Page 1569 - 1594 **DOI:** *https://doij.org/10.10000/IJLMH.115588*

INTERNATIONAL JOURNAL OF LAW MANAGEMENT & HUMANITIES

[ISSN 2581-5369]

Volume 6 | Issue 4

2023

Legal Analysis of Implication of Blockchain Technology in Corporate Governance

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ABSTRACT

This research explores the inter-relationship and inter-dependent growth of Corporate Governance and Blockchain Technology. This new invention of Blockchain Technology to the Corporation is a massive opportunity store. The fast-growing Blockchain Technology has a sufficient reach to the basic principles of corporate governance. The present paper explains the shift in purpose of corporate governance from regulating corporations to build fiduciary, agency-management relationship & accountability. The Distributed Ledger Technology (DLT) system of Blockchain Technology has the potential to solve the problems associated with classical financial record keeping system. The Transfer Control Protocol transfers the information of asset. Likewise, the Blockchain Technology transfer the value of asset at the very low cost by removing some or all intermediaries.

The major purpose of Corporate Governance can be achieved by applying the vital features of Blockchain Technology. While incorporating Blockchain Technology in structure of Corporate Governance, it is important to ascertain the legal issues arising out of the incorporation and have a specified legislation to solve any conflict. As the technology is in developing stage and it will take a lot of time to be fully grown, despite that fact, it cannot be left unregulated because that will make it hall of illegal transfer. So, basic as well as progressive legislation is the need of hour to provide legal certainty for firms & corporations dealing on Blockchain platform by securing the use of technology and backing the undesirable consequences. The current status of Blockchain regulatory framework is in a preliminary stage in India. The nature of society is Dynamic. Therefore, its inventions and laws can never hold a static value. This paper has attempted to provide adequate suggestions on Regulation based on the comparison of regulations in USA, the essence of the research lies in the process that how the Blockchain Technology will unfold benefits and restructure the Corporate Governance.

Keywords: *Corporate Governance, Blockchain Technology, fiduciary, agency-management relationship, accountability, Distributed Ledger Technology, Smart Contracts & regulatory framework.*

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I. INTRODUCTION

Corporate Governance is the backbone of trade and business industry. The plethora of the term is wide to import because, governing a corporate requires equilibrium of interests of all stakeholders in a company, including shareholders, Management, employees, customers, suppliers, bondholders, financiers, government and the community[2]. The initial era when the Corporate Governance was introduced in India, the primary goal was to regulate company, preventing scams and settle internal & external disputes. As stated by Milton Friedman, an Economist and Noble achiever, "Corporate Governance is to conduct business in accordance with the owner's or shareholder's desire", This narrow vision was overturned with progressive vision where the principle of Externalities were recognized. Externalities include job safety, product safety, environmental impact, transparency towards customers[3].

Therefore, the purpose from Governance and regulations of Company, shifted towards conciliation of interest of stakeholders, trust problems in agency, accountability and data manipulations. The Corporate Governance is suffering with severe Corporate deviance, Fiduciary problems, insiders trading and cost management. The regulators were long looking for relevant solutions.

This paper explores achievement of Good Corporate Governance by introducing progressive approach via Blockchain technology. The concept of Blockchain was coined by Haber & Stornetta[4] in the year 1991 while proposing stamping of documents in sequential manner to provide authentic authorship of Intellectual property in digital time. later, developed by Nakamoto in working of Bitcoin. The introduction of Blockchain mechanism in India, is not illegal paradigm and can be claimed as an application and usage under Article 19(1)(a) for expressing and uploading data over its Distribute Ledger Technology DLT and under Article 19 (1) (g) for free trade and occupation via Blockchain platform and its extension including DAO, Smart Contract.

Blockchain is a Distributed Ledger Technology (DLT) system the invention of which has paved way to secure interdisciplinary benefits. The world has been witnessing boons of different

[2] DR G. K. KAPOOR, SANJAY DHAMIJA, SURAJIT MAZUMDAR, NAMRATA VISHWANATH, ANIL KUMAR, KSHAMA KAUSHIK, *CORPORATE GOVERNANCE*- IICA 1.5 (Taxmann Publications 2015).

[3] A. C. FERNANDO, *CORPORATE GOVERNANCE- PRINCIPLES, POLICY AND PRACTICES* 18 (Dorling Kindersley (India) Pvt. Ltd. 2013).

[4] Haber & Stornetta did not directly launched the term but proposed a digital document to fix the property rights with creator before other can copy, by using hash function to store each ownership entry in a sequence to ad infinitum level. This provided scope to further research on the idea that finally found shape in work of Satoshi Nakamoto in 2008 where he introduced Virtual currency Bitcoin, that works on the structure of 'a chain of Blocks' and 'public ledger'.

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technological progress like invention of Transfer Control Protocol has changed mode of communication, with cost efficacy TCP transfer assets information, same-a-like Blockchain has potential to change ownership regime of assets in a cost-effective manner. Blockchain and Cryptocurrency are inter-related but not same, Blockchain is the work mechanism of Cryptocurrency. So, whenever this paper has discussed few aspects of Cryptocurrency it is also touch principles of Blockchain.

The scope of Blockchain is emerging one, where it can redress problem of data recording, data breach, sabotage, agency problem, central authority, accessibility, accountability, corruption and most importantly transparency. Therefore, Blockchain has much to contribute in Corporate governance. Implicating Blockchain's feature relevant to issues of CG can provide overall solution in a progressive way.

(A) Literature Review

Dr G. K. Kapoor, Sanjay Dhamija, Surajit Mazumdar, Namrata Vishwanath, Anil Kumar, Kshama Kaushik[5],the Researcher has referred this work to understand the basics meaning and factor promoting the Corporate Governance, brief analysis of different Committee report and necessity of Good Governance.

A.C. Fernando[6], the Researcher has referred this literature to review purpose of Corporate governance. Also, one of the focal points that Researcher has referred is the "Market Model of McKinsey that brought forward how different entities differently interpret Corporate Governance.

