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Report of the Committee to propose specific actions  
to be taken in relation to Virtual Currencies

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28th February 2019



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# Acknowledgements

A high-level Inter-ministerial Committee (IMC) was constituted on 2nd November, 2017 under the Chairmanship of Secretary, DEA to study the issues related to Virtual Currencies and propose specific action to be taken in this matter. The mandate of the Committee included an examination of the policy and legal framework for the regulation of virtual currencies. The subject of virtual currency is complex owing to its unique features and varying degree of understanding in different jurisdictions.

The existing global regulatory and legal structures clearly divide the globe into three blocks:

- Countries with no legislation or regulation on VCs;
- Countries having legislative/regulatory framework on VCs;
- Countries that have imposed ban/restrictions on VCs.

There is a growing trend of developing regulatory and legal structures around virtual currencies throughout the world. The IMC has accordingly examined regulatory developments in different jurisdictions in the course of its work.

The Committee studied the domestic and international scenario including the various initiatives taken by other governments and regulators, and analysed reasons impacting its growth in understanding the trajectory of regulation and development in virtual currencies. The task of putting together the key issues, global experiences, challenges faced by industry and policy options thereon, developing the rationale for the final recommendations would not have been possible without the efforts of the members of the Committee and all those who enriched the discussion. The Committee was ably supported by the research work of the Macro/Finance Policy team comprising Aditya Rajput, Anirudh Burman, Ashish Aggarwal, Bhavyaa Sharma, D. Priyadarshini, Jai Vipra, Nelson Chaudhuri, Radhika Pandey, Shivangi Tyagi and Sumant Prashant at the National Institute of Public Finance and Policy. I appreciate and acknowledge their contribution to this report.

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New Delhi

Subhash Chandra Garg

Your sincerely



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## Executive Summary

The Committee to study issues related to Virtual Currencies was constituted on 2nd November 2017 under the chairmanship of Shri Subhash Chandra Garg, Secretary, Department of Economic Affairs, Ministry of Finance and comprising of Shri Ajay Prakash Sawhney (Secretary, Ministry of Electronics and Information Technology), Shri Ajay Tyagi (Chairman, Securities and Exchange Board of India) and Shri B.P. Kanungo (Deputy Governor, Reserve Bank of India). The mandate of the Committee has been to study various issues pertaining to Virtual Currencies and to propose specific actions that may be taken in relation thereto.

Subsequent to the constitution of the Committee, the Hon'ble Union Finance Minister, in his Budget Speech in 2018 (at paragraph 112), also announced the following, which has further guided the [mandate/approach] of the Committee:

*Distributed ledger system or the BLOCKCHAIN technology ALLOWS ORGANIZATION of ANY CHAIN of records or TRANSACTIONS without the need of INTERMEDIARIES. The Government does not consider cryptocurrencies LEGAL tender or coin AND will TAKE ALL MEASURES to ELIMINATE use of these CRYPTOASSETS in FINANCING ILLEGITIMATE ACTIVITIES or AS PART of the PAYMENT system. The Government will explore use of BLOCKCHAIN technology PROACTIVELY for ushering in DIGITAL economy.*

### Approach of the Committee

Accordingly, the Committee has undertaken a review and analysis of the policy and legal frameworks governing Virtual Currencies across several jurisdictions with a view to derive an understanding of various concerns surrounding Digital Currencies/ Virtual Currencies/ Cryptocurrencies and recommend appropriate measures to address such concerns. In doing so, the Committee has sought to understand the international experience of both developed and developing jurisdictions.

The Committee has held three Inter-ministerial Committee meetings till date viz., on 27th November 2017, 22nd February 2018 and on 9th January 2019. Representatives of the Ministry of Corporate Affairs, the Central Board of Direct Taxes and MeitY have also participated.

### Report and Recommendations

The Report examines the DLT as the underlying technology for Virtual Currencies/ Cryptocurrencies in Chapter 1 on Overview of Distributed Ledger Technologies. Dis-

tributed Ledger Technologies allow the recording, sharing and transfer of data or value without the need for a central record keeping as in the case of a traditional ledger. Such records are immutable and non-repudiable. Blockchain is a specific kind of DLT which rose to prominence as the underlying technology for the cryptocurrency, Bitcoin.

Internationally, the application of DLT is being explored in the areas of trade finance, mortgage loan applications, digital identity management or KYC requirements, cross-border fund transfers and clearing and settlement systems.

However, there are several risks and regulatory challenges. Technologically, scalability and transaction speed as also interoperability and integration into existing financial systems remain a challenge. Other key technological risks concern cyber security and data protection. There are also legal and regulatory risks and challenges. The Committee also notes that being at a development stage, several financial sector regulators and standard-setting bodies are exploring its application.

Accordingly, the Committee inter alia recommends that the Department of Economic Affairs take necessary measures to facilitate use of DLT in the entire financial field after identifying its uses, and that regulators RBI SEBI, IRDA, PFRDA and IBBI explore evolving appropriate regulations for development of DLT in their respective areas. The Committee also recommends that the use of DLT to reduce compliance costs for KYC requirements and further, that MeitY and GSTN play a major technology supportive role for exploring and building the uses of DLT for enabling trade financing by enabling the growth of trade invoicing through DLT.

In Chapter 2 on Virtual Currencies, the Report focuses on Virtual Currencies and Cryptocurrencies. Virtual currencies do not have legal tender status and must be distinguished from fiat currency which is a legal tender backed by sovereign guarantee. A cryptocurrency is a subset of virtual currencies and is decentralised, and protected by cryptography.

Other than Bitcoin, several other cryptocurrencies have emerged including Ethereum, Ripple and Cardano. As of date, there are around 2116 cryptocurrencies, with a market capitalisation of USD 119.46 billion.

There are two principal ways in which Virtual Currencies/ Cryptocurrencies are being deployed. One, as a form of asset. Initial Coin Offering or ICOs are developing as a means for raising funds by issuing digital tokens in exchange for fiat currency, or cryptocurrency such as bitcoin or ether. Two, as payment systems, legal tender and means of exchange. Here, different treatment is being accorded to Virtual Currencies/ Cryptocurrencies, with Japan recently recognising Bitcoin as a means of payment to a complete ban on virtual currencies by China. Further, different countries have taken a different approach to regulation. It is essential to note that as of date no country across the world however treats virtual currencies as legal tender.

The Committee recognises that while technological innovations, including those underlying virtual currencies, have the potential to improve the efficiency and inclusiveness of the financial system, virtual currency in and of itself does not have any of the benefits associated with a fiat currency. The concerns of the Committee are therefore narrowly focused on non-official digital currencies and not on the underlying technologies or VCs issued by governments. Further, the Committee notes that non-official virtual currencies can be used to defraud consumers, particularly unsophisticated consumers or investors. Another concern from use of non-official digital currencies is to the economy and the financial system with implications for monetary supply, particularly given their volatility and crippling use of resources including energy. The Financial Action Task Force has observed that on account of the anonymity associated with Virtual Currencies/ Cryptocurrencies, they are vulnerable to money

laundering and use in terrorist financing activities while also making law enforcement difficult.

Thus far, both the Government and the Reserve Bank have been proactively informing the public on the potential risks on using cryptocurrencies, with the Reserve Bank also prohibiting its regulated entities from facilitating transactions in cryptocurrencies. However, keeping all of the aforesaid in mind, the Committee recommends that all private cryptocurrencies, except any cryptocurrency which may be issued by the government, be banned in India.

The Committee has examined the issue of a “Central Bank Digital Currency”, or a digital form of fiat currency in Chapter 3 on Digital Currency for India using Distributed Ledger Technologies. The Committee notes that while the concept of electronic money transfer is not new, what distinguishes CBDC from the existing concepts and tools is the greater accessibility of central bank liabilities as well as the better potential for retail transactions.

Several central banks are studying the implications of issue of a CBDC. Closer home, the Reserve Bank of India has also formed an inter-departmental group to study and provide guidance on the desirability and feasibility of introduction of a CBDC.

The Committee notes that there are both pros and cons to issuing a CBDC. The Committee also notes that monetary, regulatory, and technological considerations are essential for the design of a CBDC. Furthermore, the introduction of CBDC would require significant investment in infrastructure to create and maintain a network through accounts or through tokens.

The Committee is therefore of the view that it would be advisable to have an open mind regarding the introduction of an official digital currency in India. The Committee notes that enabling provisions are available in the Reserve Bank of India Act that permit the Central Government to approve a “Central Bank Digital Currency” recommended by the RBI to be a “bank note” and therefore, a legal tender in India. The Committee also recommends that a specific Group may be constituted by the Department of Economic Affairs, with participation from RBI, MeitY and DFS for examining and developing an appropriate model of digital currency in India and further, that as and when the decision to notify a CBDC is notified, the Reserve Bank should be the appropriate regulator.

In Chapter 4 on Distributed Ledger Technologies and potential for financial services, the Committee has analysed potential use cases for Distributed Ledger Technology viz: (a) as payments system including both cross border and small value payments; (b) data identity management or KYC requirements by various financial entities; (c) insurance; (d) collateral and ownership (including land) registries; (e) loan issuance and tracking; (f) e-stamping; (g) trade financing; (h) post trade reporting; (i) securities and commodities and (j) internal systems of financial service providers. The advantages of using DLT are mainly seen in terms of reducing administration and transaction costs, obviating duplication and improving accuracy of data, improving the speed and efficiency of transactions and detecting fraud.

Accordingly, the Committee has recommended that the applications of DLT in relation to the above identified potential use cases be examined by the relevant regulator or the government, as the case may be. The specific recommendations are detailed in the Report.

The Committee is also of the view that data localisation requirements proposed in the draft Data Protection Bill may need to be applied carefully, including with respect to the storage of critical personal data so as to ensure that there is no adverse impact on Indian firms and Indian consumers who may stand to benefit from DLT-based services.

■

The summary of all the recommendations is set out in Chapter 5 of the Report. The principal outcome of the deliberations of the Committee, in addition to the recommendations of the Committee as set out in the Report, has been a draft legislation that captures the Committees recommendations in relation to Virtual Currencies/ Cryptocurrencies.

## CHAPTER 1

# Overview of Distributed Ledger Technologies

## 1.1. The work of the Committee

On 2nd November 2017, Government constituted an Inter-Ministerial Committee under the Chairmanship of Shri Subhash Chandra Garg (Secretary, Department of Economic Affairs, Ministry of Finance), to study the issues related to Virtual Currencies and propose specific action(s) which are required to be taken in this matter. The other members of the Committee include Shri Ajay Prakash Sawhney (Secretary, Ministry of Electronics and Information Technology), Shri Ajay Tyagi (Chairman, Securities and Exchange Board of India) and Shri B.P. Kanungo (Deputy Governor, Reserve Bank of India).

The mandate of the Committee has been to examine the existing policy and legal framework for the regulation of digital currencies/ virtual currencies/ cryptocurrencies and recommend appropriate measures to handle issues pertaining to it. The terms of reference of the Committee is available at A.1.

The first meeting of the Committee was held on 27th November 2017. The record of discussions of the first meeting of the Committee is available at A.2. In this meeting the Committee deliberated on various issues relating to virtual currencies and its underlying technology, risks associated with usage of virtual currencies, the possibility of banning or regulating virtual currencies, etc. During the initial discussions, the Committee members broadly agreed that virtual currencies cannot be treated as currency as it is not backed by the sovereign. After the initial discussions, the Committee came up with the view that all aspects regarding virtual currencies and its underlying technology should be carefully examined by the Committee.

Subsequently, in the Budget Speech 2018 (paragraph 112), the Hon'ble Union Finance Minister announced:

*Distributed ledger system or the block CHAIN technology ALLOWS ORGANIZATION of ANY CHAIN of records or TRANSACTIONS without the need of intermediARIES. The Government does not consider crypto-currencies LEGAL tender or coin AND will TAKE ALL MEASURES to ELIMINATE use of these CRYPTOASSETS in FINANCING ILLEGITIMATE ACTIVITIES or AS PART of the PAYMENT system. The Government will explore use of block CHAIN technology PROACTIVELY for ushering in DIGITAL economy.*

The Second meeting of the Committee was held on 22nd February, 2018 in which the Committee deliberated on various issues including how to determine the true nature of crypto assets and discussed various possible ways to deal with crypto assets given its multi-dimensional nature. The record of the discussions of the Committee are available at A.3. The Committee's second meeting concluded with the view that since globally the treatment of crypto assets are still evolving, these issues need to be studied/ examined more before the Committee can finalise its view.

The Third Meeting of the Committee was held on 9th January, 2019 in which the Committee deliberated on various issues highlighted in the draft report. The Committee also extensively deliberated upon the comments provided by SEBI, RBI, MeitY, CBDT, MCA etc. on the draft report. After detailed discussions on various issues, the Committee agreed that there is a need to set up a Standing Committee to re-visit the issues addressed in this report as and when required. The record of discussions of the Committee are available at A.4.

## 1.2. Origin of Distributed Ledger Technologies

Distributed ledgers use independent computers (referred to as nodes) to record, share and synchronise transactions in their respective electronic ledgers. This obviates the need for keeping data centralised as in a traditional ledger. Distributed ledgers are shared records of data across different parties. They can be categorised as permissioned or permissionless, depending on whether network participants referred to as nodes need permission from any entity to make changes to the ledger. Distributed ledgers can be categorised as public or private depending on whether the ledgers can be accessed by anyone or only the participating entities in the network.

Distributed ledger technologies enabling recording of transactions and transfer of "value" peer to peer could have applications in a number of fields. Value refers to any record of ownership of assets— money, security, land titles and also record of specific information like identity, health information etc.

The core attributes of DLTs are:

1. It is able to store records of ownership of assets without the need for a centralised record-keeping mechanism. Any changes in ownership of assets or "transactions" are also recorded in an immutable, non-repudiable manner.
2. It ensures that there is no "double spend" i.e. the same asset cannot be spent twice. Double-spending is a potential problem in which the same digital currency/asset can be spent more than once. This flaw is unique to digital assets as digital data can be reproduced at a rather negligible cost with the current resources, relative to physical currency/tokens. Digital assets can be thought of as being a digital file. The file locally stored on a computer can be reproduced, and subsequently shared multiple times and with multiple users. This severely limits the capability of using digital currencies as a part of the money supply.

The prevention of double-spending can be dealt in a centralised or a decentralised way. In a centralised set-up, a trusted third party will be responsible for verifying each transaction to ensure that a particular digital asset has not been spent more than once. This requires trust in the third-party's verification process.

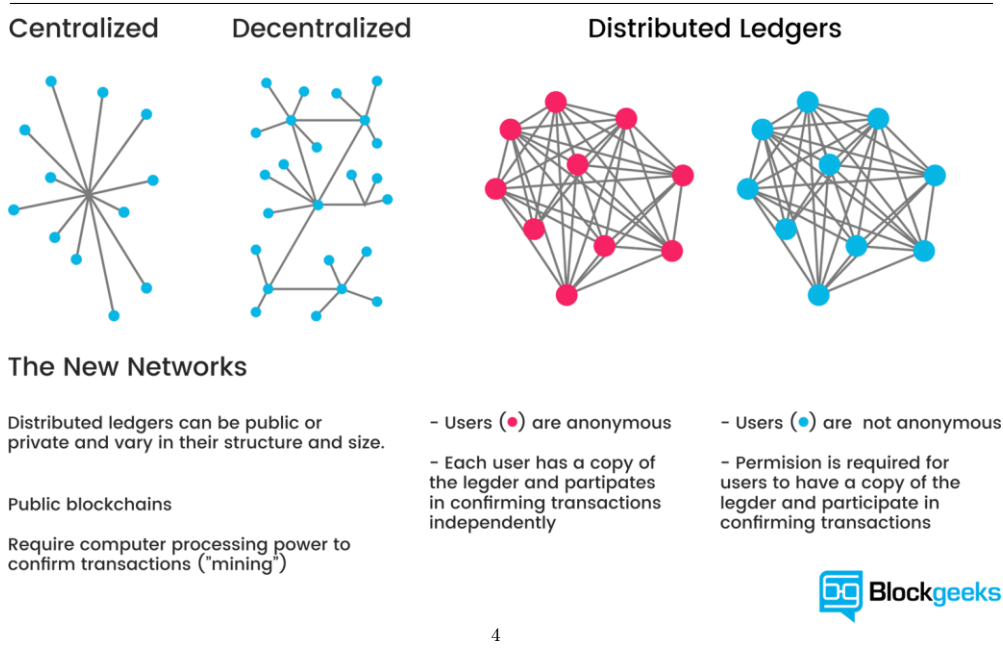
Alternatively, DLT offers a decentralised solution to the double-spending problem. All transactions are updated on a ledger and the authenticity of the digital asset spent can be verified by users. Once a transaction is validated, it is grouped into a block, which contains details of the current transaction as

well as that of the previous transactions. As more blocks are added to the blockchain, it becomes increasingly difficult to change the records and double-spend the asset.

3. The legitimacy of transactions is arrived at using “consensus mechanism”<sup>1</sup> using predefined specific cryptographic validation method. This is not true for DLT in general, but in the recent past, most of the distributed ledgers based on the structure of the Bitcoin Blockchain have adopted cryptography at their core. Each new transaction record is “hashed”<sup>2</sup>.

Blockchain-based DLT primarily caught mainstream attention as the underlying technology of the cryptocurrency-bitcoin. In 2008, in a paper written by an unidentified person using the pseudonym Satoshi Nakamoto: “Bitcoin: A Peer-to-Peer Electronic Cash System” proposed a novel way of transfer of funds from one party to another without going through a financial institution.<sup>3</sup> The underlying technology referred to as blockchain involves a particular way of organising, storing and recording transactions. Subsequently other ways of organising, storing information for asset transfers in a P2P setting emerged.

**Figure 1.1** Concepts of Distributed Ledger Systems



### 1.2.1. SMART CONTRACT AS VALUE ENHANCER

As DLT evolved, the evolution of ‘smart contracts’ have rendered further versatility to DLT. Participants are allowed to enter agreements and embed them in the records

<sup>1</sup>A consensus mechanism is an underlying algorithm which takes into account the consensus of all the participants in the network to verify/validate a transaction. This ensures that there is no double spending, and that the current records are not tampered with through minor changes in the software.

<sup>2</sup>A hash function takes an input of characters/images/media and then returns an output with a fixed length. This is used to encrypt data.

<sup>3</sup>*Distributed Ledger Technology (DLT) AND BLOCKCHAIN*, Fintech Note No. 1, 2017, URL: [http:// documents. worldbank. org/ curated/ en/ 177911513714062215 / pdf/ 122140-WP-PUBLIC-Distributed-Ledger-Technology-and-Blockchain-Fintech-Notes. pdf](http://documents.worldbank.org/curated/en/177911513714062215/pdf/122140-WP-PUBLIC-Distributed-Ledger-Technology-and-Blockchain-Fintech-Notes.pdf) (visited on 08/03/2018).

of the DLT network. Such contracts are developed in computer code, and execute automatically in precise conformity with the contract terms. One prominent example is the automatic triggering of a payment when a specified event is completed, or a specified date is reached. Through such mechanisms, smart contracts obviate the need for intermediation. This feature brings a number of benefits such as faster and automatic execution, lower transaction costs, and non-ambiguity in performance of the contract by making the execution more objective.

### 1.3. Growth and adoption of DLTs

Internationally the applicability of DLTs is being explored in multiple areas. The Hong-Kong Monetary Authority commissioned a research study on the potential applications of DLTs. The research study identified three areas where DLT could play a useful role:<sup>5</sup>

1. Trade finance: Trade finance involves heavy paper-work based processes and is prone to forgery. DLTs could foster efficiency by making the entire transaction history and its collateral information transparent. It also reduces the scope for fraud.

DLTs are expected to be particularly useful in easing financing constraints for small and medium enterprises. This is envisioned through smart contracts that will automatically execute the transfer of money as soon as merchandise is shipped.

2. Mortgage loan applications: Another area where DLTs could promote efficiency is in the field of mortgage loan applications. Banks need quick and accurate information about the property to enable them to make correct credit decisions. Often communication between banks, valuers, law firms is slow and error-prone. A DLT based network could address these challenges. The entities could share digital copies of valuation and legal documents in real time, thus reducing the time and cost of transactions.
3. Digital identity management: Existing *Know Your Customer (KYC)* requirements are cumbersome and require a lot of paperwork to ensure compliance. The procedures are manually intensive causing inconvenience for customers. A DLT based network could automate some of the KYC compliance and customer authentication processes. Specifically, DLT could enable the creation of a chronological, decentralised ledger in which financial institutions that need to conduct the same KYC verification for a particular customer can verify the result of the process that has already been conducted for that customer. This application of DLT can potentially avoid the need for duplicated KYC verification tasks thus reducing costs and improving efficient of the KYC process.<sup>6</sup>
4. Cross-border fund transfers: Currently cross-border transactions are time-consuming and take place only during business hours. Banks can leverage the DLT based technology to make cross-border and inter-bank payments. The

<sup>5</sup>Hong Kong Monetary Authority, *WHITEPAPER on Distributed Ledger Technology*, 2016, URL: [https://www.hkma.gov.hk/media/eng/doc/key-functions/financial-infrastructure/Whitepaper\\_On\\_Distributed\\_Ledger\\_Technology.pdf](https://www.hkma.gov.hk/media/eng/doc/key-functions/financial-infrastructure/Whitepaper_On_Distributed_Ledger_Technology.pdf) (visited on 08/03/2018).

<sup>6</sup>José Parra Moyano and Omri Ross, “KYC Optimization Using Distributed Ledger Technology”, in: *Business & INFORMATION Systems Engineering* 59.6 (Dec. 2017), pp. 411–423, ISSN: 1867-0202, DOI: 10.1007/s12599-017-0504-2, URL: <https://doi.org/10.1007/s12599-017-0504-2>.

distributed nature of the technology removes the need for centralised institutions and manual processing. As an example, Ripple is a DLT-based solution for cross-border payments, settlement and remittance system for banks and payment networks. Ripple provides direct, real-time transfer of assets that settles in almost real time. Ripple system uses ‘XRP’ tokens to facilitate transfer of money between different currencies.

