ЧАСТНО-ПРАВОВЫЕ (ЦИВИЛИСТИЧЕСКИЕ) НАУКИ

ЦИФРОВОЕ ПРЕОБРАЗОВАНИЕ КОРПОРАТИВНОГО УПРАВЛЕНИЯ: ОПЫТ ИНДИИ

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Аннотация. Вопросы настоящего исследования касаются цифрового преобразования системы управления. Развивающаяся цифровая трансформация корпоративного управления выступает в качестве значительной силы, поддерживающей изменения в корпоративном контроле, прозрачности и подотчётности в Индии. Интеграция искусственного интеллекта, блокчейна, больших данных и Интернета вещей в системы управления, таким образом, создаёт возможности и препятствия. Цифровые технологии способствуют снижению рисков мошенничества и повышению эффективности принятия решений; однако такому цифровому внедрению препятствуют неопределённость регулирования, проблемы кибербезопасности и сопротивление изменениям.

В данной статье критически анализируется корпоративное управление в Индии с точки зрения того, как его эволюция и изменения зависят от цифровых технологий, регулирующих участие заинтересованных сторон и соблюдение законодательства.

Авторы приводят стратегические рекомендации по укреплению регуляторной экосистемы Индии и государственно-частного сотрудничества, а также инициативы по наращиванию потенциала для плавного перехода в пространство цифрового корпоративного управления. Данное исследование подчёркивает, что цифровая трансформация — это не просто возможность, а необходимость для будущего корпоративного управления в Индии, позиционируя страну как лидера в области корпоративной добросовестности и устойчивых методов ведения бизнеса в цифровую эпоху.

Индия является государством с развитыми управленческими традициями и высоким быстрорастущим экономическим уровнем. Соответственно, индийский опыт в сфере цифрового управления полезен для использования в управленческой и правовой системе Российской Федерации.

Ключевые слова: корпоративное управление, цифровая трансформация, искусственный интеллект, современные технологии, правовое регулирование

Scientific article
DIGITAL TRANSFORMATION OF CORPORATE GOVERNANCE: INDIAN EXPERIENCE

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Abstract. The issues of this research concern the digital transformation of the governing system. The evolving digital transformation of corporate governance stands as a significant force bracing changes in corporate control and transparency and accountability in India. The integration of Artificial Intelligence,

Blockchain, Big Data, and the Internet of Things into governance frameworks thus creates opportunities and hurdles. Digital technologies facilitate compliance reduction of fraud risks, and increased efficiency in decision-making; however, such digital adoption is being hindered through regulatory vagueness, cybersecurity concerns, and resistance to change. This paper critically analyses corporate governance in India, concerning how its evolution and changes are impacted by digital technologies governing stakeholder participation and legal compliance.

The paper concludes by providing strategic recommendations to strengthen India's regulatory ecosystem and public-private collaboration alongside capacity-building initiatives for a smooth transition into the digital corporate governance space. This research underscores that digital transformation is not merely an option but a necessity for the future of corporate governance in India, positioning the country as a leader in corporate integrity and sustainable business practices in the digital era.

India is a country with well-developed governance traditions and a high, rapidly growing economy. Accordingly, India's experience in digital governance is useful for application in the Russian Federation's governing and legal systems.

Keywords: corporate governance, digital transformation, artificial intelligence, modern technologies, legal regulation

Introduction

The world of corporate governance is undergoing seismic shift due to the new and ongoing revolution in digital technologies: emerging concepts such as the digital transformation are ushering in an entirely new phase around the world, causing businesses to begin adapting to new challenges and opportunities at all layers and ranges of the operation and governance of corporations. This transformation comprises integration of Artificial Intelligence (AI), Blockchain, Big Data, and Internet of Things into the framework of corporate governance. These technologies are essential enablers of transparency, accountability, and efficiency in any prevailing economy that could remain competitive in globalization.

The authors recognize the significant potential of AI technology. At the same time, the use of these technologies creates new challenges and dangers. It is rightly argued that it is necessary to «take advantage of these advantages of AI without creating new problems» [1, p. 108]. Objectively, «technology is inherently neutral – it is people who create it, whether good or evil» [2, p. 301]. Accordingly, it is necessary to provide mechanisms for the effective management and control of new technologies, both at the technical and legislative levels.

The use of new governing technologies in the industrial [3] and financial [4] sectors is the subject of research and debate.

At its core, corporate governance serves to ensure principles of accountability, fairness, and transparency while dealing with stakeholder relationships. Traditionally governance practices remain concentrated on mundane procedures and include occasional board meetings, and the purely statutory filing requirements that have to be adhered to. However, lately, digital transformation has been slowly advancing towards ensuring a complete shift among businesses from traditional governance to the fast-evolving governance with more dynamically data-driven real-time methods available for governance. It is not a technological shift, but most importantly there is a paradigm change in the very principles and practices of governance. Acknowledging the importance of digital solutions in governance almost becomes a global phenomenon. Developed economies have embraced advanced analytics and AI-driven conformance monitoring tools, among others, to Blockchain-based audit systems in order to maintain a very effective governance mechanism over their companies. For instance, European Union's AI reflects accelerating devoutness that safeguards ethical inclusion of AI into both commercial or societal organization that includes governance too. Multinational companies, engaged for real-time communication and engaging stakeholders in activities promoted by transparent culture and accountability are moving to the digital platform [5].

