A Critical Study of the Treatment of Cryptocurrencies and Virtual Digital Assets under India's Insolvency Framework in the Emerging Digital Economy

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Abstract—**The rapid proliferation of cryptocurrencies and Virtual Digital Assets (VDAs) in India has created significant regulatory lacunae, particularly within the country's insolvency framework. As digital assets increasingly constitute a substantial portion of corporate and individual financial portfolios, the absence of explicit statutory recognition and procedural clarity under the Insolvency and Bankruptcy Code, 2016 (IBC) poses acute challenges for insolvency practitioners, creditors, and adjudicating authorities. This paper critically examines the treatment of cryptocurrencies and VDAs within India's insolvency framework against the backdrop of the evolving digital economy. The study interrogates the foundational question of whether VDAs qualify as 'property' or 'assets' for the purposes of insolvency proceedings under the IBC and allied legislation, and evaluates the adequacy of the existing legal architecture in addressing the distinctive challenges posed by decentralised, borderless, and pseudonymous digital assets.**

The methodology adopted is doctrinal and comparative: the paper analyses the IBC, the Finance Act 2022 (which first defined VDAs under Indian tax law), SEBI regulatory consultations, and RBI advisories, while drawing upon comparative frameworks from the United Kingdom (Insolvency Act 1986 as interpreted through the UK Jurisdiction Taskforce's Legal Statement on Cryptoassets), the European Union (MiCA Regulation 2023), and the United States (Bankruptcy Code treatment of digital assets in cases such as Celsius Network and FTX). The paper argues that the current Indian insolvency framework is structurally unprepared to handle VDA-related insolvencies, evidenced by challenges in asset identification, valuation volatility, jurisdictional reach, and the risk of fraudulent dissipation. It further contends that targeted legislative intervention either through amendment of the IBC or supplementary regulations is imperative to establish a coherent and enforceable regime for VDA treatment in insolvency proceedings.

Index Terms—**Virtual Digital Assets, Cryptocurrency, Insolvency and Bankruptcy Code 2016, Digital Economy, Crypto Regulation, Asset Classification, Comparative Insolvency Law, MiCA, IBBI**

I. Introduction

The emergence of cryptocurrencies and Virtual Digital Assets (VDAs) as mainstream financial instruments has fundamentally disrupted traditional legal paradigms governing property, finance, and insolvency. In India, the regulatory response to this disruption has been fragmentary: while the Finance Act, 2022 introduced a bespoke tax regime for VDAs,[1] and the Securities and Exchange Board of India (SEBI) has proposed a regulatory framework for crypto-asset trading,[2] the Insolvency and Bankruptcy Code, 2016 (IBC) remains silent on the treatment of digital assets. This legislative lacuna has acquired urgent practical

[1] Finance Act, 2022, No. 6 of 2022, § 3 (India); Income Tax Act, 1961, § 2(47A) (as inserted by Finance Act, 2022).
[2] Securities and Exchange Board of India, Consultation Paper on Regulatory Framework for Crypto/Virtual Digital Assets (Nov. 2023).

significance as VDA holdings whether constituted by Bitcoin, Ethereum, or other tokens increasingly form integral components of corporate and individual balance sheets.

The insolvency of crypto-centric enterprises globally most notably FTX Trading Ltd. and Celsius Network LLC in 2022–23 has starkly illuminated the inadequacy of existing insolvency frameworks to address the unique characteristics of digital assets: their pseudonymous nature, decentralised architecture, jurisdictional ambiguity, and extreme valuation volatility.[3] India has not been immune to such developments. The operational collapse of WazirX in 2024, following the Bybit hack, and protracted legal battles before the National Company Law Tribunal (NCLT) have raised foundational questions about how Indian insolvency law ought to classify, protect, and realise value from VDA holdings.[4]

This paper proceeds in eight parts. Following this introduction, Part II reviews the existing literature on VDAs and insolvency law. Part III sets out the research objectives and questions. Part IV outlines the research methodology. Part V examines the definitional and classificatory framework under Indian law. Part VI analyses the structural challenges in applying IBC provisions to VDA-related insolvency scenarios. Part VII undertakes a comparative analysis of international approaches. Part VIII proposes a reform framework. Part IX concludes.

II. LITERATURE REVIEW

The scholarly literature on cryptocurrencies and VDAs has evolved in three discernible waves, each reflecting the maturation of the technology and the regulatory discourse surrounding it. An examination of this literature reveals a significant gap in the Indian insolvency law context a gap that this paper seeks to address.