N. S. Nappinai[7], the author has described basics of digital currency governed by a contractual terms of trading partner rather than government. The power to issue virtual currency is backed by Central Authority of RBI. Further, alarm has been raised that introducing digital currency is associated with threats of misuse and criminal activity, that call for robust enforcement mechanism.

Internet and Mobile Association vs. RBI[8], the case holds the pioneer in the history of Cryptocurrency in India, where Supreme Court set aside the ban of RBI that entities recognized by RBI to restrain dealing in Virtual currency on ground of proportionality.

[5] *CORPORATE GOVERNANCE*- IICA 1.5-1.8 (Taxmann Publications 2015).
[6] *CORPORATE GOVERNANCE- PRINCIPLES, POLICY AND PRACTICES* 15-20 (2nd ed. Dorling Kindersley (India) Pvt. Ltd. 2013).
[7] *TECHNOLOGY LAWS* 56-66 (Lexis Nexis 2017)
[8] Mythri Jonnala, Internet and Mobile Association of India versus Reserve Bank of India, 5 The LexWarrier: Online Law Journal 143, 144 – 147 (2020), ISSN (O): 2319-8338.

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David Yermack[9], the Researcher is well known for his interdisciplinary finding on Blockchain implication in Corporate Governance. The Researcher has examined in the paper the problem "How Blockchain Technology will affect Corporate Governance from the view of Corporate Managers, Institutional Investors and other Groups?". The usage of Blockchain along with its working mechanism of mining have been explained briefly. The paper has further described possible features of introducing Blockchain in CG that includes Transparency of Ownership, Liquidity improvement, lesser Shareholder activism and reduction in the utility of Manager's Knowledge. Thereafter, the paper has discovered the scope and need of regulations focused by scam of 2016 against Ethereum DAO (Decentralized Autonomous Organization).

Vedat Akgiray[10], on Blockchain Technology and Corporate Governance has submitted in discussion forum of Organisation for Economic Co-operation and Development[11]. This paper has explored Blockchain, the Distributed Ledger Technology (DLT) as the growing Business Model that will transfer value of Assets. It has been explained that how growing popularity of Bitcoin has paved way of research and exaggerate benefits of the technology to different edges including to Corporation affairs of data recording, transparency and accessibility. The DLT design has been briefly explained suitable to necessary knowledge. Thereafter, Blockchain use has been contrasted against the traditional Central Data bases based on accuracy and accessibility. Lastly, weakness have been focused along with a note on regulatory landscape that few Countries like USA has framed few specific and modified laws, whereas few countries are waiting to see the evolving technology and terminology for better legislations.

Dulani Jayasuriya Daluwathumullagamage and Alexandra Sims[12], this paper is an extension to Yermack paper of 2017[13].in their paper has done a content analysis of 851 records of documents on Blockchain and CG. After doing a thorough review they concluded two major problem questions, "What are the present and foreseeable use cases for blockchain technology in corporate governance?" And "What are possible Consequences of implicating blockchain?". This paper mainly evaluated change in financing and strategic aspects of firm trading in virtual

[9] *Corporate Governance and Blockchains*, Review of Finance 7, 8-23 (2017), Available at: https://academic.oup.com/rof/article/21/1/7/2888422 (Accessed: May 21, 2023

[10] V. Akgiray, Professor of Finance, Bogazici University as background for the Corporate Governance Committee's roundtable discussion on blockchain technologies and possible implications for effective use and implementation of the G20/OECD Principles of Corporate Governance on 10 April 2018. A subsequent presentation of the report was given at the OECD Workshop on Digital Financial Assets on the 16 May 2018.

[11] *Directorate for Financial and Enterprise Affairs, OECD (2018)*, Available at: https://www.oecd.org/daf/ (Accessed: Jun 21, 2023).

[12] *Blockchain-enabled corporate governance and regulation*, International Journal of Financial Studies, (*MDPI*) Multidisciplinary Digital Publishing Institute, Available at: https://www.mdpi.com/2227-7072/8/2/36 (last visited Nov 12, 2022).

[13] Supra note 2

currencies. Also, the impact of Blockchain has changed the agency cost, transaction cost and stewardship[14].

Alexander Kaan Avdzha[15], a scholar student of LLM has submitted his work on scope of Blockchain Technology in Corporate Governance. The problem statement of thesis is "what are the ways in which Blockchain Technology can reshape CG?". the researcher has emphatically applied Robust Political- Economical theory to Manager Agency problem of Corporation by apply the principles of 'limited rationality' and 'limited benevolence'. Also, the role of decentralization in promoting transparency and accountability has been explained. The paper has further identified scope of human free governance and resultant cost analysis.

Kevin Werbach[16], in this paper the essence of law and reach has been vitally recognized. Blockchain is the new trend in business mechanism. Blockchain technology is being utilized by giant companies as well as smaller as the scope is wide and growing. The need to regulate the Blockchain was recognized with the principle that unregulated currency leads to financial scams, money laundering, terror funding and other illicit activities. Thus, regulating Bitcoin and its working mechanism is very essential. The DLT mechanism and working of mining would require a technical terminology of the proposed legislation.

Wulf A. Kaal[17], the article has focused on automation feature of Blockchain Technology in Corporate Governance that how DAO (Decentralized Autonomous Organization). will reshape firm structuring, facilitating human free governance with substantial cognitive skills of rationality because it has the potential to solve years old agency conflict. The perks and basics of Smart Contract will help building fiduciary in more transparent way. The article further highlighted lacunae of DAO and suggested optimal changes by bringing reforms in CG as DAO is complete strange from traditional corporation having no physical identity, place or director.

Tanvi Ratna[18], is a policy analyst and a consultant in framing blockchain regulatory framework in India, in the article she has explained regulatory framework of Blockchain mechanism in USA. It has been explained that there is no federal comprehensive law on Blockchain and

[14] Stewards are company executives as well as managers working, protecting and making money for the shareholders and stakeholders, Available at: https://www.mdpi.com/2227-7072/8/2/36.

