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A Study On Regulatory Framework Related With Artificial Intelligence And Allied Areas In India

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Abstract

It attempts to device a regulatory framework for the Artificial Intelligence technology. Further it aims to check upon and control the breach of privacy, suggest a liability model, monitor the civil / criminal liabilities arising out of the unregulated programming and coding. In the 21st Century there are already endless day to day applications of Artificial Intelligence however there exists no substantial regulatory framework or laws to account any mis-happenings. For example, the accidents of self-driven cars or drones could be the potential issues. The use of drones, and robots navigating public spaces or serving in private homes, self-driving cars increases the risk of various torts or crimes, which would be required to be addressed in addition to intellectual property issues and privacy breach matters. Sophia robot has also been granted citizenship in Saudi Arabia in 2017, which gives it quite many rights as humans and that makes it even more necessary to clearly demark the liabilities of Artificial Intelligence too. Thus, it is high time, not only in India but around the Globe, that we realize the need for regulatory framework and if possible, codification of proper laws for Artificial Intelligence, blockchain technology like we have for contracts, considering their applications. Smart contract drafting is already into use and is a breakthrough development for the techno legal perspective.

Despite increasing calls for robust AI regulation, there is limited understanding of the dynamics between emerging AI regulations and the behaviour and innovation at the firm level. Additionally, as AI technologies permeate various sectors, there is a lack of knowledge about how specific AI fields gain legitimacy and institutionalization over time. The interaction between national AI policies, innovation strategies, and their impact on AI innovation remains understudied. Furthermore, the influence of great power competition on technological governance and preferences regarding data privacy has been adequately examined.

Key words: - Artificial Intelligence, Development, Legitimacy, Institutionalization, Innovation, Technological Governance.

INTRODUCTION

AI is the Intelligence exhibited by machines or Computers. In simple terms, Artificial Intelligence is computer made to understand its environment and acts or response or react independently, creating a feel of 'cognitive' functions that humans associate like 'problem solving'. The growth of Artificial Intelligence includes various areas of science including mind functioning, biology, computer science, mechanical, robotics, psychology, neuro physics, philosophy, etc. which in turn deal with making intelligent machines that mimics human capabilities, apply cognitive reasoning and intelligence.[1] The challenges of privacy and the protection of intellectual property have become a huge issue in the 21st century with the endless data available. Because of the presence of a huge repository of data online, people can search and download anything for their personal use without anyone's knowledge without consent. The climax of Artificial Intelligence is self-perpetuating machines recreating and improving themselves in their next versions without human intervention. Artificial Intelligence has expanded greatly with research and interlink with the upcoming Intellectual property rights was hinted to an extent.[2]

The ongoing discourse centre around intricate shifts in innovation, production, and commercialization processes, closely linked to competition and regulations regarding intellectual property. Scientists, activists, jurists, students, clinicians, and policymakers find themselves engaged in discussions across various domains, including problem-solving, gaming, theorem proving, voice and pattern recognition, natural language processing and understanding, neural architecture, computer vision, and engineering design analysis. This subject is extensively deliberated among think tanks and proponents of intellectual property rights, providing a compelling insight into how artificial intelligence will impact the evolution of related laws and intellectual property rights. The potent capabilities of harnessing AI present challenges across technical, ethical, political, social, and cultural dimensions, necessitating accountability and legal liability. Artificial Intelligence has witnessed remarkable growth, progressing from small-scale applications to larger, technologically advanced successes. The world already benefits from numerous methods, such as testing diverse programs, diagnosing faults, addressing human diseases, playing grandmaster-level chess, and aiding in various complex tasks.[3] Over the past few decades, Artificial Intelligence has undergone transformative changes, shaping various industries. Its history traces back to the 1950s, with pioneers like Alan Turing and John McCarthy laying the groundwork for AI research. While early AI systems had limited scope and capabilities, advances in machine learning algorithms and computational power have led to more sophisticated AI applications. The development of expert systems in the 1970s and 1980s, as seen in MYCIN for medical diagnosis, marked significant progress. Artificial Intelligence, as a broad term, refers to creating computer systems capable of tasks traditionally requiring human intelligence, aiming to develop intelligent machines—machines with the ability to see, think, learn, and adapt.

