

INDIA'S READINESS FOR SOCIETY 5.0 AND ITS LEGAL FRAMEWORK

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ABSTRACT

India needs to prepare for the Society 5.0 concept-wherein the society has undergone four stages of historic development from hunter- gather to agrarian to industrial age and information age. It is now entering the fifth stage-a supersmart digitalised society that integrates physical space into cyberspace. It is the time to work towards improving the quality and outcome of human to machine interactions and prepare a legal cushion for maximum benefit to the society.

INTRODUCTION

Society 5.0 is a term that reflects a newer society, in which there is technological development focused on humans and it seeks valuable solutions for human's lives across globe.

This concept was introduced in 2016 in Japan, conceptualising virtual and physical space converge with technologies integrated into our lives. According to Japanese government literature, the concept of Society 5.0 is amalgamation between cyberspace and physical space, to make equilibrium economic advancement to provide solution for social problems by providing goods and services that can further address the suppressed needs of humans regardless of their age, sex, or language.” The aim of society 5.0 is to develop two types of relationship first is relationship between technological aspect and societal perspective and second is relationship between society and individuals with respect to technology.¹

Society 5.0 uses the technologies created by industry 4.0 (Big Data, autonomous robots, simulation, 3D printing, Internet of Things, etc.) to work on behalf of people. The convergence of all these innovations provides a better standard of life for human kinds.

Historically, humanity has evolved through the 4 stages of social organization:

- Society 1.0, cantered on **hunting**.
- Society 2.0, based on **agriculture** and the domestication of animals.
- Society 3.0, based on **industry**, starting with the First Industrial Revolution.
- Society 4.0, based on **information**, starting with the creation of the Internet and globalization Society

Human Machine interactions and Law: Society 5.0

The Fourth Industrial Revolution, which saw the rise of **Industry 4.0 technologies** – such as the Artificial Intelligence (AI), Internet of Things (IoT), Cloud computing, Big Data, and others – made it possible to unify the physical and digital worlds in a way never seen before. It's even becoming possible to take **technical and scientific innovations** and humanize them for the common good and not only for industrial, economic, or corporate purposes. In the context of Society 5.0, this means developing technologies that really improve people's quality of life.²

¹ A Step Towards Society 5.0 1st Edition 2021 Hardbound by Shahnawaz Khan , Thirunavukkarasu K. , Ayman AlDmour , Salam Salameh Shreem , CRC Press.

² Disruptive Technologies for Society 5.0 1st Edition 2021 Softbound by Vikram Bali, Vishal Bhatnagar, Sapna Sinha, Prashant Johri , CRC Press

India still has all the operations and from tribal. Rural (agrarian), rich industrial and now segments of India having sweeping changes and entering 5.0 level. With mixture of all the four levels and now streaming in world of 5.0 there is a need to work at all levels to have our legal framework updated and capable of handling the huge space being created by this new ever evolving human machine relationship.

Integrating cyber space and physical space: Challenges of creating effective legal cushion

1 **Complexity of Data Colonisation:** Digital is a new medium and a new language where humans have become data and data is new business order. There are huge financial and legal repercussions of this rush for data ownership its colonisation and even localisation.

2. **Artificial Intelligence:** AI has the potential to connect and contextualize individual scenarios that can drive automation at an unimagined level. This will create new vistas and challenges in the legal field.

3. **Digital banking:** Artificial Intelligence (AI) investments by banks will drive a great deal of trust and business value in future. It needs to be carefully understood that digital innovations are still evolving it is a long road ahead until we achieve transparency, legal protection and safety.

4. **Digitalizing Health:** AI is fast capturing health systems in India. This creates fears of having a sunset of the traditional health system or end of traditional doctor patient relationship with start of new era of medicolegal system. In case of technological malfunction or error in diagnosis or inappropriate data, then question arises as to who should be accountable. If there is a medical negligence, doctors are held responsible for the offence and are punished under civil and criminal procedure. But in case if the artificial intelligence is replacing the medical professionals or if the medical professionals are taking help of some active assistance of artificial intelligence and if the technological glitch in the system happens then who will be held responsible for the same. However, digitalization of health sector will further enhance the whole system of health and it will improve the efficiency of operations if the technology is sound and effective. All the disadvantages of the artificial intelligence shall be taken up cautiously so that the drawbacks are taken care of.