[15] *The Coming Age of Blockchain Technology in Corporate Governance*, Tilburg University, LLM International Business Law Master's Thesis, 13-33 (2017), Available at: https://www.researchgate.net/publication/325380963_The_Coming_Age_of_Blockchain_Technology_in_Corporate_Governance (last visited Jun 21, 2023)

[16] *Trust, but Verify: Why the Blockchain Needs the Law*, 33(2) Berkeley Technology Law Journal 487, 490–550 (2018), https://www.jstor.org/stable/26533144

[17] *Blockchain-Based Corporate Governance*, 4 Stan. J. BLOCKCHAIN L. & POL'y 3 (2020).

[18] , "*Blockchain Regulation in the United States: Evaluating the Overall Approach to Virtual Asset Regulation." The Promise of Public Interest Technology: In India and the United States, 80, 83-86 (2019),* http://www.jstor.org/stable/resrep19980.9

several bodies including Securities and Exchange Commission (SEC), Commodity Future Trading Commission (CFTC) and other major bodies are collaboratively working towards dealing with Blockchain regulation. Further, different states have made corrections in their earlier bodies and few states have passed specific enactment.

Steven Young[19] , has described that how intermediatory functions in Corporations can be replaced effectively without any central authority, that will increase accessibility to different nodes without compromising data due to cryptographic encryption. This paper has explained that a consensus and collective action can be taken with the help of peer-to-peer connection.

Panisi Federico, P. Ross Buckley & Arner Douglas[20]**,** this paper projected that how massive growth of trade and transactions has shifted trend of direct shareholder to indirect share-holding that created two master of a share- Recorded shareholder and Beneficial shareholder that created discrepancy in ownership of share and proxy voting system in decision. The blockchain has double fold arrow to this situation, on one part it will clear with crystals the ownership of share, on another part it will reduce shareholder and investor activism by terminating foul play.

Fiammetta S. Piazza[21], in the paper have explained that active growth of virtual currency and bitcoin. The virtual currencies like bitcoin are not bank regularized. Therefore, there is no jurisdictional guarantee attached to it. The anonymous character of Bitcoin has been used in a dark web for procuring payments of laundering and other unlawful activities. As the business is expanding towards technological zone of Bitcoin and Blockchain, interest of Million people has been involved, taking the note of expansion, USA has stretched wings of Bank Secrecy Act by authority of FinCEN (Financial Crimes Enforcement Network) to eliminate the scope of anonymous transaction and provide security to trade dealing in Bitcoin.

(B) Research Problem

In the past few years, fraud and scandals in corporate governance have increased rapidly across the country and globally, some of which have not yet been resolved, and the involvement of managers and the board of directors is obvious which is creating trust problem and higher possibility of internal scams with lesser accountability. The present research is therefore dealing with How Blockchain technological development can solve traditional fiduciary and other

[19] *Changing Governance Models by Applying Blockchain Computing*, 26 CATH. U. J. L. & TECH 53 (2018)
[20] *Blockchain and Public Companies: A Revolution in Share Ownership Transparency, Proxy Voting and Corporate Governance?*, 2 Stan. J. BLOCKCHAIN L. & POL'y 189 (2019).
[21] *Bitcoin and the Blockchain as Possible Corporate Governance Tools: Strengths and Weaknesses*, 5 PENN St. J.L. & INT'l AFF. 262 (2017), available at https://heinonline.org/HOL/Page?public=true&handle=hein.journals/pensalfaw5&div=12&start_page=262&collection=usjournals&set_as_cursor=2&men_tab=srchresults

problems of a Corporation with a progressive approach?

(C) Research Objective

- To study the purpose of corporate governance
- To study the interdisciplinary scope of blockchain and corporate affair focusing the benefits and improvement.
- To study the regulatory mechanism for role of Blockchain Technology in Corporate Governance.

(D) Research Questions

1. Whether the purpose of the Corporate governance have changed with advent of technological changes?

2. Whether Blockchain Technology will restructure the Corporate governance?

3. Whether the Conventional law on corporate governance will cover consequences of introducing Blockchain Technology?

4. What are the legal issues that will arise with introduction of blockchain technology in corporate governance?

(E) Hypothesis

Introducing blockchain technology will be beneficial in the Corporate governance.

(F) Research Methodology

The research on this topic have been done with qualitative method using data collection tools, where doctrinal research analysis derived data for present paper including seminar paper, journal articles.

(G) Research Design

The research paper has descriptive analytical research design, followed by a thorough analysis of data derived by primary and secondary sources because the problem of research is to study the Role of Blockchain Technology in Corporate Governance, followed by regulatory mechanism. The Researcher has written and presented this work for Researchers, Law Students and to some extent for Policy Makers, to provide the understanding of this Inter-disciplinary topic. Therefore, qualitative methodology has been used to understand the concepts and explaining the same, where various journal articles and e-books along with web Articles have derived data. The research design has focused on how, what, when and where the research problem is. A descriptive analysis of all literature reviewed has been done to conclude review

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in words. Also, the Researcher has explored properties of Blockchain benefitting CG.

II. CORPORATE GOVERNANCE

The term Corporate Governance has been introduced with modern economic development and expansion of business. Corporate Governance means regulating the company with laws and rules set out in the way to serve its component stakeholders and targeted community. According to the Organization for Economic Cooperation and Development (OECD),"The mechanism by which business corporations are directed and governed is known as corporate governance. The corporate governance system sets out the rules and procedures for making corporate decisions, as well as the division of rights and obligations to various members in the company, such as the board of directors, administrators, shareholders, and other stakeholders. It also offers the framework by which the company's goals are set, as well as the means of achieving those goals and tracking results[22].

CG has been interpreted differently by different entities reported by McKinsey. The market entities in developed countries like USA, UK, the Equity holders there see CG as "separation of ownership and effective control to maximize wealth of shareholder", whereas in Developing Countries, CG is more inclined towards promoting dispersing market power from hands of inherited family wealth man and developing strong regulatory institutions to meet welfare objectives and achieving long term goals of benefitting all stakeholders as well as community.