A. Foundational Scholarship on Blockchain and Digital Assets

The foundational academic engagement with blockchain-based digital assets is traceable to Satoshi Nakamoto's seminal white paper (2008)[5] and the subsequent explosion of legal and economic literature examining the nature and regulatory implications of decentralised currencies. Grinberg's early analysis[6] identified Bitcoin's fundamental challenge to existing monetary and property law paradigms, while De Filippi and Wright's *Blockchain and the Law* (2018)[7] offered a comprehensive jurisprudential framework for understanding the tension between code-based governance and state-based legal systems. These

[3] In re FTX Trading Ltd., Case No. 22-11068 (JTD) (Bankr. D. Del. filed Nov. 11, 2022); In re Celsius Network LLC, Case No. 22-10964 (MG) (Bankr. S.D.N.Y. filed July 13, 2022); Jonathan Lipson, On the Theory and Practice of FTX's Bankruptcy, 99 Am. Bankr. L.J. 201 (2024).
[4] Srinath Sridevan, Crypto Insolvency: Lessons from WazirX, 15 Nishith Desai Associates' Law & Technology Journal 1 (2024); Chainalysis, The 2024 Crypto Crime Report (2024).
[5] Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System* (2008).
[6] Reuben Grinberg, Bitcoin: An Innovative Alternative Digital Currency, 4 Hastings Sci. & Tech. L.J. 159 (2012).
[7] Primavera De Filippi & Aaron Wright, *Blockchain and the Law: The Rule of Code* (Harvard Univ. Press 2018).

foundational works establish the theoretical architecture within which the insolvency challenge must be situated.

Werbach's *The Blockchain and the New Architecture of Trust* (2018)[8] extended this analysis by examining the conditions under which blockchain systems can supplement or displace traditional institutional trust mechanisms a question with direct relevance to the insolvency context, where institutional oversight of asset custody is paramount. Zetzsche et al.'s analysis of the ICO phenomenon[9] further explored the regulatory challenges posed by the proliferation of token-based assets, foreshadowing many of the challenges now confronting insolvency practitioners.

B. Literature on VDA Regulation in India

Indian scholarly engagement with VDA regulation has been shaped by the oscillating regulatory stance of the RBI and the Supreme Court's intervention in *Internet and Mobile Association of India v. Reserve Bank of India* (2020).[10] Ratna's comprehensive study of India's regulatory vacuum[11] highlighted the absence of a coherent statutory framework prior to the Finance Act, 2022, and proposed a principles-based regulatory architecture drawing on comparative models. The RBI's own internal deliberations documented in the Report of the Inter-Ministerial Committee (2019)[12] reveal the tensions between financial stability concerns and the recognition of VDAs' economic potential.

The Finance Act, 2022's introduction of a VDA definition and a 30% flat tax regime has generated a growing secondary literature examining its implications across different fields of law. However, as Nain and Agarwal observe,[13] the fiscal recognition of VDAs has not been accompanied by the necessary amendments to commercial and insolvency law, creating a dissonance between tax treatment and legal characterisation that has practical consequences for insolvency practitioners and creditors alike.

C. Literature on Crypto-Asset Insolvency

The international literature on crypto-asset insolvency has grown rapidly in the wake of the 2022–23 insolvency wave, with Gupta's analysis of crypto exchange insolvency in the Indian context[14] representing a pioneering domestic contribution. Internationally, the INSOL International Discussion Paper (2022)[15]

[8] Kevin Werbach, *The Blockchain and the New Architecture of Trust* (MIT Press 2018).
[9] Dirk A. Zetzsche et al., The ICO Gold Rush: It's a Scam, It's a Bubble, It's a Super Challenge for Regulators, 63 Harv. Int'l L.J. 267 (2022).
[10] Internet & Mobile Ass'n of India v. Reserve Bank of India, (2020) 10 SCC 274.
[11] Tanvi Ratna, Cryptocurrency Law in India: Regulatory Challenges and Policy Recommendations, 12 Indian J.L. & Tech. 45 (2019).
[12] Reserve Bank of India, Report of the Inter-Ministerial Committee for the Prohibition and Regulation of Private Cryptocurrencies (Feb. 2019).
[13] Sanjay Nain & Priya Agarwal, Virtual Digital Assets and the Insolvency and Bankruptcy Code: A Study of Regulatory Gaps, 5 Corp. L. Chron. 112 (2023).
[14] Arjun Gupta, Insolvency of Crypto Exchanges: Rethinking Priority and Property in the Indian Context, 8 NUJS L. Rev. 77 (2023).
[15] INSOL International, *Crypto-Assets and Insolvency: Issues for Discussion* (Oct. 2022).

provided the most comprehensive mapping of the challenges facing insolvency practitioners across jurisdictions, identifying ten core issues including asset identification, valuation, custodial arrangements, cross-border coordination, and creditor classification.

