IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

THE EFFECTS OF TECHNOLOGICAL ADVANCEMENTS ON CORPORATE GOVERNANCE

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Abstract: The COVID-19 epidemic has led to a surge in digitalization in several fields, including corporate governance. Due to the pandemic, a number of digitalization initiatives were done out of need rather than strategy, which prevented them from potentially undergoing the thorough regulatory review that would be required in other situations. This article intends to provide with a fresh perspective on how emerging technologies, including blockchain, smart contracts, big data, algorithms, and artificial intelligence, are expected to affect a company's structure on corporate governance. During this transition, businesses shifted from having a short-term emphasis to a long-term one, and they replaced their goal of maximising profits with one of creating sustained added value. Owing to the impact on the accounting function—one of the most important pillars supporting corporate governance—digitalization offers a more developed framework for responsibility and accountability by guaranteeing the timely, accurate, and transparent information stakeholders require. On the other hand, this transition has also made a significant rise to the number of cyberattacks and other threats to digital security of a company. However, as interim measures have shown to be somewhat beneficial in comparison to the pre-pandemic normal, the pandemic crisis has also presented a chance to put productivity-enhancing measures into place. This article further demonstrates upon the fact that, in contrast to popular belief, one of the most important and noticeable consequences of modern technologies on businesses is how corporate bodies divide up their own duties and competencies and still protecting the pillars of their corporate governance during crisis.

Index Terms: **Digitalization; Transparency; Accountability; shareholder; cyber risk.**

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INTRODUCTION

Our economy, social interactions, and decision-making processes are all changing as a result of digital technology and digital transformation. Corporate organisations, which are already highly centralised institutions with both official and informal procedures and processes, are also being imagined by technological advancements. Businesses are undergoing transformation as a result of digitalization and sustainability, which is altering their operations, services, and products. The development of a sustainable and digital economy may boost business performance, but these new developments may also provide corporate governance structure difficulties for businesses. These changes frequently result in information asymmetries and a slowdown of decision-making processes.

Technology has the power to transform businesses[2]. Technology may lessen some of the transaction costs that certain corporate players find difficult when making collective choices. This may mean, for instance, that shareholders could make decisions that have historically been made by the board of directors[3]. Similar to this, the informational decision-making assistance offered by technical tools may allow the board of directors to regain authority over competencies that have traditionally been assigned to executive officers and managers owing to the necessity for specific operational skills[4]. When a shift in business culture is required to create long-term value, boards are obliged to spearhead the reform process under European corporate governance regulations. A company's culture includes its growing emphasis on ethics and the reasons behind people's actions. In order to provide workers with the training they need to enhance the corporate culture, boards must ascertain both positive and negative practices as well as issues that arise inside the organisation[5].

'E-voting' is a new provision that has been introduced in accordance with Rule 20 of the Companies (Management and Administration) Rules, 2014 and Section 108 of the Companies Act, 2013, which requires listed companies and companies with more than 1000 shareholders to provide their shareholders with the ability to vote electronically. Under certain restrictions, the Act allows businesses to keep their books of accounts, registers, and other records in electronic format. As a result, businesses may use digital technology to maintain records and have less physical storage to deal with.

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[2] Christoph Van der, *Technology and Corporate Governance*, ECGI (Mar. 18, 2024, 8:13 PM) https://www.ecgi.global/content/technology-and-corporate-governance-0.

[3] Chiara Picciau, The (Un)Predictable Impact of Technology on Corporate Governance, HASTINGS BUSINESS J. (Mar. 18, 2024, 8:13 PM). https://www.independentdirectorsdatabank.in/img/newsletter/2022/6311aa1bde57f.pdf.

[4] A. Kadir Varoglu & Soner Gokten, *Digital Corporate Governance: Inevitable Transformation*, (Mar. 18, 2024, 8:13 PM) https://www.researchgate.net/publication/352386759_Digital_Corporate_Governance_Inevitable_Transformation.