The business world in India is both conventional and innovative, since it is about finding a niche to satisfy client demand. The country's journey with business and economic growth through digital innovation gives it good prospects to support the adoption of digital technology in governance. The «Digital India» Initiative and the increasing sprouting of the start-up ecosystem in the area bring out the governmental and industrial push for moving toward the use of technology. But there still are great challenges in transformation from traditional to digital governance in India in corporate strategies [6]. The structure of governance in India has long been influenced by cultural and legislative bodies as well as economic conditions. With advent of the Companies Act of 2013, the country took a significant step toward modernizing its corporate governance practices. It mandates increased transparency, independent board representation and increased shareholder rights in laying foundation for governance reforms. Digital technology has the advantage and innovation to beat a couple of loopholes in Indian corporate governance procedures in which AI tools are employed for compliance automation processes and for accurate reporting to regulators Blockchain technology can make transaction records tamper-proof, reducing the possibility of financial fraud and enhancing audit trails. Big Data analytics can provide insights into how the company is functioning; and make all management decisions based on real time data. All these new technologies combined strengthens governance by making it more open, accountable, and responsive.

India is aiming towards responsible corporate governance through the tools of the digital age driven by government's promotion of cashless economy with the effort to install organizational norms constitutive of technology innovation, such as the National AI Strategy [7] and Digital India [8]. This would promote the prospective integration of digital solutions within governance by the public and private sectors in future. Establishing the roadmap for integrating such technologies like Blockchain and AI into governance is a collaboration between public and private sectors. For instance, if National Stock Exchange (NSE) could adopt Blockchain to facilitate trade settlements it would signal technological aptness for efficient financial governance and transparency. Beyond the grand privileges and investment value that only comes with this change, there have also been setback from its full realization. Among a number of major challenges would be regulatory ambiguity, cybersecurity threats, resistance to change. With that, sound regulatory capital and regulative imperative is needed to create for a vivacious upcoming in digital sphere. Organizations must also invest in digital capacity maturity and cultivate a responsible corporate culture which will allow them the ability to innovate and achieve their digital corporate governance transformation.

Indeed, digital transformation represents seismic shift in the way governance of corporations inculcated and experienced, offering enormous advantages in terms of transparency, accountability, and decision-making. This is perceived as a must-have and opportunity for India becoming sequentially, with the sustainable growth coming as it already has mostly been laid out with global governance practices. If AI and Blockchain technologies are harnessed, Indian companies can outshine current standards and show all-round trust and competitiveness; in these digitally enabled competitive ecosystems, after all, greatest competition will be witnessed.

Unveiling corporate governance: the Indian perspective

Corporate governance refers to the system by which companies are directed, controlled, and held answerable to the shareholders. It is the spine of any organization, ensuring an organization functions in a responsible, ethical, and transparent way. Corporate governance hinges on good board practices supported by a plethora of other integrity mechanisms on the part of the board vis-a-vis regulations and the safeguard of shareholders' interests. It extends to all facets of a company from aligning objectives with the long-term goals along with stakeholder expectations and broad societal responsibilities. In India, corporate governance has assumed importance, as the country strives to align itself with global best practices while handling domestic challenges. Corporate governance leaves behind the core principles of promoting transparency and uniting trust among stakeholders, be it the shareholders, employees, creditors, or society as a whole. Transparent

procedures of governance allow organizations to report within time and disclose material information which would aid stakeholders to make informed decisions. There are mechanisms of accountability which compel the board of directors and top management to act toward the benefit of the company and stakeholders and approve their interests. Governance is also for resolving disputes such that rights of shareholders and stakeholders are protected. Within such a dynamic market, such as India has had this year, the instatement of rules would always be the lifeline of investor confidence and local economic growth.

India's corporate governance landscape presents some particular challenges and opportunities. Many times, this Indian style contrasts with many of the western models as family-owned companies or those where the method of ownership is strongly identified with the promoter. This has often resulted in high concentration of ownership. And while the benefits are many, sometimes it results in conflict of interest between majority shareholders and minority stakeholders as well. Following the Satyam scandal in 2009, weak governance was exposed which promoted government reforms. Meanwhile, the speed of switching over to digital has been beyond paper in India with greater opportunities for corporate governance. Keeping in view that traditional governance still lies upon manual running and periodical reviewing, it is quite time-consuming and creates totally inefficient work practices. Digital technologies like AI, Blockchain and Big Data can enable intelligence in real-time decision-making and data-driven compliance. For instance, AI is increasingly valued when it comes to analyzing very obscure financial data and recognizing potential risks, while Blockchain can guarantee integrity and traceability in governance records. Additionally, one of the key shifts brought by the digital world is enhances stakeholder engagement. With digital platforms, an organization is able to communicate live updates to its shareholder in terms of corporate performance as well as strategy. This is important in creating a culture of trust and inclusiveness given the fast pace at which the corporate environment is changing in India. Furthermore, digital analytics technology, especially AI, will allow companies to foresee governance risk and address the issue proactively thereby aligning their companies in compliance with the regulation and expectations of the stakeholders.