Lipson's analysis of the FTX bankruptcy[16] and Allen's examination of DeFi's implications for financial stability[17] have together established the theoretical framework for understanding how the traditional property-estate dichotomy in insolvency law applies or fails to apply to digital asset custodial arrangements. The question of whether crypto deposits constitute trust property or estate property, which was central to both FTX and Celsius, has direct analogical relevance to the Indian context, where the IBC's treatment of property held in trust is similarly underspecified.

Kaal and Calcaterra's examination of crypto transaction dispute resolution[18] and Potts's critique of the UK property analysis[19] illustrate the doctrinal tensions that arise when existing property law concepts are applied to assets with no physical existence, no central issuer, and no registry of ownership. These tensions are particularly acute in the insolvency context, where the precision of asset definition directly affects the quantum of the distributable estate and the extent of creditor recovery.

D. Gaps in the Existing Literature

The foregoing review reveals three principal gaps in the existing literature that this paper seeks to address. First, while international scholarship on crypto-asset insolvency is substantial, its application to the specific statutory architecture of the IBC is largely unexplored. Second, existing Indian scholarship on VDA regulation has focused primarily on tax, securities, and consumer protection dimensions, with the insolvency dimension receiving limited systematic attention. Third, the comparative dimension of VDA insolvency particularly the lessons that India can draw from the UK's property law analysis and the US bankruptcy court experience has not been subjected to sustained doctrinal analysis in the Indian legal context. This paper addresses all three gaps.

III. RESEARCH OBJECTIVES

This paper is guided by the following research objectives:

First, to critically examine the definitional and classificatory treatment of VDAs under Indian law, with particular reference to the IBC and allied legislation, and to assess whether the existing statutory framework is adequate for the purposes of insolvency administration.[20]

[16] Jonathan Lipson, On the Theory and Practice of FTX's Bankruptcy, 99 Am. Bankr. L.J. 201 (2024).
[17] Hilary J. Allen, DeFi: Shadow Banking 2.0?, 64 Wm. & Mary L. Rev. 919 (2023).
[18] Wulf A. Kaal & Craig Calcaterra, Crypto Transaction Dispute Resolution, 73 Bus. Law. 109 (2018).
[19] Robin Potts, Cryptoassets as Property: A Comment, 9 J. Int'l Banking & Fin. L. 547 (2019).
[20] Insolvency and Bankruptcy Code, No. 31 of 2016 (India); Income Tax Act, 1961, § 2(47A).

Second, to identify and analyse the structural challenges that the distinctive characteristics of VDAs including their decentralised architecture, pseudonymous ownership, jurisdictional indeterminacy, and valuation volatility pose for the application of the IBC's procedural and substantive mechanisms.[21]

Third, to undertake a comparative analysis of the legal and regulatory approaches to VDA insolvency in the United Kingdom, European Union, and United States, with a view to identifying best practices and reform models applicable to the Indian context.[22]

Fourth, to propose a coherent and practically implementable legislative and regulatory reform framework for the treatment of VDAs in Indian insolvency proceedings, addressing gaps in asset identification, valuation, moratorium enforcement, cross-border coordination, and creditor classification.[23]

Fifth, to contribute to the broader scholarly discourse on the intersection of digital finance and insolvency law in India, by situating the VDA insolvency challenge within the evolving landscape of India's digital economy and its regulatory infrastructure.[24]

The following research questions organise the inquiry:

(i) Do VDAs constitute “assets” or “property” for the purposes of the IBC?

(ii) What are the principal structural impediments to the application of the IBC to VDA-related insolvency scenarios?

(iii) How have foreign jurisdictions addressed the insolvency treatment of VDAs, and what lessons are applicable to India?

(iv) What specific legislative and regulatory reforms are necessary to establish a coherent VDA insolvency framework in India?