Traditional systems use US dollar as a common currency for converting between other currencies. This incurs exchange fee and takes time. By first converting the value of the transfer into XRP, rather than US dollar, exchange fees are eliminated and banks need to allocate less liquidity. Moreover, the underlying digital ledger allows for real-time message transmission between participants and verification of transactions, which reduces processing of payments to seconds.

5. Clearing and settlement system: DLT based applications are being explored in the field of clearing and settlement transactions. The Australian Stock Exchange (ASX) has proposed to replace its current clearing and settlement system with a distributed ledger based alternative. The timeline targeted for switching to a DLT based clearing and settlement system is towards the end of 2020 or beginning 2021. It is envisaged that the new system will feature improved record keeping, more timely transactions, and better quality data.

## 1.4. Trends in market adoption of DLTs

Technologists and business leaders have found tremendous disruptive potential in DLT. This potential ranges from selective and secure information transmission to management of records in the presence of trust without any intermediaries.

Europe’s largest shipping port, Rotterdam, has launched a research lab to explore Blockchain’s applications in logistics. Utilities in North America and Europe are using this technology for trading of energy futures, while blockchain consortiums like Enterprise Ethereum Alliance, Hyper-ledger project, R3, B3i are also developing a wide variety of blockchain-based solutions. Business forecasts project blockchain’s business value addition to grow to USD 176 billion by 2025.<sup>7</sup>

Financial services giant JP Morgan Chase launched an open-source, enterprise-ready distributed ledger and smart contracts platform named Quorum to meet the needs of the financial services industry in 2017. Joint efforts by incumbent firms organised together as Blockchain Insurance Industry Initiative (B3i) and new members from the insurance sector began testing a new blockchain re-insurance prototype in a sandbox-like environment<sup>8</sup>.

While no substantial example exists right now, in the future it is possible for DLT solutions to be integrated. These efforts will lead to greater convergence, standardisation, and interoperability.

<sup>7</sup>John David Lovelock and David Furlonger, “Three things CIOs need to know about blockchain business value forecast”, in: (Aug. 2, 2017).

<sup>8</sup>A sandbox provides simulation of real-world regulatory and technical environment for business applications to a limited audience. The environment is a laboratory to develop the technology with limited impact on the actual market

## 1.5. DLTs as the underlying technology for virtual currencies

E-money and other existing electronic means of payments have their value stored on a piece of hardware, for instance, in chips, or the records of the trusted third-party facilitating the transaction. This value is legally guaranteed by the legislation of the state under which such hardware (or card) is issued. Cryptocurrencies on the other hand, are based on distributed ledgers, where the records of the transaction are stored on a publicly distributed chain, encrypted to provide pseudonymity to the transactors, and avoid double-spending, a problem often associated with online transactions, detectable through a working consensus algorithm.

A transaction in the cryptocurrency space involves the transfer of certain units of the currency from one address on the network to another address. This requires a “wallet”. A wallet is typically a software such as an app on a phone that allows the users to manage its address, public and private keys. An address is an identifier akin to an account number in a bank's record. Private and public keys are strings of letters and numbers used to protect messages cryptographically. An address is the transformed shorter function of the public key. While the account address is public, only a private key can ‘unlock’ the address to make the transaction.

The keys have complex strings, it is useful to transform them into an fixed-length encrypted key. Hash is a kind of signature for a text or a data file. This transformation is referred to as ‘hashing’. There are standard hashing algorithms (SHA) to transform the larger strings for the purpose of indexing and referencing. As an example, SHA-256 generates an almost unique 256-bit signature for a text.

This “hash” serves as an input to successive transactions. Referencing a previous transaction as an input of the subsequent transactions is important to ensure consistency in the records comprising the ledger and to ensure conservation of value in the system.

The core innovation that Bitcoin brought in this space was through its consensus mechanism, known as Nakamoto Consensus. Without the presence of a third-party facilitator, a currency system based on a decentralised ledger is susceptible to aforementioned double-spending attacks. Since there is no physical existence of money, it is possible that an individual could transfer the same bits associated with an unit of currency twice to two different individuals in isolation. Since the decentralised ledger is composed of blocks of these transactions, it is essential for the network to identify the validity of these transactions, and thus the validity of the existing chain of transactions in the absence of a trusted third party.

In order to permanently publish transactions as valid on the Bitcoin ledger, the transactions need to be verified together as a group of transactions known as blocks. Once the transactions are verified, they are added on the existing chain of transaction blocks, or blockchain. However, a computationally-challenging (and now, resource-intensive) cryptographic puzzle needs to be solved to validate the transactions. The puzzle is designed in such a way that the solution of the puzzle should partially have the same characters as the hashed output of transactions. This points to the validity of the transaction in the system while maintaining the pseudonymity of the details. The puzzle is randomised in nature, in order to spread evenly the probability of finding the solution. This entire concept is called *proof of work*, and is the basis of enhancement of multiple blockchains across different cryptocurrencies. If a block is found to have invalid transactions, it is rejected by the participants. These participants, striving to find a solution to the puzzle, are known as *Miners*, and get a transaction fee and a unit of the cryptocurrency, that they are able to generate after solving the puzzle.

This process creates the possibility of an alternate payment system with smaller transaction fee, cross-subsidised by the newly minted cryptocurrency. The algorithms focus on ensuring irreversibility and decentralisation of transactions opens up numerous opportunities in the world of financial intermediation, payment systems and monetary supply.

The underlying algorithms incorporated in these currencies control the supply of currency, without the need of a central bank controlling the money supply. For instance, the limit for the number of coins in the Bitcoin system is approaching 21 million. This is achieved by the gradual reduction in the rewards for mining the Bitcoins, giving it a deflationary feature. Compared to a central bank which uses subjective measures to control the money supply, the supremacy of programmatic rules in cryptocurrencies keeps the money supply rule fixed.

Given that cryptocurrencies are not backed by an institution with legal or regulatory authority, the underlying decentralised ledger technology have in-built mechanisms to ensure symmetry of information across all the participating nodes on the system. In addition, the system is designed to make it computationally difficult for anyone to attack the ledger. This goal is achieved by miners, who look for the hashes of the blocks, which not only contain the information about the block but also the hashes of the preceding blocks. The time-delay caused as well as the intensive computation required for finding the solution to the cryptographic puzzle as discussed above impedes the attacks aimed to create false changes in the blockchain. However, malicious activities have occurred at the expense of huge losses to the participating nodes.

## 1.6. Risks and regulatory challenges

DLT is still evolving and many regulatory and legal issues are still remaining to be resolved. Till now, it is widely debated how DLT applications can actually deliver *COMPARATIVE ADVANTAGES* over existing technologies. There are several challenges/ risks related to migrating existing financial and payments infrastructure to DLT. These risks can be categorised into three broad buckets i.e. technological, legal and regulatory.

### 1.6.1. TECHNOLOGICAL risks AND CHALLENGES

Some of the key technological risks with respect to DLT are the following:<sup>9</sup>

- Scalability and transaction speed: Current versions of permissionless DLTs presently have challenges with respect to scalability of blockchain i.e both in terms of speed of validation and transaction volume. Existing permissionless blockchains have limited transaction speed. In a permissionless setup, this much time is needed for nodes to validate transactions and propagate across the network. On the other hand, permissioned blockchains have greater capacity and can process larger transaction volumes, due to fewer nodes having to validate the transaction. As an example, in a permissionless transaction involving bitcoins, it takes roughly ten minutes for a *block* to be created and added to the blockchain.
- Interoperability and integration: If DLT is to be introduced at *SCALE* into the financial system, different versions of distributed ledger technology systems need to be *INTEROPERABLE* with each other.<sup>10</sup> The underlying technology could

<sup>9</sup>*Distributed Ledger Technology (DLT) AND BLOCKCHAIN, Fintech Note No. 1.*

<sup>10</sup>Apart from the interoperability requirements, there is also a need to integrate the existing systems with distributed ledger technology systems.

also pose limitations in the services or products offered on the platform. Moreover, Blockchain and other DLT-based technologies would also need to integrate seamlessly with legacy infrastructure. The cost of integrating distributed ledger technology system into existing financial infrastructure (for e.g. payments and settlements systems) will require industry wide coordination and collaboration.<sup>11</sup>

- Cyber security: Cyber attack/ threat is still a big area of *concern* with respect to DLT systems. The technology does not ensure account or wallet security, unless encrypted strongly. Moreover, there are possibility of the network being compromised if 51% of nodes on the network are taken over by a malicious agent. The Decentralised Autonomous Organisation's attack on the Ethereum blockchain has demonstrated that any *VULNERABILITY* in *SMART CONTRACTS* can be exploited to create harm. *Network security* depends on the distributed nature of the ledger and the assumption that hackers will not be successful in *CHANGING the ALGORITHMS* which determines the core rules of the distributed ledger technology systems.
- Governance: Another major area of concern is with respect to the *ABSENCE of A CENTRALISED INFRASTRUCTURE* and a *CENTRAL entity* to ensure effective governance of the overall distributed ledger infrastructure. Historically, financial sector regulators depended on effective governance arrangements on central infrastructure and other regulated entities. This issue becomes more problematic for permissionless DLT.
- Key management: Consensus protocol provides immutable seals to the blockchain ledger. Changing the records of one transaction would require the entire history of transactions on the chain to be changed. However, the keys associated with recording or changing a transaction are susceptible to theft or loss. In such cases, the digital assets could become irretrievable.
- Lack of maturity: DLT is still at the *EARLY STAGE of development*. There are still serious concerns about the *robustness* and *resilience* of DLT.
- Data privacy: Although the transactions in a permissioned or permissionless network are hashed, with only the hash strings available on public domain, these hashes and the metadata is still visible to all the participants. Monitoring of metadata through various cluster analysis techniques can reveal the information on the type of activity and the volume associated with the activity of any address on the blockchain to any participant node.<sup>12</sup>

### 1.6.2. LEGAL AND REGULATORY risks

Some of the key legal and regulatory challenges are highlighted below.

- Regulatory vetting and industry standards: For any new technology to be adopted at a mass-scale, *REGULATORY vetting* and *development of industry STANDARDS* are necessary. The DLT is still at the *DEVELOPMENTAL STAGE*. Many of the financial sector regulators and standard-setting bodies are currently actively *studying the technology* and *TARGETED REGULATORY FRAMEWORK* for DLT is yet to emerge.

<sup>11</sup>"Blockchain risk management: Risk functions need to play an active role in shaping blockchain strategy", in: (2017), URL: <https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/technology/lu-blockchain-risk-management-27092017.pdf>.

<sup>12</sup>"Blockchain risk management: Risk functions need to play an active role in shaping blockchain strategy".

- Lack of clarity about ownership and jurisdictions: Currently, in case of payments and settlements, there are *specific concerns* regarding the “point of finality” of a transaction in DLT systems. There are also *LEGAL concerns* about the cross-border distributed ledger systems in terms of jurisdiction of the transaction. Regulating permissionless distributed ledger systems is more complicated vis-a-vis a permissioned distributed ledger system as no legal entity is in control of the distributed ledger in case of a permissionless distributed ledger system.
- Customer due diligence requirements: For large scale adoptions in the financial system, DLT systems need to comply with customer due diligence requirements specially in terms of Anti-Money Laundering (AML)/ Combating the Financing of Terrorism (CFT) requirements. Permissionless distributed ledger systems hide the identity of the members in the network by using *public key encryptions*. Such encryption mechanisms make it very difficult for permissionless distributed ledger systems to comply with AML/ CFT regulations of different jurisdictions.  
Permissioned distributed ledger systems do not possess this problem as network access is controlled and identity verification of the participant is required for the vetting process.
- Recourse mechanisms: One of the main features of the distributed ledger technology is its *IMMUTABILITY*. Due to this feature, there are concerns regarding how transaction disputes or erroneous transactions can be resolved.

## 1.7. Recommendations

1. The Committee believes that DLT is an important new and innovative technology, which will play a major role in ushering in of the digital age. The DLT can be of great benefit to India in several financial and non-financial areas. In finance, DLT can be particularly beneficial in the areas of trade financing, lowering the costs of personal identification for KYC related issues, and improving access to credit.
2. The Committee therefore recommends that the Department of Economic Affairs should identify uses of DLT and take necessary measures to facilitate the use of DLT in the entire financial field.
3. RBI, SEBI, IRDA, PFRDA and IBBI should also focus on DLT to explore building of appropriate regulations for development of DLT in their respective areas.
4. DLT can be used to reduce compliance costs for KYC requirements. MEITY may also explore the mechanisms through which customer information can be maintained on DLTs through a consent-based mechanism.
5. MEITY and GSTN will need to play a major technology supportive role for exploring and building the uses of DLT for enabling trade financing by enabling the growth of trade invoicing through DLT.



## CHAPTER 2

# Virtual Currencies

A virtual currency is a digital representation of value that can be digitally traded and functions as (a) a medium of exchange, and/ or (b) a unit of account, and/ or (c) a store of value, but *does not HAVE LEGAL tender STATUS*.<sup>1</sup> A virtual currency therefore may be a private medium of exchange, but does not in any way reflect a sovereign guarantee of the value or legal tender status.

Virtual currency is therefore distinguished from the *FIAT currency* of a country that is designated as its legal tender. Cryptocurrencies are a subset of virtual currencies that is decentralised, and protected by cryptography. Bitcoin is an example of a cryptographic virtual currency, and was the first of its kind.<sup>2</sup>

## 2.1. Virtual currencies launched globally

A number of proof of concepts<sup>3</sup> were introduced prior to Bitcoin, and Bitcoin was only a combination of these existing concepts and technologies. Two distributed ledger based cryptocurrencies were *b-money* and *Bit Gold*.

Since the launch of Bitcoins, numerous alternatives based on the same consensus mechanisms as Bitcoin and other consensus mechanisms were launched. These alternative coins are popularly known as *Altcoins*. Studies have shown that more than 1500 altcoins based on Bitcoin were developed by 2014. In context of more formal platforms like exchanges, certain exchanges list more than 900 cryptocurrencies where 440 of them have a market capitalisation of more than USD 1 million.<sup>4</sup> However, this market capitalisation is mainly due to the use of a few number of coins.

The major difference between coins based on a Bitcoin like structure and other coins emerges from development of different consensus schemes, which determine through different ways the validity of a block of transactions.

<sup>1</sup>*VIRTUAL Currencies: Key Definitions AND POTENTIAL AML/ CFT Risks*, June 2014, URL: <http://www.fatf-gafi.org/media/fatf/documents/reports/Virtual-currency-key-definitions-and-potential-aml-cft-risks.pdf> (visited on 09/04/2018).

<sup>2</sup>*VIRTUAL Currencies: Key Definitions AND POTENTIAL AML/ CFT Risks*.

<sup>3</sup>In software development, Proof-of-Concept refers to any prototype that demonstrates the feasibility and practical potential of any technology or project.

<sup>4</sup>Andreas Hanl, "Some insights into the development of cryptocurrencies", in: *Joint discussion PAPER series in economics* 04 (2018), URL: [https://www.uni-marburg.de/fb02/makro/forschung/magkspapers/paper\\_2018/04-2018\\_hanl.pdf](https://www.uni-marburg.de/fb02/makro/forschung/magkspapers/paper_2018/04-2018_hanl.pdf).

In terms of market capitalisation, Bitcoin has the highest capitalisation, followed by Ethereum, Ripple and Cardano. Moreover, trading and investment in these cryptocurrencies has been driven mainly by speculation, resulting in a volatile market. This severely limits the use of these cryptocurrencies as a store of value.

## 2.2. Virtual currencies as a form of assets: Initial Coin Offerings

The crypto space is evolving with new state of the art technology for fund raising and investment. The key word is a *token*. A token is a utility, an asset or a unit of value issued by a company. Initial coin offerings (ICOs) are a way for companies to raise money by issuing digital tokens in exchange for fiat currency or cryptocurrency such as bitcoin or ether. The issue of ICOs has emerged as an alternative to traditional forms of start-up financing. The issuance of ICO is generally preceded by the company issuing a whitepaper on its technology and explaining the objective for raising funds. These tokens can be transferred across the network and can be traded on cryptocurrency exchanges. They can serve multiple functions: from granting investors access to a service, to entitling investors to a share of the startup company's dividend. The Cryptocurrency ICO Stats for 2018 show a total number of 983 ICOs issued as on December 1, 2018. The funds raised through ICOs exceeded USD 20 billion as on December 01, 2018.

There is a clear risk with issuance of ICOs as many of the companies are looking to raise money without having any tangible products. Regulators, the world over are mulling on how to regulate ICOs and digital tokens. Are they securities or not? How to tax them?

The regulation of digital coins or tokens depend on the characteristics and the purpose for which they are being issued. Depending on the objective of issue, tokens can be grouped into two broad categories:

1. Utility tokens: Utility tokens offer investors access to a company's products or services. They are not to be treated as investment in a company.
2. Security tokens: Security tokens represent investment in a company. Just like share-holders in a company, token holders are given dividends in the form of additional coins every time the company issuing the tokens earns a profit in the market.

What makes a token a security? The *Howey test* by the U.S. Securities and Exchange Commission (SEC) provides an objective framework to distinguish between utility tokens and security tokens. In order for a financial instrument to be considered a security and fall under the ambit of the SEC, the instrument must meet these four criteria:

1. It must be an investment of money;
2. With an expectation of profit;
3. In a common enterprise; and
4. With the profit to be generated by a third party.

## 2.3. Virtual currencies as payment systems, legal tender and means of exchange

Globally, countries have accorded different legal treatment to virtual currencies. A comparison across major jurisdictions is shown in Table 2.1. These measures can be broadly classified as:

**Barter transactions:** Countries like Russia and Canada allow virtual currencies to be traded for other goods or services. These transactions are similar to using virtual currency as a mode of payment.

**Mode of payment:** Some countries like Switzerland and Thailand allow for virtual currencies to be modes of payment. However, since they are not classified as legal tender, parties are not legally obliged to accept them.

**Legal tender:** No country across the world treats virtual currencies as legal tender.

**Complete Ban:** Countries like China have completely banned virtual currencies. It does not allow any sort of legal transactions in virtual currencies.

In India, legal tender finds a mention under section 26 of the *RBI Act*, which states that, *“every bank note shall be legal tender at any place in India in payment or on account for the amount expressed therein, and shall be guaranteed by the Central Government”*. The major point of difference between fiat currency and virtual currency is that while the former is expressly guaranteed by the Central Government, the latter has no such backing. In order for any virtual currency to be declared legal tender, it will have to be expressly guaranteed by the Central Government. In that case, parties are legally bound to accept it as a mode of payment.

Table 2.1: Comparison of regulatory treatment of permitted activities with respect to crypto currencies in different jurisdictions

Activities	Russia	China	Switzerland	Thailand	Japan	New York	Canada
<u>Legal tender</u>							
Permitted or not	No	No	No	No	No	No	Not permitted.
Manner of regulation	N/A	N/A	N/A	N/A	N/A	N/A	NA
<u>Payment method</u>							
Permitted or not	No (but barter exchange is permitted)	No	Yes	Yes	Yes	Yes (subject to registration requirement)	Permitted.
Manner of regulation	Barter exchanges can only happen via exchanges	N/A	All transactions permitted as long as they comply with AML laws.	Regulated as Digital Asset Business		Regulated subject to registration requirement of the state and other federal laws	Taxed according to the transaction.
<u>Investment tokens</u>							
Permitted or not	Yes	No	Yes	Yes	Regulation is silent on this. A government-backed study group has released guidelines, which soon could take the shape of a law.	Permitted subject to registration requirement	Permitted.
Manner of regulation	Detailed process for how tokens have to be issued, disclosure and reporting requirements. Tokens can only be issued via exchanges.	N/A	Investment tokens are treated as securities; all transactions permitted as long as they comply with securities laws.	Allowed subject to approval from SEC. To be issued through Government-approved ICO portals.	N/A	Subject to state and federal laws on exchange activities.	
<u>Closed loop tokens</u>							

Table 2.1: Comparison of regulatory treatment of permitted activities with respect to crypto currencies in different jurisdictions

Activities	Russia	China	Switzerland	Thailand	Japan	New York	Canada
Permitted or not	N/A	No	Yes	N/A	Yes, the law is explicit in stating that it does not regulate closed loop tokens	Permitted	The law is silent on this.
Manner of regulation	Unregulated	N/A	Unregulated unless they deal with financial products and services, in which case they have to comply with AML regulations.	N/A	N/A	Excluded from the definition of Virtual Currency	The law is silent on this.
<u>Collection of regulatory information</u>	Reporting requirements	N/A	No separate provision: disclosure and reporting requirements as per existing laws for other financial products	Businesses are required to comply with conditions specified in the notification of SEC, and comply with maintaining records of assets belonging to individual clients (KYC, CDD).	Information is to be reported to the JFSA.	Detailed reporting requirement to the Superintendent	Reporting requirements under the anti-money laundering law.
<u>Crypto Exchanges</u>							
Permitted or not	Yes	No	The guidelines are silent on crypto-exchanges	Yes	Yes, permitted	Permitted subject to State laws on exchange services	Permitted.
Purpose for which permitted	For exchange of "Digital Financial Assets" for other DFA, Rubles, foreign currency or other property.	N/A	N/A	Purposes of purchasing, selling or exchanging digital assets.	Buying and selling of cryptocurrencies can take place only on registered exchanges.	Buying, selling, exchanging for other cryptocurrencies	Categorised as money services businesses.