Role of AI and blockchain in digital corporate governance

Monitoring changes in corporate governance, the insurgency in the digital transformation has been effectively facilitated thanks to AI and blockchain. These two most important technologies offer something radically new, they do bring about transparency, raise accountability standards, as well as streamline compliance, being thereby redefining traditional concepts of corporate governance practices. AI and Blockchain have served as the inevitable transformative tools in the Indian context where governance challenges erupt on the grounds of regulatory complexity, fraud risks, and stakeholder management, for fostering robust frameworks for responsible governance.

AI in Corporate Governance
That AI has radically changed corporate governance, moving on from the complex systems processes, to seek to boost decision-making processes, and allow for real-time monitoring. The range of uses of AI includes fraud detection, predictive analytics, and compliance management, and is thus geared at remedying the most critical center deficits in governance. AI-powered fraud detection systems for Indian corporations are indispensable. That becomes an application wherein these systems analyze large data sets to recognize anomalies, thereby flagging suspected fraudulent activities. For instance, Machine Learning algorithms might monitor financial transactions, interpret patterns, and detect anomalies which may escape the attention of human auditors without much difficulty. In 2023, according to the Deloitte report [9], AI use by Indian firms for fraud detection has brought about a 40 percent reduction in financial irregularities; underscoring the technology's effectiveness in mitigating risks. In 2024 this trend has not changed [10].

Predictive analytics, another significant AI application, allows companies to anticipate governance risks and take proactive measures. For instance, AI tools go through the history, input all data, and anticipate market trends be it regulatory or operational, which can give the board a totally informed decision. Big Indian conglomerates, like Tata Consultancy Services (TCS) and Infosys, have already integrated AI-driven analytics into their governance framework. These tools provide insight into financial performance, the vulnerabilities present in the supply chain of the enterprise as well as compliance risks, all of which help fine-tune and align governance with strategic business goals.

Real-time compliance monitoring is one more aspect where AI is creating a substantial impact. Traditional compliance processes often entail manual checks and delayed delivery of reports that may affect the degree of compliance with the segment of regulation. With AI, the processes can be automated, thereby ensuring adherence to real-time compliance. One of the important benefits of AI technologies lies in increased accuracy and speed to monitor any new laws and then update the governance protocols to reflect those changes. India, especially in such sectors as banking [11] and pharmaceuticals which are heavily regulated, has adopted AI-driven solutions for regulatory compliance that help companies navigate what is often a complex landscape in terms of regulations. Big corporates like the Mukesh Ambani owned Reliance Industries have an AI-harness in place for monitoring regulatory changes which captures and ensures conformance to the evolving legal requirements. These updates are then updated automatically in governance protocols, reducing the risk of failing to observe regulations and enhancing ethical business reputation. Also, it fosters increased stakeholder engagement with individualized insights and transparent channels of communication. AI development has the ability to derive insights necessary to enhance stakeholder advertising through personalized insights and transparent communication channels. AI chatbots and virtual assistants devices can also be used profitably to bring shareholders' concerns to a point, which increases trust and satisfaction. For instance, AI powered platforms are employed by Reliance Industries in communicating issues on corporate developments in timely matters to shareholders.

Blockchain technology in corporate governance

Blockchain technology has emerged as a transformative force which promises to create tamper-proof records, gain secure voting rights, and transparent audit processes. It also have confidence with supporting the decentralized nature of the data making it immutable, transparent, and foster trust in the context of governance practices. One promising feature of this technology is shareholder voting systems. Blockchain is disrupting the traditional voting process that has always been considered inefficient, non-accessible, and even fraudulent. All these are replaced with the latest radical blockchain based systems with security and transparency features essential for voting by shareholders and ensuring utter fidelity of the vote. Some Indian companies like Infosys piloted blockchain-based shareholder voting systems for their Annual General Meetings (AGMs) in 2020, which improved participation at the level of shareholder approval created a transparent and secure basis for voting, which recorded unruffled votes directly in a decentralized ledger; setting a precedent for secure and transparent shareholder participation.

Moreover, blockchain also contributes to manufacturing secure and non-modifiable transaction records for financial reporting and auditing. Writing all financial transactions on an open «blockchain» ledger allows for full accountability and transparency of all financial transactions. This not only deters fraudulent practices but also simplifies the auditing process. Adoption of blockchain technology in Indian financial institutions has made transactions more transparent as an instance, Indian bank ICICI [12] used blockchain to handle international trade finance transactions. This implementation has led to higher accuracy of transactions and decreased processing time demonstrating its potential in corporate governance. The other important functionality of blockchain is in terms of transparency in supply chain. In sectors such as manufacturing and retail, blockchain provides a reliable way for companies looking to trace a product from raw item to final consumer with transparency and confidence that it has been ethically sourced and meets sustainability goals. For instance, Mahindra & Mahindra [13] has

integrated blockchain in its agricultural supply chain to ensure that the supplies are quality evaluated, and comply with regulatory standards. Another significant impact of blockchain is at the touch of sensitive corporate information. With cybersecurity threats on the rise, Indian companies are leveraging blockchain to protect critical governance information. Decentralising data storage and cryptographic methods lower the chance that a blockchain system will be compromised. That applies much more to industries such as healthcare and finance where data security is paramount.

