EMBRACING THE DIGITAL ERA: TRANSFORMING CORPORATE GOVERNANCE

Abstract

The digital transformation of corporate governance, driven by technologies like blockchain and AI, has significant implications for business models, organizational structures, and regulatory frameworks. Blockchain technology and smart contracts offer the potential for enhancing shareholder engagement, proxy voting, and reducing insider trading. However, challenges like cyber threats, data breaches, regulatory compliance, and environmental sustainability must be considered. The article highlights the need for thoughtful digital implementation to maximize benefits while addressing risks.

Keywords: Corporate governance, Blockchain technology, Cyber security, digitalization, Shareholder conflict

Authors

Ramakrishna Vuppuluri
Research Scholar
Department of Commerce
Lovely Professional University
Phagwara, Punjab, India

Abhishek Pandey
Assistant Professor
Mittal School of Business
Lovely Professional University
Phagwara, Punjab, India

I. INTRODUCTION

The #going digital hashtag was used at a blockchain event organized by the OECD in Paris in September 2018. The challenge lies in understanding and adapting to the rapid technological changes.

Corporate governance is a crucial area of discussion due to the importance and confusion of technological developments. Stakeholders in the space are moving at different speeds and directions, but there is little agreement on the implications of digital transformation on business models and organizational structures. Some argue that digital technologies, like blockchain and artificial intelligence, will not disrupt corporate governance, while traditional regulatory models are robust enough to handle technological changes. However, an alternative view suggests that business models and organizations will be radically transformed by digital transformation, and existing regulatory models need to be re-examined to address the profound disruption caused by emerging technologies.

The digital transformation has significantly impacted our world, with new technologies like blockchain, AI, robotics, and sensors transforming communication, information production, and consumption. These technologies amplify each other, creating synergies that increase their social impact. While individual technologies like distributed ledgers, artificial intelligence, and robotics can have significant impacts, understanding the future of digital technology requires considering the combination of emerging technologies, such as Big Data, advanced analytics, and human-machine interfacing. The convergence of robotics and computer sciences is a key aspect of this technological disruption. These amplifying effects will generate new opportunities while challenging current business models, organizational structures, and regulatory frameworks.

New technologies bring about uncertainty and risk in the digital world, making it difficult to understand and predict future developments. This uncertainty makes it difficult to know the current state of technology or the direction of future developments, impacting government, scientific communities, businesses, and the general public.

Several High profile business scandals resulted into framing ‘Corporate governance’ in different countries. Agency theory explains the principal-agent relationship. The agency hypothesis explains the primary agent connection. It claims that the division of management and ownership results in a division of an agent's obligations and liabilities. The agent represents the principal in a particular economic deal and is expected to represent the principal's best interests irrespective of personal gain (Mitnick, 2015).

Conflict may arise between the principal and the agent since not all agents will always act in the principal's best interests (Hill and Jones, 1992). The misunderstanding and argument could lead to a number of conflicts. According to research, the atmosphere that fosters conflict is mostly driven by the behavior of passive investors. Incompatibility of stakeholders might result in inefficiencies and financial losses. As a result, every business must deal with the principal-agent conflicts.

Digitalization in corporate governance involves integrating digital technologies and data-driven processes to improve management, operations, and governance. It streamlines

decision-making, communication, transparency, and accountability, enabling real-time access to information and better stakeholder engagement and collaboration among stakeholders. Key components of digitalization include virtual board meetings, digital communication platforms, electronic voting systems, data analytics, cybersecurity measures, and digital initiatives for corporate social responsibility. However, companies must address challenges like cyber security, privacy, regulatory compliance, and equitable access to technology to fully benefit from digital transformation in the governance landscape.

In the domain of corporate governance, there is a lot of interest in new technologies, but there is far less consensus on what digital transformation implies for the future of business models, organizational structure, and corporate governance (Fenwick & Vermeulen, 2018).