HISTORY OF ARTIFICIAL INTELLIGENCE & LEGAL RECOGNITION

Attributing legal personhood or personality to Artificial Intelligence systems has sparked significant interest and debate in legal, ethical, and technological circles. This research delves into the notion of granting AI systems a legal identity, examining the implications, challenges, and potential benefits it presents. By analysing existing legal frameworks, ethical considerations, and technological advancements, this research seeks to provide a comprehensive overview of the complex landscape surrounding AI personhood.[4]

[1]Xavier Seuba et al, "Intellectual Property and Digital Trade in the Age of Artificial Intelligence and Big Data" Global Perspectives and Challenges for the Intellectual Property System, A CEIPI ICTSD publications series Issue Number 5 June 2018

[2] Stuart Russell and Peter Norvig, Artificial Intelligence: A Modern Approach (2003).

[3] Lakshminath & Mukund Sarda, Digital Revolution and Artificial Intelligence Challenges to Legal Education and Legal Research, CNLU LJ (2) (2011 2012).

[4] National Institute of Justice, "A Brief History of Artificial Intelligence," 2018, *available at:* https://nij.ojp.gov/topics/articles/brief-history-artificial-intelligence (Last visited on 20th November, 2024)

AI lacks the attributes of a human author and is explicitly excluded by copyright law, which mandates the involvement of a natural person in the creation of an original work. Consequently, AI-generated works face challenges aligning with the criteria for copyrightable material applicable to typical human creations. The unconventional nature of AI's works in relation to copyright norms raises concerns, and releasing such works into the public domain could have far-reaching implications affecting the essence of copyright regulations. The Fourth Industrial Revolution has dramatically reshaped various facets of daily life, spanning commerce, transportation, medical care, agriculture, and education. Consequently, policymakers face urgent challenges in addressing the intricate issues arising from these technological advancements. Artificial intelligence (AI) is a pervasive force in daily life, from facial recognition on smartphones to personalized movie recommendations on streaming platforms. As awareness of the negative consequences and risks associated with AI grows, stakeholders, including the World Intellectual Property Organization (WIPO), are seeking public opinions on the intersection of AI and intellectual property policy.[5]

In recent years, Artificial Intelligence has experienced significant growth, seamlessly integrating into existing technologies and introducing new devices and capabilities. However, the rapid rise of AI has caught society off guard, presenting novel challenges that current laws are ill-prepared to address. Consequently, both legal frameworks and societal norms must undergo changes and adaptations to accommodate this transformative technology. The uncertainties and complexities stemming from these changes prompt fundamental questions about the regulation of artificial intelligence.

IDENTIFYING THE ARTIFICIAL INTELLIGENCE RELATED LEGAL CHALLENGES AND RESOLVE THEM

The swift progress of Artificial Intelligence technology has introduced a spectrum of legal issues that societies, businesses, and policymakers are actively addressing. Developing effective regulatory frameworks and policies is pivotal to tackle these challenges, ensuring responsible and ethical AI development and deployment. AI technologies present various legal considerations that demand attention. Here are the main challenges:

- Data Privacy and Protection: AI systems heavily depend on extensive data for training and decision-making. Complying with data protection laws and upholding individuals' privacy rights is imperative.
- Responsible Data Handling: Responsible management of personal data, securing informed consent, and implementing robust security measures are crucial to mitigate the risks of inconsistencies of information.
- Liability and Accountability: Determining liability and accountability for AI-generated outcomes, particularly in cases where AI operates autonomously or collaboratively with humans, poses intricate challenges. Clarifying responsibility among AI developers, users, and the AI system itself remains an ongoing issue.
- Bias and Discrimination: Addressing algorithmic bias and ensuring fairness in AI decision-making are essential to uphold anti-discrimination laws and promote equitable AI applications, as AI systems may inherit biases from training data.
- Intellectual Property Rights: Ownership of intellectual property rights for AI-generated creations raises legal questions. Deciding whether credit should be attributed to the AI system, its developer, or if the work falls into the public domain presents challenges in copyright and patent law.
- Transparency and Explainability: Some AI algorithms operate as "black boxes," raising concerns about transparency and accountability. Legal challenges arise when the rationale behind AI decisions, particularly in critical applications like healthcare and finance, is inadequately explained.