Legal framework surrounding digital transformation in corporate governance

India has been defining its regulatory framework for digital corporate governance via the lens and best practices reflecting that the world economy today is much more integrated. The European Union (EU) AI Act [14] introduced in 2021 and undergoing amendments between 2023–2024 provides a milestone for AI regulation in the corporate space. The Act categorizes the AI systems at different risk levels, and imposes tight compliance requirements for high-risk applications especially those used in decision-making. India's Digital Personal Data Protection Act aligns with the global Data protection frameworks like EU's General Data Protection Regulation (GDPR). Both legislations emphasize data privacy, carry severe sanctions for non-compliances and promote privacy-by-design principles in technology creation. This demonstrates India's commitment to frame digital governance standards that are interoperable with global norms.

India has also drawn inspiration from Sarbanes-Oxley Act of US which ensures corporate accountability through paperless reporting and digital auditing. The uptake of AI-driven audit tools in Indian companies is to be done in a way that facilitates audit transparency and looks for any corporate fraud. India's governance has been affected by the United Nations [15] and the Organization for Economic Co-operation and Development (OECD). The OECD Principles [16] on Stakeholder Communication, which urge for the improved stakeholder communication and accountability through the use of technology has also provided Indian regulators with pointers to elaborate policies on digitalization. The regulatory framework for corporate governance in India has been based on three cornerstones: The Companies Act 2013, SEBI guidelines and Information Technology Act, 2000. All of which promote transparency and accountability for companies to leverage digital tools to its full potential.

The Companies Act, 2013

Indian corporate governance is built on the principle and foundation of Companies Act, 2013. The Act has been drafted to promote good governance practices and it contains provisions in tune with digital transformation. The core is anchored in Sec 108 which emphasizes e-voting to widen transparency and broader participation at shareholder meeting and Section 120 which allows companies to store statutory records electronically which is a double whammy on administrative burden and inefficiency. The Ministry of Corporate Affairs (MCA) has strengthened digital governance by rolling out the initiative such as MCA21 portal [17]. Digital platform launched under Digital India campaign streamlines compliance filings platform designed to increase transparency, serving a model for digital incorporation in corporate governance.

SEBI Guidelines

As far as driving digital governance is concerned, the Securities and Exchange Board of India (SEBI) has been instrumental in the transformation. Services and regulations of the Listing Obligations and Disclosure Requirements (LODR) mandate periodic disclosures, emphasizing the use of technology for accurate reporting. Some of the recent SEBI Amendments (2023–2024) have provisions for adoption of AI Tools for compliance monitoring, reporting & risk management [18]. One of the notable initiatives undertaken by SEBI in this regard is their endeavors to incorporate blockchain in the process of shareholder voting [19]. Given this, records are tamper-proof and shareholders have confidence with blockchain voting based e-voting. SEBI began a sandbox project, working towards corporate governance transparency in 2024 by parallel testing blockchain applications under its aegis. sandbox project to test blockchain applications, marking a significant step toward enhancing governance transparency.

Information Technology Act, 2000

The Information Technology Act, 2000, governs the technology usage in corporate functioning. With provisions adhering to cybersecurity, backup immutability, digital signatures as well data confidentiality; Act provides the core of India's Corporate Digital Infrastructure. Recent Act introduced in the year 2023 known as Digital Personal Data Protection Act complements the IT Act to create a structure of data privacy which is a critical part of digital governance. This Act compels companies to put in place robust security measures, especially where technologies such as blockchain or AI process large volumes of sensitive information.

Recent Amendments and Proposals (2023–2024)

Realizing the exigency of more responsive regulatory systems to embrace novelties in technology, the Indian authorities have come up with numerous changes and suggestions in recent year, notable is the MCA's efforts to leverage AI and blockchain in compliance processes. Since 2023, the MCA launched a pilot project to use AI for monitoring changes in corporate filings and identify suspicious activity. This cluster is for the purpose of automating compliance check since the current checks have numerous manual errors associated with them and to improve regulatory oversight. Likewise, SEBI has provided proposal for application of blockchain technology in the shareholder voting process. Integrated e-voting systems will improve transparency, dispense with vote rigging, and improve shareholders' confidence. In 2024, SEBI began the sandbox initiative where firms are allowed to experiment the efficiency of Blockchain in corporate governance in 2024. For instance, the RegTech platforms that apply AI are being used to track insider trading to ensure that organizations are following SEBI's stringent regulations on minimum standards of fair-trade practices.

Opportunities in digtal transformation of corporate governance

Digitization in corporate governance represents revolutionized shift since it offers new avenues to transform how companies are run and monitored bringing profound opportunities for enhanced innovation, efficiency and stakeholder trust. In a world, where the economy is more and more digitalized, the implementation of innovative technologies in key business processes, such AI technologies or blockchain, helps not only to create higher operational advantages but also to provide the needed level of governance in terms of innovations of transparency, accountability, and sustainability. In the Indian context, these opportunities are formidable as the governance model in India is still evolving following the global standards and in view of the country's specific economic and regulatory challenges.

Enhanced Transparency and Accountability

It is one of the welfare aspects most embraced when designing digital governance systems, which can offer unarguable openness and accountability. These areas have been facilitated by blockchain technology which has been instrumental in this domain, offering tamper-proof records of transaction, voting, and decision making. For instance, the pilot project undertaken by SEBI in 2023 on the application of blockchain technology in electronic voting for shareholder meetings has boosted a lot of confidence in corporate governance system. The project guaranteed secure and accessible voting systems especially for the minority shareholders who often lack say in corporate organizational structures. Globally, Walmart has used Blockchain to correctly record its supply chain through the origin, processing and delivery details are accessible in real time [20]. In India such applications could help to combat rampant obscurity is supply chain management mostly in pharmaceutical industry and agriculture which are prone to ethical and legal infractions.