According to Lindman et al. (2017), "the key technological enablers of recent developments in distributed transaction and ledger systems" are blockchain technology and the underlying distributed database technologies. Blockchain technology revolutionizes economic systems by transforming transaction, property, and trust concepts. Originally developed for cryptocurrency transactions, it has evolved across various sectors, including banks, insurance companies, financial markets, and voting systems. (Dai & Vasarhelyi, 2017; Tarasov & Tewari, 2017; Risius & Spohrer, 2017; Holub & Johnson, 2017; Guo & Liang, 2016)

Even if empirical research is currently missing to determine the precise impact of technology on corporate governance, blockchain technology can have an impact on a variety of business operations (Esposito De Falco & Cucari, 2018). For Principal-agent conflict explored in corporate governance research, blockchain advancements open new avenues.

II. CORPORATE GOVERNANCE

Corporate governance is crucial for the success of any organization, regardless of size. High corporate governance standards are essential for an organization to function well. (LSE, 2012; Zhuang, 1999) Guidelines like the UK Corporate Governance Code, Sarbanes Oxley Act, Cadbury Code, South Africa's King 1, II, III, and IV reports, Kotak Committee's recommendations are examples of guiding principles. However, following codes alone is insufficient; it is necessary to transcend connections and trust (LSE, 2012; OECD, 2015; Nadaf & Navi, 2017). Corporate governance aims to create an environment that encourages long-term investment, financial stability, and commercial integrity, supporting growth and inclusive societies (OECD, 2015: 7).

Effective corporate governance procedures foster a supportive culture, improve risk management (LSE, 2012; Vagneur, 2004), and guard against scandals (Nadaf & Navi, 2017; McDonough, 2002). Companies with effective corporate governance have risk and uncertainty mitigation strategies in place (OECD, 2015). The roles and obligations of shareholders, investors, and management are outlined in the corporate governance code. Protecting investor wealth and allowing them to participate in business strategy decisions are essential rules (OECD, 2015; Nadaf & Navi, 2017). Poor corporate governance can lead to the loss of shareholder wealth and other catastrophic effects on businesses.

III. BLOCK CHAIN TECHNOLOGY

A blockchain system enables users to exchange valuable assets without depending on a centralized authority. A decentralized consensus mechanism, cryptographic algorithms, and a distributed database are the components that make up this system. Users of this system may vote on database changes and decide on transaction order due to a decentralized time-stamping mechanism that keeps transactional data in an unlimited series of linked blocks (Hawlitschek, et al, 2018).

In summary, the research literature examines 2 block-chain applications—smart contracts and a trustworthy distributed ledger having a platform for transactions—that have an influence on the principal-agent conflict. We'll sum up both fast.

- **Smart Contracts:** Contracts known as 'smart contracts' are held in the code of a computer that is carried out independently of 3rd parties (Swan, 2015; Marcini et al 2018). There is the possibility that smart contracts will reduce management's influence while increasing shareholder transparency (Hsieh et al., 2017).

- **Reliable Distributed Ledger:** The blockchain is a public register, allowing the public to access transactions without a central authority. Users can download each blockchain, containing past transactions. To manage the register, global history changes are needed, and require enormous computing power (Magnier et al 2018). This application aids in creating basic cryptocurrencies like Bitcoin. The fundamental effect of this application on corporate governance is complete transparency regarding the recorded transactions.

The principal-agent conflict is affected differently by each of the two applications of blockchain technology that were discussed earlier, which is to be expected. Furthermore, the utilization of smart contracts has a substantially higher potential but is likely to require significantly more time to build than the straightforward use of a blockchain as a ledger, which is very doable and could have a positive effect in the not-too-distant future (Ivaninskiy, I. 2019).

1. **Smart Contracts- As A Mitigation of Conflicts Relating to the Board of Directors:** Board functions, for example, audit, can be simplified and automated in organizations using smart contracts (Chedrawi et al., 2018), preventing management manipulation and enhancing the effectiveness of independent boards (Xie et al., 2003). According to several authors, blockchain could be utilized to create unchangeable as per records, which would greatly simplify and raise the audit quality level (Byström, H. 2019; Peters et al., 2016).

'Smart contracts' provide automated commitment execution without the need for a 3rd party. The distribution of profits to shareholders is one example of the commitment that exists between management and shareholders. If management's compensation is tied to the performance of the company from the beginning of the relationship onward, then there is no way for shareholders and management to conflict with one another if the compensation is included in a smart contract. Wright and Filippi (2015) make a very simple suggestion regarding how smart contracts will affect managerial remuneration.