IV. RESEARCH METHODOLOGY

This paper adopts a doctrinal and comparative legal research methodology.[25] The doctrinal method involves the systematic analysis of primary legal sources statutes, judicial decisions, regulatory instruments, and official reports to identify the legal rules applicable to the treatment of VDAs in insolvency proceedings and to evaluate their adequacy. The comparative method supplements the doctrinal analysis by examining

[21] INSOL International, Crypto-Assets and Insolvency: Issues for Discussion (Oct. 2022).
[22] UK Jurisdiction Taskforce, Legal Statement on Cryptoassets and Smart Contracts (2019); Regulation (EU) 2023/1114 on Markets in Crypto-Assets (MiCA); In re FTX Trading Ltd., Case No. 22-11068 (JTD) (Bankr. D. Del. 2022).
[23] Arjun Gupta, Insolvency of Crypto Exchanges: Rethinking Priority and Property in the Indian Context, 8 NUJS L. Rev. 77 (2023).
[24] NASSCOM, India's Blockchain and Digital Assets Landscape (2023).
[25] Terry Hutchinson & Nigel Duncan, Defining and Describing What We Do: Doctrinal Legal Research, 17 Deakin L. Rev. 83 (2012).

the approaches adopted in selected foreign jurisdictions, with a view to identifying transferable principles and reform models.

A. Doctrinal Analysis

The doctrinal analysis proceeds at two levels. At the first level, the paper examines the primary statutory sources governing insolvency in India, including the Insolvency and Bankruptcy Code, 2016; the IBBI (Insolvency Resolution Process for Corporate Persons) Regulations, 2016; the IBBI (Liquidation Process) Regulations, 2016; the Companies Act, 2013; the Prevention of Money Laundering Act, 2002; and the Finance Act, 2022.[26] Judicial decisions of the Supreme Court of India, the National Company Law Appellate Tribunal (NCLAT), and the NCLT are analysed to identify existing interpretive frameworks applicable to digital assets.[27]

At the second level, the paper analyses secondary regulatory instruments, including RBI circulars and advisories, SEBI consultation papers, IBBI discussion papers,[28] and reports of the Ministry of Corporate Affairs.[29] These instruments are examined to assess the extent to which the regulatory framework has engaged or failed to engage with the VDA insolvency challenge, and to identify potential administrative solutions that may be available within the existing legal architecture pending legislative reform.

B. Comparative Analysis

The comparative analysis focuses on three jurisdictions selected for their jurisprudential relevance and the maturity of their engagement with VDA insolvency issues. The United Kingdom is selected on account of the UK Jurisdiction Taskforce's Legal Statement[30] and the developing case law on cryptoassets as property. The European Union is selected on account of the MiCA Regulation,[31] which represents the most comprehensive regulatory framework for crypto-asset service providers globally. The United States is selected on account of the extensive body of bankruptcy court jurisprudence generated by the FTX and Celsius proceedings,[32] which have addressed foundational questions about the treatment of crypto deposits in insolvency.

The comparative analysis employs a functional method: rather than engaging in a formal comparison of doctrinal categories across jurisdictions (which would be complicated by the absence of unified

[26] Insolvency and Bankruptcy Code, 2016; Companies Act, 2013; Prevention of Money Laundering Act, 2002; Finance Act, 2022.
[27] Internet & Mobile Ass'n of India v. Reserve Bank of India, (2020) 10 SCC 274; Arcelormittal India Pvt. Ltd. v. Satish Kumar Gupta, (2019) 2 SCC 1; Committee of Creditors of Essar Steel India Ltd. v. Satish Kumar Gupta, (2020) 8 SCC 531.
[28] IBBI, Discussion Paper on Resolution of Stressed Assets in Digital Economy (2024).
[29] Ministry of Corporate Affairs, Report of the Insolvency Law Committee (Mar. 2018); Ministry of Corporate Affairs, Report of the Insolvency Law Committee on Cross-Border Insolvency (Oct. 2018).
[30] UK Jurisdiction Taskforce, Legal Statement on Cryptoassets and Smart Contracts (2019).
[31] Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, 2023 O.J. (L 150) 40.
[32] In re FTX Trading Ltd., Case No. 22-11068 (JTD) (Bankr. D. Del. filed Nov. 11, 2022); In re Celsius Network LLC, 647 B.R. 631 (Bankr. S.D.N.Y. 2023).

crypto-property law), it identifies the legal functions that a VDA insolvency framework must perform asset identification, valuation, preservation, distribution, and cross-border coordination and examines how each jurisdiction has addressed these functional requirements.[33] The insights derived from this functional comparison are then applied to the Indian context to inform the reform proposals set out in Part VIII.

C. Sources and Scope

The paper draws upon primary and secondary sources spanning Indian, UK, EU, US, and international law. Primary sources include statutes, regulations, judicial decisions, and official government and regulatory reports. Secondary sources include peer-reviewed journal articles, academic monographs, practitioner guides, and reports of international organisations including INSOL International, the Financial Stability Board, and UNCITRAL.[34] The paper does not engage in empirical or socio-legal research, and does not purport to offer economic analysis of VDA markets or insolvency outcomes. The scope is limited to the legal framework for VDA treatment in insolvency proceedings and does not extend to the broader question of crypto-asset regulation in India.