5. **Cobots:** Collaborative robots or cobots are bringing men and machines together. Cobots will lay the premise for industry 5.0-Customisation to mass personalisation. With no fences and no bounds, a true human-robot relationship is on the horizon. India will be soon catching up with these new developments and this will open up new legal challenges and require proactive planning.

These technologies like Big Data, AI, Robotics, Bots, NB-IoT, autonomous driving, blockchain and many more of such innovations will drive humanity to a totally different level. India would strive and fight for digital equality. Data security and privacy from national-Sovereignty perspective a subject that is also shaping the global digital economy will require a strong legal framework to address the huge scope for potential litigation.³

The Evolution: Society 5.0

The excessive information storage, the challenge of identifying relevant and reliable data for analysis, and the restricted scope of action due to corporeal restraints and insufficient laws and policies are putting significant strain on the current industrial, social and economic infrastructure of nations. It hampers their capacity to address different critical issues on time. Furthermore, with the increase of globalization and advancement of economies, international competition, and regional and social discriminations further entangles the situation. For these challenges to be addressed properly, it is very important to prioritize the concept of sustainability across different industries, encourage green energy solutions, implement effective climate control measures, and provide social innovation. These efforts are essential for addressing the issues on time.

³ F. Pasquale, *New laws of robotics : Defending human expertise in the age of AI*, (Belknap Press, Harvard University Press, 2020)

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The remarkable potential of the industry 4.0 Revolution is opening doors for the countries to acknowledge society 5.0, a future reality that serves as a stepping stone towards a prosperous and data- synchronized super smart society centered on human well- being. Social innovations plays a crucial role in this transformation by integrating evolving technologies such as the AI, IoT, and Robotics etc. These innovations enable us to create a forward- thinking and prosperous society that not only fosters economic advancement but also addresses pressing social challenges. By Leveraging these technologies, we can strive for a harmonious stability between economic progress and the resolution of social problems, driving us towards a more inclusive and sustainable future.

The interconnectedness of people, things and systems serves as a catalyst for the evolution of society 5.0, bringing together the virtual and physical realms by gathering vast amounts of data from diverse sources through devices and sensors. This big data is then evaluated using AI capabilities to reintegrate into the physical space, generating value in various forms and media for individuals, industries and corporations. The integration allows for simultaneous economic development and the resolutions of different social problems.

In Society 5.0, social innovation plays a pivotal role in creating this new value by bringing gaps related to region, age, gender and language. It enables the different provision related to products and services that are tailored to personal requirements and potential needs. This Transformative approach has the potential to address a wide range of challenges across various sectors, including healthcare, agriculture, food, manufacturing disaster management etc. In society 5.0 we can unlock innovative solutions and create the path for a more inclusive and sustainable future.

The concept of Society 5.0 aligns seamlessly with Hitachi's vision of a 'Sustainable Society' where every individual can lead a safe and promising life. With a comprehensive and diverse portfolio of digital solutions and an integrated approach. Hitachi is well-positioned to collaborate with the government in realizing this vision. By establishing a robust framework for an efficient transition to Society 5.0. Hitachi aims to address social challenges through cutting edge digital technologies. As a prominent partner in the government's digital India's initiative, Hitachi actively engages in collaborative -creation with the government in sectors such as railways, finance, agriculture, e-governance, urban development etc. This collaboration is driving India towards a country equipped to meet the demands of Society 5.0 in the future.

In the domain of 'Smart Agriculture' Hitachi leverages automated farm work, the automatic collection of crop data, optimized water management based on weather predictions and river data as well as shared knowledge and expertise among farmers. These technologies enable farmers to devise intelligent framing plans, continuously adapt based on predictions of new value, and achieve sustainable results. By embracing smart agriculture practices, farmers can ensure a stable supply of agriculture produce to meet consumer demands while promoting sustainability.