The Concept of CG is inclusive of following: accountable and disciplining management; protecting and regulating interest of all stakeholder; transparency in records; investor protection and promoting shareholder activism; easy access to capital market; targeting long term investment strategies; community benefits and encouraging accountability[23].

(A) Transition in purpose of corporate governance

The concept Corporate Governance has faced a transitional shift due to major economic changes. It is witnessed that although the concept survived decades from Chanakya's Arthashastras[24] in traditional form, but it has not been shaped and legally considered in India till 1990, the year changed regime of CG where the proper attention was given to development

[22] Organization for Economic Cooperation and Development April 1999. OECD's definition is consistent with the onepresented by Cadbury (1992).

[23] A. C. FERNANDO, CORPORATE GOVERNANCE- PRINCIPLES, POLICY AND PRACTICES 12 (Dorling Kindersley (India) Pvt. Ltd. 2013).

[24] Chanakya explained fourfold duties of a king viz. Raksha, Vriddhi, Palana and Yogakshema. Here, Substituting the king of the State with the Company CEO or Board Directors the principles of Corporate Governance refers to protecting shareholders wealth (Raksha), enhancing the wealth by proper utilization of assets (Vriddhi), maintenance of wealth through profitable ventures (Palana) and above all safeguarding the interests of the shareholders (Yogakshema or safeguard).

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of CG under monitoring of Security and Exchange Board of India (SEBI) and the Ministry of Corporate Affairs (MCA). This was the time when business in India became global and great ventures saw its root. To invite lump FDI (Foreign Direct Investment), place of major Multi-National Companies (MNC), international infrastructural programme, a good CG was required. Thus, attention was given towards framing regulations over CG towards achieving liberal yet controlled operation of company. The first institutional step was taken in India for CG where basic minimal code for corporate governance was proposed by the Chamber of Indian Industries (CII), 1998, that defined CG- Corporate Governance deals with laws, procedures, practices and implicit rules that determines the Company‘s ability to take managerial decisions vis- a vis its claimants – in particular its shareholders, creditors, customers, the state and the employees. Then to govern, first step was to composite boards of directors (for accountability). Secondly, to form audit committees (to secure transparency) independent, powerful. Thirdly, having focused management monitors (distribution of power and work), transparency protection of institutional and international investors (for raising capital). Lastly, to provide regular risk management update to board (for long term wealth of financier).

So, the initial purpose of CG during liberalization included Accountability, Transparency, distribution of power & work, raising capital, wealth maximization of financier & clear ownership of shares. However, India has not attained these purposes and have an apparent Corporate deviance. Scandals such as World com, Harshad Mehta scam, Satyam scam etc., the concept of corporate governance has received wide spread attention in both developed and developing countries. These scams shocked investors. This makes it difficult for companies to raise funds from the stock market. These scams highlight the requirements for developing corporate governance Conventions and accounting transparency. Corporate governance is considered different from company management. It is not only company management, but also much broader in company management. It includes effective and transparent management to achieve certain objectives.

The transition is again coming through privatization. Corporate Governance has taken different routes since the economy moved towards privatization that facilitated liquidation of State Enterprise and selling the shares to Shareholders and private entities. As now the economy is taking turn, the whole world of Corporation will suffer change of mechanism and purpose. Following are the essential purpose of Corporate governance that will see advent ahead of privatization economy.

a) Fairness- safeguarding minority shareholders. Production be maintained with quality product, employer to secure employment, easy access to share market.

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b) Transparency- encouraging the clear crystal transaction regime, and providing shareholders and other interested parties with proper disclosures. Thus, promoting clear regime.

c) Accessibility- all essential parties including investor, shareholders, customers and in few cases general public should be enable to have accessibility of relevant data. It can be achieved by decentralized record system

d) Fiduciary strengthening- building trust among all component of company.

e) Wealth Maximization- Long term benefits to all stakeholder and Community.

f) Accountability – Management to manage proper control and oversight, paying sufficient attention to the connections and hierarchies between the board and its managers, shareholders and auditors, shareholders' accountability, and other factors.

g) Authority compliance - management must follow the law and accepted societal norms in all of its dealings. Therefore, responsible governance is the goal. (e.g. ethics, social responsibility). [25].

III. EVOLUTION AND INCORPORATION OF BLOCKCHAIN TECHNOLOGY

Blockchain is a technological development of modern times. Its origin found in Haber and Stornetta's idea of digital documentation of ownership rights in prior time using hash function[26] in 1991. Then, the full scope of Blockchain has been revealed in 2008 by Satoshi Nakamoto who introduced virtual currency- Bitcoin for validating ownership. S. Nakamoto proposed peer-to-peer(P2P)[27]electronic value transfer through decentralize nodes. He further stated that the chains of block working for transaction will have no central authority, and nodes on the network may add new blocks after bundling history with transaction data, hash code of prior block and added number of piece known as "nonce". the Bitcoin did not expressly mention the Blockchain, but the working and implementation behind Bitcoin came to be known as Blockchain. Later on, concept of Blockchain fledged fully as a ledger[28]and now has multiple applications.

Blockchain is a chain of information of distinctive transactions in a sequential manner protected by cryptographic proof recorded on nodes. It is a DLT that replaces classic financial ledger.

[25] Anđelko Lojpur, "Corporate Governance in the Transition Process, 7 (3) SEER: Journal for Labour and Social Affairs in Eastern Europe 107, 108-111 (2004), JSTOR, http://www.jstor.org/stable/43294012

[26] Hashes have fixed and certain length, that makes improbable to guess the length of hash and thus prohibits unauthorized access. Hash function to meet encrypted demands required to solve for a Blockchain Computation.

[27] P2P is a group of computers that are linked together with equal permissions and responsibility for processing data. its a distributed working and accessibility mechanism.

