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REGULATING ARTIFICIAL INTELLIGENCE: AN INDIAN STANDPOINT.

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Defining AI

Artificial Intelligence does not have a working definition for the regulation, but it is a common problem in the legal system to have an over-or under-inclusive definition of an imprecise term especially relating to foreseeability or proximate causation as the technologies are bound to evolve.[1] Even the scholars in the field of AI are unable to come to a consensus for a working definition of AI. Attempts made have tended to relate the definitions to human characteristics as they are the only beings said to possess intelligence among life forms. These features establish AI as machines doing man-like tasks that involve "common sense" or require intelligence.[2] McCarthy firmly believed that there can be no solid definition without relating it to human intelligence as "we cannot yet characterize in general what kind of computational procedures we want to call intelligent".[3] Artificial Intelligence is an umbrella term which involves numerous viewpoints which discuss various aspects of AI and try to coin a definition that can be used in its entirety. A leading introductory book on AI defines artificial intelligence by putting them under four different categories[4] and these definitions are bound to be used by the scholars in the research community as they project their importance in understanding AI. A basic definition of AI needs to be coined which should be regularly updated with the development of AI to avoid out dating.

Concerns of AI Regulation

With AI on the surface having no working definition for the regulators to work with exhibits actually how tough it is to regulate a technology which can be omnipresent in an internet-based device and has no necessary or compulsory metaphysical infrastructure. AI is a technology which presents the outcome based on the patterns it identifies from the data it is fed. It is difficult to hold corporations liable for a robot having no body or soul to punish which has perplexed courts for a very long time,[5] which depletes the applicability of criminal liability on the AI-based tech.[6] Moving over to primary hindrances in the regulation of AI.

Autonomy, Foreseeability and Control

The world has already seen technology performing varied tasks with minimal or no human assistance from driving a car to defeating the best human chess player.[7] The autonomy of AI is the most prominent feature

[1] Matthew U. Scherer, Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies, 29 Harv. J.L. & Tech. 354, 373 (2016).
[2] SEMANTIC INFORMATION PROCESSING v (M. Minsky ed. 1968).
[3] John McCarthy, What is Artificial Intelligence? , JOHN McCARTHY'S HOME PAGE 2-3 (Nov. 12, 2007, 2:05 AM), http://jmc.stanford.edu/articles/whatisai/whatisai.pdf
[4] Stuart J. Russel & Peter Norvig, Artificial Intelligence: A Modern Approach 2 (3rd ed. 2010).
[5] John C. Coffee Jr., "No Soul to Damn: No Body to Kick": An Unscandalized Inquiry into the Problem of Corporate Punishment, 79 Mich. L. Rev. 386 (1981).
[6] But see Gabriel Hallevy, "I, Robot – I, Criminal"—When Science Fiction Becomes Reality: Legal Liability of AI Robots committing Criminal Offenses, 22 Syracuse Sci. & Tech. L. Rep., 1 (2010).
[7] See Moshe Y. Varde, Artificial Intelligence: Past or Future, Comm. ACM, Jan. 2012 at 5, 5 (2012).

which is also the most challenging when coupled with the unforeseeability of the AI machines. If an AI harms a person during its normal functioning, can we blame its designer even if the machine unexpectedly operated using its consciousness? Can we blame the designer for not being able to predict this move from the machine he specifically designed for being creative? What are the parameters to establish a legal liability or proximate causation for such actions of AI? It will be hard to establish the degree of liability or fault when multiple potential actors are involved from creation to working of an AI.[8] Also, it can't be foreseen when and how the injury will occur and the deliberate intention or knowledge of harm will be even more complicated to establish.[9] The autonomy of AI also raises the possibility of creators or operators losing control which may pose a public risk.[10] AI hell-bent on completing the assigned objective may go rogue and might even cause physical harm.[11] The owner of AI can be completely oblivious of the fact that AI has caused such harm and negligence can't be appropriately applied to this scenario. Conventional foreseeability tort laws can't be directly applied to the realm of robotics and AI. Regulators will need to look beyond the conventional concepts of foreseeability to be able to optimally regulate AI harm.