Thus, the collective impact of embracing these new digital technologies assists industries, governments and corporation in achieving national initiatives, particularly in the realm of reducing carbon emissions, constitution a sustainable society, optimizing resource, utilization and enhancing individual's quality of life. Hitachi possesses a unique advantage in efficiently delivering extensive and integrated IT solutions, thereby aiding the government delivering its vision of a healthier human life and developing forward-thinking solutions for India's future. This contribution aligns with the nation's progression towards society 5.0.⁴

Artificial intelligence (AI), data analytics and other emerging technologies will offer a multitude of possibilities in various sectors. In healthcare, they can revolutionize medical care. In agriculture they can streamline distribution and production to eradicate hunger. Autonomous transportation, including automated drone technology, can enhance logistics. Infrastructure will leverage sensors, robots and automated systems to anticipate needs, mitigate

⁴ Hitachi-UTokyo Laboratory (H-UTokyo Lab.) *Society 5.0: A People-centric Super-smart Society* (Kindle, 2020)

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risks and improve efficiency. Furthermore, the implementation of environmentally friendly technology will address energy requirements.⁵

Employment, public administration, privacy and industrial structure are all facets of society undergoing significant changes and digital information must adapt to current demands. Society 5.0 aims to implement these changes by taking in account the integration of various dimensions such as Entrepreneurial Skills, Innovation Policy and Entrepreneurial spirit. Technological advancements offer the potential to improve living standards, but they also pose challenges such as potential negatives impacts on employment and unequal distribution of wealth and information. Society 5.0 leverages advanced technologies like IT, IoT, Robotics including health and other spheres of activity. In contrast, Industry 4.0 primarily focuses on technological advancements with the industrial sector. The direction we choose and the kind of society we create in the future depend on humanity's choices regarding these innovative technologies. By harnessing the diversity of technologies, we can achieve increased production, cost reduction associated with an aging society, equal distribution of wealth, reduced greenhouse gas emissions, improved food production, the resolutions of regional inequalities, and other solutions to social problems while promoting economic growth.⁶

Society 5.0 combines digital transformation with the creative contributions of diverse individuals to foster value creation and sustainable development through problem-solving, aligning with the United Nations goals for sustainable development. The Ministry of Electronics and Information Technology (Meity), in collaboration with CDAC, is currently undertaking a proof-of-concept project called AIRAWAT (AI Research, Analytics and knowledge Dissemination Platform). This initiative aims to provide a shared computing platform for AI research and knowledge assimilation.

Creating new legal framework Compatible with demands of 5.0

Artificial Intelligence (AI) is composed to unsettle the world we live in. With the machines which have high-level of cognitive, problem solving and decision making power clubbed with data collection, interpretation and analysis, AI gives numerous of opportunities to supplement and complement human intellect so that it can enhance the people living and working condition. India, being the fastest growing economy and almost first and largest populated in the world, has taken the considerable amount of stake in the revolution of AI. Recognizing the potential of AI to change economies and the requirement for India to categorize its approach, even in the speech of Hon'ble Finance Minister in the year of 2018-2019, made it compulsory for NITI Aayog to compose National strategy or program on AI, with an aim for research and development in advancement of technologies. NITI Aayog has approved three-faceted approach from exploratory to drafting national strategy to collaborating with various stakeholders and experts. Since the commencement of 2023, NITI Aayog has paired with leading stakeholders to enforce different AI projects in spheres like health and agriculture. For drafting national strategy for AI, various perspectives from different projects and institutions.

#AIForAll aims at empowering and enhancing human abilities and capabilities to address different challenges of accessibility, affordability, inconsistency and limitations of skilled expertise, efficient implementation of AI to tackle all the emerging and global challenges from AI's perception. AI's will focus on partnerships and collaborations to ensure overall development for all. It means to achieve technological advancement for achieving greater good in the society.

Indian legal system needs to move with the contemporary developments and the cyber laws, Telemedicine/Telepsychiatry regulations are few steps already done but having specific laws to address these developments and having parity with the international laws and treaties is a big challenge keeping in view the already choked legal system of India.

