EXPLORING REGULATIONS TO CONTROL THE BLOCKCHAIN TECHNOLOGY WHICH IS DIPPING TOES IN BANKING SECTOR

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ABSTRACT

Technology the divinity of today's world have made world a very different place. It's ever changing trends in the economic development of nations has brought it more attention than ever. Ever developed and developing nations want to develop technology such a way that it can ease the society with creating the better impact in the economy. Block chain technology is one such technology which is a hot potato around the world after the AI technology. This data ledger technology is a great help in financial institutions around the world with changing the transactions of money into more secure and transparent way. It maintains transparency by storing data into blocks which are connected with each other and interfering with that data becomes an arduous job. China, US, UK, Japan, Canada and European Union are already taping into its full potential. India is also not behind, the private bodies, government and Reserve Bank of India has set there footprints in development of this technology with regulatory framework to govern such technology. The paper aims to explore the regulatory measures of block chain technology which is dipping it toes in the banking sector of the country. In India banking sector is based on trust and to maintain this relationship with its customer's block chain plays a vital role to preserve this trust. Since, the technology is at nascent stage and still needs a lot of development but formulating regulatory measures would be a major challenge for Indian government. Thus, the paper compares the regulatory framework of different nations to help India to formulate its own laws.

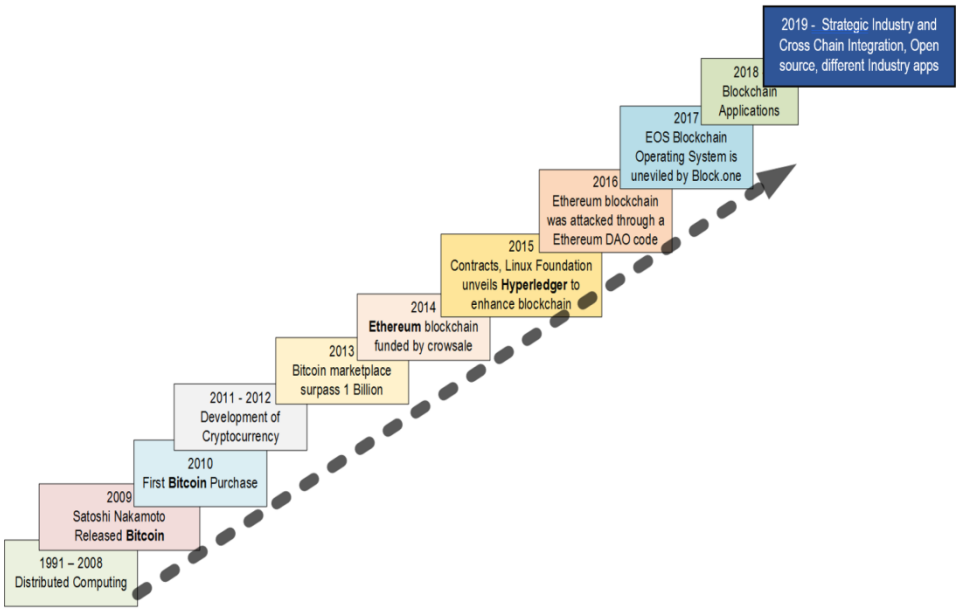
Keywords: Block chain, Data Ledger, Reserve Bank of India, Transparency, Technology and Security.

I. INTRODUCTION

Back were the days of lockdowns and quarantine where there was threat to COVID-19, this deadly virus had impacted the world in many different ways but our scope is limited to technology. After the pandemic there was a rapid growth is seen in the technological arena. From using cash as the medium of money today we are opting for cashless transactions using various UPI apps such as Google Pay, Paytm, Phone pay etc. India is also embarking its journey to newer dimension in technology, paving its way to new trade currencies based on block chain technology. Since currency is involved the inclusion of banks is mandatory and here is the article which explores the block chain along with its regulatory framework.

Block chain technology can be observed as computerized system which is based on Digital Ledger Technology (DLT) making it a secure and transparent technology to use. Timeline of block chain starts from the year 1990s as cryptographically secured chain of blocks and Merkel Trees but its implementation was made by Satoshi Nakamoto in 2008 it can be well observed from the figure 1.

Figure (1) the history and milestone in block chain technology[1]



Block chain technology uses decentralized system of network rather than centralized system which is at present used by Reserve Bank of India. Indian Banks are shifting to decentralized

[1] Danda B. Rawat, Vijay Chaudhary and Ronald Doku, "*Blockchian Technology: Emerging Application and Use Cases for Secure and Trustworthy Smart Systems"*, 1 J. Cybersecur. Priv. 4, (2021)

network to more secure transfers and to maintain transparency. The first use of this technology was observed in 2015 by Private Banks such as ICICI, Mahindra and Yes Bank. Later on the government also focused on adopting the same.