Table 2.1: Comparison of regulatory treatment of permitted activities with respect to crypto currencies in different jurisdictions

Activities	Russia	China	Switzerland	Thailand	Japan	New York	Canada
Manner of regulation	Has to happen as Rules for Organised Trading in Digital Financial Assets for "qualified investors", and via a special account for persons who are not "qualified investors".	N/A	N/A	Those intending to operate should be approved by the Minister of Finance upon recommendation of SEC. Approved operators shall comply with rules, conditions and procedures as specified in SEC notification.	Registration by the JFSA	Subject to registration requirement and compliance with all state and federal laws	Subject to extensive reporting requirements under anti-money laundering law. <sup>5</sup>

<sup>5</sup>**Sources:** JFSA, The VC Act, *The VC Act*, Apr. 1, 2017; New York State Department of Financial Services, *23 NYCRR PART 200 VIRTUAL currencies*, June 24, 2015, URL: <https://www.dfs.ny.gov/legal/regulations/adoptions/dfsp200t.pdf>; *SUMMARY of the ROYAL Decree on the DIGITAL Asset Businesses B.E. 2561*, May 2018; Ontario Securities Commission, Cryptocurrency Regulation in Canada, <http://research.osc.gov.on.ca/cryptocurrency/cdnreg>; Swiss Financial Market Supervisory Authority, *Guidelines for enquiries REGARDING the REGULATORY FRAMEWORK for INITIAL coin offerings (ICOs)*, Feb. 2018, URL: <https://www.finma.ch/en/-/media/finma/dokumente/dokumentencenter/myfinma/1bewilligung/fintech/wegleitung-ico.pdf?la=en&hash=9CBB35972F3ABCB146FBF7F09C8E88E453CE600C>; People's Bank of China, *Announcement of the CHINA INSURANCE REGULATORY Commission of the CHINA BANKING REGULATORY Commission of the Ministry of Industry AND INFORMATION Technology of the CENTRAL Committee of the People's BANK of CHINA on the Prevention of the Risk of Subsidy ISSUANCE*, Sept. 2017, URL: <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/3374222/index.html>; Zheping Huang, "China wants an orderly exit from bitcoin mining", in: *QUARTZ* (Jan. 2018); "An Inside Look at China's Government Controlled Cryptocurrency Project", in: *CCN* (Mar. 2018), URL: <https://www.ccn.com/an-inside-look-at-chinas-government-controlled-cryptocurrency-project/>

## 2.4. Regulatory concerns around virtual currencies

The Committee recognises that technological innovations, including those underlying virtual currencies/crypto tokens, have the potential to improve the efficiency and inclusiveness of the financial system. However, it must be emphasised that the virtual currency in itself does not have any of the benefits associated with a fiat currency.

It is recognised that underlying technologies such as blockchain may be used beyond to bring efficiency and transparency in government services for citizens. Efforts are under way in the private sector and the government to enable, encourage and participate in efforts to develop potential use cases. Private sector initiatives focus on trade finance, cross border payments etc.

It is therefore to be emphasised that the concerns of the Committee are narrowly focused on *NON-OFFICIAL DIGITAL currencies* and not on the underlying technologies or VCs issued by governments. Such non-official digital currencies do not have the status of legal tender, and therefore have no inherent value beyond the utility their underlying technologies represent.

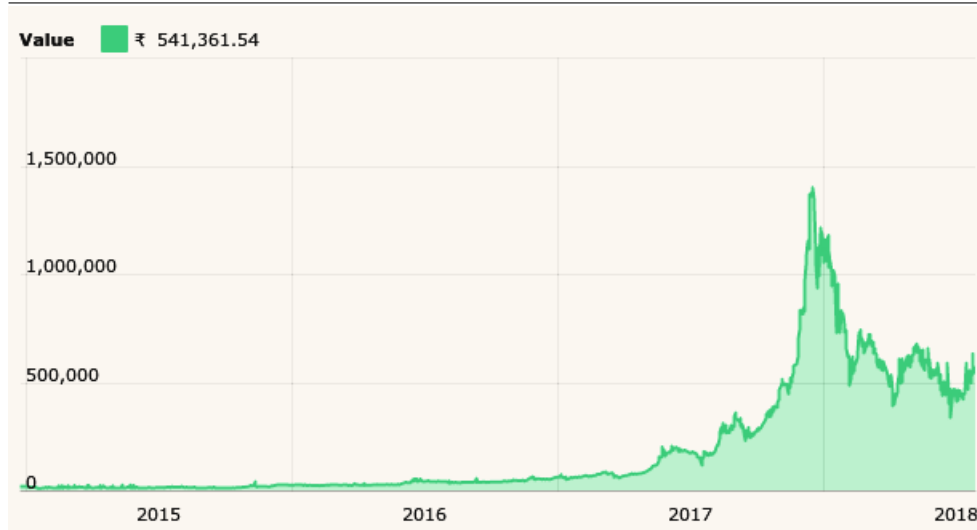
It is essential to understand the basis for the underlying value of cryptocurrencies. Unlike fiat currencies, these cryptocurrencies do not have sovereign backing, nor do they have a formal, verified backing of bullion. It is possible that the cryptocurrencies might have functional benefits, such as some special functionality or tangible benefit that the cryptocurrency could provide. However, the market potential of these functionalities is subject to technological and behavioural changes, as well as the scope of financial investment that the cryptocurrencies can raise. All these factors, make the intrinsic value of cryptocurrencies negligible, and subject to severe shocks or fluctuations.

Since these cryptocurrencies are backed by trust and consensus-based algorithms, processing transactions is time-consuming due to validation procedures and network latency<sup>6</sup>. The large gap in transaction processing speed between cryptocurrencies (especially Bitcoin), and other electronic payment methods, hinders their ability to be used as medium of exchange. Moreover, large fluctuations in price preclude cryptocurrencies from being a suitable store of value. Extremely high volatility exhibited by cryptocurrencies relative to traditional fiat currencies suggest that cryptocurrency markets are mainly driven by speculation. Moreover, the law of one price does not seem to be working effectively in the cryptocurrency markets, with different exchanges transacting at different rates. The volatility of the cryptocurrency to fiat exchange rates is large relative to even risky equities. These features are not in consonance with the essential characteristics of money, and hence cannot replace fiat currencies.

Cryptocurrencies have certain characteristics that make regulation necessary. Some of these characteristics are:

- They lack intrinsic value and are subject to fluctuations.
- They are decentralised networks with no central authority.
- The transactions in cryptocurrencies are irreversible.
- They provide a degree of pseudonymity, although not complete anonymity, to participants in a transaction.

<sup>6</sup>The time it takes from the creation of a transaction until the initial confirmation of it being accepted by the network or the participant in the transaction. Low latency is an important consideration while designing a real-life payments system.

**Figure 2.1** BTC-INR movements

These characteristics create consumer protection issues, risks to the financial system and the overall economy, and can facilitate criminal activity. Existing micro-prudential regulation, macro-prudential regulation and criminal law are unable to respond to these challenges. An examination of the risks arising from non-official virtual currencies follows.

#### 2.4.1. *Need to protect consumers*

In February 2018, there were around 50 lakh traders in India in 24 exchanges and cryptocurrency trading volumes are in the range of 1500 bitcoins a day, or around Rs. 1 billion, whereas the global 24-hour trading volume is in excess of 21 billion USD.<sup>7</sup> However, unlike large exchanges like Bitfinex or Coinbase, there is no accurate estimation of trading volumes in India.

Non-official virtual currencies can be used to defraud consumers, particularly unsophisticated consumers. For example, a recently unveiled INR 2,000 crore scam involving GainBitcoin was uncovered in India, where people were promised returns on their investment in GainBitcoin in the form of Bitcoin. This turned out to be a ponzi scheme as investors were asked to bring other members on board to recover their investments, and were also paid in another non-official virtual currency instead of in Bitcoin, the value of which fell rapidly.<sup>8</sup>

In the United States, Centra Tech allegedly raised USD 32 million from investors for a virtual token which was advertised as convertible to fiat currency. The token was not, in fact, convertible, and the SEC initiated proceedings against Centra Tech.<sup>9</sup>

<sup>7</sup>Anand Venkateswaran, "Budget 2018: Bitcoin in India is Dead. Long Live Blockchain", in: (Feb. 2, 2018), URL: <https://thewire.in/banking/budget-2018-bitcoin-india-dead-long-live-blockchain> (visited on 12/06/2018).

<sup>8</sup>"Bitcoin Rs 2000 crore Fraud: Amit Bhardwaj arrested at Delhi Airport for cheating 8000 people", in: (Apr. 6, 2018), URL: <https://www.financialexpress.com/market/bitcoin-fraud-in-india-man-arrested-for-duping-8000-people-in-rs-2000-crore-cryptocurrency-scam/1122575/> (visited on 12/06/2018).

<sup>9</sup>Becky Peterson, "The SEC charges a third Centra cryptocurrency 'mastermind' with fraud over its \$32 million ICO", in: (Apr. 21, 2018), URL: <https://www.>

There are other ways in which consumers can be left worse off than before while dealing with non-official virtual currencies. EY estimates that more than 10% of the money raised through 372 ICOs has been lost or stolen in hacker attacks, with phishing being the most commonly used technique.<sup>10</sup>

Besides outright fraud, there are inherent vulnerabilities in the design of some virtual currencies that leave consumers open to risk. Miners of a currency can collude to earn more revenue by “forking”, a currency, or changing the programming protocol to benefit themselves.<sup>11</sup> This could put consumers’ finances at risk. The loss of a private key, analogous to a password, of a virtual currency wallet could mean that the amount held in the wallet is lost permanently. Transactions are irreversible, and if a wrong transaction is made, there is no method of redress. Balances in wallets can be stolen by the use of malware, and there is evidence that such malware is resistant to anti-virus software.

Many instances of booms and busts in the valuation of virtual currencies have caused significant losses to investors. In December 2017 Bitcoin was valued at around USD 20,000 per coin. However by November end bitcoin’s value toppled to approximately 80 percent of its peak value. By November end, bitcoin was trading at a price of USD 3800. There were numerous investors who suffered losses due to the fall in the valuation of cryptocurrency. Evidence of manipulation of cryptocurrency prices are rampant. One research study found that Tether—a digital currency pegged to U.S dollars was used to provide price support and manipulate cryptocurrency prices. The study found that aggressive buying of Tether was associated with steep rise in Bitcoin prices.<sup>12</sup> There are therefore, many instances of investors and customers suffering heavy losses due high volatility and speculative activity in virtual currencies.

#### 2.4.2. Need to protect the FINANCIAL system AND economy

The mining of non-official virtual currencies is very resource intensive. The Bank for International Settlements’ *Cryptocurrencies: Looking Beyond The Hype* report states that to scale to a national level retail payments system, a virtual currency would require crippling levels of storage and processing power. Adding more users also makes virtual currencies more cumbersome to use. Already, Bitcoin mining has used as much electricity as all of Switzerland, with the report terming it an environmental disaster. According a study, an estimate of 19 households in the United States can be powered for one day by the electricity consumed in a single Bitcoin transaction.<sup>13</sup> Some cities in the US and Canada have to buy power on the open market because a significant amount of their power supply is used by large bitcoin miners. The diversion of such

[businessinsider.in/The-SEC-charges-a-third-Centra-cryptocurrency-mastermind-with-fraud-over-its-32-million-ICO/articleshow/63851901.cms](https://www.businessinsider.in/The-SEC-charges-a-third-Centra-cryptocurrency-mastermind-with-fraud-over-its-32-million-ICO/articleshow/63851901.cms) (visited on 12/06/2018).

<sup>10</sup>Anna Irrera, “More than 10 percent of \$3.7 billion raised in ICOs has been stolen: Ernst & Young”, in: (Jan. 22, 2018), URL: <https://www.reuters.com/article/us-ico-ernst-young/more-than-10-percent-of-3-7-billion-raised-in-icos-has-been-stolen-ernst-young-idUSKBN1FB1MZ> (visited on 12/06/2018).

<sup>11</sup>Forking is a process by which the programming protocol in a blockchain is changed by the participating nodes such that two chains of transactions are created. In a hard fork, transactions using the protocol of the previous chain are not accepted on the new chain. The new chain could have different rewards for miners.

<sup>12</sup>John Griffins and Amin Shams, “Is Bitcoin Really Untethered?”, Available at SSRN: <https://ssrn.com/abstract=3195066>

<sup>13</sup>*Bitcoin Energy Consumption Index*, URL: <https://digiconomist.net/bitcoin-energy-consumption>.

large amounts of energy resources to mining virtual currencies can have unfavourable long-term economic consequences. Further, the energy-intensive nature of cryptocurrencies must be examined along with the data localisation requirements proposed by the RBI as well as the proposed *PERSONAL DATA Protection Bill, 2018*. The proposed Bill provides that the Central Government may notify categories of personal data that shall *only* be stored or processed in India. Reading that with another provision, which already provides for at least *one* copy of personal data to be stored in India, cryptocurrencies could potentially take up an enormous amount of energy in an already power-starved India.

Non-official virtual currencies are extremely volatile as value is directly tied to demand in the absence of central bank intervention to control supply. This is true even for virtual currencies designed to be stable, for example BitUSD and Dai. On some occasions the value of Bitcoin has swung 25% in a single day.<sup>14</sup> Unsurprisingly, there is some evidence to show that most of the interest in non-official virtual currencies arises out of an interest in speculation.

Non-official virtual currencies could affect the ability of central banks to carry out their mandates. Central banks cannot regulate the money supply in the economy if non-official virtual currencies are widely used, as these are decentralised. This restricts their ability to stabilise the economy. In addition, cross-border transactions with non-official virtual currencies can violate limits on the inflow and outflow of money, particularly as such transactions happen irreversibly. This compromises another important lever of monetary policy.

Post the RBI's announcement in April barring regulated lenders from facilitating cryptocurrency transactions<sup>15</sup>, prices of cryptocurrencies declined steeply to Rs. 350,001, and so did the volume traded (See Figure 2.1).

### 2.4.3. Need to prevent CRIMINAL ACTIVITY

The *VIRTUAL Currencies: GUIDANCE For A RISK-BASED APPROACH* report by the Financial Action Task Force identifies that virtual currencies can provide greater anonymity than mainstream non-cash payment methods, making them vulnerable to money laundering and use in terrorist financing activities. The report by the FATF acknowledges that while virtual currencies have the potential to spur innovations, they also create new opportunities for criminals to launder their proceeds or finance their illicit activities. To address these challenges, it has called for risk-based supervision.

Widespread use of virtual currencies creates challenges for enforcement. Investigation and seizure of assets in decentralised systems is difficult. For example, in 2014 the illegal website Silk Road was found to have been using Bitcoin to finance hacking, drug trafficking, and illegal weapon sales. The FBI alleged that Silk Road facilitated more than USD 1 billion worth of transactions in over two years. After it was shut down, there were reports of a re-launch using other virtual currencies.<sup>16</sup> The case of Western Express International was another example detailed in the report where virtual currencies assisted the sale of thousands of stolen credit card numbers and personal identity information in the United States.

<sup>14</sup>Max Gulker, "Bitcoin's largest price changes coincide with major news events about the cryptocurrency", in: (Jan. 2018), URL: <https://www.aier.org/article/bitcoins-largest-price-changes-coincide-major-news-events-about-cryptocurrency>.

<sup>15</sup>Reserve Bank of India, *Prohibition on DEALING in VIRTUAL Currencies (VCs)*, Apr. 6, 2018, URL: <https://rbi.org.in/Scripts/NotificationUser.aspx?Id=11243&Mode=0>.

<sup>16</sup>Joseph Cox, "Silk Road Reloaded' Just Launched on a Network More Secure Than Tor", in: *Vice* (Jan. 2015), URL: <https://motherboard.vice.com/en.us/article/wnj449/silk-road-reloaded-i2p>.

The use of non-official virtual currencies in such illegal activities provides a degree of pseudonymity that makes it difficult for law enforcement authorities to track down the people involved in such activities. The ambiguous legal status of virtual currencies also creates problems for law enforcement while framing charges. The FATF acknowledges that some countries may decide to prohibit virtual assets based on their assessment of risk.

A report by the Reserve Bank of New Zealand finds that virtual currencies have increased the rewards from ransomware attacks because of pseudonymity.<sup>17</sup> A ransomware attack takes place when access to a computer or network is blocked until ransom is paid. The same report also details how a significant number of Bitcoin accounts have been used for online gambling.

In summary, the following issues exist with non-official virtual currencies:

- The design of virtual currencies, along with their interaction with inadequate regulation, has resulted in leaving consumers vulnerable, as evidenced through various scams and the irreversibility in transactions.
- Non-official virtual currencies also carry risks for the wider financial system, compromising the ability of central banks to monitor and stabilise the economy.
- In some cases, virtual currencies have made criminal activity harder to stop, given the pseudonymity they provide and their cross-border nature.

Given the numerous examples of the harms arising from unregulated virtual currency, it is imperative that a comprehensive law on virtual currency is brought forth to prevent these harms.

In the meantime, Government of India and the Reserve Bank of India have, been proactively informing people of the potential risks from virtual currencies.

1. The Reserve Bank of India (RBI) and the Ministry of Finance, Government of India (MoF) has since 2013 issued public statements to sensitise public about the potential economic, financial, operational, legal, customer protection and security related risks associated in dealing with the virtual currencies.
2. The Ministry of Finance, in a press release issued in late 2017, outlined the concerns around Virtual Currencies.<sup>18</sup> The Press Release stated that VCs do not have any intrinsic value and are not backed by any kind of assets. The speculation and volatility associated with VCs can expose consumers to heightened risk. The Press Release made clear that VCs are not backed by Government. They are not legal tender. There is however no physical attribute to these coins. Therefore, VCs are neither currencies nor coins. The Government or Reserve Bank of India has not authorised any VCs as a medium of exchange. Further, the Government or any other regulator in India has not given license to any agency for working as exchange or any other kind of intermediary for any VC.
3. In a circular issued by the RBI on April 6, 2018, regulated entities were banned from dealing with exchanges or any other businesses dealing with VCs.<sup>19</sup>

<sup>17</sup>Aaron Kumar and Christie Smith, *Crypto-currencies - An introduction to not-so-funny moneys*, Nov. 2017.

<sup>18</sup>See, Ministry of Finance Press Information Bureau Government of India, *Government CAUTIONS People AGAINST Risks in Investing in VIRTUAL 'Currencies'; SAYS VCs ARE like Ponzi Schemes*, Dec. 29, 2017, URL: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=174985>.

<sup>19</sup>RBI, *Prohibition on DEALING in VIRTUAL Currencies (VCs)*.

## 2.5. Regulatory approaches adopted globally

The sections below provide a comparative perspective on the different approaches taken to regulate cryptocurrencies in some major jurisdictions around the world. As can be seen from Table 2.2, there are wide variations in nomenclatures used, kinds of transactions permitted, as well as reporting and monitoring requirements across jurisdictions.

Table 2.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions (China, Russia, Thailand, Switzerland, Canada, Japan, USA)

Sr. No.	Category	Summary
1	Regulatory objective	Legislation in the countries studied aims to (a) regulate VCs as a payment system, (b) protect consumers/ investors, and (c) prevent money laundering/ terror financing.
2	Legal tender	No country studied allows private crypto currencies to be used as legal tender
4	Cryptocurrency	Generally defined in terms of technology being used - electronic or digital medium; and purpose - investments, medium of exchange, etc.
5	Token	The term is generally used in the context of ICOs (Russia, Switzerland, Thailand)
6	Permitted transactions	All jurisdictions studied, except China permit broad types of transactions, subject to licensing/ registration and reporting requirements.
7	Closed loop tokens	Closed loop tokens are generally unregulated
8	Recognised crypto asset exchange	Usually permitted to operate subject to regulations applicable to payment systems. Japan requires compliance with securities laws. Places detailed requirements on VC exchanges. China does not permit them to operate.
9	Registry	Other than Russia, no other jurisdiction studied proposes or has established a central registry. Laws either provide enhanced powers to existing regulatory authorities, or/and impose enhanced data retention/reporting requirements for firms.
10	Cyber security	Many jurisdictions impose enhanced cyber security requirements.

Table A.1 in Annexure compares how these countries regulate different activities within their jurisdiction.

While most of the countries studied permit some kind of trading or exchange of crypto currencies, different regulatory requirements are placed depending on the specific approach of the competent authority. China prohibits almost all kinds of transactions in crypto currencies. The Chinese Government has recently taken measures to prohibit crypto mining activities within its jurisdiction as well.

While some countries allow the use of crypto currencies as (a) a means of payment, or as (b) a means of exchange, no country has as yet approved the use of any crypto currency as a legal tender. Some countries such as Japan and Thailand only allow such transactions in notified or approved cryptocurrencies<sup>20</sup>, while others such

<sup>20</sup>The Guidance Note on the Japanese Virtual Currency Legislation (the VC Act)

as New York (USA) do not have such requirements. New York instead requires anyone using crypto currencies to register with the relevant regulatory authority.

Some jurisdictions also regulate crypto currency exchanges, though the purposes for which such exchanges can be used vary across jurisdictions. In Japan for example, exchanges can be used for buying and selling of crypto currencies. Such transactions are not permitted if conducted outside exchanges. Russia on the other hand requires ICOs to be issued only on exchanges. Reporting requirements also vary across jurisdictions. New York for example requires reporting from all registered persons (conducting any transactions in cryptocurrencies), while Switzerland has no such requirement.

Countries such as Canada, Thailand, Japan and Russia have brought users and intermediaries in crypto currency transactions within the purview of their anti-money laundering and prevention of terror laws.

A notable feature across jurisdictions is the absence of any regulatory requirements with respect to closed loop tokens.

The table in Annexure also provides a detailed comparison of important facets of the regulatory frameworks applicable to cryptocurrencies around some important jurisdictions.

## 2.6. The suitability of a ban on cryptocurrencies

In 2017, the government of China banned trading between RMB and cryptocurrencies, and also banned Initial Coin Offerings. Before the ban, RMB made up 90 percent of Bitcoin trades worldwide. In under a year, the trades between RMB and Bitcoin had fallen to under 1 percent of the world total.

China has used its firewall to ban cryptocurrency exchanges. It has even blocked cryptocurrency-focused accounts from WeChat and cryptocurrency-related content from Baidu. Venues such as shopping malls have been banned from hosting cryptocurrency related events.