According to Yermack (2017), smart contracts can be used to determine compensation and can also be programmed to make automated payouts whenever performance targets are fulfilled. Managerial compensation is regarded by W.A. Kaal (2021) as a component of agency costs. According to him, using blockchain to resolve principal-agent conflicts would make it possible to reduce all agency costs, including those brought on by managerial remuneration.

Smart contracts for managerial remuneration compensation introduce risks, though theoretically negate conflicts, as fraudulent management can exploit computer code glitches as happened in other financial transactions (Kaal 2021).

2. Reliable Distributed Ledger – For Security Transactions

- Shareholders have to vote for proposals for board composition, directors' independence, compensation, and qualifications at annual meetings (Ertimur et al, 2010). Management's board composition proposals have the lowest support rate (Kahan et al, 2007). Management aims to create a friendly board, while shareholders seek independent directors to maintain control (Warther 1998). However, management often chooses the board, winning in the conflict (Rosenstein et al.,1990).

- Shareholders and managers often find themselves at odds with one another when the management team, and in particular the CEO, acquire an excessive amount of authority within the firm and have the potential to exert influence over the board of directors Jensen (1993); Shleifer and Vishny (1997). Passive investor conduct lies at the heart of the ecosystem that makes the conflict conceivable (Roe 1991). Non-transparent voting processes influenced by management contribute to low shareholder voting turnout. Issues like inexact lists, incomplete ballot distribution, and chaotic tabulation hinder small shareholders' participation (Kahan 2007). Reducing turnout costs by implementing blockchain increases participation at AGMs (Van der Elst et al., 2017). Yermack (2017) and Wright et al., (2015) indicate corporate voting conducted using blockchain technology would be substantially more transparent because it would allow for "Faster, more accurate vote tabulation and equal real-time transparency of the likely voting outcome for both management and dissident shareholders."

- Corporate voting strategies, such as 'empty voting', involve investors voting with borrowed shares before the vote, increasing their voting power. Blockchain-based transactions could potentially stop this practice by providing immediate transparency and making voting rights distribution more problematic (Malinova et al., 2017). Yermack (2017) notes that adopting blockchain to register transactions would minimize ‘insider selling’ by management in addition to making ‘empty voting’ more problematic because all transactions would be more visible. A decrease in insider trading would lessen the conflict even more because It wouldn't place management in a stronger position compared to other shareholders if that occurred.

- Van der Elst et al., (2017) argue that the board of directors' technical functions, like the appointment of an additional director when a director resigns in between two

AGMs, may be unnecessary if voting using blockchain is implemented directly by shareholders.

3. Advantages of Block-Chain Technology in Corporate Governance

- **Ownership Transparency:** All transactions are open and made available to all network participants.

- **Improved Liquidity:** The term ‘liquidity’ describes the capability for trading with the lot of securities faster and cheaper (Holden et al., 2013). Blockchains can improve liquidity by reducing costs and shortening trading times, whether used for share registration or post-trade clearing and settlement.

- **Impact on Institutional Investors and Activists:** Greater transparency may discourage activists and raiders from investing in blockchain-traded firms, as they view it as costly and seek secret share positions (Bebchuk and Jackson 2012).

- **Impact on Insider Trading:** Blockchain share trading could enable real-time observation of managers' trades, exposing them to scrutiny from boards and shareholders. This may make managers less aligned with shareholders by lowering their insider trading earnings.

- **Voting in General Meetings:** Blockchain technology proposes a viable alternative to traditional corporate proxy voting, replacing outdated methods with modern technology.

- Investors may benefit from cheaper trading costs and rapid ownership transfers, much accurate records, and improved transparency as a result of stock exchanges throughout the globe testing blockchain technology as a mechanism for corporations to list, sell, and vote their shares.

4. Salvatore Esposito De Falco, Emanuele Canuti, Nicola Cucari, and Stefano Modena conducted research on the survey approach and their findings show that proxy voting, record ownership, and turnout rate are the areas where the utilization of the blockchain technology will have the biggest long-term effects, according to the board members, while increased market liquidity and transparency are predicted to have the biggest long-term effects by institutional investors.