Case Study: Reliance Industries-Leveraging Blockchain for Transparent Governance

Reliance Industries Limited, the largest Indian conglomerate, has been at the forefront of digital innovational activities, especially in the sphere of corporate governance. The company leveraged the blockchain technology in the year 2023 to transform the shareholder's voting system

and corporate transactions [21]. The action was long overdue because of the problems continually observed in terms of tampering and ineffectiveness of the traditional forms of managing the company's corporate affairs. Initially, there were concerns from the stakeholders who had no preliminary idea about the operation of blockchain systems, especially the older generations included which expressed the complexity of the system and probability of technical glitches. However, Reliance forayed into an elaborate exercise to popularize blockchain among its stakeholders. This consisted of doing several live demonstrations, easy to manage interfaces and detailed tutorials on how to operate the new system. The blockchain system allowed for recording of the votes during shareholders meetings and guarantee that all the votes were counted and cannot be interfered with in the future. Further, it offered a live stream of the voting process and free access to any information, or updates regarding the voting process to the shareholders.

Streamlined Compliance

AI-powered compliance tools have revolutionized how companies adhere to complex regulatory requirements. TCS in India is using AI in response to streamline its compliance processes [22], ensuring real-time adherence to legal frameworks like the Companies Act, 2013, and SEBI guidelines. These systems can process big data, detect compliance gaps, and produce actionable insights which minimizes manual audits and decreases the likelihood of human mistake and bias. Further, examples from around the world are JP Morgan's COiN [23] which is Contract Intelligence platform is used to analyze the legal documents for compliance and risk analysis. Indian corporations using similar tools will greatly minimize the expenses and drawbacks that have come with traditional compliance means.

Improved Risk Management

Predictive analytics applied by AI algorithms are now among the essential tools in managing risks. Based on the analyzed data, AI instruments can assess the possible threats in advance which provide companies with possibilities to mitigate the risks. For instance, HDFC Bank have integrated AI models for transaction analysis and flag any possible cases of fraud in compliance with SEBI insider trading rules [24]. Production companies like Maruti Suzuki India Limited has incorporated the AI for supply chain risk and operation analysis to reduce market volatility interruption or logistics complications [25]. The globally utilized IBM's Watson is also employed to forecast cyberthreats, a capability that could be valuable for Indian corporations in shielding important stakeholder information [26].

Global Competitiveness

The citable fact revealed that the Indian corporations with the digital transformation approach show the ability to conform the global governance norms for attracting FDI. For instance, Infosys has used blockchain to improve financial reporting, enhancing transparency and has been cultivating a strong reputation of good governance. This benchmarking improves investors' confidence especially in sectors of IT and Pharmaceuticals industries where international compliances poses to be an advantage. India's integration in international standards such as the OECD principles of corporate governance indicate its commitment to modernization [16]. When Indian companies start using the technologies such as AI and blockchain, they gain competitive edge in international market.

Stakeholder Engagement

Many stakeholders have claimed that technology-based platforms help in timely and inclusive communication. For instance, Larsen & Toubro (L&T), periodically engages investors through posts on web-based platforms and/or shares messages on social media besides informing them through newsletters about matters that touch on its financial and strategic directions. In addition, through blockchain technology, shareholder voting systems have boosted people's participation especially the retail investors who used to be inconvenienced by the physical

arrangement of AGMs. Many companies across the globe are using sustainable digital communication with its stakeholders, and Unilever is not an exception thus opening door for other Indian companies [27]. Through AI-enabled chatbots and big data analysis, it is possible to gather stakeholder's opinions, align business plans with their needs and expectations to strengthen trust.

Challenges in digital transformation of corporate governance

Much as it creates a great channel of opportunities, digital transformation for corporate governance imposes impediments for the corporations that must be addressed for effective implementation. As the Indian corporate culture is flourishing through integration digital tools such AI and blockchain into the different levels of their governance, ethical problems on one hand and cyber threats on another are included as the biggest challenges ensued.

Cybersecurity Threats and System Vulnerabilities
Governance, for digitization, is embroiled in so many challenges these days, including the threat to cybersecurity constantly increasing. In the move towards digital governance and operations, the companies have made themselves increasingly vulnerable to data breaches, ransom rules, and all forms of cybercrime-with data breach and ransomware attacks topping the list of cybercrimes perpetrated. An excellent case in point of the record number of cyberattacks is the fact that during 2023, more than 50 % of companies in India declared data breach cases [28]. Security risks in relation to cybercrime are magnified through inadequate security protocols, a particularly concerning issue among Small and Medium Enterprises (SMEs) lacking financial and technical resources to invest in strong defenses. These vulnerabilities undermine trust among stakeholders placing at the helm, the need for a well-thought-out cybersecurity strategy as part of the reform through digital governance transformation [29].