II. RESEARCH OBJECTIVE AND SCOPE

The objective of the research is to analyze the regulatory framework of block chain technology around the globe so that it can help India to establish framework for such technology. Regulating technology is a major backdrop of advancing world because technology is not human and so establishing liability and deciding jurisdiction can create a situation of chaos. The paper tries to assist in solving the problem.

The paper also explains what block chain technology is and how they are implemented in the financial institutions?

III. RESEARCH METHODOLOGY

The Research aimed to study the implications of block chain technology with respect to financial sectors. The data collected for the technology is fully based on secondary sources like, research papers, journal articles, websites, dynamic webpages, blogs, reports of NITI Aayog and government bodies.

IV. HYPOTHESIS

This research is based on the development and implementation of regulatory framework for block chain technology within the banking sector. The hypothesis regarding the research is;

1. *The block chain technology is evolving in nature and the law relating to it needs to evolve.*

2. *There is no regulatory framework for the technology in India in the banking sector*.

3. *The technology is at nascent stage and will require more years to develop and fully get involved in the system*.

V. BRIEF OF BLOCKCHAIN TECHNOLOGY

Today everything is available online, internet is one of the storehouses of data and due to this

there is always threat to data going in wrong hands and to solve this issue Block chain technology was born. Crypto currency one of the mostly known implementation of block chain technology, Let us understand how it works? As the name suggests the data is stored in blocks which are interlinked with each other and thus, it is called block chain. Block chains are also known as distributed ledger which works on decentralized model, where information is stored in multiple location to prevent tampering or alteration of data. Reserve Bank of India (RBI) the only authority that can issue currency in India works on centralized system which is opposite to decentralized system. Private Banks in India are trying to adopt block chain technology, one such example is ICIC bank but government is also moving slowly towards adopting this technology as regulation of these technology remains a major concern.

Bank act as a third party during transactions due to this server issue in banks slows down server of every UPI user. Having a centralized system it puts bank servers at threat by hackers trying to dig into important information. Since, block chain technology data is interconnected with node 1 to node 2 to node 3 and so on. This interconnection of data leads to much secure data transfer as data is saved into multiple sources and meddling with it will be the difficult task for hackers. In 2016 demonetization happened in India because of centralized system of RBI but if it would have been crypto currency this would not have happened. Block chain technology can create a major impact if implemented in banking sector such as; Faster payment, Raising Funds, Fast settlement and clearance, Trade finance and faster loan. This technology has also set it footing in e-signature, e-KYC, e-notary etc. as seen in e-contracts and other e-documents.

In India Financial service sector is taking a leap towards exploring block chain, the first use was reported in 2016. After that it uses was seen by private banks such as ICIC as elucidated before with Mahindra and Yes bank supporting it. These privates banks first conducted pilot test which resulted in elimination of exchange of letters and decline in settlement time which overall reduce the cost of the bank. Government of Andhra Pradesh has also incorporated it for providing public service in 2017[2].

VI. TYPES OF BLOCK CHAIN TECHNOLOGY

Block chain technology is centralized system and the most common known is the public one but there are basically two types of block chain technology; Public Block Chain Technology

[2] Neha Kukrety, Prashant Kaushik and Shashank Shekhar Pandey, "*Block chain Technology and Legal Framework in India: A Systematic Review"*, 22 (Special Issue 1) Empirical Economics Letters 1 (2023).

and Private Block Chain Technology.

Public Block Chain Technology; this type of technology is open to everyone where anyone can enter the network with the permission of all the participants in the network. This process is basically used to transfer money.

Private Block Chain Technology; this mechanism of private block chain is same as the public one but the access of network is granted to only those who follows the rules set by participants on entry of the network.

Regulating the private technology becomes more difficult than regulating the public one and this creates chaos for the government.

VII. LEGAL DIMENSION OF BLOCK CHAIN GLOBALLY

Digital money is the new cool in this 21st century; business and economic transactions are happening digitally all around the globe. Inclusion of digital transactions is showing a positive impact on the economy of developed and developing nations. This rapid growth in economy led to exploration of block chain technology in countries like European Nations, Brazil, Malaysia, USA, Australia, Canada and Malta.

Countries which support the use of block chain did not have a particular legal framework but have inculcated the measures in existing framework of the nation. In 2014, European parliament has made a Virtual currency Task force under Anti Money Laundering Directives, Prisco, 2016. Brazil in 2020 covered it under Brazilian Association of Technical Standards, Silva. Malaysia uses smart contracts under Contracts Acts 1950. Malaysia is using smart contracts to regulate by Contracts Act 1950. In California USA, they claim block chain transactions as electronic records, governed by Uniform Electronic Transaction Act. Malta on the other hand has three robust frameworks to govern this new era technology.