[28] Ledger is software where individual entries are recorded digitally.

Blockchain consist block, where transactions are organised into blocks, and the chain of these blocks is the recognised history of transactions which is chronologically structured. This is referred to as a "blockchain."

Blockchain has three essential components- cryptography, DLT and mechanism of Proof of work.

a. Cryptography- is a technique to facilitate security of information between sender and receiver through code of algorithm.

b. DLT- DLT refers to technological structure, protocols that permits simultaneous access, authority, privilege, validation and record updating to all nodes on network.

c. Proof of work- this is consensus point where all nodes agree on specific things for a particular transaction. Miners[29] verify and proceed to complete transaction and add new block over the top of chain, all this required heavy expended efforts.

- This further protect transaction against data manipulation because altering the data in any previous block will require altering all subsequent block which is very costly and time taking, as it need hard mathematical computation and hardware support.

Format- The Blockchain exist in major two formats. Firstly, Public blockchain, here the ledger is free to access and exit and copy of ledgers can be approached easily. Example- Bitcoin & Ethereum. Secondly, Private Blockchain- here the Blockchain is owned by one or multiple people who gives permission access to concerned nodes, example- NASDAQ LINQ & RippleNet.

Technological Contribution- Another important aspect of Blockchain is that it further contributed towards software development including.

i. Smart Contract- is software enabled digital agreement the execution of which is automated by standardized programme code. For example- a smart car which is taken on loan, now the owner and Bank is under contractual relation, on default in paying EMI, the car will be locked automatically for breach of contract.

ii. Decentralized Applications (DApps)- it's a open source software application distributed on various nodes having chronological data input stored for convenient access. Example

[29] Miner is the node that undertake to verify transaction requested by user, by using special mathematical computation to connect new forming block to the last one through hardware and huge efforts in return of some monitory incentive. The process is known as mining.

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is Trace-Donate, it is an application for charity fund raising through digital wallet[30].

iii. "Decentralized Autonomous Organizations" (DAOs)- first DAO was created by Ethereum in 2016, they are virtual organized company having no physical existence or Director, where Token-holder collective run the company by smart contracts and votes in decision making.

Application of Blockchain- The Blockchain application is rapidly expanding from the major giants including Alphabet, IBM Co. (International Business Machine), Microsoft, Tesla, Samsung etc., to central as well as private banks have started Blockchain projects and spending a lot in research development to reach the core of its potential to have the full utilization of technology. Few countries have moved a step ahead including USA where in 2015 a LINQ blockchain platform was launched by NASDAQ for dealing with private bonds and stock; in Japan, Japan Exchange Group (JPX) and IBM started testing blockchain platforms to deal with low liquidity securities; Australian Stock Exchange in 2017 started building blockchain platform by digital platform holding mechanism[31].

this technology has further extension in data recording in medical sector, records of agricultural product exchange- crop management, in government department of registry, property transfer, digital identity, recording FIR and in central banking and financing systems.

(A) Working of blockchain in a brief

The general working includes following step:

a. A transaction request is made, which is transferred to all users on the P2P network.

b. Then request is verified by Miners who matches consensual algorithm by proof of work where he does Mining of the former block.

c. The verification process (Mining) has two optional algorithm- a private/ public key infrastructure and cryptographic hash.

d. The verified transaction details are added to former transaction block and build a new block, which is added to older block forming part in a chronological/hierarchical manner.

e. The chain of block then is available on decentralized ledger accessible to relative nodes

[30] Ake Frankenfield, *Decentralized Applications (dApps): Definition, Uses, Pros & Cons,* Investopedia (Mar 19, 2022) https://www.investopedia.com/terms/d/decentralized-applications-dapps.asp#:~:text=Decentralized%20applications%20(dApps)%20are%20digital,control%20of%20a%20single%20authority (last visited May 21, 2022)

[31] Vedat Akgiray, *Directorate for Financial and Enterprise Affairs, OECD (2018),* Available at: https://www.oecd.org/daf/

on P2P network.

f. Confirming and validating process of transaction.

(B) Blockchain as a DLT system

The diagram 1 explains the DLT system, where all nodes are connected to each other with equal authority to access transaction of assets listed.