Case Study: The AIIMS Cyberattack (2022): A Wake-Up Call for Cybersecurity in India
The ransomware attack on the All-India Institute of Medical Sciences (AIIMS) in November 2022 is perhaps one of the biggest cyberattacks seen in India [30]. Hackers breached the hospital's digital system protecting patient records and other sensitive information. They enciphered distinguishing documents and demanded crypto-currency from the institution, which incapacitated the institution for almost two weeks. In response, the Indian Computer Emergency Response Team (CERT-In) had to begin an investigation and directive higher measures of cybersecurity to government entities. The attack exposed India's weakness in the implementation of its digital infrastructure in areas that matter most, such as health and governance. The cyberattack affected appointments for surgeries and the ways patients' records could be accessed resulting in public alarm regarding digital networks.

Digital Literacy Gap
Another significant challenge is the limited understanding of digital tools among board members and stakeholders. Companies are digitally transforming which require specialized technical knowledge. Many companies from India's corporate world, especially from traditionally family-run businesses still lack basic knowledge about new and emerging technologies. In fact, a survey from the Confederation of Indian Industry (CII) [31] last year showed that over 40 % of those on any corporate board in India has given up on adopting AI or blockchain since most are unable to understand the basic technology used in that new economic era. This gap of digital literacy affects informed decision-making and results in slow adoption to induct innovative governance practices. Thereby, companies must start implementing capacity-building schemes such as workshops and training programs to bridge this gap and equip leadership to realize the full potential of technology for governance purposes.

Regulatory Ambiguity and Legal Challenges

Technological transformation is characterized by rapid pace of advancement compared to the construction of legal standards, and thus a legal uncertainty arises as to compliance. Indian corporations are primarily governed through Companies Act, 2013, regulations by SEBI, and the Information Technology Act 2000. Still, these laws have not yet been fully updated to reflect problems related to the digital transformation such as the use of AI in decision-making or blockchain in shareholder voting. For instance, there is currently no explicit legal requirements governing AI algorithms in financial reporting or auditing leaving questions about liability when algorithms go wrong. Likewise, Lack of clear rules for the implementation of the new Corporate Governance framework makes it difficult for businesses to advance on the path of continuous improvement and creates uncertainty for those striving to modernize their governance practices [32].

High Implementation Costs

The use of complex and innovative digital tools has its financial costs being steeper problem, especially for SMEs. Many of the purported possibilities of change agents like AI, blockchain, involve deep capital investments in physical structures, software, as well as training. Deloitte's report of 2023 [9] estimated that the cost of implementing a block chain- based governance system in India is likely to cost more than ₹ 1 crore for the average firm and this is a very expensive undertaking especially for small firms. This high cost of implementation is further compounded by ongoing expenses related to system maintenance, software updates, and cybersecurity measures. Large multinationals such as Reliance Industries and Infosys could afford these sophisticated technologies in governance while SMEs have their hands tied, leading to what could be generally described as digital gulf in the corporate world.

Resistance to Change

Another determinant for not adopting these technologies is organizational inertia. Such reluctance is especially characteristic of firms that are associated with conservative patterns of traditional governance structures. Employees and managers using traditional working tools show resistance or lip service towards change initiative. An example is the late implementation of digital form of shareholder voting in India. Many companies have not embraced e-voting despite SEBI's efforts and use physical ballots or proxy votes because of concerns over reliability of e-voting platforms. Overcoming such resistance means changing organizational culture towards the necessity and advantages of the further digitalization and fostering a willingness to adapt.

Ethical Concerns

Another challenge in terms of ethics is apparent when going through the question of digital transformation. AI systems, for instance, are programmed in a way that discriminative characteristics from the data used to train the systems end up being reflected in the process. NASSCOM's survey conducted in 2023 [33] revealed that 30 % of AI systems used in the Indian industry included either bias in hiring, promotion or risk assessment, raising questions about accountability and fairness. In corporate governance, the reliance on digital tools is widespread and means processing vast amounts of data that may be regarded as personal information if violated, may lead to privacy violations. Recent introduction of the Digital Personal Data Protection Act, 2023, seeks to address these issues but formulating and implementation gap remains a problem [34].

Recommendations

Digitalization of corporate governance presents numerous opportunities on the one hand, while presenting numerous challenges, on the other hand. For Indian corporations to fully optimize technologies such as AI and blockchain, there is the need to use a multi-pronged approach mix of policy reforms, capacity building and stakeholder engagement is significant.

Policy Development

Since digital tools like AI and blockchain are currently trending and not mandatory for corporations in India, companies in the country need to integrate these tools under their corporate governance structures. Lack of clear regulations results in ambiguity leaving companies uncertain regarding compliance requirements. Key components that need to be covered by a strong policy surrounding AI are data privacy, accountability for algorithms, and responsible use of AI. For instance, Digital Personal Data Protection Act enacted in 2023, makes it obligatory to have protective measures for all the organizations working in India [34]. However, additional guidelines are needed to ensure seamless implementation of AI and blockchain technologies in areas such as shareholder voting and compliance monitoring.

Case Study: The EU Artificial Intelligence Act (2023)

The recent legislative instrument in the European Union is the Artificial Intelligence Act enacted in 2023 is considered as one of the most extensive regulations to regulate the acceptable use of AI technology [14]. This ground breaking law focuses on accountability and transparency in matters concerning on how AI works, the intended purpose and its likely adverse effects on the user and society. Through the interventions of the EU AI Act, the world has benefited from a global roadmap on how AI is governed. This framework is particularly helpful for India to understanding how to design a regulatory system that effectively nurtures innovation while also addressing questions of tenant moral responsibility. The Act provides focus towards international interoperability aspect that can help Indian policymakers in stimulating the nation's alignment towards global polices and boosting competitiveness in the global innovative tech space.