However, owing to the network-based nature of cryptocurrencies, after banning domestic crypto exchanges, many traders turned to overseas platforms to continue participating in crypto transactions. Despite the regulatory crackdown in China, trading in China is low, but not completely non-existent. Many Chinese traders are simply

provides for a two-fold definition of VC:

1. financial value (recorded by way of electronic means in the electronic devices etc., excluding any fiat currency/ currencies (of Japan or otherwise) and assets denominated in any such fiat currency) which may be used to pay the price in exchange for the goods purchased or rent or the services received to/ against unspecified person/ persons for such goods or services and which may be purchased from and/or sold to the unspecified person/ persons (the “Type I VC”).
2. financial value (recorded by way of electronic means in the electronic devices etc., excluding any fiat currency/ currencies (of Japan or otherwise) and assets denominated in any such fiat currency) which may be exchanged, as against unspecified person/ persons, with any such financial value as set out in paragraph (i) above and which may be transferred via electronic data processing system (the “Type II VC”). Examples of Type I VC are Bitcoin and Litecoin. These can be used as a payment method. Type II VCs cannot be used as a payment method but can be exchanged with Bitcoin.

using VPNs to circumvent website bans. Despite the ban on unauthorised VPNs on March 31 2018, VPN providers and users still claim access to the services. Many mining pools have also shifted to less restrictive jurisdictions outside China.

The issue of a parallel economy on the Dark Web limits monitoring of illegal activities to only the regulated Internet. However, since the underlying Blockchain broadcasts a new transaction whenever it is verified under the consensus systems, some extent of linkability is possible. For instance, transactions broadcasted on the Bitcoin network hold information on pseudonyms or the public-private keys of transactors, which are addresses to which the coins are transferred, and the value of transactions. Linking address clusters of the sellers or buyers on the cryptocurrency network to real-world identities has been possible. Another linkage is possible through the IP addresses of the participants. This is where the IP-address shielding technologies like Tor come in, which due to their ability to shield the network addresses of the participating systems on the network, further prove to be harmful for efforts in detecting criminal activities. However, there is evidence of disconnecting such technologies from the Bitcoin network. Active research is also in place for de-anonymisation of completely anonymous cryptocurrencies like Zerocoin.

The Committee has kept these considerations in mind while making its recommendations. Given the nascent yet evolving nature of the technology, the Committee recognises that it would be advisable to keep a close watch on developments both globally and within the country. Committee recognises that there could also be useful learnings from reports of global standard-setting bodies like the IOSCO and FATF.

## 2.7. Recommendations of the Committee

1. The Committee notes with serious concern mushrooming of cryptocurrencies almost invariably issued abroad and numerous people in India investing in these cryptocurrencies. All these cryptocurrencies have been created by non-sovereigns and are in this sense entirely private enterprises.
2. There is no underlying intrinsic value of these private cryptocurrencies. These private cryptocurrencies lack all the attributes of a currency. There is no fixed nominal value of these private cryptocurrencies i.e. neither act as any store of value nor they are a medium of exchange. Since their inceptions, cryptocurrencies have demonstrated extreme fluctuations in their prices. Therefore, the Committee is of clear view that the private cryptocurrencies should not be allowed. These cryptocurrencies cannot serve the purpose of a currency. The private cryptocurrencies are inconsistent with the essential functions of money/currency, hence private cryptocurrencies cannot replace fiat currencies.
3. A review of global best practises also shows that private cryptocurrencies have not been recognised as a *LEGAL tender* in any jurisdiction.
4. The Committee recommends that all private cryptocurrencies, except any cryptocurrency issued by the State, be banned in India.
5. The Committee endorses the stand taken by the RBI to eliminate the interface of institutions regulated by the RBI from cryptocurrencies. The Committee also recommends that all exchanges, people, traders and other financial system participants should be prohibited from dealing with cryptocurrencies.
6. Accordingly, the Committee has recommended a law banning the cryptocurrencies in India and criminalising carrying on of any activities connected with cryptocurrencies in India.



7. The Committee also recommends the Government may consider establishing a Standing Committee to take into account the technological developments globally and within the country and also the views of global standard setting bodies to revisit the issues addressed in the Report as and when required.



## CHAPTER 3

# Digital currency for India using Distributed Ledger Technologies

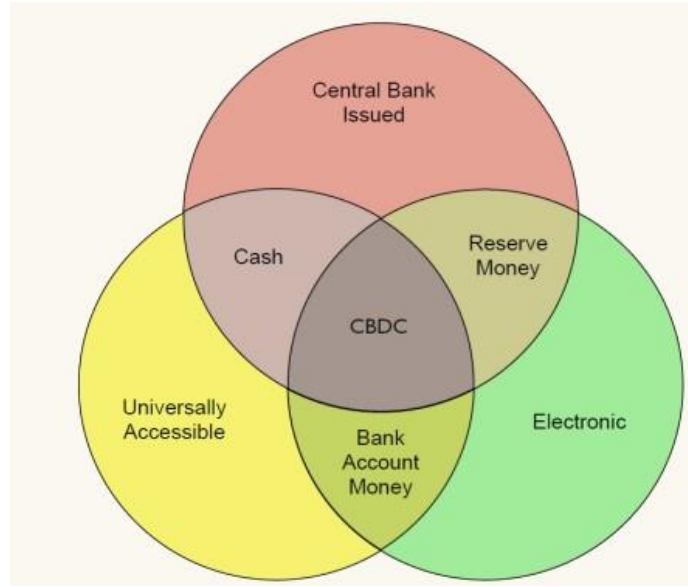
Central bank digital currency (CBDC) is the digital form of fiat money. They can be considered as digital form of central bank liabilities. Some central banks have started considering the possibility of issuing their liabilities in digital form at some stage in the future. The interest in central banks digital currencies across the world has been motivated by a) interest in technological innovation in the financial sector b) declining use of cash in a few countries and c) the emergence of new entrants in the payments landscape.

The concept of electronic central bank money is not new and has existed for a very long time, in the form of reserves deposited by commercial banks and certain other financial institutions at the central bank. However, what distinguishes central bank digital currency from the existing concepts and tools is the greater accessibility of central bank liabilities as well as the better potential for retail transactions. The concept of CBDC throws open questions about the scope of direct access to central bank liabilities and the structure of financial intermediation particularly the role of commercial banks.

Traditionally, central banks have tended to restrict access to digital or account-based forms of central bank money to banks and, in some instances, to certain other financial or public institutions. CBDC emerges as another variant of money. A BIS study on CBDCs defines it as follows: *A CBDC is A DIGITAL form of CENTRAL BANK money THAT is different from BALANCES in TRADITIONAL reserve or settlement ACCOUNTS.*<sup>1</sup>

<sup>1</sup>CENTRAL BANK DIGITAL currencies, tech. rep., Mar. 2018.

**Figure 3.1** Position of CBDC in the monetary framework



Source: “Designing new money: The policy trilemma of central bank digital currency”

To gain clarity on the concept of CBDC, it is useful to locate CBDC in the context of other forms of money. Figure 3.1 locates the concept of CBDC in the monetary ecosystem. The figure defines the key attributes of a CBDC. a) It is issued by the Central Bank. b) It is a third variant in addition to cash and reserve money and c) It could serve as a competitor to cash and bank account money.

### 3.1. Review of proposed designs for Central Bank Digital Currency

In a circular released on April 6, 2018, the Reserve Bank of India, had ringfenced regulated entities from virtual currencies. Regulated entities were banned from dealing with exchanges or any other businesses dealing with VCs.<sup>2</sup>

The Statement on Developmental and Regulatory Policies announced the formation of an inter-departmental group by the RBI to study and provide guidance on the desirability and feasibility of introduction of a central bank digital currency.<sup>3</sup>

Many central banks are studying the implications of issuing CBDC. Even though many central banks do not plan to issue CBDCs in the immediate short-term, they have commissioned research studies to analyse the implications of CBDCs on monetary policy and systemic stability. Some Central Banks have initiated trials of blockchain technology in various financial applications including issuance of a central bank digital currency for inter-bank settlement. This has led to the emergence of a new field of research. Emerging literature in this field outlines the following design features in the decision towards introducing CBDCs:

<sup>2</sup>RBI, *Prohibition on DEALING in VIRTUAL Currencies (VCs)*.

<sup>3</sup>STATEMENT on DEVELOPMENTAL AND REGULATORY Policies, 2018, URL: <https://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/PR264270719E5CB28249D7BCE07C5B3196C904.PDF> (visited on 04/05/2018).

- **Availability:** Currently access to central bank money is available over a prescribed duration traditionally less than 24 hours and usually five days a week. While introducing CBDC, a decision has to be made on whether to make it available 24 hours or during prescribed durations.
- **Anonymity:** Just as privately issued digital currency offers anonymity to its users, a CBDC could also be designed to enable anonymous transactions. A decision needs to be taken on the *degree of ANONYMITY* vis-a-vis the central bank balancing concerns emanating from AML-CFT.
- **Transfer mechanism:** The transfer of CBDC may be done on a peer-to-peer basis or through accounts opened with the central bank. Various taxonomies are used to examine this feature. The working paper by the Norges bank distinguishes between an *ACCOUNT-BASED model* and *VALUE-BASED model*. In an account-based model, value storage and transaction-processes are centralised. Money is held in accounts and moves from one account to another. In a value-based model, value storage and transaction processing are decentralised. Transactions take place between peers using a payment instrument—a card or a smart phone app. Transfers take place directly without the need for a central party intermediation. *Hybrid* variants are also possible where money is stored locally but needs to be verified by a third party.<sup>4</sup>
- **Interest-bearing:** A key design feature is whether CBDCs would be interest bearing or not. Both interest-bearing and non-interest bearing CBDCs could be used for retail and wholesale transactions, though interest rate could enhance the attractiveness of the CBDC as a store of value. A non-interest-bearing CBDC would operate like cash.

### 3.1.1. Degree of *SUBSTITUTABILITY AND IMPLICATIONS for MONETARY policy TRANSMISSION*

The discussion on whether a CBDC would be interest-bearing or not warrants a deeper discussion to understand its degree of substitutability with other financial assets. A non-interest bearing CBDC could primarily function as cash and serve as a medium of exchange between peer-to-peer and peer-to-business transactions. An interest-bearing CBDC could act as a substitute to bank deposits and money-market instruments such as government bonds, reverse repos. It will have an impact on monetary policy transmission if it is interest-bearing and interest rate possibly moves with the policy rate. If households considered a CBDC to be an alternative to commercial bank deposits, banks would have less scope for independently setting the interest rate on retail deposits.

Digital currency could also help in maintaining negative interest rates by Central Banks. In times of low demand, the Central Bank would lower the policy rate. This would subsequently be followed by reduction in lending rates by banks. Lending rates typically settle in a few basis points above the policy rate. If the reduced rates do not stimulate demand, central banks may be prompted to reduce the rates further. However the lower bound trajectory makes the conduct of monetary policy difficult. If policy rates are lowered below zero (i.e. negative interest rates), then banks would effectively be *CHARGED* to hold reserves. A sustained negative bound interest rate would prompt banks to convert reserves into cash. Banks would be required to incur cost to maintain cash. They would be inclined to recover their costs by charging rates on

<sup>4</sup>Norges Bank, *CENTRAL BANK DIGITAL currencies*, 2018, URL: <https://static.norges-bank.no/contentassets/166efadb3d73419c8c50f9471be26402/nbpapers-1-2018-centralbankdigitalcurrencies.pdf?v=05/18/2018121950&ft=.pdf>.

**Box 1: Example of a concept of CBDC: RSCoin**

In 2016, the Blockchain Initiative Group at University College of London released the concept of centrally banked digital currency called RSCoin<sup>4</sup>. This was one of the earliest technical attempts to operationalise a centrally banked digital currency. The motivation was to create a scalable cryptocurrency which could be used with minimal computational costs, unlike Bitcoins. Terming it as a “radical shift from traditional cryptocurrencies”, the concept paper explained how the RSCoin framework centralises money supply, while providing the benefit of a transparent transaction ledger, a distributed system for maintaining it and direct access to payments and value transfers.

The central bank in this system will have complete control over money supply, while the maintenance of the transaction ledger will be done through *mintettes*. The *mintettes* are analogous to miners, however instead of performing a computationally difficult task to validate transactions, they will be authorised to collect transactions and collate it into blocks. The authorisation will be provided by the central bank through a public-key. The central bank will then take these collated blocks to form a consistent history in the form of a new block. Privacy of the transactions can be ensured through different techniques. The centralisation of monetary policy would be a more scalable consensus mechanism than the computational and resource-intensive proof-of-work type mechanisms. Instances of incentivising *mintettes*, audit-ability of the transaction ledger, and carrying on foreign transactions are also described.

<sup>4</sup>George Danezis and Sarah Meiklejohn, “Centrally Banked Cryptocurrencies”, in: (2016).

maintaining current accounts. This would lead to consumers preferring cash rather than leave it with banks. Presence of physical cash makes the pursuit of negative interest rate policy difficult. This is where digital currency gains relevance so that people can hold either bank deposits or digital cash with the Central Bank. This could facilitate the transmission of negative interest rate policy. However if the design is zero-interest bearing, people could seamlessly convert their deposits into non-interest bearing CBDCs which are similar to cash.

The counter argument is that there are other ways of improving the effectiveness of the negative interest rate policy. Typically this could involve increasing the frictions relating to holding and storing cash in particular, through the elimination of large-denomination notes.

### 3.1.2. IMPLICATIONS FOR SEIGNIORAGE

In some countries such as in Sweden and Norway, the decline in the use of bank notes as a payment method have led to concerns about the decline in central banks’ core revenue stream—the seigniorage revenue. Seigniorage would decline as value of bank notes fall. Issuance of CBDC is considered as a possible policy response. However in India, the motivation for issuing CBDC does not emanate from this concern. Bank notes continue to be a major source of payment in India.

### 3.1.3. IMPLICATIONS FOR FINANCIAL STABILITY

The most significant impact of CBDC could be that it amplifies financial stability concerns. It could facilitate a flight away from private financial institutions and markets towards the central bank. In general, households and firms shift to safer instruments

during financial stress. If CBDC were available, the incentive to shift could be larger and more pervasive than today. Studies have expressed concern that in the presence of a safe alternative in the form of CBDC, even stronger banks could face a run. It would be difficult to arrest such runs even after providing the lender of last resort facilities by a central bank.

The possibility could arise even if the CBDC is designed with limited attractiveness including non-interest bearing feature. It may eventually end up becoming a store of value. In times of financial stress, people might consider holding CBDCs relative to bank deposits.

### 3.2. CBDC in India: Risks and issues in implementation

Any proposed design for a central bank digital currency in India would require a thorough understanding of its implications for monetary policy transmission and financial stability. Two key design features that have a bearing on monetary policy and financial stability are interest paid on CBDCs and the degree of substitutability between bank reserves and CBDCs. On the mechanics of issue, decisions regarding validation and settlement are critical. RBI may choose to outsource the validation function to some licensed nodes on the blockchain network. RBI may also have to decide and design modalities of a consensus protocol to determine when the transfer from the payer to the payee is finally completed. How many nodes would be required to validate the transfer to be finally settled by the payment system participants?

A review of existing literature highlights significant risks and issues in the implementation of CBDCs. These depend on varying factors such as:

1. The proposed design of CBDCs and its impact on existing payments infrastructure, monetary policy transmission and financial stability;
2. Requirements for building new infrastructure for CBDCs based on distributed and transparent validation and transition issues;
3. The degree of cash available in the market and the usage of virtual or electronic money and payment systems; and
4. The resilience of existing financial firms such as banks to deal with disruptions caused due to the introduction of CBDCs.

A recent paper by the Reserve Bank of New Zealand titled “The pros and cons of issuing a central bank digital currency” summarises the pros and cons of cryptographic CBDCs<sup>5</sup> (See table 3.1):

<sup>5</sup>Amber Wadsworth, “The pros and cons of issuing a central bank digital currency”, in: *Bulletin* 81.7 (2018), URL: <https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Bulletins/2018/2018jun81-07.pdf> (visited on 08/10/2018).

Table 3.1: Pros and Cons of cryptographic CBDCs

Topic	Advantages	Disadvantages
<b>Currency Distribution</b>	1. Safer and cheaper to transport than cash. 2. Provides public access to an electronic form of legal tender if cash were phased out	1. Requires significant investment to issue. 2. Transactions over a certain size would need to comply with AML/CFT legislation. Central bank might wish to monitor the use of its digital currency to ensure compliance with AML/CFT legislations. 3. Consumers could accidentally lose large sums of token-based conventional digital currency or crypto-currency. 4. Network for backup cash supply would be required in case of electricity outages and internet problems
<b>Payments</b>	1. Improves settlement speed, operational resilience as the central bank is both, the acquirer and issuer of funds 2. All transactions are recorded on one ledger. 3. Cheaper for cross-border payments. Cross-border transactions require the co-ordination of a network of banks and payments systems to instruct and settle payments across countries. A central bank digital currency could improve settlement time by reducing the number of service providers required on at least one side of the transaction. Less anonymity than cash as all transactions with digital currencies leave an electronic record.	1. In a distributed and transparent validation network, payment authorisation could result in higher electricity consumption and higher transaction fees. 2. Not scalable to relatively high volumes of payments due to the computing power and time delay required to validate transactions.
<b>Monetary Policy</b>	Interest bearing digital currency: - Provides a direct transmission of monetary policy to households and firms. - Competes with private crypto-currencies to improve monetary policy effectiveness, in event of large take-up of private crypto-currencies.	Non-interest bearing digital currency creates a zero lower bound on monetary policy. The central bank would not be able to pursue a negative interest rate policy as the depositors would be able to convert their deposits into zero-interest bearing CBDC.

<b>Financial Stability</b>	None	1. Reduce bank resilience to economic downturns due to increased competition and lower profitability. 2. With the possibility of a reduced depositor base due to competition from interest-bearing CBDCs, some commercial banks could increase their reliance to overseas wholesale funding. Increase commercial bank reliance on overseas wholesale funding could accentuate susceptibility of banks to downturns in overseas markets. 3. Increase the probability and severity of bank runs during periods of system-wide instability.
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### 3.3. Countries that have adopted CBDCs

In 2015, Tunisia became one of the first countries in the world to issue a blockchain-based national currency called eDinar also known as Digicash and BitDinar. Ecuador, which officially banned Bitcoin in 2014, introduced *SISTEMA de Dinero Electronico*, its own digital currency. The Ecuadorian government aimed at saving money on replacing deteriorating physical money, instead of replacing cash altogether<sup>6</sup>. However the CBDC ultimately failed in garnering enough users. A study by Professor Lawrence H. White found that about 71% of the accounts opened remained inactive i.e. they were not used for making transactions.<sup>7</sup>

Venezuela launched its own oil-based cryptocurrency to circumvent US sanctions that had adversely impacted the economy.<sup>8</sup>

An experimental approach to CBDCs was also taken by Fedcoin in 2014, wherein in a blog post<sup>9</sup>, a proposal for a central bank digital currency was discussed. The proposal sought to address the issue of volatility associated with private virtual currencies. Since bitcoin and other virtual currencies operate in a decentralised, peer-to-peer network, their prices cannot be managed during times of fluctuating demand. Fedcoin seeks to address the challenge by reintroducing one central point of control. This is achieved by granting a central bank the ability to set the supply of tokens on a Fedcoin blockchain. This could allow the central bank to guarantee the one-to-one equivalence between digital Fedcoin tokens and physical banknotes. The creation and redemption of Fedcoins could be based on the public's preference between Fedcoin

<sup>6</sup>Max Raskin and David Yermack, "Digital currencies, decentralised ledgers, and the future of central banking", in: *Working PAPER 22238* (May 2016).

<sup>7</sup>Stephen O'Neal, "State-Issued Digital Currencies: The Countries Which Adopted, Rejected or Researched the Concept", in: (July 19, 2018), URL: <https://cointelegraph.com/news/state-issued-digital-currencies-the-countries-which-adopted-rejected-or-researched-the-concept> (visited on 12/06/2018).

<sup>8</sup>Rachelle Krygier, "Venezuela launches the "petro", its cryptocurrency", in: (Feb. 20, 2018), URL: [https://www.washingtonpost.com/news/worldviews/wp/2018/02/20/venezuela-launches-the-petro-its-cryptocurrency/?noredirect=on&utm\\_term=.6e7e0e1a994f](https://www.washingtonpost.com/news/worldviews/wp/2018/02/20/venezuela-launches-the-petro-its-cryptocurrency/?noredirect=on&utm_term=.6e7e0e1a994f) (visited on 12/06/2018).

<sup>9</sup>J.P. Konig, "Fedcoin", in: (2014), URL: <http://jpkoning.blogspot.com/2014/10/fedcoin.html>.

and banknotes in circulation. The protocol could be adjusted to enable a central bank to create new Fedcoins whenever it needs to meet cash to Fedcoin requests.

Monetary, regulatory, and technological considerations are essential for design of a CBDC. Furthermore, the introduction of central bank digital currency would require significant investment in infrastructure to create and maintain a digital currency network through accounts or through tokens.

### 3.4. Legal Framework for a proposed Central Bank Digital currency

In order to introduce a Central Bank Digital Currency for India, enabling provisions in the existing currency-related acts need to be examined.

#### Coinage Act

Section 6 of the *COINAGE Act* provides for coins which shall have the status of legal tender. Section 2(a) of this Act provides for a definition of 'coin':

*(A) "coin" MEANS ANY coin which is MADE of ANY METAL or ANY other MATERIAL STAMPED by the Government or ANY other AUTHORITY empowered by the Government in this BEHALF AND which is A LEGAL tender including commemorative coin AND Government of INDIA one rupee note.*

*EXPLANATION.- For the REMOVAL of doubts, it is hereby CLARIFIED THAT A "coin" does not include the credit CARD, debit CARD, POSTAL order AND e-money issued by ANY BANK, post office or FINANCIAL institution;*

It explicitly excludes "credit CARD, debit CARD, POSTAL order AND e-money issued by ANY BANK, post office or FINANCIAL institution" from the definition of coin. However, since the term 'bank' is not defined, it is not clear whether the definition also excludes digital money issued by the Central Bank as well. It is unclear whether Central Bank Digital Currency can be introduced as a 'coin' as defined in the *COINAGE Act*.