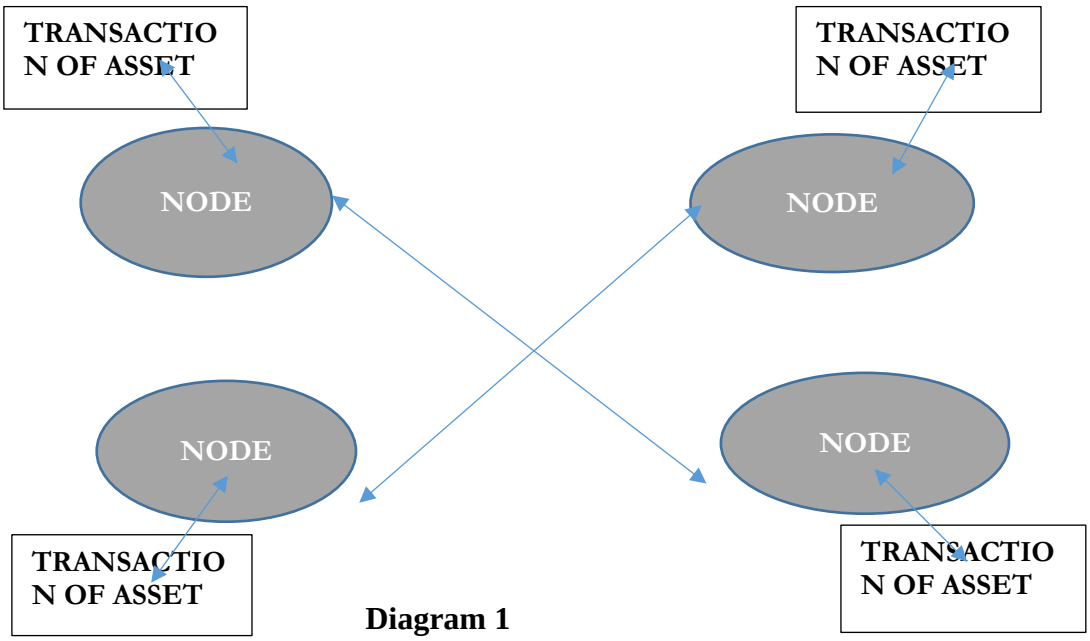

Diagram 1

(C) Impact of blockchain technology in corporation

The Corporation is the root of business aura, where having a legal entity and several characters. It works toward profit making and sharing while delivering any product or other innovation to society. The corporate sector has been long suffering with data recording, central financial ledger, insider trading and so more. The Blockchain can provide considerable benefits to these problems of Corporate Governance. According to the World Economic Forum, this technology can be found its use in areas including, but not limited to, facilitating global payments, issuing syndicated credit or securities, collateral management, regulatory and compliance activities and proxy voting[32] .

Blockchain can impact Corporate Governance regime in the following way:

i. Replacing traditional financial record ledger with decentralized ledger that will provide:

[32] *The Future of Financial Infrastructure: An ambitious look at how blockchain can reshape financial services*, World Economic Forum, 46-119 (2016), Available at: https://www.weforum.org/reports/the-future-of-financial-infrastructure-an-ambitious-look-at-how-blockchain-can-reshape-financial-services.

a. Accuracy of data without any intermediatory or gate keeper. It can be conveniently used to record share ownership and details of all stakeholder. Firm may use this for displaying transparency in data records and establishing trust between management and third party.

b. Access to data will be easy for all related parties because the DLT facilitates multiple shared copies of ledger data and default consensus among nodes on the network. It will promote interest of all investor and financiers by allowing them to check other debt & equity investors, thereby diminishes corrupt practices by regulators.

c. Data is immutable, due to history blocks which will curb insider trading of shares.

ii. Blockchain is further assessing new technology of Smart contract, it is a digital agreement that can further open scope of Decentralized Applications (DApps) and "Decentralized Autonomous Organizations" (DAOs). The smart contract may foster international business where Ex- ante arrangement can be made prior to dispute.

(D) Features of blockchain technology relevant to corporate governance

The blockchain has vital features associated with its working that can pave open plethora of door where problems of CG may find relevant solution. Following are the essential feature that may address benefits to CG:

1. **DLT**- the Distributed Ledger Technology has been the major focal point of exploration because it simultaneously provides accuracy, accessibility and immutability of data because this technology provides together access to nodes while protecting accuracy and immutability through hash function. This will promote transparency in CG where all party including management, investor, third related party have access to accurate data, equal privilege over records regarding all transaction in a chronological order. So, firm may replace their classic record system with DLT to promote transparency.

2. **P2P**- Peer to Peer networking means all nodes or group of Computer are connected together having equal permissions and responsibility towards data processing and synthesis. P2P will promote purpose of Responsibility and authority compliance in CG. the responsibility is shared in P2P, so where any request for a new transaction will be made, management employee on the node all will have permission and work to process and synthesis data chronologically over relevant transaction, and failure will be backed by non- compliance rules.

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3. **Smart Contract**- Smart Contract are digitally automated agreement executable over the programme code will lead to human free governance mechanism, where major intermediaries and need of physical place and members will be least. Also, it will enable companies to engage in cross border business due to ease in redressal mechanism, where pre dispute redressal agreements can promote trade and security. Thus, it will facilitate the principle of fairness in the CG.

4. **Proof of Work (Pow) to Proof of Stake (PoS)[33]-** it is very time taking job as discussed in above part. Solving hash of previous block, linking it with new all deter manipulations and terminate scope of fraudulent breach of data. Therefore, Blockchain has potential to achieve healthy and secured environment for all components associated with Corporation. also, it will lead to long term capital raise.

5. **Private Blockchain**- one of a drawback of Blockchain is its published information on ledger, which on one hand promote transparency and is positive, but on the other hand it spoils privacy of dealing. However, a private Blockchain will solve this trouble. Banking and other finance may employ it to provide transparency assured with privacy because Private Blockchain will give permissioned access for ledger copy of records to relative and authentic nodes concerned with transaction.

6. **Irreversibility & immutability of data**- the Blockchain stores each data of any transaction in a historical way where each block hold individual entries of a particular transaction, therefore the data is immutable and irreversible due to proof of work, thus it creates an accountable management and regulators in a Company, because investor have access to accurate data and no manipulation or insider trading can be done.

7. **Cost Effective & Quicker**- the Blockchain is a cost-effective system where Shareholder can easily trade and maintain ownership record in lower cost. It will promote shareholder & Investor activism by cheaper acquisition of shares in the lesser time. The cost and time benefit of Blockchain can be understood by an example recently due to financial crises Sri Lanka has taken loan of $2.9 billion from IMF, the average time required to transfer this amount through traditional wire is 2-3 days. if they would have used RippleNet[34], it could have been done under 5-10 seconds only.

[33] Now, with more technological growth, Proof of work has an alternative of Proof of stake, it is the consensual mechanism similar to PoW but at lower cost and lesser technical.

[34] Using distributed financial technology developed by Ripple, RippleNet is a decentralised worldwide network of banks and payment processors that offers real-time messaging, clearing, and settlement of financial transactions. Through the use of RippleNet, corporations, banks, payment processors, and exchanges of digital assets may all transmit money internationally without experiencing any delays.

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8. **Private key-** the Blockchain system provides Private key to individual shareholders for accessing ledger and putting their vote, this reduces chance of Proxy voting in general meeting.

