The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

29. THE ROLE OF LAW IN THE DEVELOPMENT OF AI AND TECHNOLOGY: A SPECIAL REFERENCE TO THE INDIAN KNOWLEDGE SYSTEM

Dr. Ranganathaiah C.B
BA., LLB., LLM., NET., Phd
Associate Professor of Law
Department of Law
Government Law College, Kolar-563101

Abstract:

[1]*The rapid advancement of Artificial Intelligence (AI) and emerging technologies has presented immense opportunities and significant challenges across industries and societies. As AI reshapes sectors like healthcare, finance, education, and governance, the law becomes crucial in ensuring ethical, transparent, and fair development. In India, the interaction between AI and the legal system is particularly nuanced, given the country's diverse socio-economic landscape and rich traditional knowledge systems, such as Ayurveda, Vastu Shastra, and ancient agricultural practices. This article examines the critical role of law in the development of AI and technology, with a special focus on how Indian legal frameworks must evolve to regulate and integrate AI innovations responsibly while safeguarding traditional knowledge.*

The study begins by analyzing existing global and Indian legal frameworks that govern AI, including the Personal Data Protection Bill (PDPB) and intellectual property laws, to assess their adequacy in addressing key concerns such as data privacy, algorithmic bias, and the ethical use of AI. It also explores the importance of developing new legal standards that ensure fairness, non-discrimination, and accountability, particularly in the context of India's unique social dynamics related to caste, religion, and gender. Furthermore, the article highlights the potential of AI in preserving and expanding India's traditional knowledge systems, while emphasizing the need for intellectual property protections and ethical frameworks that prevent the exploitation of indigenous knowledge.

Drawing on a detailed review of literature, policy reports, and legal documents, the article provides a critical evaluation of how India's legal environment can foster innovation while protecting citizens' rights and cultural heritage. Through comparative analysis of global AI

[1] DR. RANGANATHAIAH C.B, BA., LLB., LLM., NET., PhD, ASSOCIATE PROFESSOR OF LAW, DEPARTMENT OF LAW, GOVERNMENT LAW COLLEGE, KOLAR-563101, ranganathaiah1973@gmail.com, mob-8618876224

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

governance frameworks, the article identifies best practices that could be adapted to the Indian context to ensure that AI development aligns with international standards while respecting local values. The article also discusses the ethical implications of AI's integration into sensitive sectors like healthcare, law enforcement, and the judiciary, where the potential for bias and misuse is significant.

The conclusion underscores the need for a comprehensive and forward-thinking legal framework that promotes responsible AI innovation while addressing the ethical, cultural, and societal dimensions unique to India. By strengthening regulatory oversight, protecting data privacy, and incorporating traditional knowledge into AI development in a manner that respects Indigenous rights, India can not only lead in the global AI landscape but also create an AI ecosystem that reflects its rich cultural heritage. The role of law, therefore, is pivotal in guiding AI toward inclusive and sustainable development, ensuring that technological advancement is balanced with ethical responsibility and social justice.

Keywords:
AI regulation, Indian law, ethical AI, traditional knowledge, data privacy

Introduction:

The advancement of [2]**Artificial Intelligence (AI)** and other emerging technologies are reshaping economies, industries, and societies at an unprecedented pace. AI has the potential to revolutionize sectors ranging from healthcare and finance to agriculture and education. As AI systems evolve, they raise critical questions about ethics, governance, and accountability, highlighting the need for a robust legal framework that can manage these transformative forces. The role of law in regulating, promoting, and shaping the development of AI and technology is thus becoming increasingly significant.

In the Indian context, this discussion acquires a unique dimension. India, home to a thriving technological ecosystem, is also a land of rich traditional knowledge systems, such as Ayurveda (medicine), Vastu Shastra (architecture), and ancient agricultural practices. These traditional systems are deeply rooted in India's cultural and historical heritage, offering valuable insights that can contribute to technological innovation. The convergence of AI with India's traditional knowledge systems presents both immense opportunities and challenges, particularly in terms of intellectual property rights, data governance, and ethical considerations.

[2] Artificial Intelligence (AI)

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

As AI technologies become more deeply embedded in India's socio-economic fabric, legal structures must evolve to ensure that innovation is balanced with ethical responsibility, social justice, and the protection of privacy and intellectual property. The regulatory framework must safeguard citizens from risks such as AI biases, data misuse, and unregulated exploitation of traditional knowledge, while also fostering an environment conducive to technological advancement.