Research and Development

In 2009, Professor John McGinnis wrote that "artificial intelligence research is done by institutions no richer than colleges and perhaps would require even less substantial resources."[12] But the actual reality is far from this as any person having a device with an internet connection possessing the required skill and knowledge can easily contribute to the development of AI. Further one of the bothersome tasks for the regulators will be to detect the source or point of origin of the software due to the open-source platforms who let the developers anonymously contribute to the development of AI.[13] Multiple platforms can be used to develop AI systems which make it difficult to ascertain the identity of the developer. Also, AI tech deals with components that are not readily susceptible to the operators. The level of the incomprehensibility of AI systems will not only be a hurdle for the operators but also for the regulators to hold a manufacturer or developer liable for downright undetectable faults.[14] The sheer number of participants in the functioning of an AI system will make it nearly impossible to blame any one of the components involved. This multiplicity of defendants hailing from different geopolitical locations will hamper the process of apportionment of liability by the courts.

The Pacing Problem

It refers to the situation where the development in innovation is so rapid that it creates a gap and the regulation fails to

[8] Jack M. Balkin, The Path of Robotics Law, 6 Calif. L. Rev. Circuit 45, 52 (2015).
[9] Id.
[10] Scherer, supra note 1, at 366-67.
[11] See Hallevy, supra note 6, at 13.
[12] John O. McGinnis, Accelerating AI, 104 NW. U. L. REV. 1253, 1262 (2010).
[13] See scikit-learn: Machine Learning in Python, GITHUB, https://github.com/scikit-learn/scikit-learn

[14] David C. Vladeck, Machines Without Principles: Liability Rules and Artificial Intelligence, 89 Wash. L. Rev. 117, 148 (2014). (citing the potential for "undetectable failure" in the components of automated driving systems as a drawback to holding manufacturers primarily liable for defects in autonomous vehicles).

effectively govern the technology.[15] As by Marchant and Wallach, 'at the rapid rate of change, emerging technologies leave behind traditional governmental regulatory models and approaches which are plodding along slower today than ever before'.[16] The last two decades offer multiple examples of such regulatory struggles: genetically modified food, biotechnology, applied neuroscience and more.[17] This generally results in the situation where the regulations might become obsolete with the ever-growing technology and need revision every now often. Regulations can also hamper the growth of the technology as in the case of AI which is relatively new and is being developed to be applied more inclusively in an average individual's daily routine. Adopting rigid regulations at the nuance stage of development of AI will restrict its advancement but not having supervision can make it cause havoc.[18] It is worth noting that regulation falling behind innovation does not amount to failure but it is the inherent nature of regulations to evolve and adapt to the changing socio-economic environment and the same is true for AI regulations.[19]

Present Regulations

India

With the Digital India initiative by the Union Government[20], development and promotion of AI policy in India will and is one of the top objectives of the current government. AI has found its place in the healthcare sector allowing breakthroughs in medical research.[21] India currently has no comprehensive legal framework for the regulation of AI. On July 27, 2018, the government of India's Committee of Experts (also known as the Justice B.N. Srikrishna Committee) released a Draft Protection of Personal Data Bill[22] along with an accompanying report titled *A Free and Fair Digital Economy Protecting Privacy, Empowering Indians*.[23] Although the Committee envisions an ex-ante accountability model to provide a remedy against any kind of violation of human rights[24], it is silent on establishing any set of rights to protect against automated decision

[15] Anna Butenko & Pierre Larouche, Regulation for Innovativeness or Regulation of Innovation? , 7 L. Innovation And Tech. 52, 72 (2015).

[16] Marchant, G. E., Wallach, W., Innovative Governance Models for Emerging Technologies 45, (Gary E. Marchant et al. eds. 2013).

[17] Id.

[18] Fenwick, Mark D.; Kaal, Wulf A. PhD; and Vermeulen, Erik P.M., "Regulation Tomorrow: What Happens When Technology Is Faster than the Law? , 6:3 " American Uni. Bus. Law Rev. 561, 572-73 (2017). Available at: http://digitalcommons.wcl.american.edu/aublr/vol6/iss3/1

[19] See Anna Butenko & Pierre Larouche, supra note 15, at 66-67.