5. These illustrations highlight the potential benefits of retrofitting. Retrofitting is the process of ‘adding’ digital solutions to outdated models, systems, and organizations in an effort to ‘future-proof’ and improve the efficiency of the current strategy.

6. In contrast to what has been addressed here, new technologies might instead offer a fundamentally various method of approaching or conceptualizing the issue rather than a new tech-driven solution for old problems.

IV. REGULATORY POSITION

The most recent digital changes to regulatory frameworks include a strong emphasis on transparency and compliance requirements for listings as well as shareholder participation and information. As a new technique for trading corporate assets and tracking ownership, blockchain technology has been recommended by stock exchanges, and numerous big financial organizations have begun to invest in it.

1. Regulatory Position of Digitalization of Corporate Governance in India

- **For Shareholders' meetings:** The Companies Act of 2013 allows directors to take part in board meetings via (Video Conferencing) or audiovisual means (OVAM). (MCA,2023) Restrictions on approval of annual financial statements, Board reports, and prospectus in such VC meetings have been removed. Companies can also convene AGM (Annual General Meetings) and EGM (Extraordinary General Meetings) through VC and OVAM, according to the most recent COVID-19 pandemic circulars released by India's Ministry of Corporate Affairs.

  As per SEBI regulation no 44, for all shareholder resolutions, the listed company must provide its shareholders the facility of remote electronic voting.

  It makes sense that the widespread use of virtual general shareholder meetings might promote shareholder engagement and participation and could ultimately become a permanent aspect of corporate governance.

- **For Shareholders' information:** To shareholders who've already registered their email addresses with the firm or any depository, the listed entity must provide copies of the entire annual report to them (LODR 36)

  When paying dividends, interest, and sums payable upon redemption or repayment, the listed firm must do so utilizing any of the electronic payment methods permitted by the RBI. (LODR regulation 12)

  LODR regulation 46 gives the complete list of information to be shown in a separate section on the listed entity website. The list comprises so much information that is useful for the shareholders.

  Companies Act 2013 stipulates under various sections certain information such as Financial statements, Board's report, CSR Policy, unpaid dividend account details, etc. are to be disclosed on the company's website.

- For Regulatory compliance: All the compliance reports, documents, and filings by private limited companies, public limited, or one-man companies needed under the Companies Act 2013 are to be filed through the Ministry of Corporate Affairs portal www.mca.gov.in. However Digital technology' dynamic nature makes it difficult to ensure compliance. The challenges businesses encounter while navigating the confusing regulatory environment are to be addressed for better compliance.

The listed business shall transmit reports, documents, statements, filings, and any other information to the recognized stock exchange (s) using the electronic platform specified by the Board or the recognized stock exchange(s). (LODR regulation10)

2. Status of digitalization of Corporate Governance regulatory mechanism in world different parts

- Governments and companies are experimenting with blockchain technologies at an increasing rate. For instance, in the summer of 2017, Delaware changed its corporation legislation to allow businesses to utilize blockchain technology to keep track of stock ledgers and other corporate data. The Shanghai Stock Exchange (SSE), the world's 4th -largest stock exchange, announced plans to use blockchain and other distributed ledger technology in securities transactions in July 2018. The SSE adheres to other programs. In a trial including proxy voting to utilize its exchange in Estonia, Nasdaq was able to test blockchain technology without any problems. For clearing and settlement operations, the Australian Stock Exchange has begun to research distributed ledger technology solutions. IBM and the Japan Exchange Group are working together to research blockchain solutions for low-liquidity assets (Fenwick & Vermeulen, 2018). India's NSE in 2017 performed by a block chain on a trial basis of a Know your customer data protocol.

- Supervisory technology (SupTech) tools and solutions enhance regulatory efficiency and effectiveness by automating complex processes, enhancing oversight, surveillance, and analytical capabilities, benefiting financial stability and market integrity (Denis 2021).