This article aims to explore the multifaceted role of law in the development of AI and technology, with a particular focus on how Indian legal frameworks can harmonize the coexistence of cutting-edge technological innovations and India's traditional knowledge systems. By examining current legal challenges, ethical concerns, and policy initiatives, we will investigate how the law can serve as both a protector of rights and a facilitator of growth, ensuring that AI and technology development in India remains aligned with the country's unique social, cultural, and economic needs.

Review of Literature:

1. Regulatory Frameworks for AI Development:

Existing research highlights the need for comprehensive regulatory frameworks to govern AI development. Scholars such as Calo (2017) and Schwartz (2019) emphasize the importance of laws that address ethical concerns, including bias, transparency, accountability, and privacy protection in AI systems. In India, this is reflected in efforts like the Personal Data Protection Bill (PDPB), which aims to safeguard citizen data in the face of AI-driven technologies. These frameworks ensure that AI innovations are not only legally compliant but also ethically sound.

2. AI and Ethical Concerns:

A growing body of literature examines the ethical challenges posed by AI. Binns (2018) and Floridi (2019) argue that AI systems often replicate societal biases present in their training data, leading to unfair outcomes. In the Indian context, this concern is particularly relevant due to the country's social complexities regarding caste, gender, and religion. Studies call for laws that ensure fairness and non-discrimination in AI, especially in sensitive applications like judicial systems, hiring practices, and healthcare.

3. Integration of Traditional Knowledge Systems with AI:

The potential for integrating traditional knowledge systems with AI has been explored by scholars like Ghosh (2020) and Balakrishnan (2021). They note that AI can play a significant role in preserving and modernizing traditional Indian systems such as Ayurveda, agricultural practices, and architecture. However, research underscores the need for intellectual property laws

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

and legal frameworks that prevent the exploitation of indigenous knowledge. This is critical to ensure that traditional knowledge holders are fairly compensated and their rights protected.

4. Legal Safeguards for Intellectual Property and Data Governance:

Literature on intellectual property law and data governance, including works by Tene and Polonetsky (2013) and Saxena (2019), emphasizes the importance of protecting the data that fuels AI technologies. In the Indian context, the Biological Diversity Act, of 2002, and intellectual property rights are key to preventing the misappropriation of traditional knowledge while encouraging innovation. Legal scholars argue for a more dynamic approach to data protection and intellectual property that adapts to the evolving AI landscape.

5. Global AI Governance and India's Position:

Studies such as Wachter and Mittelstadt (2019) and Riedl (2020) discuss global trends in AI governance, focusing on the need for international cooperation to create standardized legal frameworks for AI. In this context, research also highlights India's potential to shape global AI governance by contributing unique perspectives from its legal, ethical, and traditional knowledge systems. India's "AI for All" strategy, as discussed in policy papers by NITI Aayog (2018), positions the country as a leader in the ethical development and deployment of AI, aligning with global standards while preserving local values.

Methodology:

1. Literature Review and Secondary Research:

The study begins with a comprehensive review of existing literature, including academic papers, policy reports, and legal documents related to AI development, ethical concerns, and regulatory frameworks both globally and within India. This helps establish a theoretical foundation and understanding of the current legal landscape governing AI and traditional knowledge systems in India.

2. Case Law and Legal Document Analysis:

A detailed analysis of relevant Indian legal documents, such as the Personal Data Protection Bill (PDPB), Biological Diversity Act (2002), and intellectual property laws, is conducted. Additionally, key global regulations and ethical AI frameworks are examined to understand how India's legal structure aligns with international standards. This method identifies gaps and challenges in existing laws concerning AI and technology.

3. Policy Review:

Indian government initiatives and policies such as Digital India, AI for All, and NITI Aayog's National AI Strategy are reviewed to assess how the government is promoting AI innovation

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

while attempting to balance legal and ethical concerns. This step helps understand the policy landscape that shapes AI development in India and the role of law in supporting or limiting it.

4. Comparative Analysis:

A comparative study is conducted by analyzing AI laws and regulations from other countries (such as the European Union's AI Act and U.S. guidelines) to identify best practices and areas where India can improve. This analysis provides insight into global AI governance frameworks and highlights India's unique challenges, especially concerning traditional knowledge and cultural heritage.