V. DEFINITIONAL AND CLASSIFICATORY FRAMEWORK FOR VDAs UNDER INDIAN LAW

Prior to the Finance Act, 2022, there was no statutory definition of cryptocurrency or VDA in Indian law. The Reserve Bank of India (RBI) intermittently characterised cryptocurrencies as non-legal tender and, in its 2018 Circular, prohibited regulated entities from providing services in relation to virtual currencies a prohibition subsequently set aside by the Supreme Court in *Internet and Mobile Association of India v. Reserve Bank of India*.[35] The resulting definitional vacuum created significant uncertainty as to whether VDAs constituted “property,” “goods,” “securities,” “currency,” or a *sui generis* asset class for the purposes of insolvency and other commercial laws.[36]

The Finance Act, 2022 introduced Section 2(47A) into the Income Tax Act, 1961, defining a “virtual digital asset” as any information, code, number, or token not being Indian currency or foreign currency generated through cryptographic means, providing a digital representation of value exchanged with or without consideration, or functioning as a store of value or a unit of account, including non-fungible tokens (NFTs).[37] While this definition serves fiscal purposes, it is neither directly incorporated into the IBC nor into the Companies Act, 2013, leaving the question of VDA classification for insolvency purposes unresolved.[38]

[33] Philip Wood, Principles of International Insolvency 15–18 (3d ed. 2012).
[34] INSOL International, Crypto-Assets and Insolvency: Issues for Discussion (2022); Financial Stability Board, Regulation, Supervision and Oversight of “Global Stablecoin” Arrangements (2020); UNCITRAL Model Law on Cross-Border Insolvency (1997).
[35] Reserve Bank of India, Circular No. DBR.No.BP.BC.104/08.13.102/2017-18 (Apr. 6, 2018); Internet & Mobile Ass'n of India v. Reserve Bank of India, (2020) 10 SCC 274.
[36] Tanvi Ratna, Cryptocurrency Law in India: Regulatory Challenges and Policy Recommendations, 12 Indian J.L. & Tech. 45 (2019).
[37] Income Tax Act, 1961, § 2(47A) (as inserted by Finance Act, 2022).
[38] Finance Act, 2022, No. 6 of 2022 (India).

The classification question is pivotal because the IBC's mechanism for asset identification, moratorium protection, avoidance transactions, and distribution of proceeds is predicated upon the concept of "assets" forming part of the corporate debtor's estate. Section 18(1)(f) of the IBC requires the Interim Resolution Professional (IRP) to take custody and control of all assets of the corporate debtor, including assets over which the corporate debtor has ownership rights as recorded in the balance sheet.[39] Whether VDAs held on blockchain wallets, smart contracts, or with custodians fall within this mandate remains judicially untested in India.

A purposive and contextual interpretation of the IBC suggests that VDAs ought to be treated as property forming part of the insolvency estate. The broad definition of assets under accounting standards governing intangible assets, the recognition of cryptoassets as property by courts in England and Wales, and the economic reality that VDAs represent value that creditors have a legitimate interest in recovering all support this conclusion.[40] Nevertheless, the absence of explicit statutory language creates avenues for debtors to obfuscate or dissipate VDA holdings, to the detriment of the insolvency process and creditors.

VI. STRUCTURAL CHALLENGES UNDER THE IBC FOR VDA INSOLVENCY

The application of the IBC's procedural and substantive framework to VDA-related insolvencies reveals several structural challenges that collectively undermine the efficacy of the insolvency process.

A. Asset Identification and Discovery

The IBC imposes statutory duties upon the Resolution Professional (RP) to identify, verify, and protect assets of the corporate debtor.[41] VDAs are held through cryptographic private keys, which may be stored on hardware wallets, software wallets, centralised exchanges, or decentralised protocols. Unlike bank accounts or registered immovable property, VDA holdings are not subject to any centralised registry or mandatory disclosure regime in India. While the Prevention of Money Laundering Act, 2002 (PMLA), as amended in 2023, subjects VDA service providers to reporting obligations,[42] these obligations do not automatically assist the RP in identifying the precise quantum and location of a debtor's VDA holdings. The pseudonymous nature of blockchain addresses further complicates discovery, as wallet addresses are not inherently linked to legal identities.[43]

B. Valuation Volatility

[39] Insolvency and Bankruptcy Code, 2016, § 18(1)(f).
[40] AA v. Persons Unknown [2019] EWHC 3556 (Comm); UK Jurisdiction Taskforce, Legal Statement on Cryptoassets and Smart Contracts (2019); Ind AS 38, Intangible Assets.
[41] Insolvency and Bankruptcy Code, 2016, §§ 18, 25.
[42] Financial Intelligence Unit–India, Guidelines for VDA Reporting Entities (Mar. 2023); Prevention of Money Laundering Act, 2002 (as amended).
[43] INSOL International, Crypto-Assets and Insolvency: Issues for Discussion (2022).