[5] Andrej Karpathy, “CS231: Convolutional Neural Networks for Visual Recognition,” Stanford University Computer Science Class.

- Regulatory Gaps and Frameworks: The rapid advancement of AI has resulted in regulatory gaps and challenges in adapting existing laws to address AI-specific issues. Crafting comprehensive AI-specific regulations that balance innovation and protection poses a challenge for lawmakers.
- Autonomous Systems: Legal questions surrounding safety standards, liability in accidents, and adherence to traffic regulations arise with the deployment of AI in autonomous systems such as self-driving cars and drones.
- Data Ownership and Sharing: AI applications often rely on data from multiple sources, leading to legal complexities in determining data ownership, sharing agreements, and establishing data governance frameworks, particularly in cross-border data sharing scenarios.
- Cross-Border Legal Issues: AI technologies operate across borders, creating jurisdictional challenges. Harmonizing international laws and resolving conflicts when dealing with cross-border AI-related legal matters is a complex undertaking.
- Ethical and Human Rights Concerns: AI's impact on human rights, including privacy, freedom of expression, and access to essential services, raises ethical and legal challenges. Striking a balance between AI's benefits and potential threats to human rights and ethical principles is a complex legal consideration.

INDIA'S STRATEGY AND NITI AAYOG ROLE FOR ARTIFICIAL INTELLIGENCE

India's approach and the role of NITI Aayog in implementing the roadmap for Artificial Intelligence involve a three-fold strategy. Firstly, the think tank, also known as NITI Aayog, plans to initiate exploratory proof-of-concept projects across various AI-related fields. Secondly, they aim to formulate a national strategy to nurture an AI ecosystem within the country. Thirdly, their strategy involves collaboration with global experts and stakeholders in the field of AI. The overarching focus is on harnessing transformative technologies to ensure social development aligned with the government's developmental philosophy.[6] The primary focus centres on the critical issue of establishing legal responsibility for artificially intelligent computer systems. However, before delving into the framework of liability, the authors underscore the essential need to establish the legal personhood of AI systems, as this is a prerequisite for determining their liability.[7] In the realm of civil law, it scrutinizes whether AI programs should be treated as products governed by product design legislation or as services subject to the principles of the tort of negligence.

In a recent written submission to parliament, the minister stated, "NITI Aayog has published a series of papers on the subject of Responsible AI for All. However, the government is not contemplating the introduction of a law or regulation to govern the growth of artificial intelligence in the country." Another facet explored is the current practical limitations faced by AI systems. As scientists strive to enhance AI's cognitive abilities and self-learning capacities, the heightened interaction between humans and machines inevitably gives rise to ethical and legal concerns. These concerns encompass potential liability for criminal or civil wrongs arising from AI actions. Consequently, the existing legal system needs adaptation to effectively address these challenges, including the attribution of legal personality.[8] Collaboration between governments, industry, legal experts, and AI researchers is crucial in formulating effective and future proof regulatory frameworks that promote innovation while safeguarding individuals' rights and societal values. As AI continues to evolve, addressing these legal challenges remains an ongoing and dynamic endeavour. As Artificial Intelligence technology progresses, dealing with the legal issues surrounding AI copyright and intellectual property rights becomes increasingly crucial. Policymakers and legal experts will need to navigate these intricacies and formulate appropriate legal frameworks to ensure equitable treatment of AI-generated content while considering the interests of creators and society at large. The discourse on AI personhood

[6] National Strategy report on AI 2021 *available at*- www.niti.gov.in (last visited on 31 December, 2024).
[7] Marda V. 2018 Artificial Intelligence policy in India: a framework for engaging the limits of data-driven decision making. Phil.Trans.R.Soc.A376:20180087.http://dx.doi.org/10.1098/rsta.2018.0087
[8] "Government Of Karnataka And NASSCOM Partner To Launch Centre Of Excellence For Data Science And Artificial Intelligence" *available at*- https://nasscom.in/press/government-karnataka-and-nasscom-partnerlaunch-centreexcellence- data-science-and-artificial (Last seen on 31 December, 2024).