- The following table gives a selection of SupTech initiatives (Extracted from the OECD going digital tool kit (Denis 2021)

Table 1

Subject	System	Responsible entity	Project Description
Improving Misconduct analysis	Project Appolo	Monetary Authority of Singapore (MAS)	In addition to the usage of traditional analytical frameworks, an AI-based tool is utilized to prioritize the cases that require additional investigation.
	Neutral language processing to detect AML/CFT infringements	Mexico's national banking and securities commission(CNBV)	Application to identify suspect AML/CFT network activity to enable the identification of anomalous transactions

	Tools for machine learning to analyze unstructured data	Columbia's Financial Superintendency (SFC)	To analyze market sentiment and market behavior. It has enabled the automation of information-gathering
Improving market surveillance	Market analysis and intelligence (MAI) platform	Australian Securities and Investment Commission (ASIC)	A real-time monitoring alert system that looks for irregularities in order and trade messages for traded securities
	Automated alarm and market monitoring system (ALMA) project	German Federal Financial Supervisory Authority (BaFin)	For the automated detection of insider trading instances
	Market Analytic platform	Canadian Securities Administration (CSA)	For the purpose of investigating any violations of insider trading regulations and other forms of market manipulation on Canadian exchanges and in the alternative trading system
Improving regulatory reporting	AI evaluation of listed businesses' corporate governance disclosures' quality	Malaysian Securities Commission (SC Malaysia)	To keep an eye on listed companies' adherence to corporate best practices and the caliber of their disclosures on the Malaysian stock exchange
	Data collection Gateway	Monetary Authority of Singapore (MAS)	The MAS data collection capacity by addressing issues MAS and financial institutions both confront
	SEDAR+ National filing system	Canadian Securities Administration (CSA)	CSA is creating a comprehensive and integrated records filing and disclosure system to unify and update its current databases and national systems, that involves the SEDAR+ (System for Electronic Document Analysis and Retrieval), Cease-Trade Order Database (CTO), SEDI (System for Electronic Disclosure by

			Insiders), NRS (National Registration Search), NRD (National Registration Database), Disciplined List (DL), and numerous filings currently made in paper for various purposes.
Improving data management	Cloud computing for processing large data volumes	Mexico's National Banking and Securities Commission (CNBV)	A project using cloud computing is now being carried out by the CNBV to process a lot of data related to anti-money laundering (AML) compliance.
	Digital Forensics	Japan's securities and exchange Surveillance Commission(SESC)	SESC is improving digital forensic technology and creating a cutting-edge environment for the preservation, analysis, restoration, and electronic data storage.

Source: Authors' summarization from 'OECD going digital tool kit' (Denis 2021)

3. **Challenges and Risks of Digitalization in Corporate Governance:** The hazards and problems of digitization are identified by researchers. These might include Cyber attacks, data breaches, problems with regulatory compliance, etc.

London head quartered Cyber Management Alliance Limited – a world leader in cyber security consultancy gives the following mind-boggling information for the month of May 2023 on their website: (https: //www.cm-alliance.com/cybersecurity-blog/may-2023-recent-cyber-attacks-data-breaches-ransomware-attacks) accessed on 20th July 2023.

Cyber attacks in May 2023	10 incidents
Ransomware attacks in May 2023	16 incidents
Data breaches in May 2023	20 incidents

Source: Authors' summarization from above-referred website of Cyber Management Alliance Ltd.

V. CONCLUSION

1. The article highlights the potential of digital transformation, particularly blockchain technology and smart contracts, in improving corporate governance practices. By leveraging these technologies, businesses can enhance transparency, accountability, and stakeholder engagement, leading to better decision-making processes and reduced agency conflicts.

2. The 2 blockchain applications listed above have various effects on the principal-agent conflict. Although just utilizing a blockchain as a ledger is quite practical and could have a good effect in the future, the usage of smart contracts has a far greater potential but that

would be more likely for taking a much time to develop (Ivaninskiy 2019). In conclusion, blockchain technology might offer an innovative and different governance system that can lower agency expenses and build more confidence in the contractual association among the principal and the agent, boosting the effectiveness of the relationship agency.

3. The adoption of blockchain technology raises environmental concerns due to corporate sustainability guidelines (Lozano, 2015). The contrasting results of Bitcoin and blockchain technology raise questions about their sustainability (Dalal, 2014; Giungato et al., 2017; Vranken, 2017;). Institutional investors are increasingly aware of ESG factors when allocating assets (Luo et al., 2015).