Section 35 of the IBC empowers the liquidator to value assets and realise them for the benefit of creditors.[44] The Insolvency and Bankruptcy Board of India (IBBI) has issued the IBBI (Registered Valuers and Valuation) Regulations, 2017, which prescribe methodologies for asset valuation primarily oriented towards tangible assets, financial securities, and real estate.[45] VDAs exhibit extreme price volatility: the market capitalisation of leading cryptocurrencies can fluctuate dramatically within short periods, and thin market depth for smaller tokens can result in significant price impact upon liquidation.[46] The IBC's time-bound process may coincide with severe market downturns, eroding creditor recovery. No specific IBBI guidance exists on the valuation methodology for VDAs, leaving resolution professionals without a statutory framework for this purpose.

C. Moratorium and Asset Preservation

Section 14 of the IBC imposes a moratorium upon admission of the insolvency application, prohibiting institution of suits, execution of judgments, or transfer or disposal of assets of the corporate debtor.[47] The moratorium is intended to preserve the going concern value of the debtor's estate. However, VDA assets present unique enforcement challenges: a debtor in control of private keys can transfer digital assets to anonymous wallets beyond the jurisdiction and reach of the RP within seconds, before physical custody can be assumed. Unlike bank accounts, which can be frozen through orders directed at regulated financial institutions, VDA transfers on decentralised blockchains are technically irreversible once confirmed.[48] The RP has no technical mechanism to freeze or recover VDAs held on self-custodial wallets absent judicial orders directed at centralised exchange intermediaries and even these are jurisdictionally constrained where exchanges are domiciled offshore.

D. Cross-Border Complexity

VDAs are inherently borderless instruments. A corporate debtor domiciled in India may hold VDAs on exchanges registered in Singapore, the Cayman Islands, or the British Virgin Islands, or through smart contracts on global blockchain networks. The IBC's cross-border insolvency provisions (Sections 234–235) are limited in scope and operationally inactive, with no bilateral agreements in force with major VDA-friendly jurisdictions.[49] The UNCITRAL Model Law on Cross-Border Insolvency, which India has not yet adopted, provides a framework for coordination of insolvency proceedings across jurisdictions,

[44] Insolvency and Bankruptcy Code, 2016, § 35.
[45] IBBI (Registered Valuers and Valuation) Regulations, 2017.
[46] Chainalysis, The 2024 Crypto Crime Report (2024).
[47] Insolvency and Bankruptcy Code, 2016, § 14.
[48] Primavera De Filippi & Aaron Wright, *Blockchain and the Law: The Rule of Code* (2018).
[49] Insolvency and Bankruptcy Code, 2016, §§ 234–235; Ministry of Corporate Affairs, Report of the Insolvency Law Committee on Cross-Border Insolvency (Oct. 2018).

though it was not originally designed with blockchain-native assets in mind.[50] The jurisdictional fragmentation of VDA holdings thus represents a substantial impediment to comprehensive asset recovery.

E. Treatment of Creditors Holding VDA Claims

Where the corporate debtor's obligations themselves are denominated in VDAs for example, a crypto-exchange that owes customers Bitcoin deposits the IBC's distribution framework faces additional complexity. The IBC classifies creditors as financial creditors, operational creditors, or other creditors and prescribes a waterfall for distribution of liquidation proceeds under Section 53.[51] VDA-denominated obligations do not map neatly onto these categories: a customer's claim to Bitcoin held in custody may be characterised as a trust claim, a financial debt, or an operational debt depending on the underlying legal arrangement.[52] The characterisation has profound implications for priority and recovery, yet the IBC offers no guidance specific to VDA-denominated claims.