[5] Lokke Moerel, *Reflections on the Impact of the Digital Revolution on Corporate Governance of Listed Companies*. (Mar. 18, 2024, 8:13 PM) https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3519872.

Businesses now have a range of options to choose from when it comes to incorporating sustainability and digitalization into corporate governance frameworks. For organisations, the rise of new technology and digital platforms has presented both possibilities and difficulties. In order to successfully handle and manage digital risks and opportunities, firms need to modify their governance frameworks in light of the growing popularity of e-commerce, online banking, and virtual communication.

ROLE OF TECHNOLOGY IN ENHANCING TRANSPARENCY

The word of choice for characterising the conventional ideas of political accountability, responsiveness, and responsibility has grown to include "transparency." In order for public services to be considered transparent, they must be responsive, answerable to the public, and visible to the public. The capacity of citizens to influence or regulate public services is a component of transparency[6]. Transparency gives members and people the ability to make informed decisions while preventing corruption and the misuse of power. Transparency is a concept that emerged in the Information Age. One of the most important tools in the battle against corruption is information access.

Businesses may use technology to expedite reporting and communication procedures, giving stakeholders easy access to pertinent data. Technology innovation may give stakeholders access to a multitude of information. Real-time reports on financial performance, strategic initiatives, and corporate governance procedures can be obtained through online portals and platforms. For instance, businesses can automate the creation and dissemination of financial reports via cloud-based software, which facilitates investors' and shareholders' access to and analysis of important data[7]. But because of technology, investors may now access a variety of tools and platforms that provide them real-time information on how their money is being spent.

Some of the ways by which technology helps in upholding transparency and accountability in a business organisation are: -

Installing in place digital systems for data management and record-keeping, which can facilitate public and regulatory access to information. Generating tamper-proof records of transactions and other important data with blockchain technology. Interacting with stakeholders and sharing

[6] Sirajul Haque & Pairote Pathrannarakul, *The Role of Technology in Enhancing Transparency and Accountability in Public Sector Organizations of Pakistan*, IJEMBS, (Mar. 18, 2024, 8:13 PM) https://www.onlinesciencepublishing.com/index.php/ijebms/article/download/297/436/290.

[7] *The Role of Technology in Enhancing Transparency and Accountability,* FASTER CAPITAL, https://fastercapital.com/startup-topic/Role-of-Technology-in-Enhancing-Transparency.html#:~:text=In%20conclusion%2C%20technology%20has%20revolutionized,valuable%20insights%20through%20data%20analytics..

information via social media and other digital tools. Putting data analytics techniques into practice to measure and monitor performance indicators and find any problems.

Using artificial intelligence ("AI") to digital technologies to detect and report possibly fraudulent activity. Digital signatures are used to confirm the legitimacy of transactions and documents. Enhancing the accountability and transparency of elections and other democratic processes through the use of digital instruments like electronic voting systems[8].

Thus we can say that technology plays a major role in increasing capital raising transparency by giving investors access to more information. Investors found it frequently challenging to understand where and how their money was being spent in the past. Investors now have greater faith in the process, and their relationship with the firms they invest in is strengthened by this improved openness.

RISK MANAGEMENT AND DATA ANALYTICS IN CORPORATE GOVERNANCE

Conventional risk management strategies may not be the best means of addressing the changing risk environment as they mostly rely on subjectivity and personal opinions. As a result, the strategy must change, moving from risk management to risk-enabled performance management. The application of data analytics and other cutting-edge technology is more crucial than ever due to the emergence of new threats[9]. It is essential to integrate data analytics with risk management. These technologies must be integrated into the risk management process at every stage, from identification to evaluation to mitigation to monitoring, as part of the risk management strategy. There is a fantastic chance to use analytics at every stage of the process.

Data privacy has become more important as organisations gather and store vast amounts of data. In the context of digital governance, boards need to take the initiative to create strong data privacy policies and follow data protection laws in order to safeguard private information and defend stakeholders' interests.