Capacity Building

One of the major impediments for digital transformation is the lack of digital literacy among executives and board members. In this regard, corporate training programs that equip organizational managers specifically with knowledge to facilitate the adoption of digital tools are useful. Initiatives such as National Programme on Artificial Intelligence (AI for All) foster literacy but need to be expanded to embrace corporate governance application.

Case Study: Infosys Digital Academy

Infosys, a global IT conglomerate based in India, has been proactive in its approach to develop its internal capacity and has done so through Digital Academy launched in 2023 [35]. The program is tailored for executives, board members and the senior management in mind; and, deals with key spot areas such as AI, block chain, and cloud computing among others. The academy's curriculum offers training in how to use AI in risk management, adoption of blockchain to ensure secure transaction audits, and employment of data analytics to improve decision-making. This has not only bridged the digital divide within the organization but also boosted up the Infosys's corporate governance. Infosys leadership empowered with such knowledge ensures that the firm has enhanced the government framework that addresses the application of digital tools hence creating an industry precedence on capacity building in India.

Cybersecurity Investments

The increasing reliance on use of digital tools for governance makes cybersecurity a priority. This has been well illustrated by the ransomware attacks on All India Institute of Medical Sciences (AIIMS) in 2022 [31]. Corporations must invest in cybersecurity measures such as the multi-factor authentication, AI-driven threat detection, and regular security audits. Further, legal authorities such as the SEBI should make it compulsory for listed firms to conduct cybersecurity audit tests from time to time to ensure data protection as well as system resilience [36].

Case Study: Wipro Cyber Defense Platform

To tackle the growing problem of cyberattacks on corporate systems, another IT major of India, Wipro, introduced its Cyber Defense Platform in 2023 [37]. It is designed to leverage AI and machine learning algorithms to look for and counter threats in real time. Some of the features

include; threatened intelligence powered by AI-driven threat intelligence, fully automated incident response, and regular vulnerability assessments. This important move has boosted Wipro, and has strengthened protection of sensitive resources ensuring trust between the company and stakeholders. The effectiveness of this platform was tested during the ransomware attack on Wipro's client data. The AI systems detected the breach in seconds, isolated impacted systems, and contained the threat while suffering a fractional amount of system down time. The success of the Cyber Defense Platform highlights the need for the effective use of enhanced cybersecurity measures in the field of digital governance for corporations that are heavily relying on digital tools in their decision-making and compliance.

Incentivizing Technology Adoption

SMEs are most of the time are financially handicapped to afford expensive digital governance tools. To address this, the government could provide subsidies, tax credit or even offer low interest loans as a way of helping firms adopt advanced technology. Measures like such would enable level playing field for SMEs to leverage from digital transformation. For that matter, Public Private Partnerships programs can help SMEs with access to shared digital infrastructure and expertise.

Case Study: MSME Digital Saksham Initiative

The MSME Digital Saksham Initiative launched in 2024 [38], is a government sponsored program that intends to facilitate the SMEs to engage in digital tools to improve its governance operations in India. Further, the initiative offers monetary incentives, access to affordable digital tools, and capacity development opportunities for SMEs. Being aware of the constraints, financial and informational, that frequently hinder digital transformation in smaller organizations, the endeavor provides instructive tools for the incorporation of AI and blockchain into their governance framework. A successful example undertaken within the framework of this programmed is a mid-sized manufacturing company located in Gujarat. In the company Blockchain was implemented to improve supply chain while AI was used in inventory. The firm claimed that within six months of implementing the strategies they had cut down operational cost by 20 percent and got better results concerning suppliers' accountability. This case highlights how targeted government interventions can empower SMEs to embrace digital governance, fostering a more inclusive digital transformation across industries.

Stakeholder Collaboration

Digital transformation in governance involves collaboration of regulators, large corporations and technology developers. Consulting, at least, can guarantee that its policies are feasible, technological fixes are intuitive, and corporations' behavior is compliant with the regulatory expectations. Establishing forums where stakeholders can discuss challenges and share best practices would foster a culture of mutual trust and innovation.

Case Study: Blockchain Governance Forum

In 2023, a united front of Indian corporations, regulatory authorities, and technology firms formed the Blockchain Governance Forum to catalyze the adoption of blockchain in corporate governance [39]. The forum's key areas of concern include data interoperability, regulatory compliance, and stakeholder engagement. Representing different stakeholders, the forum contributes to the think-tank discussion of the best practices and ideas for innovations. One of the forum's key contributions which is application of blockchain technology for holding shareholder meetings through remote voting has successfully been piloted. Its success has led to a desire for its implementation across different industries, the blockchain's potential for improving corporate practices in India.

Global Harmonization

As digital governance transcends national borders, India must actively participate in international standard-setting initiatives. Levelling up domestic policies with international benchmarks would add credibility to India and in turn foreign investment inflow. For instance, incorporation of some of the elements from OECD's Principles of Corporate Governance could help India elevate its governing standards to that of developed nations.

Case Study: India's Leadership in the G20 Digital Economy Working Group.