⁵ S. Russell & P. Norvig, *Artificial Intelligence: A modern Approach*, (USA: Pearson, 2020)

⁶ R. Abbott, *The Reasonable Robot: Artificial Intelligence and the Law*, (Cambridge University Press, 2020)

Both Criminal and civil legal system witnessed number of challenges with the technological development. Our legal principles need to be redefined to accommodate different machineries to cope up with legal methods. For this legal system has to undergo radical changes in the society.

AI has the all the capabilities to make our society and economy better. It will entirely revolutionize the whole system of people's interaction with the machines. However it might lead into lot of moral and ethical issues, and therefore one must be prepare for all the problems and challenges that can come up in future. Earlier our legal system used to protect and safeguard the interests of humans but now we need laws to legalize the artificial intelligent machinery. These artificial machinery cannot be made subject matter of rights and duties and cannot be acknowledged as a legal person because neither damages can be recovered from them nor they can be put behind bars. Thus, we will need to widen the horizon of our legal rules to make the artificial machinery accountable.

Liability for AI- If AI has been acknowledged as legal personality then liability of AI crops up in civil liability laws. It arises out of act or omission which is said to be made in two ways- AI as a product and AI as a service.

AI AS A PRODUCT – Product liability is the main basis of a manufacturer's liability. A manufacturer of goods may be held liable for any harm or damage caused by their product. The basis of this liability lies in the principles mentioned below-

- 1) Strict liability- Manufactures are held strictly liable for any defects in their products that cause harm or injury to consumers. This means that they can be held accountable for damages even if they were not negligent in designing or manufacturing the product. The focus is on the product itself and whether it is unreasonably dangerous or defective.
- 2) Negligence- Manufactures can also be held responsible if they don't comply to exercise reasonable care in the design, production, and distribution of their products. This means that they have a duty to confirm that their products are safe for their intended used and they take appropriate steps to prevent foreseeable risks or hazards.
- 3) Breach of Warranty- Manufactures may be held liable if they breach an express or implied warranty associated with their product. This means that they fail to meet the promises or expectations regarding the quality, safety or performance of the product.

AI AS A SERVICE In the context of AI as a service, the principle of vicarious liability may apply. Under the liability, one person can be held responsible for the wrongful acts committed by another person. In the case of AI as a service, the provider of the AI service can be held liable for any wrongful acts committed by the AI system while performing its functions.

The basis for vicarious liability is rooted in two principles:

- (1) "Qui facit per alium facit per se": is a Latin phrase which states that "he who acts through another acts himself". It suggests that when someone delegated action to another person, they are considered to have done it themselves. In the context mentioned, it implies that a master who instructs a servant to perform a task is ultimately responsible for that task, as if they had performed it directly.
- (2) Public Policy: the concept of public policy comes into play regarding the liability of the master in cases where harm or injury is caused. Public policy emphasizes the need for remedies when harm occurs, and it often places liability on the person who in a better position to address and compensate for the damages, Therefore, if AI is provided as a service and any wrongful acts or damages result from it, the liability would typically fall on the entity or the individual who benefits from the AI's work- the master in the case – based on the principle of vicarious liability.
- (3) Master's Liability rests on public policy which necessitates the availability of remedies for any injuries caused. Since the master is typically in a better position to address such issues, the liability falls upon them. Therefore,

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it is reasonable to assert that if AI is provided as a service, the master should bear liability for any wrongful acts resulting in harm to consumers or third parties. This aligns with the principle of vicarious liability, as the master benefits from the work of the AI “servant” and is better equipped to compensate for damages.

Policy makers believe that Artificial Super Intelligence (ASI) empowered machines, such as LAWS (Lethal Autonomous Weapons Systems), will have a far-reaching impact on all aspects of human experience, including fields like medicine and transportation. This progression towards greater autonomy in AI systems appears to be irreversible. However, the introduction of advanced AI has been raised concerns about the potential conflict between winning the AI race and implementing safety measures. There is an increasing likelihood that prioritizing AI advancement may be incompatible with employing certain safety methods that could cause performance limitations or delays.⁷

While conceptualizing AI’s national strategy, the very basis was to formulate different applications with great social impact and eagerness to learn from the recent technological advancement in AI’s.