One of the main advantages of big data analytics in risk management is the capacity to recognise and identify dangers in real-time or almost real-time. Conventional risk management methods often rely on past performance and sporadic reporting, which might overlook fresh risks or sudden shifts in the market. Financial institutions can identify risks proactively and take early action by using big data analytics to monitor and analyse data in real time[10]. Organisations go through digital transformation projects when they integrate digital technology. In order to make sure that these

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[8] Tech Minds, *How can we use technology to promote transparency and accountability in business and government? (Mar. 18, 2024, 8:13 PM)* *https://www.quora.com/How-can-we-use-technology-to-promote-transparency-and-accountability-in-business-and-government*.

[9] Vishal Ruia, *Role of data analytics in risk management*, EY, (Mar. 18, 2024, 8:13 PM) https://www.ey.com/en_in/risk/role-of-data-analytics-in-risk-management.

[10] *The Role of Big Data Analytics in Risk Management for Financial Institutions*, FINANCE MAGNETS (Mar. 18, 2024, 8:13 PM). https://www.financemagnates.com/institutional-forex/technology/the-role-of-big-data-analytics-in-risk-management-for-financial-institutions/.

projects are in line with the company's strategic goals and benefit stakeholders, boards are essential in supervising them.

Nonetheless, although data analytics has many advantages for risk management, it also has drawbacks and limits of its own[11]. First of all, maintaining data quality and dependability may be quite difficult. Businesses must make sure that the information they utilise for risk analysis is correct, comprehensive, and current. Strong data governance frameworks and data quality management procedures are needed for this. Second, the efficient application of data analytics in risk management may be impeded by worries about data security and privacy. Organisations must abide by stringent laws and safeguard confidential client data. This occasionally has the effect of limiting the data's accessibility and availability for risk analysis. The intricacy of data analytics methods and tools presents another difficulty.

IMPACT ON SHAREHOLDER ENGAGEMENT

The most important global problems, including poverty, ageing societies, and climate change, cannot be solved by one organisation acting alone. Instead, several stakeholders must work together to find solutions. Since many of the advantages, hazards, and ramifications of developing technologies are still unknown, a multistakeholder approach is especially crucial. We asked executives of mission-driven start-ups and unicorn firms who are part of the World Economic Forum's Innovators Community how evolving technologies facilitate multistakeholder engagement in the modern world[12].

Businesses may now communicate directly with their stakeholders thanks to technology. Through digital means such as email and social media, businesses may promptly and efficiently communicate changes, solicit feedback, and address inquiries from interested parties. Businesses and its stakeholders may develop trust and a sense of openness because to this immediacy and accessibility. For organisations and people to effectively use digital platforms for stakeholder interaction, they must acquire digital literacy skills. This entails becoming proficient with digital tools and technology, data analysis, and online communication.

Real-time communication is made possible by technology, which eliminates time and distance constraints. It is no longer necessary for stakeholders to wait for yearly reports or scheduled meetings in order to voice their concerns or obtain updates. Through a variety of digital media, they may interact with organisations in real time.

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[11] Neil Thorne, *The Role of Data Analytics in Risk Management*, OMETIS, (Mar. 18, 2024, 8:13 PM) https://ometis.co.uk/blog-news/the-role-of-data-analytics-in-risk-management#:~:text=Organisations%20need%20to%20ensure%20that,data%20analytics%20in%20risk%20management.

[12] Davos Agenda, *How technology is enabling multistakeholder engagement in today's world*, WORLD ECONOMIC FORUM, (Mar. 18, 2024, 8:13 PM) https://www.weforum.org/agenda/2023/01/how-technology-is-enabling-multi-stakeholder-engagement-davos2023/.