VII. COMPARATIVE ANALYSIS: INTERNATIONAL APPROACHES TO VDA INSOLVENCY

A. United Kingdom

The United Kingdom has emerged as a leading jurisdiction in the legal characterisation of cryptoassets. The UK Jurisdiction Taskforce's *Legal Statement on Cryptoassets and Smart Contracts* (2019) concluded that cryptoassets are capable of being property under English law, thereby making them part of the insolvency estate.[53] This position was affirmed in *AA v Persons Unknown* and subsequent cases, where courts granted proprietary injunctions and freezing orders in respect of cryptoassets.[54] The Property (Digital Assets etc.) Bill 2024, currently before Parliament, proposes to place digital assets within a “third category” of personal property distinct from choses in possession and choses in action a nuanced approach that accommodates the *sui generis* nature of digital assets within the insolvency framework.[55]

B. European Union

The European Union's Markets in Crypto-Assets Regulation (MiCA), which came into full effect in December 2024, establishes a comprehensive licensing and operational regime for crypto-asset service providers (CASPs).[56] MiCA mandates segregation of client assets, capital adequacy requirements, and orderly wind-down plans for licensed CASPs, thereby creating a regulatory foundation that facilitates more

[50] UNCITRAL Model Law on Cross-Border Insolvency (1997); UNCITRAL, Guide to Enactment and Interpretation of the UNCITRAL Model Law on Cross-Border Insolvency (2013).
[51] Insolvency and Bankruptcy Code, 2016, § 53.
[52] In re Celsius Network LLC, 647 B.R. 631 (Bankr. S.D.N.Y. 2023); In re FTX Trading Ltd., 2023 WL 5980902 (Bankr. D. Del. Sept. 14, 2023).
[53] UK Jurisdiction Taskforce, *Legal Statement on Cryptoassets and Smart Contracts* (Nov. 2019).
[54] AA v. Persons Unknown [2019] EWHC 3556 (Comm); Fetch.ai Ltd. v. Persons Unknown [2021] EWHC 2254 (Comm); D’Aloia v. Persons Unknown [2022] EWHC 1723 (Ch).
[55] Property (Digital Assets etc.) Bill [HL] 2024–25 (U.K.).
[56] Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets (MiCA), 2023 O.J. (L 150) 40.

orderly insolvency proceedings than presently exist in India.[57] While MiCA does not amend EU insolvency law directly, its operational safeguards particularly mandatory asset segregation significantly reduce the risk of client asset dissipation in CASP insolvency scenarios. The EU is further considering reforms concerning distributed ledger technology (DLT)-based financial instruments and collateral arrangements that may have future insolvency implications.[58]

C. United States

The United States has developed the most extensive body of case law and judicial guidance on VDA insolvency through the high-profile Chapter 11 proceedings of FTX Trading Ltd. and Celsius Network LLC.[59] The FTX proceedings before the United States Bankruptcy Court for the District of Delaware addressed the critical question of whether customer crypto deposits constituted property of the estate or were held in trust for customers.[60] The court's approach effectively treated customer claims as unsecured creditor claims rather than proprietary claims over segregated assets.[61]

Similarly, in *Celsius*, the court held that assets deposited in the “Earn” programme formed part of the bankruptcy estate because the applicable Terms of Service transferred ownership rights to Celsius.[62] These decisions underscore the importance of contractual architecture and custodial arrangements in determining the insolvency treatment of VDAs. The lessons are particularly relevant to India, where crypto exchanges frequently employ standard-form contractual arrangements and where no statutory rules currently govern the proprietary status of customer-held digital assets in insolvency proceedings.

VIII. TOWARD A REFORM FRAMEWORK: LEGISLATIVE AND REGULATORY INTERVENTIONS

The foregoing analysis reveals that India's insolvency framework requires targeted legislative and regulatory reform to address the treatment of VDAs in insolvency proceedings.

First, the IBC ought to be amended to expressly define “digital assets” as a sub-category of assets forming part of the insolvency estate, cross-referencing the definition of VDAs under the Finance Act, 2022 and any forthcoming comprehensive crypto regulation.[63] Such an amendment would eliminate definitional uncertainty and provide a clear statutory basis for Resolution Professional custody and control of VDA holdings. The definition should encompass both self-custodied and exchange-custodied VDAs, as well as assets held through smart contracts and decentralised finance (DeFi) protocols.

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[57] Id.
[58] European Commission, Digital Finance Strategy for the EU (2020); MiCA, supra note 56.
[59] In re FTX Trading Ltd., Case No. 22-11068 (JTD) (Bankr. D. Del. filed Nov. 11, 2022); In re Celsius Network LLC, 647 B.R. 631 (Bankr. S.D.N.Y. 2023).
[60] In re FTX Trading Ltd., 2023 WL 5980902 (Bankr. D. Del. Sept. 14, 2023).
[61] Id.
[62] In re Celsius Network LLC, 647 B.R. 631 (Bankr. S.D.N.Y. 2023).
[63] Finance Act, 2022, No. 6 of 2022 (India); Income Tax Act, 1961, § 2(47A).