primarily revolves around philosophical, ethical, and legal considerations, rather than being a technical or inventive concept eligible for patent protection. It encompasses aspects of AI ethics, human-AI interactions, accountability, and societal implications.[9]

EXISTING IPR REGIME WELL-EQUIPPED TO PROTECT AI GENERATED WORKS, NO NEED TO CREATE SEPARATE CATEGORY OF RIGHTS

Intellectual Property Rights including Copyright and Related rights provide exclusive rights to the right owner who are legal persons for a set duration. These rights allow for the work or creation or innovation to be protected and enables collection of royalties through licensing. For a right to be granted, the owner is required to meet the criteria specified under the law. India being a member of all major international conventions and agreements for the protection of Intellectual Property Rights grants adequate protection of rights for works created by legal persons through Copyright Law and protects inventions through the Patent system. Therefore, there is no requirement to create a separate category of rights for AI and related innovations in the Indian IPR Regime. Therefore, while Artificial Intelligence (AI) and related innovations is an evolving stream of technology the current legal framework under the Patent and Copyright Act is well-equipped to protect Artificial Intelligence generated works and related innovations. Presently, there is no proposal to create any separate right so ram end the law in the context of AI-generated content.[10]

The exclusive economic rights of a copyright owner such as the right of reproduction, translation, adaptation etc. granted by the Copyright Act, 1957 obligates the user of Generative AI to obtain permission to use their works for commercial purposes if such use is not covered under the fair dealing exceptions provided under Section 52 of the Copyright Act. Since Intellectual property rights are private rights, these are enforced by the individual rights holders. Adequate and effective civil measures and criminal remedies are prescribed under the Copyright Law against any act of infringement or unauthorized use of works, including digital circumvention.[11]

ARTIFICIAL INTELLIGENCE AND INTELLECTUAL PROPERTY -CHALLENGES AND OPPORTUNITIES

a) **Opportunities in Copyright**: - There is an opportunity for increased use of AI tools in copyright enforcement, especially given certain apparently successful automated anti-piracy systems. As a filtering tool, AI helps to identify infringing content and reduce human workloads, but it needs accurate and adequate training data. YouTube's Content ID is an example of an apparently successful AI tool. Research has shown Content ID to work 'relatively well' in removing apparent infringing content from YouTube, but critics claim it is not 100% successful.

b) **Opportunities in Designs**: - Improved image recognition capabilities could help identify potential infringements. The UK's s Anti-Copying In Design (ACID) maintains a databank of over 300,000 designs (including unregistered designs) that could provide data to train an AI to recognise infringing designs.

c) Opportunities in Trademarks: - There is scope for further development of enforcement solutions in close cooperation with consumer-facing online platforms that deploy AI tools for monitoring content. The new range of tools provided by the European Union Intellectual Property Office (EUIPO) offer track-and-trace solutions, risk analysis systems and use of AI/ML in detecting suspicious and potentially abusive domain name registrations. AI could play a part in enforcing rights implicated in different types of cybercrime and in detecting counterfeits as an aid to human actor.

[9] Dr. Thilo Hagendorff, University of Tuebingen, "The Ethics of AI Ethics- An Evaluation of Guidelines"
[10] Department of Ministry of Commerce & Industry, Posted On: 09 FEB 2024 8:55PM by PIB Delhi, *available on* https://pib.gov.in/PressReleasePage.aspx?PRID=2004715#:~:text=Existing%20IPR%20regime%20well%2Dequipped,create%20separate%20category%20of%20rights&text=Intellectual%20Property%20Rights%20including%20Copyright,persons%20for%20a%20set%20duration. (last visited on 12th December, 2024).
[11] Ibid 10

d) **Opportunities in Trade secrets**: - Trade secrets, especially for AI-related inventions, need enhanced protection against misappropriation. Security measures such as AI-based techniques, including neural encryption techniques, may offer greater protection.