Leveraging digital innovation in relations with shareholders is about altering corporate governance and shareholder engagement in the future, not just about staying ahead of the curve. In this era of efficiency, openness, and technology, we're creating new avenues for investor empowerment and raising the bar for corporate responsibility. Recent years have seen a sharp increase in ESG investment, which has sparked effective shareholder engagement in a number of industry sectors, including technology. In this sector, investor advocates are successfully pressuring businesses to take responsibility for a number of crucial digital issues, such as privacy, artificial intelligence, surveillance, and racial equity[13].

Technology's ability to reach a larger and more diverse audience is one of its main advantages in stakeholder management. Organisations may rapidly connect with stakeholders anywhere in the globe by using mobile devices, social media platforms, and the internet. Businesses may now interact with stakeholders who were previously inaccessible owing to geographical constraints thanks to this increased accessibility. Strong data analytics tools have been made possible by technology, and they assist organisations in gathering, analysing, and interpreting data on stakeholder interactions. Through the use of data analytics, businesses may obtain insightful knowledge[14].

CYBERSECURITY CHALLENGES IN GOVERNANCE

"The inputs and outputs of other risks are well known. You attribute a dollar impact and a likelihood. Cyber is more ephemeral; there's much more guesswork." Another director noted that "boards know how to deal with enterprise-wide risk—it's their core oversight function," but acknowledged, "This risk is emerging, and boards are grappling with it. What's the particular vector? How will it impact us?[15]"

The boards of financial services companies now prioritise cybersecurity, and this concern appears to be increasing daily. Cyber risk management obviously necessitates governance at the highest levels, given that organisations are investing in a plethora of different technological breakthroughs, using sophisticated data analytics, and trying to develop new digital consumer experiences. This dilemma becomes much more pressing with the emergence of the COVID-19 pandemic.[16] In fact,

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[13] *Shareholder Engagement in Tech: Status Report, NETGAIN* PARTNERSHIP (Mar. 18, 2024, 8:13 PM) https://www.netgainpartnership.org/resources/shareholderengagement.

[14] *The Impact of Technology on Stakeholder Communication and Engagement*, TIMES OF STARTUPS, (Mar. 18, 2024, 8:13 PM) https://timesofstartups.com/tips-for-your-business/the-impact-of-technology-on-stakeholder-communication-and-engagement/.

[15] Jonathan Day, Michael Mahoney & Phyllis Sumner, Cybersecurity: An Evolving Governance Challenge, HARVARD LAW SCHOOL FORUM, (Mar. 18, 2024, 8:13 PM) https://corpgov.law.harvard.edu/2020/03/15/cybersecurity-an-evolving-governance-challenge/.

[16] Tucker Bailey, Soumya Banerjee, Christopher Feeney, & Heather Hogsett, *Cybersecurity: Emerging challenges and solutions for the boards of financial-services companies,* MCKINSEY & COMPANY, (Mar. 18, 2024, 8:13 PM) https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/cybersecurity/cybersecurity-emerging-challenges-and-solutions-for-the-boards-of-financial-services-companies.

in order to protect your company's data and guarantee the overall security of your operations, you need to be vigilant and always proactive as the concerning number of cyber threats and the likelihood of successful hacking efforts against enterprises both increasing[17]. In addition, having comprehensive and efficient corporate governance in place is crucial for a company's security as well as legal compliance.

One may assist his customers in achieving their intended long-term success, fostering stakeholder trust, and protecting their reputation by merging these two crucial emphasis areas—cybersecurity and corporate governance.

One of the most common security concerns with working from home is for employees. Due to carelessness, exhaustion, or ignorance, workers may unintentionally provide hackers access to their computers or corporate information. The largest problem in cyber security will still be protecting remote and hybrid work settings. The features of 5G networks exacerbate the cybersecurity risk. Towns, corporations, and consumers trying to implement 5G throughout the country are ill-prepared to assess and manage its risks[18].

It might be challenging to identify and stop insider threats. Insider threat actors might be current or past workers, contractors for the firm, or associates with the proper authorization. Workers with malicious intent who get important information can seriously harm a company. Just as much damage may be done to a corporation by inadvertent ignorance and negligence as by deliberate actions of greed or malice.

