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***THE INTERSECTION OF INNOVATION AND REGULATION:
LEGAL CHALLENGES OF AI AND BLOCKCHAIN
TECHNOLOGIES***

ABSTRACT

Over the decade, especially after the COVID-19 pandemic, AI and blockchain have enormously grown. Industries and people all around adopt these technologies and it is currently ruling the economy. Despite its tremendous work, certain loopholes need to be addressed. This article begins with an overview of AI and blockchain technologies in India and the balance between innovation and regulation followed by the Rise of AI and Blockchain in India, highlighting the sectors impacted and government initiatives. It will then cover the Existing Legal Framework in India, focusing on the IT Act, Data Protection Bill, contract law, and relevant regulatory bodies. The core of the article will address Key Legal Challenges, such as data privacy, intellectual property rights, smart contracts, AI accountability, and financial regulation of cryptocurrencies. Following this, a Comparative Analysis with Other Jurisdictions will examine global approaches to AI and blockchain regulation. The article will also explore The Role of Regulatory Sandboxes and Innovation Hubs in fostering innovation within a controlled environment. Ethical concerns and societal impacts will be discussed under Ethical Considerations and Social Impacts.

Key Words: AI,Blockchain technology,Data Privacy,IPR, Digital Economy

INTRODUCTION

AI, which stands for artificial intelligence, and blockchain technology are currently considered niche topics that have gained significant attention and adoption across various industries. These technologies have become essential parts of daily life for many people due to their wide-ranging applications and capabilities.

Firstly, blockchain technology provides unique opportunities for addressing issues related to improving governance, especially in the realm of business, by enabling self-regulation and enhancing transparency and trust within the ecosystem. This has led to its increasing adoption in various sectors, including finance, supply chain management, and healthcare, among others.

Artificial intelligence (AI) is the ability of a computer or robot to perform tasks typically carried out by intelligent beings. It involves creating systems with human-like cognitive functions. Despite advancements, no software can fully replicate human adaptability across a wide range of topics.

BRIEF OVERVIEW OF BLOCKCHAIN AND AI TECHNOLOGY

Blockchain technology has several advantages it is a decentralized system, and its decentralized nature breaks the cycle of the existence of intermediaries and helps in reducing the expenses associated with it. It enables transparency in transactions and its efficiency allows the completion of the work more accurately. It's the ability to trace any record. blockchain technology exercises globally making it accessible to users all over the world. Because blockchain maintains an uninterrupted chain of custody, it makes asset monitoring and verification simple. This is especially helpful for supply chains and provenance verification. About The disadvantages of blockchain technology, There is no distributed computing system in the blockchain. Blockchain is a network whose correct operation depends on nodes. The blockchain's quality is determined by the nodes' quality. The robust blockchain of Bitcoin, for instance, encourages nodes to engage with the network. For a blockchain network without node incentives, though, this cannot be the case. Public blockchains, such as Bitcoin, use the Proof-of-Work (PoW) consensus algorithm, which involves miners solving complex puzzles to validate transactions. This process is energy-intensive, leading to high electricity consumption as the network scales. While PoW ensures strong security through decentralization, it has faced criticism for its environmental impact. In contrast, permissioned blockchains employ more efficient consensus methods, like

Proof-of-Authority (PoA) or Practical Byzantine Fault Tolerance (PBFT), which involve fewer, pre-approved nodes. These methods consume less energy and offer faster transaction times, but they sacrifice some decentralization and transparency. Thus, the trade-offs between public and permissioned blockchains involve balancing energy efficiency, decentralization, and security. Scalability is an issue that is always faced in blockchain technology. The compliance framework is still developing, making it a bit apprehensive for the investors.

AI named Artificial Intelligence has been keenly used by students, corporate leaders, and professionals all around the globe. It has reduced tasks to much extent and is incorporated into industries all around the globe. Its data is generally accurate and trustworthy. With all its advantages AI is also disrupting the job sector around the world. Many companies have laid off employees, making them jobless, because AI could deliver their work more cost and time-effective. Nowadays students are highly dependent on AI to complete their assignments, disrupting their intellect. High dependence of AI has somewhere to some extent affected human creativity and innovation.

AI AND BLOCKCHAIN IN INDIA

In the domains of trade finance, cross-border payments, bill discounting, supply chain financing, loyalty, and digital identity, several Indian firms have tested the use of blockchain technology. Several Indian banks, corporate entities, and a single stock exchange are among the first to investigate Blockchain technology in India.

A prominent banking company in the Middle East and a private sector bank in India completed transactions in international trade financing and remittance. Using a permissioned distributed ledger, an Indian conglomerate has created a cloud-based application to change trade transactions between suppliers and manufacturers. Leading Indian banks and a stock exchange are working together to investigate the use of blockchain technology for KYC document management.