#### RBI Act

Section 25 of the *RBI Act* provides:

*"The design, form AND MATERIAL of BANK notes SHALL be such AS MAY be APPROVED by the CENTRAL Government AFTER CONSIDERATION of the recommendations MADE by the CENTRAL BOARD."*

A simple reading of this section shows that a bank note may be in any such form that the Central Government may approve. It does not provide for bank notes to be made of any specific material or technology. It does not even provide that a bank note must be in physical form.

The legal tender status of bank notes is provided in Section 26 of the *RBI Act*:

*"(1) Subject to the provisions of sub-section (2), every BANK note SHALL be LEGAL tender AT ANY PLACE in INDIA in PAYMENT or on ACCOUNT for the AMOUNT expressed therein, AND SHALL be GUARANTEED by the CENTRAL Government."*

This provides that every bank note shall have the status of legal tender in India.

A reading of Section 25 with sub-section (1) of Section 26 shows that in order to introduce a Central Bank Digital Currency, the procedure mentioned below may be followed:

1. The Central Board of the Reserve Bank of India must make a recommendation to the Central Government to declare Central Bank Digital Currency to be “bank note” within the meaning of Section 25 of the *RBI Act*.
2. The Central Government must approve Central Bank Digital Currency to be a “bank note”.
3. The approval must be notified in the Gazette of India. Central Bank Digital Currency shall have the status of legal tender on account of being a bank note, effective from the date specified in the notification.

### 3.5. Recommendations of the Committee

1. The Committee is of the view that it would be advisable to have an open mind regarding the introduction of an official digital currency in India.
2. It may be possible to visualise some models of future official digital currencies but as of date it is unclear whether there is clear advantage in the context of India to come up with a official digital currency. Hence, the Committee recommends that, if required, a Group may be constituted by the Department of Economic Affairs, with participation of the representatives of the RBI, MeitY and DFS for examination and development of an appropriate model of digital currency in India.
3. If, in due course of time, it is decided to issue a digital currency in India having the status of a legal tender, the Reserve Bank of India should be the appropriate regulator of such digital currency by virtue of its powers under Section 22 of the RBI Act.



## CHAPTER 4

# Distributed Ledger Technologies and potential for financial services

## 4.1. Possible use case of DLT for financial services

### 4.1.1. PAYMENTS

Payment systems often involve levels of intermediation that add costs. Distributed ledger technology can do away with the need for this intermediation. For example, Ripple developed a payment app along with 61 Japanese banks to settle payments instantly. Some of the major use cases for the technology have been in cross-border payments and micro-payments.

- Cross border payments generally take a few days to process, and commissions charged are high, particularly for smaller amounts. The use of blockchain can reduce the time taken and also the costs. However, Ripple has discovered that banks are unwilling to adopt the usual distributed ledgers for cross-border payments due to scalability and privacy issues, and the technology requires modifications in order to be scalable.<sup>1</sup> One modification is Ripple's interledger protocol, that connects distributed ledgers with centralised ledgers. In response, Swift, the current leading method of cross-border payments, has run tests on its own using blockchain technology. Visa and Mastercard have both launched their own blockchain payments networks for cross-border payments. These developments, and the continuing improvement of the technology, are important for India as the biggest receiver of remittances in the world.<sup>2</sup>
- Micro-payments are small value payments, usually in e-commerce and other digital applications. Distributed ledger technology can facilitate these small payments through "channels", where a set of these payments are collected and transferred at once. This reduces the transaction cost and effort required to make repeated small payments to different entities.

<sup>1</sup>Helen Partz, *Ripple: BANKS unlikely to APPLY BLOCKCHAIN for cross border PAYMENTS in NEAR future*, July 14, 2018, URL: <https://cointelegraph.com/news/world-bank-mandates-commonwealth-bank-of-australia-to-issue-bond-using-blockchain-tech>.

<sup>2</sup>Sodaksh Khullar, *Utilising BLOCKCHAIN for cross-border PAYMENTS: IMPLICATIONS for INDIA*, Feb. 28, 2018, URL: <https://www.orfonline.org/research/utilising-blockchain-for-cross-border-payments-implications-for-india/>.

### 4.1.2. KYC

Know Your Customer (KYC) requirements can involve extensive duplication of effort by various financial entities. Adding and updating proofs of identity to a blockchain can help in seamlessly sharing it with all concerned entities and reduce the costs of KYC process. Disparate information from various authorised sources could be directly fed into the blockchain, to reduce costs for the customer and the business. Date of birth data could be directly pulled from a birth registry, Income Tax returns can be continuously updated to the ledger, etc. These possibilities are contingent on the ability to develop the technology into a more private one, where identities cannot be compromised. Such developments are already taking place, with products such as the Enigma protocol, which allows entities to confirm whether a condition is true without actually reading the data.

### 4.1.3. LOAN ISSUANCE AND TRACKING

The major issue that blockchain can solve in lending is the constant updation of information and the need to apprise all parties of the authenticity of that information. The use of distributed ledger technology can reduce the time taken in negotiating a loan as well, as evidenced by the Spanish bank BBVA's experience in issuing a corporate loan using blockchain. The negotiation time was cut from days to hours. Many startups are exploring the use of blockchain in micro-lending as well, due to the ease of audit and significant operational efficiencies that the technology provides.

### 4.1.4. INSURANCE

Similar to lending, distributed ledger technology can eliminate some of the duplication required in insurance through the use of decentralisation, and strengthen verification, core to the insurance business model. In the *BLOCKCHAIN in INSURANCE: APPLICATIONS AND pursuing A PATH to ADOPTION* report, five application areas in insurance are outlined:

- Fraud detection and risk prevention: It is easier to identify duplicate transactions due to the immutability of transactions in a blockchain.
- Claims prevention and management: Claims information can be easily seen, updated and automatically shared with all relevant parties. Smart contracts could automatically trigger claims by detecting events.
- Internet of things (IoT) and product development: Data collected from IoT devices can be used to develop actuarial models or tailored products. For example, data on driving patterns can help identify high-risk drivers, leading to more fair premiums for all drivers.
- New distribution and payment models: Blockchain enabled mobile wallets can help consumers access all their information in one place, instantly.
- Re-insurance: Blockchain can increase transparency in the re-insurance market and keep all parties apprised of the holders of risk. Risk calculations can also be automatically updated as the data is updated.

Overall, distributed ledger technology can be used well in insurance when multiple, mutually distrusting parties require an intermediary and multiple uses of the same asset are possible.

### 4.1.5. Securities AND commodities

Distributed ledger technology can allow securities to be represented as part of a permissioned ledger, and fix some of the efficiency issues involved.

- In primary securities issuance, reconciliation takes a long time as everyone maintains their own version of the record. A distributed ledger can fix this issue. France has already issued a legal framework for using distributed ledger technology in unlisted securities.<sup>3</sup>
- A distributed ledger can enable real time clearing and settlement. The Australian Stock Exchange, Nasdaq and Toronto Stock Exchange are working on using a distributed ledger for their clearing and settlement functions.
- Distributed ledgers have also been used in commodities trading, with the first all-blockchain commodity trade taking place as a shipment of gasoline was traded between China and Singapore in April 2018.<sup>4</sup> Another example is the Energy Web Foundation, an open-source platform for peer-to-peer energy trading.

#### 4.1.6. COLLATERAL registries AND ownership registries

Absence of *RELIABLE ASSET registers* may lead to a situation of *LACK of proof of COLLATERAL*. Such lack of proof of collateral can be a big obstacle for *ACCESSING credit* which is based on the value of the collateral. Globally, only two billion people have a *title* which is *LEGAL, effective, and public* (regarding their control over an asset). Mostly, asset registries are managed through a *CENTRALISED* database or system. Centralised databases can get clogged specially in case of countries like India where the number of transactions are very high.

Distributed ledger technology has the potential to create a *DECENTRALISED ASSET registry* by using various stakeholders. These stakeholders can validate ownership and record them on a distributed ledger. Once such validations are recorded in a blockchain, the records become *IMMUTABLE AND VERIFIABLE* which may reduce the risk of *TAMPERING*. In cases where the underlying assets are *non-fixed* assets (such as *inventories* or *AGRICULTURAL produce stored in A WAREHOUSE*), distributed ledger technology can perform record-keeping functions which in turn may enhance *credit worthiness* of farmers who are currently outside the formal financing mechanisms.

There are *POTENTIAL APPLICATIONS* of distributed ledger technology in the agricultural sector along with other technologies such as geo-tagging. Some of the possible use cases can be to create a reliable record of provenance of raw materials, recording of specific metrics such as soil quality, weather condition and fertiliser usage etc.

##### 4.1.6.1. LAND registries AND property titles

Distributed ledger technology can be used to create a blockchain land registry. Establishing such blockchain land registry would require a robust *public key INFRASTRUCTURE*. Such a public key infrastructure can consolidate the current institutional infrastructure governing land registration and titles. This mechanism may require creation of a single department to manage land registration, record of rights and cadastral surveys (A cadastral survey means any activity that uses or generates cadastral evidence to produce an outcome whose primary purpose is boundary determination. The products of a boundary determination can be plans, certificates or digital data.)

<sup>3</sup>Clifford Chance, *Briefing Note: FRANCE pioneers BLOCKCHAIN LEGAL FRAMEWORK for unlisted securities*, 2018, URL: <https://www.cliffordchance.com/content/dam/cliffordchance/PDFDocuments/Client%5C%20Briefing%5C%20-%5C%20France%5C%20-%5C%20Blockchain%5C%20for%5C%20unlisted%5C%20securities%5C%20180750-4-2.pdf>.

<sup>4</sup>Molly Jane Zuckerman, *First ALL-BLOCKCHAIN commodity TRADE completed between CHINA AND SINGAPORE*, Apr. 2, 2018, URL: <https://cointelegraph.com/news/first-all-blockchain-commodity-trade-completed-between-china-and-singapore>.

Some of the potential benefits of a blockchain land registry can be the following:<sup>5</sup>

- **Cost effectiveness:** The initial implementation cost of the blockchain land registry may be high but it would provide a method of combining many processes and systems. Such consolidation of processes may increase efficiency through distributed processing which can reduce long-term costs.
- **Efficiency:** The use of blockchain land registry may reduce the number of intermediaries that exists currently in the land title regime. The tamper-proof nature of blockchain can also help in reducing corruption in the land title process.
- **TRANSPARENCY:** Registration of land records in the blockchain may lead to the possibility that the information in the registry is available to the wider public. Any attempt to tamper the blockchain can be countered by putting in place appropriate protocols.
- **EASING ADMINISTRATIVE burden:** Land or property related disputes are a major source of burden for the administrative officers. A robust land titling system can significantly reduce the number of land/ property related disputes. Such reduction in number of disputes can reduce the administrative burden significantly.

#### 4.1.7. E-STAMPING

Currently, the e-stamping system is operated by the Stock Holding Corporation of India Limited (SHCIL). The existing system of e-stamping works in the following manner:

- Step 1: Transacting parties need to visit the SHCIL website to check whether respective State Governments allow e-stamping.
- Step 2: Identify which kind of transactions require e-stamping and find out the address of the nearest Authorised Collection Centre (ACC) from the SHCIL website.
- Step 3: Transacting parties need to provide details of the transaction in the mandated application form.
- Step 4: After the application form is filled, the same needs to be submitted online or at the nearest ACC.
- Step 5: After submission of the filled application form, required stamp duty (for that particular transaction) need to be paid.
- Step 6: Once the accuracy of the provided details are verified, e-stamp is generated with a unique identification number. The generated e-stamp is subsequently stored by SHCIL.

In the above-mentioned e-stamping system, there are a few challenges which require to be addressed. These challenges are the following:

- In case the original e-stamp is lost, generation of duplicate e-stamp is a cumbersome process.
- High intermediation cost in case of cancellation or modification of e-stamps.
- Slower updation of records.
- Since all the e-stamps are stored in SHCIL, it is susceptible to cyber-security related threats.

<sup>5</sup>Meghna Bal, *Securing Property Rights in INDIA through Distributed Ledger Technology*, 2017, URL: [https://www.orfonline.org/wp-content/uploads/2017/01/ORF\\_OccasionalPaper\\_105\\_Blockchain\\_FinalForUpload.pdf](https://www.orfonline.org/wp-content/uploads/2017/01/ORF_OccasionalPaper_105_Blockchain_FinalForUpload.pdf) (visited on 08/10/2018).

These challenges may be addressed through the use of BCT. The usage of BCT has the potential to address the above-mentioned challenges in the following manner:

- As BCT uses a distributed ledger technology, generation of duplicate e-stamps are easier.
- BCT has the potential to significantly reduce the high intermediation costs associated with cancellation or modification of e-stamps.
- As BCT uses a distributed ledger technology, the updation of records across authorities may be seamless and faster.
- As BCT eliminates the need for a central record keeping agency, possible cyber-security threats can be significantly minimised.

#### 4.1.8. *POST-TRADE reporting*

Distributed ledger technology includes a *full AUDIT TRAIL* for each transaction. Due to the presence of such audit trails, distributed ledger technology can also facilitate more streamlined *POST-TRADE REGULATORY reporting*. In these kinds of distributed ledger, the appropriate regulators may also have their *own node* so that the regulatory reporting can be *comprehensive* as well as *AUTHENTIC*.

#### 4.1.9. *INTERNAL systems of FINANCIAL service providers*

Many of the multinational corporations/ financial institutions need to maintain *INTERNAL records* of various kinds of operational information across departments, subsidiaries and geographies. Currently, such information is maintained by organisations through large internal databases. The distributed ledger technology may have the potential to replace such internal databases which record information across various departments, subsidiaries, and geographies.

#### 4.1.10. *TRADE FINANCING*

Growth and sustenance of international trade depends on the easy availability and robustness of the financing mechanisms. Trade finance by banks and other financial institutions is a vital function as it provides delivery and payment assurance to buyers and sellers. Trade participants are vulnerable to business risks and uncertainties arising from various factors mentioned below:<sup>6</sup>

- Process inefficiencies
- Variance and fluidity of trade regulations and requirements across geographies
- Operational and logistical complexities
- Payment and delivery delays due to process overheads
- Lack of insights into movement of goods
- Required effort for counterparty due diligence and contractual compliance processes

For traders, these risks significantly increase costs which also results in unfavourable financing terms specially for small businesses. The distributed ledger technology may have the potential to change business processes by redefining *VALUE CHAIN INTERACTIONS*, *reducing OPERATIONAL complexity*, and *reducing TRANSACTION costs*. There are three key features of the distributed ledger technology which has the potential to cure the major pain points of the trade financing. These features are the following:

<sup>6</sup>Cognizant Reports, *The future of BLOCKCHAIN in ASIA PACIFIC*, Dec. 2017, URL: <https://www.cognizant.com/whitepapers/the-future-of-blockchain-in-asia-pacific-codex3240.pdf> (visited on 08/03/2018).

- *CRYPTOGRAPHIC security*: The underlying of the distributed ledger technology is cryptographic security. The cryptographic security ensures that all the information stored in the blockchain is credible and immutable i.e. trade transaction records stored on blockchain are tamper-proof, reliable and verifiable by all parties. The data confidentiality and privacy can also be maintained through permissioned access rights for trade participants.
- *Architecture of the distributed ledger technology*: The architecture of distributed ledger technology provides transaction transparency and traceability. This feature of the blockchain architecture increases visibility into asset status for merchandise tracking, enables automated execution of contractual obligations through smart contracts, and ensures networks are resilient to downtime and manipulation risks.
- *Network consensus MECHANISM*: The network consensus mechanism provides a single source of truth for enabling trade receivables and other payment obligations. This network consensus mechanism also reduces the possibility of double spending, fraud and the need for continuous reconciliation between trading and financing parties.<sup>7</sup>

The Reserve Bank of India has successfully tested blockchain technology for trade finance application. The Reserve Bank’s research arm-Institute for Development and Research in Banking Technology (IDRBT) worked with banks, regulators, financial institutions and clearing houses to evaluate the application of blockchain technology in trade finance and ‘Enhanced Information Payments’. The White Paper released by the IDRBT presents details of the validation exercise.<sup>8</sup>

Leading banks in India are also leveraging the blockchain technology to streamline their processes in relation to trade finance. Seven banks partnered with Infosys Finacle part of EdgeVerve Systems, a wholly-owned subsidiary of Infosys and developed India Trade Connect, blockchain based trade network in India. The blockchain based trade network is designed to streamline and digitise trade finance business processes including validation of ownership, certification of documents and making payments while working on a shared network.

## 4.2. DLT adoption and data localisation

The draft *DATA Protection Bill* framed by the Justice Srikrishna Committee proposes requirements for the localisation of certain personal data within the territory of India. In particular, it empowers the Central Government to notify “critical personal data” that can only be stored within the territory of India, and cannot be taken out of India. Such requirements may inhibit the uses of DLT in financial services being offered to Indian consumers. For example, the benefit of global or regional DLT-based services in trade financing, re-insurance and other similar services may not be available to Indian consumers if their data cannot be part of a regional or global DLT-based service. This may affect the ability of Indian manufacturers and consumers to benefit from the benefits of global supply chains and international services infrastructure in the medium to long-term.

<sup>7</sup>Reports, *The future of BLOCKCHAIN in ASIA PACIFIC*.

<sup>8</sup>See, Institute for Development and Research in Banking Technology, *White PAPER: APPLICATIONS of BLOCKCHAIN Technology to BANKING AND FINANCIAL Sector in INDIA*, 2017, URL: <http://www.idrbt.ac.in/assets/publications/Best%20Practices/BCT.pdf>.

### 4.3. Recommendations

1. The Committee recommends that the RBI examine the utility of using DLT based systems for enabling faster and more secure payment infrastructure, especially for cross-border payments.
2. The Committee recommends that blockchain based systems may be considered by MEITY for building a low-cost KYC system that reduces the need for duplication of KYC requirements for individuals.
3. The Committee is of the opinion that DLT-based systems can be used by banks and other financial firms for processes such as loan-issuance tracking, collateral management, fraud detection and claims management in insurance, and reconciliation systems in the securities market. The Committee therefore recommends that financial sector regulators examine the uses of DLT in processes that can be incorporated by banks, insurance companies, securities exchanges etc. in their functioning.
4. The Committee recommends that SEBI may evaluate use of DLT for IPOs and FPOs as an alternative to present system of issuances. The Committee also recommends that SEBI may examine whether the depository systems can move to DLT based system.
5. Similarly, DLT can be beneficial for removing errors and frauds in land markets if the technology is implemented for maintaining land records. The Committee therefore recommends that various state governments may examine the feasibility of using DLT for land-records management.
6. The Committee is of the view that DLT may be leveraged to improve the existing e-stamping system for the purposes of collection of stamp duty.
7. The Committee is of the opinion that data localisation requirements proposed in the draft Data Protection Bill may need to be applied carefully, including with respect to the storage of critical personal data so as to ensure that there is no adverse impact on Indian firms and Indian consumers who may stand to benefit from DLT-based services.



## Summary of Recommendations

### 1. Overview of Distributed Ledger Technology

- (a) The Committee believes that DLT is an important new and innovative technology, which will play a major role in ushering in of the digital age. The DLT can be of great benefit to India in several financial and non-financial areas. In finance, DLT can be particularly beneficial in the areas of trade financing, lowering the costs of personal identification for KYC related issues, and improving access to credit.
- (b) The Committee therefore recommends that the Department of Economic Affairs should identify uses of DLT and take necessary measures to facilitate the use of DLT in the entire financial field.
- (c) RBI, SEBI, IRDA, PFRDA and IBBI should also focus on DLT to explore building of appropriate regulations for development of DLT in their respective areas.
- (d) DLT can be used to reduce compliance costs for KYC requirements. MEITY may also explore the mechanisms through which customer information can be maintained on DLTs through a consent-based mechanism.
- (e) MEITY and GSTN will need to play a major technology supportive role for exploring and building the uses of DLT for enabling trade financing by enabling the growth of trade invoicing through DLT.
- (f) The Committee has proposed a specific legislation to promote and regulate use of DLT in the financial and associated fields.

### 2. Virtual Currencies

- (a) The Committee notes with serious concern mushrooming of cryptocurrencies almost invariably issued abroad and numerous people in India investing in these cryptocurrencies. All these cryptocurrencies have been created by non-sovereigns and are in this sense entirely private enterprises.
- (b) There is no underlying intrinsic value of these private cryptocurrencies. These private cryptocurrencies lack all the attributes of a currency. There is no fixed nominal value of these private cryptocurrencies i.e. neither act as any store of value nor they are a medium of exchange. Since their inception, cryptocurrencies have demonstrated extreme fluctuations in their prices. Therefore, the Committee is of clear view that the

private cryptocurrencies should not be allowed. These cryptocurrencies cannot serve the purpose of a currency. The private cryptocurrencies are inconsistent with the essential functions of money/currency, hence private cryptocurrencies cannot replace fiat currencies.

- (c) A review of global best practises also shows that private cryptocurrencies have not been recognised as a *LEGAL tender* in any jurisdiction.
- (d) The Committee recommends that all private cryptocurrencies, except any cryptocurrency issued by the State, be banned in India.
- (e) The Committee endorses the stand taken by the RBI to eliminate the interface of institutions regulated by the RBI from cryptocurrencies. The Committee also recommends that all exchanges, people, traders and other financial system participants should be prohibited from dealing with cryptocurrencies.
- (f) Accordingly, the Committee has recommended a law banning the cryptocurrencies in India and criminalising carrying on of any activities connected with cryptocurrencies in India.
- (g) The Committee also recommends the Government may consider establishing a Standing Committee to take into account the technological developments globally and within the country and also the views of global standard setting bodies. The Standing Committee could revisit the issues addressed in the report as and when needed.