4. However, there are a number of crucial issues from the standpoint of corporate governance that are currently underrepresented in academic literature. What technological skills must businesses have in order to properly use blockchain technology? Are they unique from other IT projects, for instance? What is the best method for controlling a blockchain? Should the organization create a special board of directors committee, special department, or blockchain subsidiary? How might a blockchain implementation project best staff itself? Should a startup be purchased with a proven team instead of hiring an industry expert as a member of the board or top management member? These inquiries highlight further how there is plenty of room for more investigation on this subject.

5. The regulators and companies have to examine thoroughly all aspects before embarking on new technologies.

REFERENCES

[1] Bebchuk, L. and Jackson, R. (2012) The law and economics of blockholder disclosure, Harvard Business Law Review 2, 39–60.
[2] Byström, H. (2019). Blockchains, real-time accounting, and the future of credit risk modeling. *Ledger*, *4*.
[3] Chedrawi, C., & Howayeck, P. (2018). Audit in the Blockchain era within a principal-agent approach. *Information and Communication Technologies in Organizations and Society (ICTO 2018):"Information and Communications Technologies for an Inclusive World*."
[4] Dai, J., & Vasarhelyi, M. A. (2017). Toward blockchain-based accounting and assurance. Journal of Information Systems, 31(3),5-21
[5] Dalal, N. (2014). Exploring the bitcoin system: A complex econosociotechnical systems (CEST) perspective. International Journal of Conceptions on Management and Social Sciences, 2, 47–51
[6] Denis, E. (2021). The promises and pitfalls of SupTech for corporate governance-related enforcement. OECD going digital tool kit notes no 10.
[7] Ertimur, Y., Ferri, F., & Stubben, S. R. (2010). Board of directors' responsiveness to shareholders: Evidence from shareholder proposals. Journal of corporate finance, 16(1), 53-72.
[8] Esposito De Falco, S., & Cucari, N. (2018). Una reinterpretazione della corporate governance alla luce della tecnologia blockchain: nuove prospettive. Sinergie-SIMA 2018 Conference Proceeding "Transformative business strategies and new patterns for value creation" 14-15 June 2018
[9] Esposito De Falco, S., Cucari, N., Canuti, E., & Modena, S. (2019). Corporate governance and blockchain: Some preliminary results by a survey. *Corporate Governance: Search for the Advanced Practices*, 102-115.
[10] Fenwick, M., & Vermeulen, E. P. (2018). Technology and corporate governance: Blockchain, crypto, and artificial intelligence
[11] Giungato, P., Rana, R., Tarabella, A., & Tricase, C. (2017). Current trends in sustainability of bitcoins and related blockchain technology. Sustainability, 9(12), 2214
[12] Guo, Y., & Liang, C. (2016). Blockchain application and outlook in the banking industry. Financial Innovation, 2: 24.
[13] Hawlitschek, F., Notheisen, B., & Teubner, T. (2018). The limits of trust-free systems: A literature review