Report of Artificial intelligence Task Force, 2018 to Indian Government has list of certain areas where AI’s has the greatest potential for the development-⁸

- Agriculture
- Financial service
- Healthcare
- Education
- Public and utility service.

In present times, India has no legislation, codification, statute, regulations or even guidelines that legalize AI. The Meity has established few committees and also framed a strategy for introduction, enforcement and integration of AI into the mainstream. Rest the provisions related to this subject is set out in information technology Act, 2000 not incorporating anything related to the latest concept of artificial intelligence.

While there are currently no worldwide regulations on AI, Europe is set to become the first region to draft laws specifically tailored to AI. In the light of this, it would be sensible for India to observe and analyse the situation rather than quickly regulating AI. Additionally, the Indian government may perceive AI technology as still being in its being in its early stages and may not see immediate regulation as necessary.

However, this doesn’t mean that there are no checks and balances in place in India. The Ministry of Electronics and Information Technology (Meity)⁹ has stated that both central and state government departments and agencies have already begun efforts to standardize responsible AI development.

The government has also acknowledged the ethical concerns associated with AI, as highlighted in the National Strategy for AI (NSAI) released in June 2018. Furthermore, both existing and upcoming laws will apply to the technology and its creators.¹⁰

⁷ Phillip Hacker, “A legal Framework for AI training data from first principles to the Artificial Intelligence Act” Vol. no. 13, Issue 2, LIT, pp. 257-301(2021)

⁸ Constituted By Ministry Of Commerce And Industry, Government Of India.

⁹ <https://www.meity.gov.in/>

¹⁰ <https://niti.gov.in/sites/default/files/2019-01/NationalStrategy-for-AI-Discussion-Paper.pdf>

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For example, the upcoming Digital Personal Data Protection Bill 2022(DPDPB 2022) will be applicable to AI developers who improve and facilitate AI technologies. As AI developers collect and utilize vast amounts of data to train their algorithms and improve AI solutions, they must be classified as data fiduciaries. This means that AI developers would need to comply with key principles of data protection and privacy, such as purpose limitation, data minimization, consensual processing, and contextual integrity as outlined in the DPDPB 2022.

Moreover, the government is considering provisions with the Digital India Act (DIA) that would define and regulator high risk AI systems as discussed during DIA consultation process. These steps indicate that the Indian government recognizes the importance of addressing AI- related challenges and aims to establish a regulatory framework to guarantee responsible AI development and usage.

Legal AI is an emerging field that combines expertise in law and artificial intelligence to develop applications and tools that assist in various legal tasks. By leveraging AI technology, legal professionals can restructure their workflows, automate repetitive tasks and gain valuable insights from vast amounts of legal data. India has indeed been making significant strides in the field of legal AI. The country has witnessed promising initiatives and ongoing research efforts to develop and improve AI applications for legal purposes. These initiatives aim to enhance the efficiency and effectiveness of legal processes, ultimately benefiting both legal professionals and individuals seeking legal services.¹¹

The AI-powered portal SUPACE which stands for Supreme Court Portal for Assistance in courts Efficiency, has been introduced to improve the productivity of legal researchers and judges in India's Supreme Court. This integration of artificial intelligence in the judicial domain aims to reduce pending cases and enhance the efficiency of legal researchers and judges by assisting in case work, extracting relevant information, reading case files, managing teamwork, and drafting case documents. It can quickly find facts, issues and points of law from extensive documents in a matter of seconds.

The artificial Intelligence committee of the Supreme Court, established in 2019 is led by Justice L. Nageswara Rao. According to Justice Rao, there was a recognized need to incorporate cutting-edge technology such as machine learning and artificial intelligence in the judicial domain to enhance the efficiency and productivity of justice delivery.

While language Technology is already being utilized to translate Supreme Court judgments into vernacular languages, the apex court has taken a pioneering step by employing AI to assist legal research and development for judges. This integration of artificial intelligence in the judicial domain aims to reduce pending cases and enhance the efficiency and productivity of delivery justice.