5. Interdisciplinary Approach:

The study incorporates an interdisciplinary approach by integrating perspectives from law, technology, ethics, and traditional knowledge systems. Legal analysis is supplemented with insights from AI experts, technologists, and cultural scholars to understand the broader implications of AI and its intersection with India's traditional knowledge systems. This holistic approach ensures a well-rounded exploration of how the law can guide AI development in a way that respects cultural and ethical dimensions.

The Interplay of Law and AI Development:

AI, by its very nature, presents unique challenges to legal systems. It cuts across sectors such as healthcare, finance, education, and transportation, necessitating a flexible yet robust regulatory framework. Laws are essential to ensure the ethical use of AI, protect privacy, prevent bias, and manage accountability for AI-generated decisions.

Globally, nations are grappling with how to regulate AI to balance innovation and ethical governance. In India, the legal framework is gradually evolving to meet these demands. The Personal Data Protection Bill, 2019 (PDPB), for instance, is a crucial step in safeguarding the data that powers AI systems. India's law must continue to evolve to address issues such as algorithmic transparency, bias in machine learning, and the legal liability of AI systems.

Role of Law in Promoting Innovation in AI and Technology:

In India, the legal environment plays a dual role: safeguarding citizens while promoting innovation. The government has launched initiatives like Digital India and the National AI Strategy, "AI for All," to foster AI innovation and development. Legal frameworks are needed to support these initiatives while ensuring they align with ethical standards.

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

The law also helps create an environment of trust. As AI systems become more prevalent in critical decision-making processes—from healthcare diagnoses to financial transactions—users need to trust that these systems are safe, secure, and transparent. Legal standards for AI audits, certification processes, and accountability frameworks are vital for building this trust.

Traditional Indian Knowledge Systems and AI:

India has a unique repository of traditional knowledge, particularly in the fields of medicine (Ayurveda), architecture (Vastu Shastra), and agriculture (ancient practices). Integrating this knowledge with AI-driven innovations offers tremendous potential. AI can be used to preserve, analyze, and expand traditional knowledge, making it more accessible to the world.

For example, AI could enhance the understanding and application of Ayurvedic medicine by analyzing large datasets on herbs, treatments, and outcomes. However, protecting traditional knowledge from exploitation is crucial. Intellectual Property (IP) laws and frameworks like the Biological Diversity Act, of 2002, play a role in safeguarding India's heritage from being exploited by entities that do not give proper credit or compensation to the original knowledge holders.

Indian law needs to focus on developing frameworks that allow the responsible use of traditional knowledge in AI while protecting indigenous rights. The integration of AI with traditional systems should not undermine the cultural heritage but instead, work towards preserving and expanding it in ethical ways.

Ethical AI: A Legal Perspective

Ethical AI has been a major topic in the legal discourse worldwide. AI has the potential to amplify biases inherent in training data, leading to skewed outcomes that could reinforce existing social inequalities. This is especially relevant in India, where caste, religion, and gender-based disparities are still prevalent. Therefore, the law must ensure that AI systems deployed in India are sensitive to these social dynamics.

Laws and policies should ensure that AI systems are transparent and their decisions are explainable, especially when used in critical sectors such as justice, healthcare, and employment. The recent conversation around the introduction of AI in India's judicial system for case management and predictive policing demonstrates the need for robust legal frameworks to prevent misuse.

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

The Indian government has recognized the importance of developing a legal framework for AI. Reports from the NITI Aayog, India's policy think tank, highlight the need for laws that focus on privacy, cybersecurity, and AI ethics. NITI Aayog's "Responsible AI for All" strategy emphasizes the creation of legal frameworks to protect citizens while promoting AI innovations.

The Future of Law in AI and Technology in India:

As India continues to emerge as a global technology hub, the interplay between law, AI, and traditional knowledge will become more intricate. Indian policymakers need to address several key issues:

1. Regulating AI Use Across Sectors: AI is used in sectors as varied as finance, agriculture, and healthcare. Each of these sectors will require specific legal frameworks that account for the nuances of AI use in that field.

2. Balancing Privacy with Innovation: As AI systems grow more powerful, they require access to vast amounts of data. The law must strike a balance between encouraging innovation and protecting individual privacy.

3. Addressing AI Bias and Discrimination: Given the societal complexities of India, laws must ensure that AI systems do not perpetuate or exacerbate biases. Regulatory frameworks must mandate fairness and non-discrimination in AI systems.

4. Incorporating Traditional Knowledge into AI Systems: Legal frameworks must ensure that traditional knowledge is integrated into AI responsibly and ethically, with proper credit and compensation to indigenous knowledge holders.