IV. THE LEGAL ASPECT OF BLOCKCHAIN TECHNOLOGY IN CORPORATE GOVERNANCE IN JURISDICTION OF USA

The Researcher have chosen to study few highlights of USA due to its advance approach in dealing with Blockchain technology. Many federal and State institution are collectively working towards effectively governing. The stage is growing where virtual Currency has three regulators, namely SEC, CFTC and Treasury. Following are vital points to consider about Blockchain governance in USA:

- Role of SEC- Securities Exchange Commission is the major regulator of Blockchain and crypto currency. In initial years, it was silently cautious, but after failure of DAO in 2016[35], it came to action and classified Cryptocurrencies as Securities and non-Securities. Then proliferated Initial Coin Offering (ICO), followed by providing no-action letter to start-ups dealing in Virtual assets after analysing business model. Thereafter, started capacity development by creating position of Commissioner and advisory at SEC, also a strategic Hub of experts in Blockchain and Cryptocurrency.
- Role of CFTC- Commodity Futures Trading Commission, consider virtual Currency as commodity. It has launched anti-fraud programme that aims that Virtual currency not to accelerate and guide any fraudulent activity. It also created a Thinktank known as Lab-CFTC, that is six-member body to regulate dealing of Virtual currency.
- The U.S. Department of the Treasury- has three components collectively regulating virtual currency. Firstly, Internal Revenue Service (IRS), it has stated that Virtual currency will be treated as property for taxation and declared mining, contract and self-employment under taxation. The other two are Financial Crimes Enforcement Network (FinCEN) and Office of Foreign Assets Control, collectively working towards curbing criminal activities by virtual currency by practising registration of companies dealing in virtual currency on Know Your Customer (KYC)/ Anti- Money Laundering (AML).

To conclude- Though USA tried its best towards good governance of Cryptocurrency, but due to involvement of various Federal bodies and distinctive State regulation, the country did not

[35] Ethereum Blockchain platform launched DAO in 2016 and raised $150 million USD worth of Ether via token sale, later on it was hacked due to vulnerable code base.

produce best results. The start-up investment reduced and felt domiciling their firms in foreign Jurisdiction. The reason could be the fragmented approach of federal bodies and rigid approach towards technology[36].

(A) Current status of blockchain framework in india

The Indian government remained silent spectator of technology till 2017 to see the global framework, associated pros and cons and thereafter started action moves.

NITI Aayog – launched e-governance project called India Chain in 2017, aimed to achieve Anti-Fraud mechanism, speedy contractual execution, promoting agricultural economy with technology and transparent transaction. However, the project is still in developing phase. It's a promising biggest Blockchain project of the Country.

National Blockchain Framework (NBF) BY Ministry of Electronics and IT (MEitY)- in 2021 NBF has been introduced national infrastructure programme under a 5 year plan to be implemented within 7 layers. To begin with, nation will be divided in 4 zone North, South, West and East for infrastructural development of Blockchain. Thereafter, Individual Blockchain setup under Chain-layer will be done for individual sectors of health, education, smart city, property etc., then incorporating software like Hyperledger, Corda for platform building followed by smart Contract layer, services and assets platform and cross access- application layer[37]

National Strategy on Blockchain by Ministry of Electronics and IT (MeitY)- in 2021, MeitY, has launched a 52 pages document introducing Blockchain in various sector including Fintech, Agri-tech, Health-tech, ed-tech etc.,[38]

Digital Rupee by RBI- in 2022, RBI has proposed to pilot a Digital rupee, it will be issued as an e-version of Indian Rupee which can be used as contactless transaction, under the program of Central Bank Digital Currency (CBDC). The project is live from November 1, 2022 on trial phase.

TABLE 1

CENTRAL GOVERNMENT	
PROJECT	**YEAR**

[36] Supra note 14.
[37] Hemant Kashyap, *From Healthtech To Law Enforcement: How India Plans To Use Blockchain*, Inc42 (Oct 18, 2022) https://inc42.com/features/healthtech-law-enforcement-india-plans-use-blockchain/ (last visited apr 20,2023)
[38] Id., 37.

INDIA CHAIN BY NITI AAYOG	**2017**
NATIONAL BLOCKCHAIN FRAMEWORK BY MEitY	**2021**
NATIONAL STRATEGY ON BLOCKCHAIN BY MEitY	**2021**
DIGITAL RUPEE BY RBI	**2022**

Landmark case- in March 2020, Supreme Court given a green flag to trading via virtual currency. Internet and Mobile Association of India v. Reserve Bank of India[39], in this case the petitioner has questioned the powers of RBI over ban on Virtual currency. RBI in 2018 issued circular to disallow RBI recognized entities over trade in Virtual Currency claiming it to be susceptible and against interest of economy. Petitioner question authority of RBI and contended the ban illegal, to which RBI responded that it has power to regulate virtual currency and circular is therefore legal by virtue of I under the Banking Regulation Act, 1949, the RBI Act and the Payment and Settlement Systems Act, 2007. The RBI further contended that ban is reasonable under Article19 (2) because it is not a total ban on Virtual Currency, not declaring it as Illegal Tender and has not restricted recognized entities. Supreme Court has held that RBI is empowered to regulated Virtual currency but the concerned circular is not a reasonable restriction under article 19(2). Thus, set aside the ban remaining silent on legality of virtual currency.

Approach of SEBI- in August 2021, SEBI has circulated that issuers will record charges, Debenture Trustees will monitor real and duplicate entries for an asset, Credit Rating Agencies will all operate on Distributed ledger, the operational guidelines have been released in March 2022 to be enforced from 1 April 2022.

Further, States including Karnataka, Tamil Nadu and Telangana have started project over State Blockchain Policy.

(B) Legal issues concerning blockchain in india

a. Reasonable Restriction under Article 19 (2)

The Blockchain mechanism in India, is now upsurging its usage from storing digital documents, Registry records to sector of Fin-tech, Ed-tech, Health-tech, however, state is empowered to

[39] Mythri Jonnala, Internet and Mobile Association of India versus Reserve Bank of India, 5 The LexWarrier: Online Law Journal 143, 144 – 147 (2020), ISSN (O): 2319-8338.

place reasonable restriction over trading on Virtual currency or Blockchain under Article 19(2), if at any times the State is apprehending any attack over the Nodes, DLT, DAO or other similar application of Blockchain either in Government owned or Private, it may restrict the operation of the same if it can affect Security of State, integrity of nation or other state elements. For example, recently Firozabad Police has introduced system of registering FIR over Blockchain platform created for the purpose, to terminate corrupt manipulation of information and bring transparency. So, in case State agencies has apprehended a possible attack over the platform, it may temporarily suspend or restrict its working.