USA AGENCIES AND LEGISLATION FOR BLOCK CHAIN	
Agency	Financial Crimes Enforcement Network
	Securities and Exchange Commission
	Commodity Futures Trading Commission

	Federal Trade Commission
	Department of Treasury
	Internal Revenue Service
	Decentralized Autonomous Organization
Legislation	Responsible Financial Innovation Act
	Toomey Stablecoin Bill
	Nebraska Financial Innovation Act

INTERNATIONAL REGULATORY INITIATIVE	
EUROPEAN COMMISSION	The commission was working since 2018 when block chain was had made to the world. It recognized virtual currencies under 4th Anti-Money Laundering Act.
INTERNATIONAL MONETARY FUND	IMF is an international financial institution of the world. The body is also working since 2016, for identifying risks and regulations in DLTs.
THE FINANCIAL CONDUCT AUTHORITY (FCA), UK	It is the working on multiple projects to innovate a framework for DLTs.
GERMANY'S FEDERAL FINANCIAL SUPERVISION AGENCY (BAFIN)	The body took preventive measures in crimes involving financial institutions. The body said, to be aware of absence of authorities regulating such technology.
US FEDRAL RESERVE	The Federal Reserve is also working with IBM but they are not convinced with the use of DLT.

VIII. BLOCK CHAIN TECHNOLOGY IN INDIA

Banks are financial institutions which are largely based on trust during transaction of money; this trust is maintained by regulatory bodies and government agencies. As time flies the system have developed complexities. In the 'Ease of Doing Business' rankings, released annually by the World Bank, while India has registered phenomenal progress and has gained 79 positions since 2015 to be ranked 63rd in the 2020 edition, it continues to perform abysmally low in indicators such as 'enforcing contracts' (ranks 163 out of 190 countries), 'property registration' (154 out of 190 countries) and 'starting a business (136 out of 190 countries).[3] In India, the perceived level of corruption in public 'trust systems' is especially poor, with a position of 78 out of 180 countries in the 'Corruption Perception Index' released by the Transparency International.[4]

In the scenario where the trust of the bank is becoming vulnerable, Block chain can develop trust by introducing distributed verifiability, auditability and consensus. Block chain has the potential to transform industries and economies. It is estimated that block chain could generate USD3 trillion per year in business value by 2030[5]. The World Economic Forum (WEF) anticipates that 10% of the global GDP will be stored on block chain by 2025 and lists block chain as one of 7 technologies that are anticipated to revolutionize various aspects of our lives.[6] Major savings can be made by implementing block chain technology by reducing intermediaries as well as record keeping of administrative bodies. Since, block chain will reduce the use of traditional intermediaries such as banks it will eliminate the cumbersome process developed by government agencies. It will allow the witnesses to verify transactions electronically on block chain, eliminating the need for physical presence and ease the process.

The application and implementation of block chain technology in financial institutions can be as follows:

1. Know Your Customer and Anti-Money Laundering Regulation: Know Your Customer (KYC) is a mandatory process which verifies the identity of the customer to prevent any illicit activities like money laundering, terrorist funding, fraud etc. The inclusion

Dsz9-[3] World Bank Ease of Doing Business Ranking 2020
[4] World Bank Ease of Doing Business Ranking 2019
[5] STAMFORD, Conn., *Gartner Predicts 90% of Current Enterprise Blockchain Platform Implementations Will Require Replacement by 2021*, GARTNER (2019).
[6] NITI Aayog, "*Blockchain the Indian Stratergy"* (2022).

of data ledger technology in this process eased the banks burden of rechecking in the customer verification process as the technology acts as a security guard in preventing any illegal activity related to finances.

2. Securities: Crypto currencies act as security so they are subject to securities regulations. In India the securities are governed under RBI regulations, the Insurance Regulatory and Development Authority of India have control over applications related to insurance and Securities Exchange Board of India also has authority over crypto currencies.

3. Consumer Protection and Investment Safeguards: In old Indian philosophy consumer should be treated as God and we Indians still believes in such concept. Consumer Protection Act, 2019 protects the rights of consumers. It includes the concept of e-commerce transactions which ultimately includes block chain and crypto currencies transaction.

4. Data Protection and Privacy Laws: Internet is all about loads and heaps of data which are recorded to provide different kind of information to their users according to their demand. Users put their every information and online through logins, sing ups, forms, accepting cookies etc. This makes the user data in danger and to protect the user privacy laws such as Data Protection Bill, IT Act 2000 and KS Puttaswamy judgment were endeavor of government. The use of block chain technology can help government in protecting the privacy of users as the records in block chain can't be tampered without ruining the whole chain.