on blockchain technology and trust in the sharing economy. Electronic commerce research and applications, 29, 50-63.
[14] Hill, C.W. and Jones, T.M., 1992. Stakeholderagency theory. Journal of management studies, 29(2), pp.131-154
[15] Holden, C., Jacobsen, S., and Subrahmanyam, A. (2013) The empirical analysis of liquidity, Foundations and Trends in Finance 8, 265–365
[16] Holub, M., & Johnson, J. (2017). Mapping bitcoin's influence on academic research
[17] Hsieh, Y. Y., Vergne, J. P. J., & Wang, S. (2017). The internal and external governance of blockchain-based organizations: Evidence from cryptocurrencies. In *Bitcoin and beyond* (pp. 48-68). Routledge.
[18] Ivaninskiy, I. (2019). The impact of the digital transformation of business on corporate governance. An overview of recent studies. *Корпоративные финансы*, *13*(3), 35-47.
[19] Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *the Journal of Finance*, *48*(3), 831-880.
[20] Kaal, W. A. (2021). Blockchain solutions for agency problems in corporate governance. In *Information for efficient decision making: Big data, blockchain and relevance* (pp. 313-329).
[21] Kahan, M., & Rock, E. (2007). The hanging chads of corporate voting. *Geo. LJ*, *96*, 1227.
[22] Lindman, J., Tuunainen, V. K., & Rossi, M. (2017). Opportunities and risks of blockchain technologies–a research agenda. Proceedings of the 50th Hawaii International Conference on System Sciences, 1533-1542. https://doi.org/10 .24251/HICSS.2017.185
[23] Lozano, R. (2015). A holistic perspective on corporate sustainability drivers. Corporate Social Responsibility and Environmental Management, 22(1), 32- 44
[24] London Stock Exchange. (2012). Corporate Governance for Main Market and AIM Companies. White Page Ltd
[25] Magnier, V., & Barban, P. (2018). THE POTENTIAL IMPACT OF BLOCKCHAINS ON CORPORATE GOVERNANCE: A SURVEY ON SHAREHOLDERS'RIGHTS IN THE DIGITAL ERA. *InterEULawEast: journal for the international and european law, economics and market integrations*, *5*(2), 189-226.
[26] Malinova, K., & Park, A. (2017). Market design with blockchain technology. *Available at SSRN 2785626*.
[27] MCA, 2023 https://www.mca.gov.in/content/mca/global/en/acts-rules/ebooks/acts.html?act=NTk2MQ==#Meetings_of_Board, accessed on 18/07/2023
[28] Macrinici, D., Cartofeanu, C., & Gao, S. (2018). Smart contract applications within blockchain technology: A systematic mapping study. *Telematics and Informatics*, *35*(8), 2337-2354.
[29] McDonough, W. J. (2002). Issues in corporate governance, Federal Reserve Bank of New York. Current Issues, 8(8).
[30] Mitnick, B.M., 2015. Agency theory. Wiley encyclopedia of management, pp.1-6.
[31] Nadaf, S. M., & Navi, B. S. (2017). Corporate Governance: Issues, Opportunities and Challenges. International Journal of Commerce and Management Research, 3(7), 66-77
[32] OECD. (2015). G20/OECD Principles of Corporate Governance. OECD Publishing, Paris. https://doi.org/10.1002/bl.30032
[33] Peters, G. W., & Panayi, E. (2016). *Understanding modern banking ledgers through blockchain technologies: Future of transaction processing and smart contracts on the internet of money* (pp. 239-278). Springer International Publishing.
[34] Risius, M., & Spohrer, K. (2017). A blockchain research framework. Business & Information Systems Engineering, 59(6), 385-409.
[35] Roe, M. J. (1991). A political theory of American corporate finance. *Colum. L. Rev.*, *91*, 10.
[36] Rosenstein, S., & Wyatt, J. G. (1990). Outside directors, board independence, and shareholder wealth. *Journal of financial economics*, *26*(2), 175-191.
[37] Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The journal of finance*, *52*(2), 737-783.
[38] Swan, M. (2015). *Blockchain: Blueprint for a new economy*. " O'Reilly Media, Inc.".
[39] Tarasov, P., & Tewari, H. (2017). The future of e-voting. IADIS International Journal on Computer Science & Information Systems, 12(2), 148-165.
[40] Vagneur, K. (2004). Corporate Governance. Edinburgh Business School, Great Britain
[41] Van der Elst, C., & Lafarre, A. (2017). Bringing the AGM to the 21st century: Blockchain and smart contracting tech for shareholder involvement. *European Corporate Governance Institute (ECGI)-Law Working Paper*, (358).
[42] Vranken, H. (2017). Sustainability of bitcoin and blockchains. Current Opinion in Environmental Sustainability, 28, 1-9.

[43] Warther, V. A. (1998). Board effectiveness and board dissent: A model of the board's relationship to management and shareholders. *Journal of Corporate Finance*, *4*(1), 53-70.
[44] Wright, A., & De Filippi, P. (2015). Decentralized blockchain technology and the rise of lex cryptographia. *Available at SSRN 2580664*.
[45] Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003). Earnings management and corporate governance: the role of the board and the audit committee. *Journal of corporate finance*, *9*(3), 295-316.
[46] Yermack, D. (2017). Corporate governance and blockchains. *Review of finance*, *21*(1), 7-31.
[47] Zhuang, J. (1999). some Conceptual issues of corporate governance. Asian development Bank, EDRC Briefing Notes

