵.

C. Oracle Indeterminacy and Section 29

A separate formation difficulty arises from the oracle architecture on which commercially significant arises from the oracle architecture on which commercially significant smart contracts routinely depend. An oracle is an external data feed – a price ticker, a shipment tracking system, a weather service, which delivers off chain information onto the chain to

¹³ Mik, *supra* note 2, at 279–81 (noting that smart contracts present "a new and more severe instance" of the assent problem familiar from click-wrap agreements because the code is simultaneously the terms and the enforcement mechanism)

¹⁴ Indian Contract Act, *supra* note 3, § 20 ("Where both the parties to an agreement are under a mistake as to a matter of fact essential to the agreement, the agreement is void.").

¹⁵ *Id.* § 65.

trigger execution¹⁶. Where the triggering condition is supplied by an oracle rather than encoded directly into the contract, the object of the contract the moment of formation is partly indeterminate, varying on a future state of an external data source that neither party necessarily controls. Verifies or can contest before execution.

D. An Evidentiary Mismatch?

Where even formation is otherwise valid, proof of contract terms faces a structural hurdle. Section 63 of the Bharatiya Sakshya Adhiniyam, 2023 ("BSA"), which replaced and substantially re-enacted Section 65B of the Indian Evidence Act, 1872, provides that an electronic record is admissible only if accompanied by a certificate attesting to the lawful control and accurate operation of the computer system that produced it.^{17 18} The supreme court in *Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal* confirmed that Section 65B certificate is mandatory and its absence renders the electronic record inadmissible as secondary evidence¹⁹.

III. The Irreversibility Crisis: Self Execution and the Collapse of Frustration

A. Section 56 and its Temporal Architecture

Section 56 of the ICA embodies the doctrine of frustration in two operative paragraphs. The first renders void an agreement to do an act that, after the contract is made, becomes impossible or unlawful through circumstances which the promisor could not prevent, becomes void.²⁰

The Supreme Court in *Satyabrata Ghose v. Mugneeram Bangur & Co.* established the Indian approach to frustration, holding that impossibility under Section 56 is not confined to physical or literal impossibility but extends to events which, though not making performance literally impossible, "strike at the root of the contract" and make performance radically different from that originally contemplated¹⁹. This broad reading was qualified by *Ganga Saran v. Ram Charan*, which confirmed that mere inconvenience or commercial disadvantage is insufficient to trigger

¹⁶ Ari Juels et al., Town Crier: An Authenticated Data Feed for Smart Contracts, in Proceedings of the 2016 ACM SIGSAC Conference on Computer and Communications Security 270, 270–71 (2016).

¹⁷ Bharatiya Sakshya Adhiniyam, No. 47 of 2023, § 63, India Code (2023).

¹⁸ Indian Evidence Act, No. 1 of 1872, § 65B, India Code (1872) (repealed 2023). ¹⁹ *Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal*, (2020) 7 SCC 1 (India)

²⁰ Indian Contract Act, supra note 3, § 56.

¹⁹ *Satyabrata Ghose v. Mugneeram Bangur & Co.*, AIR 1954 SC 44, ¶ 18 (India)

²² *Ganga Saran v. Ram Charan*, AIR 1952 SC 9 (India).

the doctrine²².

B. The Irreversibility Problem Is Structurally Distinct

It is important to separate the irreversibility crisis from the formation crisis discussed in Part II. A formation defect insufficient consent, oracle indeterminacy, or an evidentiary certification failure is, in principle, a problem that better interface design, improved oracle audit standards, and legislative clarification of Section 10A of the IT Act could progressively address. An irreversibility defect is categorically different. No reform to the consent framework can restore a performance that has already occurred. The harm that Section 56's prospective discharge doctrine exists to prevent compelled performance in a fundamentally altered state of the world has, by construction, already materialized by the time legal process could engage with it.

This analysis connects to a broader critique of self-executing code as a governance mechanism. Legal systems resolve contract disputes *ex post* precisely because *ex ante* specification of all contingencies is impossible.

Incomplete Contracts Theory developed by Hart and Moore and applied to code-based agreements by scholars including Werbach and Cornell identifies the irreducible gap between what parties' bargain for and what their agreement specifies, a gap that common law fills through implication and doctrinal relief²⁰. A self-executing smart contract aspires to eliminate that gap by fully specifying performance in code, but it does so only at the cost of eliminating the doctrinal space frustration, mistake, unconscionability that fills the gap when specification is imperfect²¹. The claim that code eliminates the need for legal relief is therefore only as strong as the claim that code can anticipate every contingency, which is precisely the claim that Satyabrata Ghose, Energy Watchdog, and their predecessors most emphatically reject.

IV. Regulatory Responses and a Legislative Proposal

The Indian regulatory landscape has engaged with smart contracts only obliquely. The Reserve Bank of India has continually cautioned toward private crypto assets and has discourages the deployment of high value smart contracts denominated in such assets, while NITI Aayog's blockchain discussion papers have concentrated on permissioned deployments; land records,

²⁰ Oliver Hart & John Moore, Incomplete Contracts and Renegotiation, 56 *Econometrica* 755, 755–56 (1988).