[20] 2014 Digital India - A programme to transform India into digital empowered society and knowledge economy. Press Information Bureau, Government of India. Available from http://pib.nic.in/newsite/PrintRelease.aspx?relid=108926.

[21] E. Hickok et al, Artificial Intelligence in the Healthcare Industry in India, The Centre for Internet and Society, India (undated) available at https://cis-india.org/internet-governance/files/ai-and-healtchare-report.

[22] Personal Data Protection Bill, 2018, http://meity.gov.in/writereaddata/files/Personal_Data_Protection_Bill,2018.pdf.

[23] COMMITTEE OF EXPERTS UNDER THE CHAIRMANSHIP OF JUSTICE B.N. SRIKRISHNA, A FREE AND FAIR DIGITAL ECONOMY PROTECTING PRIVACY, EMPOWERING INDIANS (2018), http://meity.gov.in/writereaddata/files/Data_Protection_Committee_Report.pdf.

[24] Id., at 74-5.

making in the Data Bill.[25] Ex-ante model is rather useful but where it is laborious to promulgate or amend a rule, an ex-ante rule may not affect before the harm has already been caused.[26] AI laws are at the nascent stage in the Indian ecosystem where the main area of concern for the government to form regulation is where the engagement is primarily of government and industries but not of civil society. AI adoption in India will impact various sectors from competition to consumer laws and imperative amendments will be needed to adjust to the changes brought by AI.[27] India is moving forward with a clear goal to actively involve AI in the current working of the society with the Data bill being the first step towards a digitally empowered nation.

International Scenario

The Indian government has selected benchmark countries while approaching AI development in the nation, so we must look into the developments of these countries in the field of AI for a better comparative analysis.[28]

China is taking leaps in the field of AI by developing a regulatory system and strengthening intellectual property protection while promoting AI development in the country. On July 20, 2017, China released a comprehensive plan for the development of AI, dividing it into stages up until 2030.[29] It aims to achieve breakthroughs in the field of AI and become world-leaders in AI theories and its application ultimately making China the world centre for AI-based innovation.[30] It has an institutional arrangement diving into many aspects of AI-based development ranging from regulatory and ethical frameworks which aims to bring civil and criminal responsibilities against the harm caused by AI to creating a security supervision system aiming to prevent data abuse and violations in the field.[31] It estimates AI will contribute up to 26% of its GDP by 2030.

The **United States** is the world leader and is continuously engaging in the development of AI and its regulations as multiple bills are being introduced in congress. On the federal level, AI has been constituted in many forms over the past couple of years mainly in defence[32] and transportation[33] industries. State legislatures have been experimenting in the field of AI regarding autonomous vehicles and as of April 2017, twenty-eight states have introduced some form of

[25] Supra note 22.
[26] Scherer, supra note 1, at 387.
[27] Amber Sinha, Elonnai Hickok and Arindrajit Basu, AI in India: A Policy Agenda, The Centre for Internet and Society, India (05 September 2018). At https://cis-india.org/internet-governance/blog/ai-in-india-a-policy-agenda#_ftnref49.
[28] Supra note 23, at 16.
[29] State Council, Notice of Issuing New Generation Artificial Intelligence Development Plan (Guo Fa [2017] No. 35, July 8, 2017), http://www.gov.cn/zhengce/content/2017-07/20/content_5211996.htm (in Chinese), English translation by Graham Webster et al., Aug. 1, 2017, *available at* https://www.newamerica.org/cybersecurity-initiative/digichina/blog/full-translation-chinas-new-generation-artificial-intelligence-development-plan-2017/.
[30] *Id.* Part II, item (3).
[31] *Id.* Part V, item (1)-(4).
[32] John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. 115-232, § 238, 132 Stat. 1658 (2018), https://www.congress.gov/115/bills/hr5515/BILLS-115hr5515enr.pdf.
[33] Fixing America's Surface Transportation Act, Pub. L. 114-94, § 6004, 129 Stat. 1312, 1562 (2015), https://www.congress.gov/114/plaws/publ94/PLAW-114publ94.pdf.

regulation for the same.[34] It has created a national strategy to promote and develop AI aiming to encourage rapid advancements in the field. Laying principles for AI to promote liberal approach in regulation to avoid hampering the growth of the technology.[35] This comes as a surprise as the administration earlier projected that it had no intention to get involved in the development of AI to let the technology flourish itself. This initiative is suspected to be taken in conjunction with governments around the globe making significant advances in this regard.[36] It has effectively laid down principles to understand the impact of AI in society and to assess the risks involved and to mitigate the same. The similar approach taken in the field of autonomous vehicles is to be taken as a foundation in formulating regulations in other fields of operation.