### 3. Central Bank Digital Currency

- (a) The Committee is of the view that it would be advisable to have an open mind regarding the introduction of an official digital currency in India.
- (b) It may be possible to visualise some models of future official digital currencies but as of date it is unclear whether there is clear advantage in the context of India to come up with a official digital currency. Hence, the Committee recommends that, if required, a Group may be constituted by the Department of Economic Affairs, with participation of the representatives of the RBI, MeitY and DFS for examination and development of an appropriate model of digital currency in India.
- (c) If, in due course of time, it is decided to issue a digital currency in India having the status of a legal tender, the Reserve Bank of India should be the appropriate regulator of such digital currency by virtue of its powers under Section 22 of the RBI Act.

### 4. Uses of DLT for other financial services

- (a) The Committee recommends that the RBI examine the utility of using DLT based systems for enabling faster and more secure payment infrastructure, especially for cross-border payments.
- (b) The Committee recommends that blockchain based systems may be considered by MEITY for building a low-cost KYC system that reduces the need for duplication of KYC requirements for individuals.
- (c) The Committee is of the opinion that DLT-based systems can be used by banks and other financial firms for processes such as loan-issuance tracking, collateral management, fraud detection and claims management in insurance, and reconciliation systems in the securities market. The Committee therefore recommends that financial sector regulators examine the uses of DLT in processes that can be incorporated by banks, insurance companies, securities exchanges etc. in their functioning.



- (d) The Committee recommends that SEBI may evaluate use of DLT for IPOs and FPOs as an alternative to present system of issuances. The Committee also recommends that SEBI may examine whether the depository systems can move to DLT based system.
- (e) Similarly, DLT can be beneficial for removing errors and frauds in land markets if the technology is implemented for maintaining land records. The Committee therefore recommends that various state governments may examine the feasibility of using DLT for land-records management.
- (f) The Committee is of the view that DLT may be leveraged to improve the existing e-stamping system for the purposes of collection of stamp duty.
- (g) The Committee is of the opinion that data localisation requirements proposed in the draft Data Protection Bill may need to be applied carefully, including with respect to the storage of critical personal data so as to ensure that there is no adverse impact on Indian firms and Indian consumers who may stand to benefit from DLT-based services.



CHAPTER 6

Banning of Cryptocurrency &  
Regulation of **Official** Digital  
Currency Bill, 2019

# Banning of Cryptocurrency &

## Regulation of Official Digital Currency Bill, 2019

### ARRANGEMENT OF CLAUSES

#### CLAUSES

### **PART I PRELIMINARY AND DEFINITIONS**

#### CHAPTER 1

##### SHORT TITLE, EXTENT AND APPLICATION

1. Short title, application and commencement.

#### CHAPTER 2

##### DEFINITIONS

2. Definitions.

### **PART II GENERAL PROHIBITION**

CHAPTER 3  
ACTIVITIES PROHIBITED UNDER THIS ACT

3. Prohibited transactions.

**PART III REGULATION OF DIGITAL RUPEE  
AND FOREIGN DIGITAL CURRENCY**

CHAPTER 4  
REGULATION OF DIGITAL RUPEE AS LEGAL TENDER AND CURRENCY, AND  
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4. Digital Rupee as legal tender and currency.
5. Foreign digital currency as foreign currency.

CHAPTER 5  
PROHIBITION ON USE OF CRYPTOCURRENCY

6. Cryptocurrency not to be used as legal tender and currency.
7. Prohibition on use of Cryptocurrency for certain activities.

CHAPTER 6  
OFFENCES UNDER THIS PART

8. Offences.
9. Attempt to commit offences, abetting and contravention of other provisions of the Act to be punishable.
10. Maximum amount of fine

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11. Investigation.

**PART V PENALTIES AND  
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CHAPTER 8

PENALTIES AND CONDUCT OF PROCEEDINGS UNDER THIS ACT

12. Penalties.
13. Cognizance of offences by Court
14. Factors to be considered for punishment.
15. Compounding of offences.
16. Power to grant immunity.

## **PART VI MISCELLANEOUS**

17. Violations by bodies corporate.
18. Protection of action taken in good faith.
19. Act to have overriding effect.
20. Application of other laws not barred.
21. Power of Central Government to make Rules.
22. Laying of rules.
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24. Power of Central Government to remove difficulties.
25. Power to exempt
26. Transition provisions.
27. Amendment to certain enactments.

### **THE FIRST SCHEDULE**

### **THE SECOND SCHEDULE**

### **THE THIRD SCHEDULE**

# Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019

BE it enacted by Parliament in the Year of the Republic of India as follows: —

*An Act to prohibit the use of Cryptocurrency, regulate the Official Digital Currencies and for matters connected therewith or incidental thereto.*

PART I  
**PRELIMINARY AND DEFINITIONS**

CHAPTER 1

SHORT TITLE, EXTENT AND APPLICATION

1. (1) This Act shall be called the Banning of Cryptocurrency and Regulation of Official Digital Currency Act, 2019.

(2) It extends to the whole of India.

(3) It shall come into force on such date as may be appointed by the Central Government through notification in the official gazette.

CHAPTER 2

DEFINITIONS

**Definitions.**

2. (1) In the Act, unless the context otherwise requires, -

(a) "Cryptocurrency", by whatever name called, means any information or code or number or token not being part of any Official Digital Currency, generated through cryptographic means or otherwise, providing a digital representation of value which is exchanged with or without consideration, with the promise or representation of having inherent value in any business activity which may involve risk of loss or an expectation of profits or income, or functions as a store of value or a unit of account and includes its use in any financial transaction or investment, but not limited to, investment schemes;

(b) "Central Board" means the Central Board of Directors of the Reserve Bank as defined under section 2(b) of the Reserve Bank of India Act, 1934 (Act. No. 2 of 1934);

(c) "currency" means currency as defined under sub-section (i) of Section 2 of the Foreign Exchange Management Act, 1999 (Act No. 42 of 1999);

(d) "Digital Rupee" means a form of currency issued digitally by the Reserve Bank and approved by the Central Government to be legal tender;

(e) "Distributed Ledger Technology" means any technology that enables transactions and data to be recorded, shared, and synchronized across multiple data stores or ledgers, or a distributed network of different network participants, through the use of independent computers (referred to as nodes) who record, share and synchronize such transactions and data in their respective electronic ledgers (instead of keeping data centralized as in the case of a traditional ledger);

(f) "foreign currency" means foreign currency as defined under section 2(m) of the Foreign Exchange Management Act, 1999 (Act No. 42 of 1999);

(g) "foreign digital currency" means any class, category or type of digital currency recognised as legal tender in a foreign jurisdiction;

(h) "investment scheme" means a scheme or arrangement in which any person invests in a common enterprise with the expectation of profit which is derived from significant effort of third parties;

(i) "Investigating Authority" means a police officer not below the rank of Deputy Superintendent of Police;

(j) "miner" means a person who engages in mining of a Cryptocurrency;

(k) "mining" means an activity aimed at creating a Cryptocurrency and/or validating a transaction of Cryptocurrency between buyer and seller of Cryptocurrency;

(l) "notification" means by notification in the Official Gazette and the term "notify" and "notified" shall be construed accordingly;

(m) "Official Digital Currency" means the Digital Rupee or the foreign digital currency under sub-section 1 of Section 5;

(n) "payment system" shall have the same meaning set out in clause (i) of sub-section (1) of Section 2 of the Payments and Settlement Systems Act, 2007 (51 of 2017);

(o) "person" includes -

- (i) an individual,
- (ii) a Hindu Undivided Family,
- (iii) a company,
- (iv) a firm,
- (v) a trust,
- (vi) a limited liability partnership,
- (vii) an association of persons or a body of individuals, whether incorporated or not,
- (viii) any other entity or authority established under a statute,
- (ix) every artificial juridical person, not falling within any of the preceding sub-clauses, and
- (x) any agency, office or branch owned or controlled by such person;

(p) "prescribe" means prescribed through rules by the Central Government under this Act, and the term "prescribed" will be construed accordingly; and

(q) "Reserve Bank" means the Reserve Bank of India, as constituted under sub-section (1) of section 3 of the Reserve Bank of India Act, 1934 (Act No. 2 of 1934).

## PART II

# GENERAL PROHIBITION

## CHAPTER 3

## ACTIVITIES PROHIBITED UNDER THIS ACT

### **Prohibited transactions.**

3. (1) No person shall mine, generate, hold, sell, deal in, issue, transfer, dispose of or use Cryptocurrency in the territory of India.
- (2) Nothing in this Act shall apply to any person using technology or processes underlying any Cryptocurrency for the purpose of experiment or research, including imparting of instructions to pupils provided that no cryptocurrency shall be used for making or receiving payment in such activity.
- (3) Nothing in this Act shall apply to the use of Distributed Ledger Technology for creating a network for delivery of any financial or other services or for creating value, without involving any use of cryptocurrency, in any form whatsoever, for making or receiving payment.

## PART III

# REGULATION OF DIGITAL RUPEE AND FOREIGN DIGITAL CURRENCY

## CHAPTER 4

### REGULATION OF DIGITAL RUPEE AS LEGAL TENDER AND CURRENCY AND REGULATION OF FOREIGN DIGITAL CURRENCY

#### **Government authorised Cryptocurrency as legal tender and currency.**

4. (1) The Central Government, in consultation with the Central Board of the Reserve Bank, may approve Digital Rupee to be legal tender with effect from such date and to such extent as may be specified.
- (2) The Digital Rupee shall be governed by such regulations as may be notified by the Reserve Bank under the relevant provisions of the Reserve Bank of India Act, 1934 (Act No. 2 of 1934).

#### **Foreign digital currency as foreign currency.**

5. (1) The Reserve Bank may by notification declare any official foreign digital currency to be recognised as foreign currency in India to the extent specified in the notification.
- (2) The foreign digital currency recognized as foreign currency in India shall be governed by such regulations as may be notified by the Reserve Bank under the relevant provisions of the Foreign Exchange Management Act, 1999 (Act No. 42 of 1999).

## CHAPTER 5

### PROHIBITION ON USE OF CRYPTOCURRENCY

#### **Cryptocurrency not to be used as legal tender and currency.**

6. (1) No person shall directly or indirectly use Cryptocurrency in any manner, including, as, -
  - (a) a medium of exchange; and/or

(b) a store of value; and/or

(c) a unit of account.

(2) Cryptocurrency shall not be used as legal tender or currency at any place in India.

**Prohibition on use of Cryptocurrency for certain activities.**

7. (1) No person shall directly or indirectly use Cryptocurrency for activities including, the following-

- (a) as a payment system, whether authorised under Section 4 of the Payments and Settlement Systems Act, 2007 (51 of 2017) or otherwise;
- (b) buy or sell or store Cryptocurrency;
- (c) provide Cryptocurrency related services to consumers or investors which includes registering, trading, settling, clearing or other services;
- (d) trade Cryptocurrency with Indian currency or any foreign currency;
- (e) issue Cryptocurrency related financial products;
- (f) as a basis of credit;
- (g) issue cryptocurrency as a means of raising funds; and/or
- (h) as a means for investment.

**CHAPTER 6**

**OFFENCES**

**Offences.**

8. (1) Whoever directly or indirectly mines, generates, holds, sells, deals in, transfers, disposes of or issues Cryptocurrency or any combination thereof with an intent to use it for any of the purposes mentioned in, or directly or indirectly uses Cryptocurrency for any of the activities mentioned in, clauses (e), (g) and/or (h) of sub-section (1) of Section 7 shall be punishable with fine or with imprisonment which shall not be less than one year but which may extend up to ten years, or both:

*Provided* however that any direct or indirect acquisition, storage or disposal of Cryptocurrency for the purposes mentioned in sub-section (4) of section 8 shall be punishable in the manner set out therein.

(2) Whoever directly or indirectly mines, generates, holds, sells, deals in, transfers, disposes of or issues Cryptocurrency or any combination thereof with an intent to use it for any of the purposes mentioned in, or directly or indirectly uses Cryptocurrency for any of the activities mentioned in, subsection (1) of Section 7 or clauses (a), (b), (c), (d) and/or (f) of sub-section (1) of Section 7 shall be punishable with fine or imprisonment which may extend up to ten years or both:

*Provided* however that any direct or indirect acquisition, storage or disposal of Cryptocurrency for the purposes mentioned in sub-section (4) of section 8 shall be punishable in the manner set out therein.

(3) Whoever directly or indirectly promotes, issues any advertisement, solicits, **abets** or induces any participation in any activity involving the use of Cryptocurrency for any of the purposes or activities mentioned in sub-section (1) of Section 6 or sub-section (1) of Section 7 shall be punishable with fine or imprisonment which may extend up to seven years or both.

(4) Whoever directly or indirectly acquires, stores or disposes of Cryptocurrency or any combination thereof with an intent to use it for any of the purposes provided in sub-section (1) of section 6 or sub-section (1) of section 7 on a non-commercial basis shall be punishable with a fine.

**Attempt to commit offences, abetting and contravention of other provisions of the Act to be punishable.**

9. (1) Whoever having been previously convicted of an offence punishable under this Act, is subsequently convicted of an offence shall be punishable with imprisonment for a term which shall not be less than five years but which may extend to ten years and with fine.

(2) Whoever attempts to commit an offence punishable by this Act or causes such an offence to be committed, and in such an attempt does any act towards the commission of the offence, shall, where no express provision is made for the punishment of such offence, be punished with imprisonment of any description provided for the offence, for a term which may extend to one half of the longest term of imprisonment provided for that offense, or with such fine as is provided for the offence or with both.

(3) Whoever fails to comply with any provisions of this Act, including any rules made or any notifications issued thereunder in a manner which does not fall within offences described in other sections, shall be liable to a fine

**Maximum amount of fine.**

10. (1) For the purposes of Sections 8 and 9, the maximum amount of fine that may be imposed upon a person for an offence shall be as follows:

(a) the higher of, –

(i) three times the loss or harm caused by the person; or

(ii) three times the gain made by the person.

(b) If the loss caused or the gain made by the person cannot be reasonably determined, the maximum amount of fine that may be imposed on such persons shall be as specified in First Schedule as against each of the offences under Sections 8 and 9.

PART IV

POWERS OF THE INVESTIGATING AUTHORITY

CHAPTER 7

POWERS OF INVESTIGATION

**Investigation.**

11. (1) Notwithstanding anything contained in the Code of Criminal Procedure, 1973, the Investigating Authority shall investigate any offence under this Act.

*Provided that* the Central Government may notify appropriate levels of police officer for investigation of offences specified under this law.

(2) Save as provided in sub-section (1) of Section 11, every search or seizure made under this section shall be carried out in accordance with the provisions of the Code of Criminal Procedure, 1973 (2 of 1974)

relating to searches or seizures made under that Code.

## PART V

# PENALTIES AND PROCEEDINGS

## CHAPTER 8

### PENALTIES AND PROCEEDINGS UNDER THIS ACT

#### **Penalties.**

12. (1) Notwithstanding anything contained in the Code of Criminal Procedures, 1973, all offences under section 8 and section 9, other than offences under sub-section (1) of section 8, shall be non-cognisable and bailable. Offences under sub-section (1) of section 8 shall be cognisable and non-bailable.

(2) If any conduct is punishable under any other law, this Act will be in addition to and not in derogation of such law.

#### **Cognizance of offences by court.**

13. (1) No court shall take cognizance of any non-cognisable offence punishable under this Act or any rules made thereunder, save on a complaint made by the Central Government or State Government or by any person.

(2) Notwithstanding anything contained in the Criminal Procedure Code, 1973, an offence under this Act can be taken cognizance of and tried only by, a court not inferior to a Court of Session having jurisdiction over the area in which the offence is committed.

(3) The Central Government, State Government, any appropriate authority or entity established under statute, or any other investigation agency shall share any information or documents relating to any offence under this Act, with the Investigating Authority.

(4) Save as otherwise provided in this Act, the provisions of the Code of Criminal Procedure, 1973 shall apply to all proceedings before the Court, including proceedings for compounding.

#### **Factors to be considered for punishment.**

14. (1) The Court shall take into account the following factors while determining the appropriate period of imprisonment and fine for an offence -

- (a) the culpability of the person accused of committing the offence;
- (b) the actual and intended gains made and loss caused;
- (c) the harm caused to the financial system;
- (d) mitigating factors; and
- (e) the repetitive nature of the offence.

#### **Compounding of offences.**

15. (1) Notwithstanding anything contained in the Code of Criminal Procedure, 1973 (Act No. 2 of 1974), any offence punishable under this Act, not being an offence punishable with imprisonment only or punishable with imprisonment and also with fine, may be compounded, before or after the institution of proceedings, by the Court in which the proceedings are pending.

(2) The Court may compound an offence only on payment by the person applying for compounding, of the specified fee, not exceeding the maximum fine which may be imposed in respect of that class of offences.

(3) Where the Court compounds any offence, –

(a) the court shall give notice of such compounding to the Investigating Authority;

(b) where the offence is compounded before the institution of criminal proceedings, the Investigating Authority must not institute or pursue any proceedings arising out of the cause of action in respect of which compounding has been effected; and

(c) where the offence is compounded after the institution of criminal proceedings, the person in relation to whom the offence is compounded is deemed to be discharged of the offence so compounded.

(4) The Court shall transfer any fee recovered under this section to the Consolidated Fund of India.

#### **Power to grant immunity.**

16. (1) The Central Government may, on recommendation by the Investigating Authority, but without being bound by such recommendation, if the Central Government is satisfied, that any person, who is alleged to have violated any of the provisions of this Act or the rules made there under, has made a full and true disclosure in respect of alleged violation, grant to such person, subject to such conditions as it may think fit to impose, immunity from prosecution for any offence under this Act, or the rules made there under or also from the imposition of any fine under this Act with respect to the alleged violation:

*Provided* that no such immunity shall be granted by the Central Government in cases where the proceedings for the prosecution for any such offence have been instituted before the date of receipt of application for grant of such immunity:

(2) An immunity granted to a person under sub-section (1) may, at any time, be withdrawn by the Central Government, if it is satisfied that such person had, in the course of the proceedings, not complied with the condition on which the immunity was granted or had given false evidence, and thereupon such person may be tried for the offence with respect to which the immunity was granted or for any other offence of which he appears to have been guilty in connection with the contravention and shall also become liable to the imposition of any fine or imprisonment or both under this Act to which such person would have been liable, had such immunity not been granted.

## **PART VI**

# **MISCELLANEOUS**

#### **Violations by bodies corporate.**

17. (1) Where a violation under this Act has been committed by a body corporate, every officer of the body corporate who at the time the violation was committed, was in charge of, and was responsible to, the body corporate for the conduct of the business of the body corporate, as well as the body corporate, shall be liable for the commission of the violation;

Provided that an officer of a body corporate shall not be liable to be proceeded against for a violation committed by the body corporate under this Act, unless such violation is, –

- (a) shown to have been committed with the consent or connivance of that officer;
  - (b) shown to have been committed with the knowledge of that officer, attributable to such officer due to the internal processes of the body corporate; or
  - (c) attributable to the gross neglect on the part of the officer.
- (2) Any criminal proceedings or enforcement action against either the officer or the body corporate shall not bar proceedings against the other.
- (3) In this section, “officer” includes director, member of the managing committee, chief executive, manager, secretary, individuals in control, and persons who purport to be officers with the knowledge of the body corporate.

**Protection of action taken in good faith**

18. No suit, prosecution or other legal proceedings shall lie against the Central Government, the State Government or their officers and employees, for anything which is done, or intended to be done, in good faith under this Act.

**Act to have overriding effect**

19. The provisions of this Act shall have effect notwithstanding anything inconsistent therewith contained in any other law for the time being in force.

**Application of other laws not barred**

20. The provisions of this Act are in addition to, and not in derogation of, the provisions of any other law for the time being in force.

**Power of Central Government to make rules.**

21. (1) The Central Government may, by notification, make rules for the purpose of giving effect to the objects of this Act.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for-

- (a) the manner of declaration and disposal of Cryptocurrency under Section 25;
- (b) any other matter which is required to be, or may be prescribed, or in respect of which provision is to be made by rules.

**Laying of rules.**

22. Every rule made under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree to make any modification in the rule or both Houses agree that the rule should not be made, the rule shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

**Power to amend Schedules.**

23. (1) The Central Government may, by notification, amend the First Schedule by amending the amount of fine,

including the maximum amount of fine, applicable to a particular offence and on and from the date of publication of such notification, such fine shall be deemed to be amended or, as the case may be, omitted from the First Schedule.

(2) A copy of every notification proposed to be issued under sub-section (1), shall be laid in draft before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in disapproving the issue of the notification or both Houses agree in making any modification in the notification, the notification shall not be issued or, as the case may be, shall be issued only in such modified form as may be agreed upon by both the Houses.

**Power of Central Government to remove difficulties.**

24. (1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order, published in the official gazette, make provisions as may appear to it to be necessary for removing the difficulty;

Provided that the Central Government shall not notify any provision that is inconsistent with the provisions, intent or purpose of this Act.

(2) The power of the Central Government to issue orders under this Section may be exercised at any time prior to the expiry of three years from the notification of the relevant provision.

(3) The Central Government must lay every order made under this Section before each House of Parliament, as soon as may be possible, after it is made.

(4) The provisions of section 22 shall apply to every order made under this section, as if such order were a rule made by the Central Government.

**Power to exempt.**

25. (1) If the Central Government is satisfied that it is necessary in the public interest to do so, it may, by notification, exempt generally or subject to such conditions as may be specified in the notification, activities of any specified description from the whole or any part of the provisions of section 3 of this Act.

(2) The provisions of sub-section (2) of section 23 shall apply to every notification made under this section.