²¹ Kevin Werbach & Nicolas Cornell, Contracts Ex Machina, 67 *Duke L.J.* 313, 350–58 (2017).

supply chain verification, where a custodian authority restores the system operator identity that Section 63 of the BSA required for evidentiary certification²².

SEBI has not yet issued guidance on smart contract-based securities settlement though it has acknowledged distributed ledger technology as a medium-term possibility in equity derivatives markets²³. None of these initiatives address the irreversibility problem identified.

Comparative practice offers instructive contrasts. In the US, Delaware amended its General Corporation Law in 2017 to expressly limit to permissioned chains with identifiable administrators, precisely the custodian-based model that avoids Section 63 of the BSAs problem²⁴.

The UK's Law Commission, in its 2021 advice on smart legal contracts, concluded that English law is broadly capable of accommodating code-based performance but specifically identified the sequencing problem: performance occurring before a frustration argument can be raised as warranting contractual rather than purely judicial solutions, recommending the use of off-chain "kill switch" or deemed suspension clauses²⁵.

In the EU, the Markets in Crypto-Assets Regulation, in force from 2024, requires that smart contracts used in crypto asset services incorporate a technical mechanism enabling their modification or termination where necessary to comply with applicable laws²⁶.

India has no equivalent provision. This paper proposes a two-limb legislative response. First, Section 10A of the IT Act should be amended to expressly recognize smart contracts as a distinct category of electronic contract, and to require that any smart above a prescribed monetary limit that conditions execution on an external oracle feed incorporate a mandatory confirmation delay, a window, perhaps of 12 to 24 block confirmations, during which execution is suspended and either party may seek relief before a competent court.

²² NITI Aayog, Blockchain: The India Strategy - Towards Enabling Ease of Business, Ease of Living and Ease of Governance 28–34 (2020)

²³ Securities and Exchange Board of India, Consultation Paper on Introduction of Exchange Traded Commodity Derivatives in Electricity

²⁴ Del. Code Ann. tit. 8, § 224 (2017) (as amended) (permitting maintenance of corporate records using "distributed electronic network or database" subject to the Corporation Law's other requirements)

²⁵ Law Comm'n, Smart Legal Contracts: Advice to Government, 2021, Law Com No. 401 (UK)

²⁶ Commission Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, art. 30(1)(d), 2023 O.J. (L 150) 40 (MiCA).

This would not alter the self-executing character of ordinary smart contracts; it would restore, for high-value oracle-conditioned contracts, the temporal gap that Section 56's frustration doctrine presupposes, and that automatic execution otherwise eliminates.

Second, Section 56 of the ICA should be supplemented by an explanation – analogous to the explanation inserted after Section 56 in 1872, providing that the doctrine of frustration applies to smart contracts and that, where execution has occurred before a frustration plea could be raised, the defaulting party's obligations are to be assessed the frustrating event arose, with consequent liability under Section 65.

This would not reverse completed blockchain transactions that is technically impossible, but it would bring the legal consequences of irreversible self-execution within the frustration framework, rather than leaving the aggrieved party to the uncertainties of unjust litigation²⁷.

V. Conclusion

The debate over smart contracts in Indian law has concentrated on whether code can satisfy the formal requirements of Section 10 of the ICA and Section 10A of the IT Act. That debate, while unresolved at the margins, particularly in relation to oracle-conditioned certainty under Section 29 and evidentiary certification under Section 63 of the BSA is traceable through incremental legislative clarification.

The more consequential difficulty is doctrinal and structural: Section 56's frustration framework, as articulated in *Satyabrata Ghose*, *Alopi Parshad*, and *Energy Watchdog*, presupposes a temporal separation between a frustrating event and performance it is invoked to excuse. Self-executing code eliminates that separation by design.

A smart contract does not argue for an exemption from an exemption from performance when circumstances change, it performs before the argument can be made. The resulting asymmetry is not merely practical: it represents a structural exclusion of the ICAs most important risk reallocation mechanisms from an entire category of commercial agreements.

Recognizing the distinction between a formation problem addressable through interface and

²⁷ The proposed Explanation would parallel existing judicial extensions of § 56 to commercial frustration: *Naihati Jute Mills Ltd. v. Khyaliram Jagannath*, AIR 1968 SC 522 (India) (holding that § 56 is wide enough to cover cases where performance has not become physically impossible but the commercial basis of the contract has been fundamentally altered).

evidentiary reform, and an irreversibility problem addressable only through a legislated suspension mechanism, is a precondition for any coherent Indian legislative response to the age of autonomous contracting.

The question for Indian law is not whether a smart contract can be a contract. It is whether a contract that performs itself before the law can intervene is a contract the law can meaningfully govern and if not, what changes to the law are required to make it so.