5. Taxation: Taxes are the primary source of revenue for the government who levy taxes on individuals of businesses. Businesses involving financial transactions which encompass crypto currencies are also subject to taxes but Indian Standards GST act did not have any provision regarding crypto currencies.

India being a developing country has combination of rich, middle class and poor people. The poor are the most vulnerable group in the country possessing the challenge for lack of awareness of block chain technology among the major citizens of India. Lack of awareness among citizens will halt the law making process as the law and technology is both introduced for the welfare of the society.

IX. REGULATORY MEASURES IN INDIA

India also following the world trend did not have any particular framework to regulate this technology instead they have also included it into various legislations. National Informatics Centre is the only body which coordinates and implements this data ledger technology. The Ministry of Electronic and Information Technology observed that the use of this technology can enhance the working of e-governance, state government and other government organizations. Negotiable Instrument Act, of 1881, the Securities Contracts (Regulation) Act, of 1955, and the RBI Act, of 1934 are among the prominent statues to include block chain. After some period Indian Copyright Act, of 1957 and IT Act, of 2000 has joined the race of inclusion of this new technology. Reserve Bank of India is also showing it interest in providing a regulation under this technology by collaborating with digital banks and FinTech companies.

Currently India is trying to push more of its regulation limits and introduced The Crypto currency and Regulation of Official Digital Currency Bill, 2021. The main features of the bill are;

1. Blanket Ban: Indian government was stringent on their use of crypto and put a ban on the outflow of all private crypto currencies. There were some exceptions but rules remain stubborn, flexibility will grow with the growth of technology.

2. Ownership: There were many cybercrimes involving phishing, fraud and scams by private institutions holding digital assets. The government made sure that ownership of such currencies must be public to avoid any kind of illicit acts.

3. Introduction of New Currencies: In the past few years there are always news going on that the RBI will introduce digital currencies and minimize the use of traditional currency, the Bill also highlights the same.

The regulation of crypto currencies will be a tough task as the crypto currencies are basically private as reported by the SC Garg Committee. The use of crypto fails to become the part of currencies as they are inconsistent but the government can work in the development of new digital technology that can be transparent and fall in place with regulations.

X. JURISDICTIONAL CHALLENGES AND CROSS-BORDER TRANSACTIONS

Jurisdiction is the power and authority of the court to hear and decide on particular matters. In India civil matters the Civil Procedure Code comprehend provision of jurisdiction and in criminal cases Bharatiya Nagarik Suraksha Sanhita comprehend the same. However, in the matters of cybercrimes and digital assets it becomes a hurdle in defining jurisdiction. Since, internet is a global thing it becomes difficult to set limits and territorial restriction. The ownership is another stumbling block because no one can completely own the digital world, so establishing liability to an individual or an organization can create complexities.

All around the globe there are different norms being followed and since digital assets and crypto currencies are new to the world there are still vulnerabilities in existing laws. The global financial institutions are required to set up international norms to govern the block chain technology.

XI. FINDING AND CONCLUSION

The article concludes by stating numerous points which were observed are provided below:

1. Block chain technology is at nascent stage and will consume more time to develop and establish its importance in the world.

2. There is ambiguity in regulatory framework of this technology which can be seen as a major challenge to implement it.

3. There is still scope of development in this technology and India should invest in Research and Development of this technology to tap into its full potential.

4. India can also collaborate with international bodies to clear the ambiguity of this technology.

5. Block chain technology though useful but have a limited scope so selecting the right use of the technology also possesses a major challenge.

India is still a developing nation, where technology is making its presence. Block Chain technology though not fully developed has pronounced its presence in India. The scope of research was limited to financial institutions i.e. Banks.

Banks act as an intermediary between individuals who deposit money and accept loans. For the society to function well, banks help the government by supporting the poor people of the society. It implements various schemes that are brought by the central and state government. The changing world has also made banks change themselves. With the traditional currencies a new form of currencies like crypto and bitcoin has taken shape of future transactions and these transactions are secured through data ledger technology also known as Block chain. For every new thing there is a threat involved and there is requirement of legislation to protect the users. With the up gradation of new technology, the law must also be upgraded.

Block chain technology has much advantage and can change the era and majority of countries are adopting regulations. Thus, over time the technology has transpired into the future. The technology will one day can become the need of the future and this future comes with numerous threats which we are not yet aware of. So, as the famous proverb goes by *"prevention is better than cure",* we must prevent the unseen rather than waiting for something to happen.