India become the G20 president country in 2023 and played a prominent role in global discussions on digital governance through the Digital Economy Working Group (DEWG) [40]. India was dedicated to expanding equitable access to digital technologies and enhancing cybersecurity regulatory frameworks. Its leadership signified growing influence of the country in determining international standards towards digital transformation through promising tools like AI and blockchain. India presented its homegrown success stories, the India Stack initiative that empowers digital identity (Aadhaar) and the unified payment systems (UPI), as potential solutions that can be exported for global digital inclusion. These efforts have been realized in the G20 Action Plan for Digital Inclusion and Governance whereby worldwide cooperation in infrastructure development, cross-border cybersecurity participation, and, ethical deployment of digital tools were highlighted. This demonstrates India's capability to assimilate its reforms domestically with the global policy architecture and cementing its position as a leader in the evolving digital economy.

Potential of development

The process of digital transformation has become a hallmark of corporate governance which represents a significant point in time for the business evolution of India for really giving unmatchable chances of responsible, ethical and efficient corporate governance in India. The incorporation of omnipotent tools similar to AI and blockchain, has made decision-making process, statutory compliance requirement, and risk management at the largest corporate level within India efficient as well as creating a governance model which fundamentally fits India's socio-economic structures, which can comprise a new design of corporate houses at the international level and, yet, be unique when compared to others against customary governance frameworks. The possible aspect of this digital transformation aims at strengthening trust among stakeholders, enhancing investor confidence while aligning business practices closer to the global standards of excellence as per outlined by the Sustainable Development Goals. However, this transformative journey is not easy. The fast pace of technology transformation poses many impediments from cybersecurity threats, high costs of implementation to the gap which exists within stakeholders and board members with respect to digital literacy. As it digitizes, India will also transform in other ways, and regulations will need to catch up with the data threat and algorithmic bias problems, as well as protection of sensitive data. Policymaking is now integral to balancing the fine lines between assisting innovation while protecting the very moral foundation of technological adoption into personal and community lives. In doing so, a major part to be played by bringing all the critical stakeholders together in several efforts to get through these complexities. Policies should be drafted in such a way as to creating regulations that are future-forward, which will leverage the knowledge of technology to prevent its misuse. Companies must also undertake training programs for digital literacy, because this is important for installing digital literacy at all levels in the governance areas, so that board members and executives are trained for better technology adaptation with the continuous evolving corporate culture. Furthermore, the role of international collaboration cannot therefore be over emphasized. By taking part in international conferences such as the G20 DEWG, India engages and shares best efforts in digital governance and, therefore, creates a possible opportunity for integrating with global practices by setting up such international benchmarks.

Digital technologies can also address systemic inefficiencies related to corporate governance as seen in India's new initiatives such as AI based compliance tools blockchain-driven shareholder voting system [41]. Such improvements have even enhanced transparency and efficiency in governance operations creating better corporate ecosystem. For instance, AI has already shown potential in identifying the potential attack in financial reporting through predictive analysis. At the core of this transformation lies inclusiveness as to ensure access to affordable digital solutions to leverage technological advancement among SMEs which are recognized as the backbone of the Indian economy. Specific incentives from the government in form of subsidies and tax benefits to those using and operating on digital ground could ensure a more equitable line being drawn in the access dimension as exemplified such that the smallest enterprises could be able to contribute in strong governance frameworks.

Conclusion

This publication highlights how AI has put forth mechanisms for compliance monitoring and Blockchain for record-keeping, ensuring trust and transparency in governance, hence lowering instances of financial irregularities and assesses India's own legal framework with the Companies Act, 2013; SEBI Guidelines; and the Information Technology Act, 2000 in relation to digital governance. In drawing comparisons with foreign legislation, such as the AI Act by the European Union and OECD Principles of Corporate Governance, the study provides strong comparisons on the best systems of regulation concerning applicability to India.

Challenges continue to abound despite the catalysing opportunity that digital governance offers. The high cost of implementation, lack of digital literacy among corporate leaders, and the possibility of algorithmic biases affecting AI decision-making have made adopting them much harder. Various case studies on Indian companies like Infosys, TCS, and Reliance Industries, examine the success and challenges in using technology for governance.

The authors also researched initiatives such as blockchain for shareholder voting, AI-based fraud detection, and predictive analytics for risk management.

While Russia, India and many other states attempts to converge with international best practices, there would have to be a balance between digital technologies in governance on one hand, and the regulatory apparatus to safeguard digital processes, ethical AI use, and cybersecurity with adequate resilience on the other.

Gazing into future, it is apparent that digital transformation of corporate governance is a new era, not just a trend that would actually redefine the very future architecture of modern business practices. This is a transformation that would need a transcended vision that legitimizes technology with ethical considerations; assures governance that goes beyond efficacy and on to equity [42]. Dealing with the challenges that will be posed proactively and strategically deploying the opportunities, India can position herself as a think tank on global governance with other emerging economies. However, the future of corporate governance in India will be shaped strongly by the close working of policymakers, companies, and stakeholders to come up with a governance model that will be resilient and inclusive as well as sustainable. Regulated, innovative, and collegial, with the correct balance among the three key areas, digital technologies are expected to catalyze India's corporate culture fostering economic growth and social well-being in the digital age.

The development of modern technologies in the field of Indian corporate governance is of interest to academic research in other countries, including Russia. The main problems in this area are common to the governance and law systems of many countries. Therefore, India's experience in overcoming them is undoubtedly useful for application.

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