REGULATORY LANDSCAPE OF THESE TECHNOLOGIES

- About AI, one of the biggest legal challenges in India is data privacy and protection. With AI storing personalized confidential data the chances of misuse of data, the risk of unauthorized access, data breaches, and misuse increases the scale of data processing.
- The complexity of AI operations makes individuals less understand about the data mechanisms leading to questioning its adequacy.
- **The Personal Data Protection Bill(PDPB)AND AI-The Personal Data Protection Bill, 2019**

(now referred to as the Digital Personal Data Protection Bill, 2023), is India's attempt to create a robust legal framework for data protection. While it addresses some key issues, it has also faced criticism for various reasons:

1. **Data Localization:** The PDPB's data localization provision, which stipulates that some categories of personal data must be handled and kept in India, is one of its most contentious features. Critics contend that despite the fact that this clause attempts to safeguard national security and provide government access to data, it may raise operating expenses for companies, particularly multinational enterprises that depend on international data flows. Additionally, by making it more challenging for businesses to combine international datasets—which are essential for creating cutting-edge AI technologies—data localization may hinder innovation.
2. **Data Ownership:** One major worry in the context of AI is the PDPB's absence of explicit restrictions on data ownership. Data is frequently the main asset in AI systems, and disagreements about data ownership can arise between people, businesses, and other groups. It becomes difficult to ascertain who has the authority to use, distribute, or profit from the data in the absence of explicit ownership guidelines.
3. **The Right to be Forgotten:** The PDPB has also come under fire in relation to this right. People can use this right to ask for their personal information to be removed from an organization's records. Although this privilege is included in the bill, its use in AI applications may be complicated. As an illustration, once an AI model has been trained on it, it may be difficult or even impossible to erase the influence of particular data from an AI model once it has been trained on it. This raises concerns about how the right to be forgotten may be properly upheld in the context of AI.
4. **Anonymized Data:** Another controversial topic in AI is the usage of anonymized data. By eliminating personally identifying information from datasets, anonymization is frequently viewed as a means of reducing privacy issues. Concerns exist, though, that anonymized data may still be used to identify a specific individual, particularly when paired with additional data sources. It is believed that the PDPB's anonymized data rules are not strong enough, opening the door to uncertainty and possible privacy breaches in AI applications.

The legal challenges faced by blockchain in India include jurisdictional complexities, regulatory compliance, legal ambiguity, data protection and privacy, and automated contracts along with legal validity. The blockchain technology in India is very unorganized, non-structured, and ambiguous. The absence of a clear regulatory framework poses a challenge for businesses and

investors. The cross-border nature of blockchain leads to jurisdictional matters, making it challenging to resolve disputes related to international agreements and smart contracts. There is a necessity for an international legal framework to address and harmonize the regulations of blockchain.

Bitcoin, for example, was the first cryptocurrency and is built on blockchain technology. In 2018, the RBI issued a circular regarding the ban on cryptocurrencies.

- The RBI had repeatedly issued public notices over the years, cautioning stakeholders about the risks associated with dealing with virtual currencies before the circular on the ban.
- In the circular, the RBI clearly states that entities regulated by RBI shouldn't engage with any kind of virtual currencies and the services rendered.
- These decisions in the exercise of powers conferred by Section 35A read with Section 36(1)(a) of the Banking Regulation Act, 1949; Section 35A read with Section 36(1)(a) and Section 56 of the Banking Regulation Act, 1949; Section 45JA and 45L of the Reserve Bank of India Act, 1934; and Section 10(2) read with Section 18 of the Payment and Settlement Systems Act, 2007.
- The main rationale behind the ban was the high chances of money laundering and terror financing due to its anonymous nature.
- There were high chances of market manipulation due to its decentralized nature.
- It further caused a lot of confusion and turmoil among the stakeholders as they could not sell their current holdings and continue trading.

SUGGESTIONS

- It is important that new legislations are introduced pertaining to AI and blockchain that would help in mitigating the lacunas that are currently present in the contract.
- The Digital Personal Data Protection Bill needs to be reformed to address the complexities of AI technologies.
- There is a need for a structured and organized regulatory framework for blockchain technology.
- There needs to be stricter penalization regarding data breaches.

CONCLUSION

Opportunities and difficulties are presented by the blockchain and artificial intelligence industries explosive expansion in India. These technologies have transformed many industries, including banking and government, but they also provide important moral and legal conundrums.

that should not be disregarded. The Digital Personal Data Protection Bill and other existing legislative frameworks tackle certain issues, but they are unable to completely capture the complexity of these new technologies. More thorough legislation is needed to guarantee that regulations do not outstrip innovation in areas like data privacy, intellectual property, and smart contract legality.

India has to work toward developing a well-balanced regulatory framework that protects user rights and upholds moral standards while encouraging innovation. This entails enhancing current legislation, creating new rules specific to blockchain technology and artificial intelligence, and taking global best practices into account. Before new technologies hit the wider market, restricted settings like regulatory sandboxes and innovation hubs might be established to test them and resolve any legal problems

India's legislative systems need to change along with blockchain and artificial intelligence. India's capacity to modify its legal system to satisfy the needs of a quickly evolving digital environment will determine how these technologies will be seen in that nation in the future. India has the opportunity to establish itself as a worldwide leader in the conscientious creation and implementation of AI and Blockchain Technologies

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