However, the chief information security officer (“CISO”) is often given responsibility for cybersecurity by the boards of numerous corporations. But since information is so widely dispersed, technology is so ubiquitous, and cybercrime is so unpredictable, board reports from the CISO are, at most, merely ceremonial in the context of cyber assurance. Directors assert that in addition to their CISOs, they must establish additional checks and foster trust across executive ranks and, in certain situations, at lower levels of management than is normal. The effects of cyber risk, in contrast to practically all other risks, are hard to quantify and might be anything from minor inconveniences to existential threats

FINDINGS, SUGGESTIONS AND CONCLUSION

In conclusion, it can be said that the way businesses function and interact with their stakeholders has changed significantly as a result of the influence of technology on corporate governance standards. Technology usage has brought potential for better information access, increased

[17] Cybersecurity & Governance: Navigating the Challenges, NEWTON, (Mar. 18, 2024, 8:13 PM) https://get-newton.com/cybersecurity-governance-navigating-the-challenges/.

[18] Preethiga Narasimman Most Extensive Cyber Security Challenges & Solutions in 2024, UPGRAD, (Mar. 18, 2024, 8:13 PM) https://www.knowledgehut.com/blog/security/cyber-security-challenges.

stakeholder contact, and virtual meetings, but it has also produced issues with regard to cybersecurity threats, the digital divide and accessibility, and regulatory compliance[19]. Considering the revolutionary effects of state-of-the-art technology and recent regulatory changes, businesses must welcome creative ways to modernise their operations.

The Act has defined the obligations of company secretaries and directors, requiring them to fulfil their duties not only to the firm but also to all other stakeholders and the general public. A key responsibility of the company secretary is to make sure that the firm has strong mechanisms in place to maximise the advantages of new cutting-edge technology while minimising associated dangers[20].

Disruptive technology offers opportunities as well as challenges for enhancing corporate governance. Drawing on concepts from three different articles and related materials, this special issue provides fuel for thought and action on how to successfully design and execute corporate governance and accounting systems within DTI environments. For effective and successful governance, agile, cooperative, and speedy decision-making are not only desirable but also necessary[21]. There are several benefits associated with disruptive technology for stakeholders, including chances for corporate expansion, start-ups, and inventions. On the other hand, the drawbacks include crude innovations, untested applications, and early performance issues.

It is widely acknowledged that businesses need to navigate the effects of technology and digitalization on corporate governance and ethics with caution and initiative. Organisations may improve their governance procedures and cultivate stakeholder trust by putting an emphasis on ethical conduct, accountability, and transparency through the use of digital technology.

Businesses must be aware of these possibilities and difficulties, and they must take the necessary precautions to lessen the dangers connected to technology use. Companies need to make sure they are following all applicable rules and laws and that they are taking the necessary precautions to keep their digital platforms safe from online attacks.

[19] Raj Pipra, *Impact of technology on Corporate Governance practice*, TAXGURU, (Mar. 18, 2024, 8:13 PM) https://taxguru.in/corporate-law/impact-technology-corporate-governance-practices.html.

[20] Nagesh Rudrakanthwar, *Transforming Corporate Governance: The Impact of New Edge Technology and Regulatory Revamp*, ICSI, (Mar. 18, 2024, 8:13 PM). .https://www.icsi.edu/media/webmodules/CSJ/April/14ArticleNageshRudrakanthwar.pdf.

[21] Hossam Haddad & Dina Ahmad Alkhodary, Review of the Corporate Governance and Its Effects on the Disruptive Technology Environment, WSEAS TRANSACTIONS ON ENVIRONMENT AND DEVELOPMENT (Mar. 18, 2024, 8:13 PM). https://www.researchgate.net/publication/354960749_Review_of_the_Corporate_Governance_and_Its_Effects_on_the_Disruptive_Technology_Environment.