The former Chief Justice of India SA Bobde, launched the artificial intelligence portal SUPACE describing it as a "Perfect blend of human intelligence and machine learning".

SUPACE is an AI-enabled assistive tool designed to enhance the efficiency of legal researchers and judges in various tasks such as working on cases, extracting relevant information, reading cases files, managing teamwork and drafting case documents.

"SUPACE is a unique solution that offers full customization and adapts to the user's behavior. The AI integrated onto the platform learns and adjusts based on the user's incremental usage, making it one of the first examples of mass customization globally," explains Manthan Trivedi, a member of the SC's AI committee and a key contributor to this initiative it can swiftly extract facts, identify issues and pinpoint legal points from extensive documents within seconds. This will significantly save time and greatly enhance the efficiency of decision-making. Moreover, SUPACE provides a digital infrastructure that aligns with the ongoing digitation efforts in the

¹¹ Kamshad Mohsin, "Legal Framework of Artificial Intelligence Issues and challenges", Vol no. IV, Issue 1, IJLL.

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country. With its robust workflow and machine learning capabilities, SUPACE will unlock the untapped potential of digitization,” he adds.

Justice NV Ramana, the former Chief Justice of India, acknowledges the burden of pending cases and the challenges of extracting relevant facts from voluminous records. He highlights the ease with which SUPACE can help identify important facts and issues raised by the parties, making the process more efficient. He believes that with the time and usage, a better understanding of the tool’s capabilities will be gained.

In another development, the Supreme Court Vidhik Anuvaad Software (SUVAS),¹² a machine learning tool, is being employed to translate Supreme Court judgments into vernacular languages. The apex court has initiated the translation of daily orders and rulings into nice Indian languages, including Assamese, Bengali, Hindi, Kannada, Marathi, Odia, Tamil, Telugu and Urdu. This initiative aims to improve access to justice for litigants by providing them with knowledge in their native languages. It empowers individuals to make more informed decisions in legal matters, reducing their reliance on lawyers.

Summarization of legal case documents- Automatic summarization of legal case documents is a crucial and practical challenge. While there are domain independent text summarization algorithms that can be used for this purpose, specific algorithms have been developed to summarize legal documents. However, many existing algorithms do not effectively incorporate domain knowledge that determines the ideal information to include in a legal case document summary. To address this gap, researchers from IIT KGP have proposed an unsupervised summarization algorithm called DELSumm. It is designed to systematically incorporate guidelines from legal experts into an optimization setup.

Automated extraction of catchphrases from legal documents: Legal documents can be lengthy and complex, making them challenging and time-consuming to comprehend even for legal practitioners. Therefore, there is need for a concise representation of legal statements which can be achieved through” catchphrases”. With the increasing digitization of legal documents, automated extraction of such catchphrases becomes crucial for legal document indexing and information retrieval. Researchers at IIT KGP have modeled catchphrases as named entities and developed a supervised named entity recognizer to identify them through sequence labeling. The large volume of digitally available legal documents highlights the necessity for automated catchphrase extraction.

AI is coming up as the new source of production and supplementing the old and traditional factors like labour, capital etc. It has all the potential to overcome the physical restrictions like labour and capital and opening up new sources of growth and value. From the economic perspective, AI has all the potential to grow through: a) intellectual automation b) capital and labour augmentation c) innovation diffusion. All the inventions by AI’s will lead to increase the economic value in the society.

Artificial Intelligence (AI) is a rapidly advancing technology that enhances human reasoning capabilities. Through AI, computers gain the ability to think, learn and even create. When a computer program relies on human intelligence, it is referred to as an “AI application”. AI offers numerous advantages, but it is essential for humans to exercise caution and utilize its positive aspects for the betterment of the future and the environment. There is a concern among many people that misusing artificial intelligence could lead to the destruction of human civilization. However, it is important to note that no AI application is intended to harm mankind.

¹² <https://main.sci.gov.in/pdf/Press/press%20release%20for%20law%20day%20celebratoin.pdf>