**Transition provisions.**

26. (1) Any person shall, on or after the date of commencement of this Act but on or before the expiry of ninety days from the date of commencement, make a declaration in respect of Cryptocurrency in such person's possession and shall dispose of the same within the aforesaid period.

(2) The Central Government may, through rules, prescribe the form and manner of declaration and disposal of such Cryptocurrency, including any matters connected or incidental thereto, as may be required to be declared by such person under this section.

**Amendment to certain enactments.**

27. The enactments specified in the Second Schedule shall be amended in the manner specified therein.

## THE FIRST SCHEDULE

[(See Section 10)]

<b>Offence</b>	<b>Fine</b>
Under section 8(1)	Upto Rs. 25 crores
Under section 8(2)	Upto Rs. 25 crores
Under section 8(3)	Upto Rs. 25 lakhs
Under section 8 (4)	Upto Rs. 1 lakh
Under section 9 (1)	Upto Rs. 50 crores
Under section 9 (4)	Upto Rs. 25 crores

## THE SECOND SCHEDULE

[(See Section 26)]

### AMENDMENT TO CERTAIN ENACTMENTS

#### AMENDMENT TO THE PREVENTION OF MONEY LAUNDERING ACT, 2002

In the Prevention of Money Laundering Act, 2002, in the Schedule, in Part A, after Paragraph 29, the following Paragraph shall be inserted, namely:

#### PARAGRAPH 30

#### OFFENCES UNDER THE BANNING OF CRYPTOCURRENCY AND REGULATION OF OFFICIAL DIGITAL CURRENCY ACT, 2019

Section	Description of offence
8(1)	<p>Whoever directly or indirectly mines, generates, holds, sells, deals in, transfers, disposes of or issues Cryptocurrency or any combination thereof with an intent to use it for any of the purposes mentioned in, or directly or indirectly uses Cryptocurrency for any of the activities mentioned in, clauses (e), (g) and/or (h) of sub-section (1) of Section 7 shall be punishable with fine or with imprisonment which shall not be less than one year but which may extend up to ten years, or both:</p> <p><i>Provided</i> however that any direct or indirect acquisition, storage or disposal of Cryptocurrency for the purposes mentioned in sub-section (4) of section 8 shall be punishable in the manner set out therein.</p>
8(2)	<p>Whoever directly or indirectly mines, generates, holds, sells, deals in, transfers, disposes of or issues Cryptocurrency or any combination thereof with an intent to use it for any of the purposes mentioned in, or directly or indirectly uses Cryptocurrency for any of the activities mentioned in, subsection (1) of Section 6 or clauses (a), (b), (c), (d) and/or(f) of sub-section (1) of Section 7 shall be punishable with fine or imprisonment which may extend up to ten years or both:</p> <p><i>Provided</i> however that any direct or indirect acquisition, storage or disposal of Cryptocurrency for the purposes mentioned in sub-section (4) of section 8 shall be punishable in the manner set out therein.</p>

8(3)	<p>Whoever directly or indirectly promotes, issues any advertisement, solicits or induces any participation in any activity involving the use of Cryptocurrency for any of the purposes or activities mentioned in sub-section (1) of Section 6 or sub-section (1) of Section 7 shall be punishable with fine or imprisonment which may extend up to seven years or both.</p>





CHAPTER A

# Annexures

## A.1. Annexure-A: Constitution of the Committee

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F.No.7/2/2014-Cy.II  
Government of India  
Ministry of Finance  
Department of Economic Affairs

North Block, New Delhi  
Dated the 2<sup>nd</sup> November, 2017

**OFFICE ORDER**

**Subject: Constitution of a Committee to review the framework related to digital payments**

With the approval of the Hon'ble Finance Minister, a Committee is constituted to study the issues related to Virtual Currencies and propose specific action to be taken in this matter. The composition of the Committee is as follows:

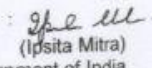
1. Shri Subhash Chandra Garg	Secretary, Department of Economic Affairs	- Chairman
2. Shri Ajay Prakash Sawhney	Secretary, Ministry of Electronics and Information Technology	- Member
3. Shri Ajay Tyagi	Chairman, Securities and Exchange Board of India	- Member
4. Shri B.P. Kanungo	Deputy Governor, Reserve Bank of India	- Member

2. The Chairperson may co-opt any such additional person(s) as invitees as necessary for any other meeting(s) of the Committee.

3. The Committee would meet as frequently as necessary for fulfilment of its Objectives.

4. The NIPFP-DEA program team will be the secretariat for the Committee.

5. This issues with the approval of Competent Authority.

  
 (Ipsita Mitra)  
 Under Secretary to the Government of India  
 Tel. 23092707  
 Email: mitra.ipsita@nic.in

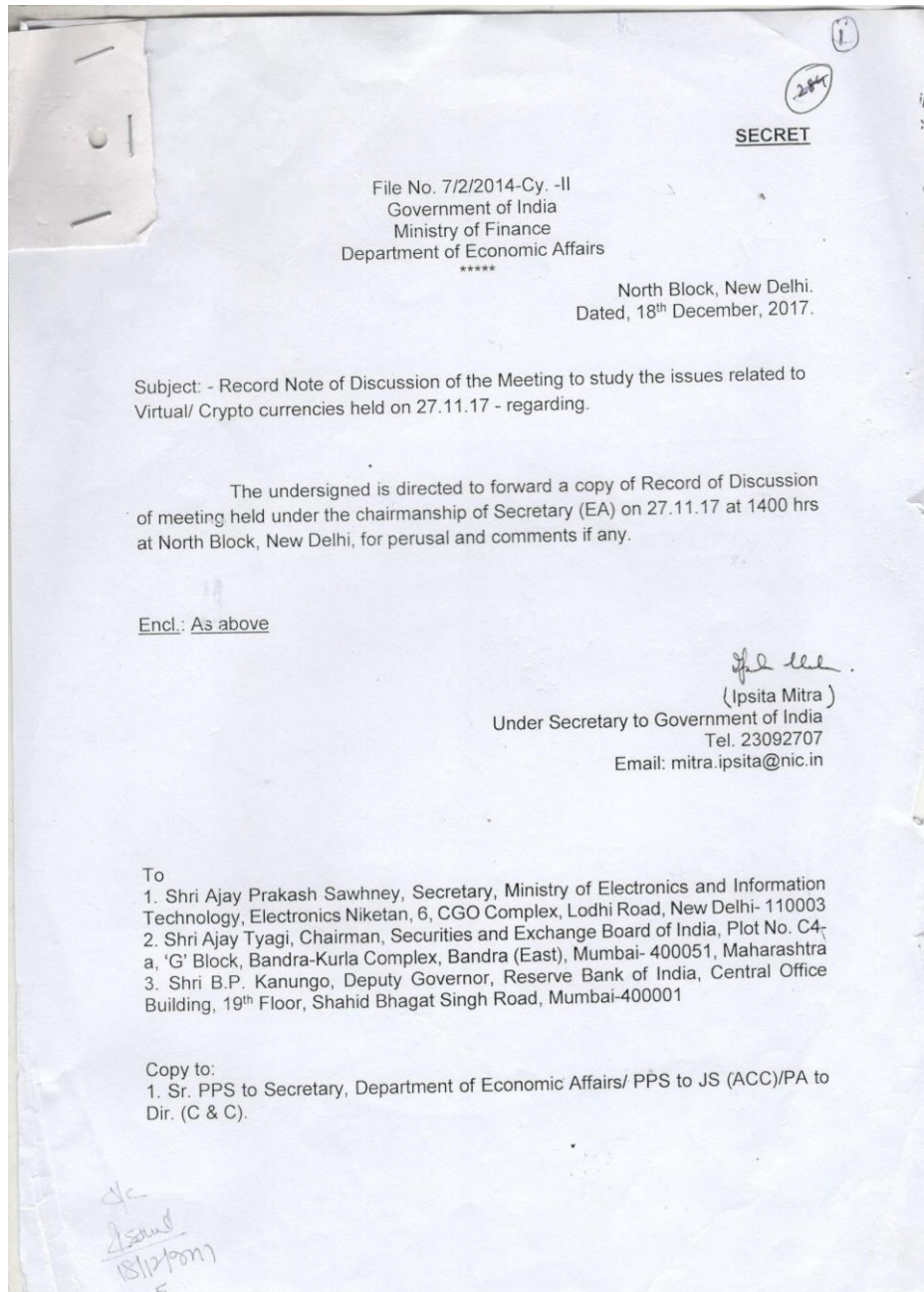
To

1. Shri Ajay Prakash Sawhney, Secretary, Ministry of Electronics and Information Technology
2. Shri Ajay Tyagi, Chairman, Securities and Exchange Board of India
3. Shri B.P. Kanungo, Deputy Governor, Reserve Bank of India

Copy to:

1. Sr. PPS to Secretary, Department of Economic Affairs
2. Director, National Institute of Public Finance and Policy

## A.2. Annexure-B: Record of discussion of the meeting to study the issues related to Virtual/ Crypto currencies



**SECRET****RECORD OF DISCUSSION OF THE MEETING ON 27.11.2017**

The Committee consisting Secretary DEA, DG, RBI, Secretary, MeitY and Chairman, SEBI met under the Chairmanship of Shri Subhash Chandra Garg, Secretary (EA), Department of Economic Affairs on 27.11.2017 at 2:00 p.m. The list of Participants is annexed at 'A'.

2. Chairman after underlying the terms of reference of the Committee, emphasized that the Committee needs to discuss and develop understanding of two key aspects:-

- I. How to gainfully use the block-chain technology in Indian monetary/Currency management.
- II. How to deal with the phenomenon of Virtual/Crypto currency.

3. During the discussion, there was agreement on following aspects:-

- I. VC's cannot be treated as 'currency' as a currency is only which is backed by Governmental fiat. Additionally, the virtual currencies are not at all suitable for a key currency function- storing of wealth. It was decided to find ways how to ensure that crypto currencies do not use appellation- currency or coin in India.
- II. The crypto 'currencies' have developed quite a substantial presence in the market. There are exchanges and market intermediaries, investors have made lot of gains though there might be crash which may wipe out these gains and leave lot of investors with losses. For taxing the gains the Income Tax Department treats these gains as taxable irrespective of its legal status.
- III. The banning option is very difficult to implement. It may also drive some operators underground which may encourage use of such 'currencies' for illegitimate purposes.
- IV. The nature of such 'currencies' – commodities/financial asset/ others need to be determined before any view about appropriately regulating these.
- V. There is a real danger of gullible public being duped by this phenomenon and therefore there is need for RBI/Gol to issue appropriate advisories to people.

4. It was decided that a paper developing the above understanding within a period of four weeks and the same would be considered in the next meeting of the Committee.

5. The development in some countries for using block chain technology for issuing legal digital currency with Government fiat were also discussed. It was felt that RBI may study this matter more carefully and present options to move ahead.

For preparation of paper, if necessary outside technical help may be availed.

The meeting ended with the Vote of Thanks to the Chair.

### A.3. Annexure-C: Record note of discussion of the meeting on virtual currency

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No.7/2/2014-Cy.II  
Government of India  
Ministry of Finance  
Department of Economic Affairs

North Block, New Delhi.  
Dated, the 06<sup>th</sup> March, 2018.

#### OFFICE MEMORANDUM

Subject: - Record Note of Discussion of the Meeting on Virtual Currency-regarding.

The undersigned is directed to forward a copy of Record of Discussion of meeting held under the chairmanship of Secretary (EA) on 22<sup>nd</sup> February, 2018 at 1600 hrs at North Block, New Delhi on the above mentioned subject.

Encl.: As above

  
(Ipsita Mitra)  
Under Secretary to Government of India  
Tel. 011 - 23092707  
e-mail: mitra.ipsita@nic.in

To

1. Shri Ajay Prakash Sawhney, Secretary, Ministry of Electronics and Information Technology, Electronics Niketan, 6, CGO Complex, Lodhi Road, New Delhi-110003
2. Shri Ajay Tyagi, Chairman, Securities and Exchange Board of India, Plot No. C4-a, 'G' Block, Bandra-Kurla Complex, Bandra (East), Mumbai-400051, Maharashtra
3. Shri Sushil Chandra, Chairman CBDT
4. Shri B.P. Kanungo, Deputy Governor, Reserve Bank of India, Central Office Building, 19<sup>th</sup> Floor, Shahid Bhagat Singh Road, Mumbai-400001
5. Ms Mamta Bansal, Director, CBDT
6. Shri Narendra Kumar Bhola, DG, Ministry of Corporate Affairs
7. Ms Madhabi Puri Bach, Whole Time Member, SEBI
8. Shri Anant Barua, ED, SEBI
9. Shri Varun Shivhare, SEBI

Copy to:  
Senior PPS to Secretary (EA)/ PS to AS (EA)/PS to Joint Secretary (ACC)/PA to Dir. (C&C)

  
6/3/2018

**RECORD OF DISCUSSION OF MEETING ON VIRTUAL CURRENCY****4:00 P.M, 22<sup>nd</sup> February, 2018 at Room No. 131, North Block, New Delhi**

A meeting was held under the Chairmanship of Shri Subhash Chandra Garg, Secretary, (EA) to discuss the issues related to Virtual Currencies (VC). The attendance sheet is placed at Annexure-A

2. Secretary opened the meeting welcoming all the participants. At the outset he referred to discussions in the previous meetings held on and conclusions reached therein. He also referred to the announcement made in the Budget speech for 2018-19 that "The Government does not consider virtual currencies as legal tender or coin and will take all measures to eliminate use of these crypto-assets in financing illegitimate activities or as part of the payment system". The principal matter to be included in the meeting is to determine the true nature of crypto assets and how to deal with in its different dimensions- eliminating its use in payment systems etc.
3. Deputy Governor, RBI, attending the meeting through Video Conferencing made initial intervention and argued in favour of using the banning option, although in the last meeting this option was not accepted.
4. The Chairman, CBDT also interjected at this stage and expressed his views that crypto currencies should be banned, as these VCs create a chain of black money. He also mentioned of recent search i.e conducted in exchanges dealing with VCs, which had revealed that most uninformed people in interior places are being lured to buy VCs. He also stated that the Chairman of SIT has desired to convey through him that VCs should be banned.
5. Secretary (EA) articulated the view that accepting VCs as an economic phenomenon and regulating it likely to lead to better results. He also referred to this matter coming up for discussion in the G-20 as well. Even considering the nature of technology, banning might not be effective. He also cited the example of South Korea, who had to roll back on their decision to ban VCs.
6. Secretary (EA) said that the option of banning can be looked afresh and asked RBI and the CBDT to prepare draft law which might be needed to be prepared in case

banning option is accepted. However, he opined that we should continue to develop the option of regulating the crypto assets to achieve the stated objective of regulating its use with its use being completely banned in payment system. Member SEBI mentioned her view that VCs have no specific nature of an asset and its nature depends on the usage such as utility token, collective investment. SEBI further mentioned that uses of VCs were likely to grow large and acquire yet unknown nature and dimension. She therefore felt that regulating VCs by a single regulator might not be feasible.

7. Secretary MeitY felt that India, being a very large economy and in the forefront of technological innovation, should have open attitude towards this phenomenon and develop its options accordingly.

8. After the discussions, Secretary (EA) concluded the meeting stating the following way forward:

i. A detailed paper on option of banning VCs, including draft law would be prepared and submitted by RBI and CBDT within 15 days with a reasoned treatment of specific issues involved and examination of international legal framework being considered.

ii. A detailed paper would be prepared within DEA in 15 days on options of regulating crypto assets without allowing its use for financing illegitimate activities or as part of the payment system, including draft law.

iii. SEBI would submit a paper, including draft law, bringing out nature of VCs and suggest regulatory frame within 15 days.

The meeting ended with a vote of thanks to the Chair.

**Annexure-A**

**Attendance Sheet of the Meeting regarding Virtual Currencies,  
Chaired by: Shri Subhash Chandra Garg, Secretary (EA)**

**Venue: 131/A North Block, New Delhi.  
Date: 22<sup>nd</sup> February, 2018, at 1600 Hrs.**

**LIST OF PARTICIPANTS**

Sl. No.	Name & Designation (S/Shri)	Office/ Department
1.	Shri Ajay Sawhney, Secretary	MeitY
2.	Shri M M Kutty AS	DEA
3.	Shri Sushil Chandra Chairman	CBDT
4.	Shri B.P.Kanungo* DG	RBI
5.	Shri Anurag Agarwal JS	DEA
6.	Ms Mamta Bansal Director	CBDT
7.	Shri Narendra Kumar Bholra, DG	MCA
8.	Ms Madhabi Puri Buch WTM	SEBI
9.	Shri Anant Barua ED	SEBI
10.	Shri Varun Shivhare	SEBI
11.	Dr Anil Ranga Director	DEA
12.	Ms Ipsita Mitra US	DEA
13.	Mr Ashish Agarwal	NIPFP

*\*through Video Conference*



#### **A.4. Annexure-D: Record of discussions of the meeting to study the issues related to Virtual Currencies**

F. No. 13/19/2018-Coin  
Government of India  
Ministry of Finance  
Department of Economic Affairs  
(Currency & Coin)

\*\*\*\*\*

Room No. 241-F, North Block, New Delhi  
Dated the 11<sup>th</sup> January, 2019

OFFICE MEMORANDUM

**Subject:- Minutes of 3<sup>rd</sup> Meeting of Inter-ministerial Committee (IMC) to study the issues related to Virtual Currencies-reg.**

The undersigned is directed to refer the 3<sup>rd</sup> Meeting of IMC to study the issues related to virtual currencies held on Wednesday, the 9<sup>th</sup> January, 2019 at 4:00 P.M. in Room No.131-A, North Block, New Delhi under the Chairmanship of Secy (EA), and to forward the Minutes of this Meeting, for urgent appropriate action. A copy of the Minutes is enclosed.

2. This issues with the approval of Secy (EA).

Encl:- As above

  
(Sonamani Haobam)  
Joint Director  
Tele: 23095013

Members:

1. Secretary, (Shri A.P. Sawhney), MeITY, 6, CGO Complex, Lodhi Road, New Delhi
2. Chairman, (Shri Ajay Tyagi), SEBI, Plot No.C4-A, 'G' Block, Bandra-Kurla Complex, Bandra (East), Mumbai
3. Dy. Governor, (Shri B. P. Kanungo), Reserve Bank of India, 16<sup>th</sup> Floor, Central Office Building, Shahid Bhagat Singh Marg, Mumbai

Special Invitees:

4. Secretary, M/o Corporate Affairs, 'A' Wing, Shastri Bhawan, New Delhi
5. Chairman, CBDT, D/o Revenue, North Block, New Delhi

Copy to:-

Sr.PPS to Secy (EA)/PPS to JS(C&C)/PA to Director(C&C)

**Subject:- Minutes of the 3<sup>rd</sup> Meeting of Inter-ministerial Meeting (IMC) to examine and propose specific actions to be taken in relation to virtual currencies held on Wednesday, the 9<sup>th</sup> January, 2019 -reg.**

The 3<sup>rd</sup> Meeting of Meeting of Inter-ministerial Meeting (IMC) to consider the draft report of the Committee, along with Draft Law for dealing with virtual currencies (VCs) was held on Wednesday, the 9<sup>th</sup> January, 2019 at 1600 hrs under the Chairmanship of Secretary (EA) in Room No.131-A, North Block, New Delhi. The Meeting was attended by the Members IMC, Special Invitees, JS(C&C), officials of C&C Division and the NIPFP Team.

2. The list of the participants is at Annexure.
3. Initiating the discussion, the Chair mentioned about the broad conclusions and recommendations made in the Draft Report also containing the draft Bill on VCs. The Draft Report and the Draft Bill circulated for this Meeting was the product of several meetings and discussions which took place since the last meeting of the Committee taking into account the global development and was based on interactions with various stakeholders, deliberations in international forum like G20, IMF, etc. In the Draft Report, the proposal is to recommend promotion of the use of BCT in the financial system while at the time proposing banning private crypto-currencies. The Chair asked the Members of the IMC and Special Invitees to give specific comments, especially on the Draft Report and proposed Bill so that necessary changes can be made to finalise the Report on VCs.
4. Chairman, SEBI acknowledged the good work done in drafting the Report. One broader issue raised by Chairman SEBI related to evolving nature of DLT/VCs, and the need to keep abreast of the developments and recommendations of international forum like G20, IMF, FATF, etc. It was agreed that an appropriate reference would be made in the report to capture this suggestion. Another general suggestion made by Chairman SEBI related to considering inserting a clause to provide a limited period of say 2/3 months for complete ban to be applied to existing businesses as there is no specific clarity in the legality of cryptocurrency even in RBI's circular, ICOs have emerged in Bangalore and people have invested in cryptocurrency. DG RBI also added that as there is no clarity on the strict ban of cryptocurrency, exit clause may be considered for holding of cryptocurrencies after enactment of Bill. A grandfathering clause may be considered in this respect. Secretary DEA clarified that the Committee's recommendations would be examined formally by the Government and the report of the Committee would also be placed on the website of the Ministry much before the law gets enacted, which would provide more than adequate time for everyone to be aware of proposed ban. Further, such transitional arrangements might amount to providing legal cover to something considered unlawful in the interregnum. In view of this transitional arrangements would not be required.
5. Dy. Governor stated that there is significant improvement in the present Report as compared to the old Report and the Report reflects views of RBI. As on the Draft Bill, RBI may have some specific suggestions which would be sent in next 24 hours. A broader issue raised by DG RBI related to the regulatory and enforcement arrangement proposed in the Draft Report and Bill with respect to enforcing ban of cryptocurrency. DG RBI stated that RBI is neither appropriate regulator nor can be enforcer of the ban. ED and EOW may be more appropriate bodies to deal with offences relating to cryptocurrencies. There was considerable discussion on the subject and it was unanimously agreed that the offenses under the proposed law would be enforced by the Police as it does with respect to other laws like gambling etc. DG RBI further suggested that, in the title of the Bill, the word 'Regulation' may be removed. He also raised concerns on Closed Loop Tokens and underlined the need for further deliberation. He suggested that it is a different ball game and should not be permitted as big corporate may find the loophole and start using a type of currency within its loop or subsidiaries for purchase of its

own products, and referred to Amazon Reliance, etc. On CBDC, he stated that it is the sovereign function of RBI and has already constituted a Committee and the Report will be submitted to the Government for consultation. On the need for regulator for DLT, he stated that there is no regulator for technology including but for products of technology. On Parts III and IV of the Draft Bill, there is a need for more clarity, and sought further clarity on the definition of digital rupee. As for the pros and cons of CBDC, it may not be relevant in the Indian context. SEBI, Chairman also mentioned about Section 9(1), Section 17 and Section 20 of the Bill. Offences under this Bill are generally cognizable and the power to investigate may be assigned atleast to DSP for more accountability and proper enforcement, while power to direct may be given to the appropriate regulator. The points raised by the DG RBI and SEBI Chairman were discussed. It was decided that the responsibility for enforcing the ban and taking action for punishing for the offenses under the proposed law would be that of the Police. The level of competence for initiating action would be decided after taking into consideration the provisions in other laws like gambling, unregulated deposits law etc. As private crypto-currencies are not proposed to be regulated, the provisions relating to regulation would be eliminated. Provisions relating to closed loop tokens would be amended to make it completely clear that no closed loop token system which uses crypto-currencies or such features would be permissible. DLT regulation has not been proposed and therefore if there are any references relating to DLT regulations, the same would be removed.