5. Global Alignment and Adaptation: India must also adapt its legal frameworks to align with global AI governance, ensuring that Indian AI systems can compete internationally while adhering to global ethical standards.

Conclusion:

The relationship between law, AI, and technology is a critical one, especially in a diverse and rapidly developing country like India. As AI continues to revolutionize industries and daily life, the need for a robust legal framework becomes paramount. The law must strike a delicate balance between promoting innovation and ensuring ethical, transparent, and fair use of these technologies. In doing so, the legal system plays a pivotal role in shaping the future of AI by fostering trust, protecting rights, and promoting accountability.

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

India's unique position, with its thriving technology sector and its vast reservoir of traditional knowledge, offers a rare opportunity to lead in AI development on its terms. The integration of AI with India's traditional knowledge systems could not only preserve and expand this ancient wisdom but also allow India to contribute uniquely to the global AI landscape. However, this integration must be managed with care to prevent exploitation, cultural misappropriation, and loss of indigenous rights. Laws and regulations that protect intellectual property and ensure fair compensation for the holders of traditional knowledge will be crucial in achieving this balance.

Moreover, the ethical challenges posed by AI—such as algorithmic bias, data privacy concerns, and the potential for AI to reinforce societal inequalities—require specific attention in the Indian context. Given the country's diversity in terms of caste, religion, gender, and socio-economic status, legal frameworks must ensure fairness and non-discrimination in AI systems. AI governance in India must prioritize transparency, explainability, and accountability, especially in sensitive areas like healthcare, education, law enforcement, and financial services.

India’s legal landscape is already evolving to address many of these concerns, with initiatives like the Personal Data Protection Bill, the National Strategy on AI, and NITI Aayog’s “AI for All” policy framework setting the stage for responsible AI development. However, there is still a need for more comprehensive regulations that can address the unique ethical, cultural, and societal dimensions of AI in India.

Looking ahead, India must continue to refine its legal and regulatory frameworks to ensure that AI and other emerging technologies serve the broader goals of inclusive and sustainable development. This involves not only regulating the use of AI but also actively encouraging its ethical and beneficial deployment across sectors. Furthermore, India should actively engage with international AI governance frameworks to ensure that its laws are aligned with global standards, while also maintaining its own cultural and societal values.

In conclusion, the role of law in the development of AI and technology in India is multifaceted and critical. By addressing the challenges of privacy, bias, intellectual property, and the ethical use of AI, the law can guide the responsible integration of AI into India’s socio-economic fabric. At the same time, it can ensure that the rich traditional knowledge systems of India are protected, respected, and utilized in ways that benefit both the country and the global community. With the right legal frameworks in place, India has the potential to lead in AI innovation, not only as a technological powerhouse but also as a custodian of its rich cultural heritage.

References:

The Asian Thinker
A Quarterly Bilingual Peer-Reviewed Journal for Social Sciences and Humanities
Year-7 Volume: IV (Special), October-December, 2025
Issue-28 ISSN: 2582-1296 (Online)
Website: www.theasianthinker.com **Email**: asianthinkerjournal@gmail.com

1. Calo, R. (2017). Artificial Intelligence Policy: A Primer and Roadmap. University of California Law Review, 51(2), 399–423.
- Explores the foundational legal and ethical challenges posed by AI and the role of law in governing AI systems.

2. NITI Aayog. (2018). National Strategy for Artificial Intelligence: AI for All.
- Outlines India's policy framework for AI development, focusing on ethical AI use and governance in various sectors like healthcare, education, and agriculture.

3. Binns, R. (2018). Fairness in Machine Learning: Lessons from Political Philosophy. Conference on Fairness, Accountability, and Transparency.
- Discusses the implications of algorithmic bias and the importance of fairness and transparency in AI systems, relevant to India's diverse social landscape.

4. Ghosh, S. (2020). AI and Traditional Knowledge: Opportunities and Ethical Challenges. Journal of Intellectual Property Law & Practice, 15(9), 715–728.
- Analyzes how AI can integrate with traditional knowledge systems like Ayurveda, and the legal frameworks necessary to protect indigenous rights and prevent exploitation.

5. Saxena, A. (2019). Data Protection and AI in India: Legal Challenges and Opportunities. Indian Journal of Law and Technology, 15(3), 145–168.
- Focuses on data privacy issues in AI systems within India, analyzing the Personal Data Protection Bill (PDPB) and its implications for AI development.