Detection of copyright infringements is the most common example of AI use in IPR enforcement at scale, provided robust training datasets are available. If implemented similarly, AI could be also used to identify infringements of designs and trademarks, thereby reducing human resources. Intellectual property analytics could improve the discovery of relationships, trends, and patterns of IPR infringement for improved enforcement decision making. AI can only improve and become more accurate and faster, detecting patterns in a far superior manner to humans. Overall, AI is a useful filtering tool and an aid to human analysis in speeding up the processes of identifying infringing content.

i. **Challenges in Copyright-**
- There are concerns about the costs and resources involved in using automated tools for enforcement against copyright infringements.
- Such tools may be beyond the means of many SME right holders, who will tend to rely on CMO's and trade bodies to enforce their rights.
- Automated anti-piracy systems are opaque and reliant on hard-coded automated rules using dynamic, potentially unpredictable, and non-transparent algorithms for decision making.

ii. **Challenges in Designs**
- AI tools could help interrogate registered design databases. However, AI may not help identify infringements of unregistered designs or those reliant on copyright.
- Apart from existing databases, such as the one maintained by ACID, the costs involved in using AI to identify infringements benefits large firms owning portfolios of designs.
- The enforcement of registered and unregistered designs must consider the use of computer-aided design (CAD) and AI-generated designs, especially where unregistered design rights are used to train Ais.

iii. **Challenges in Trademarks**
- Trademark enforcement is hampered by data-sharing issues between industry, government and enforcement agencies that inhibit the use of automated tools at scale.
- Enforcement groups struggle to extract clean data from infringing websites and collate effective large data samples for the training of AI.

iv. **Challenges in Patents**
- AI use in enforcing patent rights needs to combine a blend of human and technological knowledge.
- The complexity of language involved in the application for patents as well as the complexity, cost and effort of taking legal action are challenges to enforcement.
- In addition, restrictions on using evidence of reverse engineering in English court proceedings make infringement of certain patent rights difficult to prove.
- AI-generated or AI-assisted IP infringements must relate to the actions of a legal 'person', and, as such, enforcement may need to be taken against those operating the AI.
- Enforcement against infringement of patents relating to AI may be hindered due to uncertainties associated with 'black box' AIs that defy human comprehension.
- AI tools are perceived as insufficiently nuanced or adapted for patent law, which requires lateral thinking and interpretation.

v. **Challenges in Trade Secrets**
- Trade secrets enforcement is impaired by the perceived risk of public disclosure during court proceedings, and therefore infringement issues are commonly settled out of court. Enforcement of trade secrets is also impaired by uncertainty around what may legally constitute a trade secret.

- AI is seen as one of relevant factors involved in the increase of cyber thefts of trade secrets, which in turn requires new AI and ML tools to combat the cyber-attacks.
- There is also concern that AI could be misused to hack into and get hold of trade secrets as opposed to protecting them.
- Trade secrets cover commercially valuable information not protected by patents or other IPRs, but enforcement depends on taking reasonable measures to keep such information secret as they are only useful for as long as they can be kept secret.
- In this regard, AI is seen as less immediately useful, given the nuances and variety within trade secrets and the fact that they are not intended to be public facing in the first place

vi. Challenges in Ethical issues

- The ethical limitations of using AI in IPR enforcement include the quality of (such as inadequate or incomplete) training data sets involved in the decision-making processes, as well as systematic and inherent human bias that could lead to unfair or incorrect decisions.
- There are also currently imperfections in the technology itself, including the lack of transparency (especially as regards "black box AI") and accountability as well as an incomplete knowledge of how the AI's work.
- There are also fears over the inflexible decision-making process involved with an AI that could lead to 'over-zealous blocking' of legal content.

vii. Challenges in Legal issues

- AI tools would need retraining to meet the needs of different IPR laws in different territories.
- There is also the fundamental challenge of maintaining GDPR compliance when AI training data involves using mass volumes of personal or sensitive data.
- There is a danger of "bad actors" harnessing AI, such as the ability to re-upload content after it has been removed by takedown notices.