Second, the Insolvency and Bankruptcy Board of India (IBBI) should issue specific regulations or guidelines governing the valuation of VDAs in insolvency proceedings. These guidelines should prescribe recognised methodologies, such as volume-weighted average pricing across multiple exchanges over a defined period, address the treatment of illiquid tokens, and require the appointment of technically qualified valuers possessing expertise in digital asset markets.[64] The approach adopted by courts in jurisdictions such as Singapore may provide useful guidance for this purpose.[65]

Third, emergency powers should be introduced enabling Resolution Professionals to secure VDA assets expeditiously, including the ability to obtain ex parte orders requiring crypto exchanges operating within India to freeze relevant accounts and transfer custody to the Resolution Professional.[66] Such reforms would require coordination among the IBBI, SEBI, enforcement authorities, and regulated VDA service providers.

Fourth, India should actively pursue adoption of the UNCITRAL Model Law on Cross-Border Insolvency and negotiate bilateral cooperation arrangements with jurisdictions hosting major crypto exchanges.[67] Such measures would facilitate information sharing, asset tracing, and recognition of insolvency-related orders concerning digital assets. Pending formal adoption, administrative guidance should clarify the application of Sections 234 and 235 of the IBC to VDA-related insolvency scenarios.

Fifth, mandatory disclosure obligations should be imposed upon directors and key managerial personnel requiring disclosure of VDA holdings in financial statements and during insolvency proceedings, subject to penalties for concealment or misrepresentation.[68] These obligations would complement existing anti-money laundering reporting requirements and improve the information available to insolvency professionals. Recent amendments to Article 12 of the Uniform Commercial Code in the United States concerning controllable electronic records provide a useful comparative model for integrating digital asset concepts into broader commercial law frameworks.[69]

IX. CONCLUSION

The treatment of cryptocurrencies and Virtual Digital Assets under India's insolvency framework represents a critical frontier in the intersection of technological innovation and commercial law. The Insolvency and Bankruptcy Code, as presently constituted, lacks the definitional clarity, procedural tools, and cross-border mechanisms necessary to address the distinctive challenges posed by VDA-related insolvencies.

[64] IBBI (Registered Valuers and Valuation) Regulations, 2017.
[65] ByBit Fintech Ltd. v. Ho Kai Xin [2023] SGHC 199 (Sing.).
[66] Insolvency and Bankruptcy Code, 2016, §§ 14, 18, 25.
[67] UNCITRAL Model Law on Cross-Border Insolvency (1997); Ministry of Corporate Affairs, Report of the Insolvency Law Committee on Cross-Border Insolvency (Oct. 2018).
[68] Prevention of Money Laundering Act, 2002 (as amended by Finance Act, 2023); Financial Intelligence Unit–India, Guidelines for VDA Reporting Entities (Mar. 2023).
[69] Uniform Commercial Code art. 12 (2022).

The comparative experience of the United Kingdom, European Union, and United States demonstrates that proactive legislative and judicial engagement with these challenges is both feasible and necessary.[70] Each jurisdiction has developed mechanisms whether through judicial recognition of cryptoassets as property, comprehensive regulatory frameworks for crypto-asset service providers, or detailed bankruptcy jurisprudence to address the unique issues presented by digital assets.

India's rapidly expanding digital economy demands a corresponding evolution of its insolvency framework.[71] The reforms proposed in this paper statutory recognition of VDAs as insolvency assets, specialised valuation standards, enhanced asset-preservation powers, cross-border cooperation mechanisms, and strengthened disclosure obligations collectively offer a coherent and practically implementable reform agenda.

In the absence of such reforms, the risks of creditor harm, asset dissipation, regulatory uncertainty, and reduced confidence in India's insolvency regime are likely to intensify as digital assets become increasingly integrated into commercial activity.[72]

Ultimately, the challenge of VDA insolvency is not merely technical but jurisprudential. It requires Indian law to develop a coherent conception of digital property, redefine the responsibilities of insolvency practitioners in a technologically complex environment, and reconcile territorial legal authority with inherently borderless assets.[73] Meeting this challenge will require coordinated engagement among Parliament, the IBBI, SEBI, the RBI, insolvency professionals, and the judiciary. The urgency of that engagement cannot be overstated.

[70] UK Jurisdiction Taskforce, supra note 53; MiCA, supra note 56; In re FTX Trading Ltd., supra note 59.
[71] NASSCOM, India’s Blockchain and Digital Assets Landscape (2023).
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