However, it is still unanswered how State can restrict operation of Blockchain under Article 19(6) in interest of public employment & monopoly.

b. Violation of Article 21 of Constitution of India

The blockchain technology has the praised and multi featured DLT, apparently it brought transparency by accuracy and accessibility of data. Yet at the same time it brings concern about privacy because all data records and files are uploaded on ledger accessible to all nodes, that accelerates individual's privacy concern. Right to Privacy is the Fundamental right protected under Article 21 of Constitution of India as announced by the Supreme Court in K.S Puttaswamy case[40].

c. Influx in Cyber crime

As with Blockchain, the governance and trade can go online. Going online is always associated with online loopholes and crimes. As the technology is still growing, the traditional laws are unable to govern, and a new comprehensive legislation is absent. So, great threat of cyber crimes associated with virtual asset and Blockchain is hanging like data theft, clash of nodes, attack on DAO etc., Major threats are because of anonymity. so, an effective exhaustive regulation is the need.

d. Banning of Cryptocurrency and Regulation of Official Digital Currency Bill, 2019

The bill was proposed by Inter-Disciplinary Committee under Ministry of Finance, to regulate ban over use of cryptocurrency where mining, selling, trade, using, holding, issuance, transferring of cryptocurrency, all prohibited. The rational behind the ban was to deter possible link with criminal activities sponsored by anonymous features.

Exempted – the use of Cryptocurrency is permitted for purpose of teaching, experiment and

[40] K.S. Puttaswamy and Anr. vs. Union of India ((2017) 10 SCC 1)

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research. The rationale behind this is that there are a lot of features for exploration of Blockchain as it facilitates cost & time effective transaction with transparency and accountability.

However, the bill was not passed due to complexity, and taking concerns of huge investments in Cryptocurrency by Indian.

Official Digital Currency Bill, 2021, it was proposed to be introduced in winter session in 2021, but was not introduced due to technical complexities and changing attitude of legislators over growing scope of Cryptocurrencies. This bill does not have "banning of" in title yet seems to ban all private cryptocurrency except digital rupee by RBI and also has few underlying exceptions for teaching, research or experiment.

In 2022, while announcing Union Budget 2022-23, government has announced taxing 30 percent on income accruing and gained by Virtual currency without providing any setoff over the losses. Also, a 1 percent TDS for tracking all transaction of virtual currency.

(C) Suggestions on model legislation for india

While framing any comprehensive legislation on virtual currency and blockchain, the researcher has felt appropriate to suggest that following points can form basis of legislation:

a) Application of the legislation should cover international business because the concept has global character, thus the legislation should follow and reach to international standards.

b) Definition of all important technological terms to be clear yet inclusive to provide clarity for great years.

c) Chapter scheme should follow use case, like a proper chapter should address proper use case comprehensively. For example- a chapter on Taxation to specify how government is treating virtual currency and associated work under different slab, a chapter on specifying how Blockchain can be used for recording land record with procedure etc.,

d) Each proposed use case be given proper regulatory and statutory constituted body like a Tax Commissioner of Virtual Assets, a Registrar for supervision of land record on Blockchain, a custom officer for monitoring payment of custom through virtual currency and maintaining record on Blockchain.

e) A chapter on prohibited applications of Blockchain and virtual currency, that will expressly prohibit all fraudulent and criminal activity and will further provide penalty.

f) To establish an investigative body for examining and reporting unauthorized use of technology.

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g) To establish a dispute redressal body that will address complaints of commercial nature associated with possible use of blockchain and virtual currency in corporation. it will boost Start-Up investment due to flexible redressal mechanism.

h) To establish the supreme body having authority to suggest timely reform and amendments to the law because the technology of Blockchain and Virtual currency is in growing stage and need timely revisit.

i) A SEBI Guide Manual can be issued classifying Virtual Assets as Convertible and Non-Convertible Securities and provide Comprehensive regulating rules.

V. CONCLUSION

Corporate Governance is a never ending job, Good Corporate governance is the never ending goal whereas Technological development is the never ending end. The CG has been trying becoming good CG, where the regulators have been working hard to comply with all necessities listed under rules. Technology always have changed the way of process, from physical data record to record over computer digitally, technology has been known to help humankind. Whereas now, technology is on the peak of automation, other disciplinary branches of healthcare, agriculture, education system and law, all are exploring their convenience. With introduction of Blockchain, Corporate Governance system can step upward towards goal of achieving Good CG. Properties of Blockchain may accelerate purpose of CG where shared distributed ledger will sponsor Transparency; P2P will serve purpose of Responsibility and authority compliance in a Company; Smart Contract will facilitate human free governance; proof of work will deter cheating; Private Blockchain will serve quite comparable privacy with accuracy; irreversibility & immutability of data files will cater accountability and diminish proxy voting by shareholder through Private keys of Blockchain issued to each individual that will clarify ownership record.

We have elected to put our money and faith in a mathematical framework that is free of politics and human error[41]. The blockchain is a box of features at one point and wall shielding criminal activities on other. Thus, an effective regulation is the equilibrium where features will promote overall growth in the society and control as well as penalize criminal activities facilitated by Blockchain. National projects are running in India to provide benefits of Blockchain, the are in their preliminary stage. Meanwhile, hope to see the final results and soon emerging regulation conciliating interest of government with investors. Where, the interest of investor and Start-up

[41] Tyler Winkelvoss, Rower & Entrepreneur

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can't be overlooked with such huge business running over the technology and the State being Sovereign has primary place in every legislation.

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 [ISSN 2581-5369]