The main challenges are the quality and quantity of training data needed for the effective use of AI in IP enforcement, as well as the crucial ethical and moral issues involved. An AI system is a resource-hungry process, and there is a clear link between the volume of data used by the AI and the accuracy of the results. The volume, quality and currency of training data are a common concern. Training AI tools is time-consuming and requires constant updating. Given the current limitations of AI as well as the ethical concerns, AI should currently only be an initial tool for flagging content to a human analyst for verification, rather than for enforcing IPR independently.[12]

CONCLUSION

International collaboration, inclusive stakeholder engagement, and sector specific regulations will be essential in shaping a responsible and forward-looking AI governance framework. By adopting a future oriented approach, policymakers can ensure that AI technologies contribute positively to society's well-being and address humanity's most pressing challenges. The future of AI governance holds great promise and potential, but it also poses several challenges that require proactive solutions. In response to the recommendations outlined in earlier Chapter, policymakers must take decisive actions to address emerging issues and harness AI's transformative potential responsibly. To address the ethical implications of AI, policymakers should prioritize the adoption of clear ethical AI principles that guide AI developers in creating systems aligned with human values. Transparent and explainable AI regulations should be enforced to ensure that AI systems' decision-making processes are understandable and accountable.[13] As technological advancements drive the development of autonomous systems, ethical review boards and regular audits can ensure that AI technologies are deployed responsibly and in compliance with societal values. Addressing data

[12] Dennis Collopy, "Artificial Intelligence and Intellectual Property Enforcement – Overview of Challenges and Opportunities" *available on*: https://www.wipo.int/edocs/mdocs/enforcement/en/wipo_ace_16/wipo_ace_16_15_presentation.pdf (last visited on 25th November, 2024).
[13] *Ibid.*

privacy concerns will require robust data protection measures, transparency requirements, and user consent mechanisms. Policymakers should explore privacy preserving AI techniques to enable AI advancements without compromising personal data. To combat AI bias and promote fairness, regulations should encourage AI developers to incorporate fairness aware algorithms and conduct regular bias assessments. Sector specific AI regulations can address unique challenges in critical sectors such as healthcare, finance, and transportation while fostering innovation. In response to employment disruptions, policymakers should invest in education and training programs to equip individuals with AI related skills, facilitating workforce adaptation and transition. Global collaboration in AI governance is crucial to address cross border challenges effectively. Policymakers should engage in bilateral and multilateral discussions, sharing knowledge and best practices to create a harmonized global AI regulatory landscape. For AI in cybersecurity and defence, policymakers should establish regulations that ensure responsible AI deployment while addressing the risks associated with AI enabled cyberattacks and weapon systems. In the context of climate change solutions, policymakers should encourage AI research and innovation to optimize energy consumption, improve climate modelling, and support sustainable practices. To address unforeseen AI application contexts, regulations must incorporate adaptive mechanisms that enable policymakers to respond effectively to emerging AI use cases and ethical implications.

The regulatory framework of Artificial Intelligence in India is gradually taking shape to facilitate responsible AI innovation while addressing ethical and societal considerations. With a focus on ethical AI principles, data privacy, sector specific regulations, and international collaboration, India is paving the way for a conducive environment for AI development. However, challenges lie ahead in ensuring the ethical deployment of autonomous systems, addressing data privacy concerns, and minimizing biases in AI algorithms. Proactive measures, inclusive stakeholder engagement, and an adaptive approach to AI regulation will be vital in harnessing AI's transformative potential for the betterment of India's economy and society. As AI technologies continue to evolve, India's AI regulatory framework must remain agile and responsive to emerging challenges. By striking a balance between fostering innovation and safeguarding public interests, India can position itself as a global leader in responsible AI development and application. Policymakers, researchers, industry stakeholders, and civil society must collaborate closely to shape a future where AI technologies serve as powerful tools for India's progress and societal well-being.[14]

[14] *available on*: https://shodhganga.inflibnet.ac.in/bitstream/10603/597914/11/11_chapter%207.pdf (last visited on 16 October, 2024)