6. Chairman, SEBI also took up detailed comments of SEBI on the specific provisions of the Draft Bill for discussions. The preamble need not mention about DLT. On Section 2(i)(b), the definition of cryptocurrency may be made more specific to avoid circular definition, which may lead to legal issues in interpretation as well as do not hinder codes involving DLT. He also suggested changes in other definitions given under Section 2(1) like Investment Scheme, Mining and Specified. DLT also involves mining and should be treated specifically so that it is affected by ban in mining. On mining, he further stated that it may be difficult to enforce a ban on mining and this needs to be further examined. In fact, mining may happen with or without regulation. Further changes were proposed in Sections 6 and 7 of the Bill viz. Section 6(1) may be made more inclusive while including may be inserted in Section 7(1). Section 7 should also address prohibition of investment and fund raising activities through ICOs, and accordingly Section 8(1)(d) should also be amended appropriately. In addition, On Section 17, he suggested that the Bill should have overriding effects over other laws while in Section 20, there is no Schedule II in the Draft Bill. Each of these suggestions was discussed and a decision taken to incorporate with or without amendment.

7. Secretary, MeITY stated that on issues of investigation, the IT Act, 2000 may also be referred. On the legality of ban on cryptocurrency, there is no clear statement from the Government. He also supported the need for setting up a Standing Committee to re-visit the Report, as DLT is an evolving technology spread across different geography and is also a provider of solution. On the private cryptocurrencies, he referred to the treatment of same in Japan, Australia, etc. and its rationale. However, he opposed the mention of Data Protection and related issues in the Report as another committee wherein he is a Member is examining the matter, and suggested that it may be removed from the Report. The critical personal information is just a small subset of the critical data and should not be pre-judged on its impacts on DLT. These matters were discussed. JS(C&C) raised concerns about the adverse impacts of Data Protection and Localisation on the development of DLT. Chairman SEBI supported inclusion of reference relating to data protection. Secretary (EA) also indicated that appropriate handling of data for promoting/ permitting the use of DLT seemed necessary in the report.

8. Director, CBDT stated that there are two aspects of cryptocurrency viz. payment and investment, and suggested if the definition of FATF of cryptocurrency may be adopted in the Bill. DG (M/o Corporate Affairs) stated that they support both the Report and Bill and have no specific comments to give. Secretary (EA) noted that our proposals with regard to dealing with

crypto-currencies go much beyond FATF, which still accepts crypto-currencies as acceptable phenomenon.

9. On the observations made by the Members and Special Invitees, the Chair made further observations. On the definition of cryptocurrency, he clarified that inspiration has been taken from the Coinage Act, 2011 and he welcomed the specific suggestions made by SEBI. Any value or code of DLT with purpose of using as currency is banned. On investigation, there is a need for appropriate safeguard and these provisions in the Bill may be further examined with other Acts like Gambling Act, Unregulated Depository Act, IT Act, etc. He also stated that the Draft Bill should supersede all existing Bills in respect of cryptocurrency. On grandfathering clause and sunset clause, he stated that this is need for further deliberation on whether we treat cryptocurrency as illegal from day 1 or after a transitional period, but stressed that all ICOs whether new or old should be treated as illegal. He substantiated that holding cryptocurrency is same as holding counterfeit currency, which is illegal and punishable. On Closed Loop Token, he clarified that this should not be permitted as currency but may be permitted as DLT like as loyalty points. He further clarified either this may be removed or re-phrased stating not as currency. On the need to set up a Group to examine CBDC, he stated that even a Group may need to be set up to examine the Report of the Committee set up by RBI on CBDC. As there is no need for a regulator for technology, the relevant recommendation may be removed from the Report. He also clarified that MeITY may regulate issues relating to technology of DLT like in respect of financial sector, which is being done by the specific sectoral regulator. On the recommendation concerning Data Protection, it is just a factual observation and not a recommendation at all, which may or may not be considered by MeITY, and gave reference of Fintech Report. On FATF definition of cryptocurrency, he clarified that we may not define it likewise. On Standing Committee, he stated that as DLT is still evolving this Committee may be set up to re-visit the Report.

10. JS (C&C) apprised about the recommendations of SIT on Black Money.

11. After detailed deliberation, the following decisions were taken in the Meeting:-

- (i) To ensure that we are not in autarky on the development of DLT and its applications across the globe, the Report recommends a Standing Committee to re-visit the issues addressed in the Report as and when required in the MeITY;
- (ii) The specific suggestions made by SEBI on the Draft Bill may be accepted and the needful may be done for incorporation/amendment in the Draft Bill;
- (iii) On investigation, for deciding for appropriate level to take cognizance for offenses, the provisions in the Bill may be further examined with other Acts like Gambling Act, Unregulated Depository Act, IT Act, etc.;
- (iv) Draft Bill should supersede all existing Bills in respect of cryptocurrency;
- (v) On Closed Loop Token, either this may be removed or re-phrased ensuring that these loops do not use any feature of crypto-currency;
- (vi) As there is a need to set up a Group to examine the Report of the Committee set up by RBI on CBDC, the relevant recommendation may be retained;
- (vii) As there is no need for a regulator for technology, the relevant recommendation may be removed from the Report;

- (viii) On the recommendation concerning Data Protection, it is just a factual observation and not a recommendation at all, which may or may not be considered by MeITy;
  - (ix) The FATF definition of cryptocurrency may not be used in the Draft Bill;
  - (x) Any comments on the Draft Report should be provided by 11.01.2019 so that the Final Report may be circulated by 14.01.2019 so that the Final Report is signed tentatively by 20.01.2019.
12. The meeting ended with "Vote of thanks" to the Chair.

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**ANNEXURE**

**3<sup>rd</sup> Meeting of Meeting of Inter-ministerial Meeting (IMC) to examine and propose specific actions to be taken in relation to virtual currencies (VCs) held on Wednesday, the 9<sup>th</sup> January, 2019 at 1600 hrs under the Chairmanship of Secretary (EA) in Room No.131-A, North Block, New Delhi**

**List of Participants**

1. **Shri S.C. Garg, Secy(EA), in-Chair**
2. Shri A.P. Sawhney, Secretary, MeITY, Member
3. Shri Ajay Tyagi, Chairman, SEBI, Member
4. Shri B.P. Kanungo, Dy. Governor, RBI, Member
5. Shri Prashant Goyal, JS(C&C)
6. Shri Alok S., DG M/o Corporate Affairs
7. Dr Zakir Thomas, Director, CBDT,D/o Revenue
8. Mrs Mamta Bansal, Director, CBDT,D/o Revenue
9. Shri P. Vasudevan, CGM, RBI
10. Shri Sonamani Haobam, JD(C&C)
11. Shri Varun Shivhare, AGM, SEBI
12. Shri Dalip Singh, US(SPMC&C)
13. Ms Radhika Pandey, NIPFP
14. Ms Shivangi Tyagi, NIPFP
15. Shri Nelson Chaudhuri, NIPFP
16. Ms Bhavyaa Sharma, NIPFP
17. Ms Pryadarshin, NIPFP
18. Ms Lavisha Arora, YP,C&C

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## **A.5. Annexure-E: Regulatory treatment of cryptocurrencies in different jurisdictions**

Table A.1: Comparison of regulatory treatment of permitted activities with respect to crypto currencies in different jurisdictions

Activities	Russia	China	Switzerland	Thailand	Japan	New York	Canada
<u>Payment method</u>							
Permitted or not	No (but barter exchange is permitted)	No	Yes	Yes	Yes	Yes (subject to registration requirement)	Yes
Manner of regulation	Barter exchanges can only happen via exchanges	N/A	All transactions permitted as long as they comply with AML laws.	Regulated as Digital Asset Business		Regulated subject to registration requirement of the state and other federal laws	Taxed according to the transaction.
<u>Investment tokens</u>							
Permitted or not	Yes	No	Yes	Yes	Regulation is silent on this. A government-backed study group has released guidelines, which soon could take the shape of a law.	Permitted subject to the SEC regulations	Permitted.
Manner of regulation	Detailed process for how tokens have to be issued, disclosure and reporting requirements. Tokens can only be issued via exchanges.	Guidelines are to be issued by Japanese financial regulator	Investment tokens are treated as securities; all transactions permitted as long as they comply with securities laws.	Allowed subject to approval from SEC. To be issued through Government-approved ICO portals.	N/A	Subject to state and federal laws on exchange activities.	
<u>Closed loop tokens</u>							
Permitted or not	N/A	No	Yes	N/A	Yes, the law is explicit in stating that it does not regulate closed loop tokens	Permitted	The law is silent on this.

Table A.1: Comparison of regulatory treatment of permitted activities with respect to crypto currencies in different jurisdictions

Activities	Russia	China	Switzerland	Thailand	Japan	New York	Canada
Manner of regulation	N/A	N/A	Unregulated unless they deal with financial products and services, in which case they have to comply with AML regulations.	N/A	N/A	Excluded from the definition of Virtual Currency	The law is silent on this.
<u>Collection of regulatory information</u>	Reporting requirements	N/A	No separate provision; disclosure and reporting requirements as per existing laws for other financial products	Businesses are required to comply with conditions specified in the notification of SEC, and comply with maintaining records of assets belonging to individual clients (KYC, CDD).	Information is to be reported to the JFSA.	Detailed reporting requirement to the Superintendent	Reporting requirements under the anti-money laundering law.
<u>Crypto Exchanges</u>							
Permitted or not	Yes	No	The guidelines are silent on crypto-exchanges	Yes	Yes, permitted	Permitted subject to State laws on exchange services	Permitted.
Purpose for which permitted	For exchange of <i>DIGITAL FINANCIAL Assets</i> for other DFA, Rubles, foreign currency or other property.	N/A	N/A	Purposes of purchasing, selling or exchanging digital assets.	Buying and selling of cryptocurrencies can take place only on registered exchanges.	Buying, selling, exchanging for other cryptocurrencies subject to state and federal laws and regulations	Categorised as money services businesses.

Table A.1: Comparison of regulatory treatment of permitted activities with respect to crypto currencies in different jurisdictions

Activities	Russia	China	Switzerland	Thailand	Japan	New York	Canada
Manner of regulation	Has to happen as Rules for Organised Trading in Digital Financial Assets for "qualified investors", and via a special account for persons who are not "qualified investors".	N/A	N/A	Those intending to operate should be approved by the Minister of Finance upon recommendation of SEC. Approved operators shall comply with rules, conditions and procedures as specified in SEC notification.	Registration by the JFSA	Subject to registration requirement and compliance with all state and federal laws	Subject to extensive reporting requirements under anti-money laundering law. <sup>1</sup>

<sup>1</sup>**Sources:** JFSA, The VC Act, *The VC Act*; New York State Department of Financial Services, *23 NYCRR PART 200 VIRTUAL currencies; SUMMARY of the ROYAL Decree on the DIGITAL Asset Businesses B.E. 2561*; Ontario Securities Commission, Cryptocurrency Regulation in Canada, <http://research.osc.gov.on.ca/cryptocurrency/cdnreg>; Swiss Financial Market Supervisory Authority, *Guidelines for enquiries REGARDING the REGULATORY FRAMEWORK for INITIAL coin offerings (ICOs)*; People's Bank of China, *Announcement of the CHINA INSURANCE REGULATORY Commission of the CHINA BANKING REGULATORY Commission of the Ministry of Industry AND INFORMATION Technology of the CENTRAL Committee of the People's BANK of CHINA on the Prevention of the Risk of Subsidy ISSUANCE*; Huang, "China wants an orderly exit from bitcoin mining"; "An Inside Look at China's Government Controlled Cryptocurrency Project"

**A.6. Annexure-F: Detailed comparison of legal framework with regard to cryptocurrencies**

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Regulatory objective	"Creation, issuance, storage and circulation of digital financial assets, as well as the exercise of rights and performance of obligations under smart contracts"	Regulate the conduct of business involving VC in accordance with the superintendent's powers.	"FINMA recognises the innovative potential of distributed ledger/blockchain technology. It welcomes and supports all efforts to develop and implement blockchain solutions in the Swiss financial centre." Due to underlying characteristics of ICOs, they fall under certain laws, which is clarified by the guidelines.	"To implement the spirit of the National Financial Work Conference, protect the legitimate rights and interests of investors, and prevent financial risks."		Expanded its Money Transmitters Act to cover activities related to Bitcoin and other virtual currencies.	Innovation, investor protection, financial stability	1. Ensure that all transactions made in digital currency are subject to an anti-money laundering/counter terrorist financing regime. 2. Ensure that all transactions involving digital currency as an asset are duly taxed.

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Broadest universe	Digital Financial Asset - property in electronic form, created using cryptographic means.	Digital unit. The term "digital unit" is not a defined term.	In an ICO, investors transfer funds, usually in the form of cryptocurrencies, to the ICO organiser. In return they receive a quantity of blockchain-based coins or tokens which are created and stored in a decentralised form either on a blockchain specifically created for the ICO or through a smart contract on a pre-existing blockchain.	All crypto tokens			Covers Digital Assets which include (i) Cryptocurrency (ii) Digital Token (iii) Any other electronic data unit with a similar purpose as Cryptocurrencies or Digital Tokens	1. Digital currency which covers (i) Cryptocurrency in exchange for goods and services; (ii) cryptocurrency traded like a commodity; cryptocurrency received in lieu of salary or wages (treated as part of income).
Legal tender	DFA is not legal tender	VCs are not a legal tender	Payment tokens are not legal tender, but are permitted to be issued and used.	Private virtual currencies are not legal tender, but the government is working on issuing a government-backed virtual currency.	Type-I VC is allowed as a payment method.	No	No mention of Legal Tender	Not legal tender.

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Cryptocurrency	Kind of DFA which is created and accounted for in the distributed registry of digital transactions.	The definition is “any type of digital unit that is used as a medium of exchange or a form of digitally stored value. Virtual Currency broadly construed to include digital units of exchange that (i) have a centralised repository or administrator; (ii) are decentralised and have no centralised repository or administrator; or (iii) may be created or obtained by computing or manufacturing effort. Excludes (1) digital units (i) used solely within online gaming platforms, (ii) cannot be converted into, or redeemed for, Fiat Currency or Virtual Currency, and (iv) may or may not be redeemable for real-world goods, services, discounts, or purchases.”	“Payment tokens” are tokens which are intended to be used, now or in the future, as a means of payment for acquiring goods or services or as a means of money or value transfer. Cryptocurrencies give rise to no claims on their issuer.	“Token issuance financing refers to the so-called virtual currency, such as Bitcoin and Ethereum, which is raised by the financing entity through the illegal sale and circulation of tokens.”	Financial value (recorded by way of electronic means in the electronic devices etc., excluding any fiat currency/ currencies (of Japan or otherwise) and assets denominated in any such fiat currency) which may be used to pay the price in exchange for the goods purchased or rent or the services received (the Type I VC). (ii) financial value and assets denominated in any such fiat currency) which may be exchanged, as against unspecified person/ persons, with any such financial value as set out in paragraph (i) above and which may be transferred via electronic data processing system (the Type II VC).	A digital representation of value that can be digitally traded and functions as a medium of exchange, a unit of account, or a store of value but only to the extent defined as stored value but does not have legal tender status as recognised by the United States Government.	An electronic data unit built on an electronic system or network which is created for the purpose of being a medium of exchange for the acquisition of goods, services, or other rights, including exchange between digital assets	Digital currency is virtual money that can be used to buy and sell goods or services on the Internet. Bitcoins are an example of digital currency. Bitcoins are not controlled by central banks or any country, and can be traded anonymously. Bitcoins can be bought and sold in return for traditional currency, and can also be transferred from one person to another

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Token	DFA issued by a legal entity (issuer) in order to attract financing, and recorded in the registry of digital records.	No such term. The term "Exchange Service" is defined as "...means the conversion or exchange of Fiat Currency or other value into Virtual Currency, the conversion or exchange of Virtual Currency into Fiat Currency or other value, or the conversion or exchange of one form of Virtual Currency into another form of Virtual Currency"	Asset tokens represent assets such as a debt or equity claim on the issuer. Asset tokens promise, for example, a share in future company earnings or future capital flows. In terms of their economic function, therefore, these tokens are analogous to equities, bonds or derivatives. Tokens which enable physical assets to be traded on the blockchain also fall into this category.	No specific differentiation - both currency and assets are banned.			Electronic data unit built on an electronic system or network for the purpose of specifying the right of a person to participate in an investment in any project or business, or to acquire specific goods, services, or other rights under an agreement between the issuer and the holder	N/A

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Release of tokens	1. Concept - a sequence of actions aimed at alienating the issuer's tokens from their issuers. A token of a certain type can have only one issuer. 2. Monetary cap on transactions on people who are not "qualified investors". 3. Qualified investors can transfer tokens to a digital wallet. Wallet has to provide access to digital registry. 4. Detailed procedure for release of tokens requiring disclosures and prior publication of information.	There is no concept of token. Issuance of VC is a subset of Virtual Currency Business Activity	No such provision, but asset tokens and some kinds of utility tokens are considered securities, and have to comply with laws related to securities.	ICOs are banned			Allowed, but issuers should obtain approval from SEC. Digital tokens to be offered through the ICO portal, which under the decree is an electronic system provider of the offering of newly issued digital tokens which will be offered, and details on qualification of issuers, and other information.	ICOs have to comply with existing securities laws in a manner outlined in a Canadian Securities Administrators' Notice.

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Permitted transactions	1. DFA can be used for exchanging with other DFA, conversion into rubles or foreign currency, or other property. 2. Only through operators of exchanges.	Buying, selling, performing exchange services as a customer business, storing, issuing, holding, and maintaining custody. But all these activities are subject to licensing requirements from the superintendent.	All transactions are permitted as long as they comply with the relevant security, AML and banking laws.	No permitted transactions			SEC is empowered to exempt the offering of certain types of digital tokens from provisions of the law. or Issuers of digital tokens who are willing to accept cryptocurrencies in the offering process shall only accept cryptocurrencies from/deposited with regulated digital asset businesses	All transactions are permitted provided they comply with AML/CFT requirements.

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Closed loop tokens		These kind of tokens are excluded from the definition of VCs. They do not fall under the purview of VC business activity	Utility tokens are tokens which are intended to provide access digitally to an application or service by means of a blockchain-based infrastructure. These are like closed loop tokens in the Indian law, except the Swiss utility tokens also include tokens that provide financial products or services.	No specific carve-out	Closed-loop transactions are excluded from regulatory purview			Treated as 'barter transactions' and taxed accordingly. (Not closed loop token)
Recognised crypto asset exchange		No such provision. Exchange activity is subject to all the state and federal laws.	No such provision	All crypto-exchanges are banned	Yes, crypto exchanges are part of VC exchange business. All VC exchange business are required to be registered with the FSA.		Included under the definition of digital asset businesses, subject to same provisions	Included under the definition of "Money Services Business" under the Proceeds of Crime Act.
Registry	There is a central registry of digital transactions.	No provision for such special registry. All the informations are sought from the entities engaged in VC business activities as part of the reporting requirements.	No such provision	No such provision	No central registry but a provision of book-keeping and filing of report with JFSA.			N/A

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Cyber security		The responsibility is on the licensee to identify, protect, detect, respond, recover with respect to the cyber security threats.	No such provision	No such provision	The VC exchanges must securely control their electronic information system so that their VC and records are protected against constant cyber attack.	The authorities have the discretion to require the applicant to obtain additional insurance coverage to address related cyber-security risks inherent in the applicant's business model as it relates to virtual currency transmission.	enhances the investigative powers of the competent officer to be able to access computer systems, computer data, traffic data, or any device storing computer data of digital asset businesses or Digital Token issuers	-
VC Exchange business		Subject to SEC regulation.			The Act provides for registration of VC exchange business			

Table A.2: Comparison of regulatory treatment of crypto currencies in different jurisdictions

Topic	Russian Draft law	New York State Law	Guidelines in Switzerland	Guidelines in China	Japan	North Carolina	Thailand	Canada
Obligations of VC exchange business providers		As per the rules and regulations of the respective state and federal laws.			customer identity verification, segregation of customers' assets from the proprietary assets, book-keeping, compliance, internal audit		adequate sources of capital covering business operation and other several risks, having reliable operating systems and data security systems, maintaining records of assets belonging individual clients, segregating client assets from their own assets, and conducting Know Your Customer (KYC) and Customer Due Diligence (CDD)	Subject to securities laws and detailed obligations under the Proceeds of Crime (Money Laundering) and Terrorist Financing Act including reporting of suspiciously large transactions, record retention, large cash transactions, etc.