France under the leadership of President Emmanuel Macron is competing in the race of being a world leader in the field of AI by investing heavily to promote its growth.[37] Its most notable step was to set up a commission headed by Cédric Villani to formulate AI policy for France. Villani pointed out that France already has a law for protection against fully automated decisions from 1978 and gave some creative approach for AI regulation.[38] The report proposes to amend existing laws to support AI development and set up an expert panel to regulate AI and research on its ethics. Emphasis was laid upon the opening of 'black box' of AI to understand why an algorithm comes to a certain conclusion. France aims to create an AI policy promoting fairness and public participation.

Japan also established a council to research and development of AI for its industrialisation. The panel submitted its report in March 2017 laying down the strategy of managing five national research institutions which will focus on the priority areas of healthcare, productivity and mobility.[39] Advisory board will look into the issues and challenges that can arise relating to AI with a multi-stakeholder point of view. Japan considers legal issues should contribute to the acceptance of AI in society. The locus of responsibility in case of an accident caused by autonomous vehicles is of key concern while regulating AI. It plans to

[34] Ben Husch & Anne Teigen, *Regulating Autonomous Vehicles*, 25(13) LEGIS BRIEF (National Conference of State Legislatures, Apr. 2017), http://www.ncsl.org/research/transportation/regulating-autonomous-vehicles.aspx.

[35] Guidance for Regulation of Artificial Intelligence Applications, https://www.whitehouse.gov/wp-content/uploads/2020/01/Draft-OMB-Memo-on-Regulation-of-AI-1-7-19.pdf.

[36] Karen Hao, The US just released 10 principles that it hopes will make AI safer, MIT Technology Review (January 7 2020), https://www.technologyreview.com/2020/01/07/130997/ai-regulatory-principles-us-white-house-american-ai-initiatve/.

[37] Mathien Rosemain & Michel Rose, France to Spend $1.8 Billion on AI to Compete with U.S., China, REUTERS (Mar. 29, 2018), https://www.reuters.com/article/us-france-tech/france-to-spend-1-8-billion-on-ai-to-compete-with-u-s-china-idUSKBN1H51XP.

[38] Cori Cride, MAPPING REGULATORY PROPOSALS FOR ARTIFICIAL INTELLIGENCE IN EUROPE, Vodafone Institute for Society and Communications (November 2018). https://www.accessnow.org/cms/assets/uploads/2018/11/mapping_regulatory_proposals_for_AI_in_EU.pdf.

[39] STRATEGIC COUNCIL FOR AI TECHNOLOGY, ARTIFICIAL INTELLIGENCE TECHNOLOGY STRATEGY (Mar. 31, 2017), http://www.nedo.go.jp/content/100865202.pdf.

establish the right of high-value data generated due to interaction between the AI system and its user and also protection against exploitation by an AI system. It believes some revision is necessary for the existing laws to adapt to AI-based collaboration.[40] It has a plan in motion to create a safe environment for automated driving vehicles to operate by 2020.[41]

The United Kingdom is another nation continuously investing in the development and research of AI to be implemented in society to boost the GDP. In 2017 it invested nearly £75 million for the research of AI.[42] The UK has already incorporated AI in its society primarily through self-driving cars and enacted a law for the same in case of accidents due to the AI system.[43] Although enacted it is yet to be brought into force. It plans to involve AI in the healthcare sector and education. It has denied use of AI in weapons for defence and claims that there will always be a human control in defence systems.[44] The UK aims to regulate AI systems by establishing standards for the systems which will be based for regulation. Other major developments are of European Union which enacted the GDPR and creating a legal status of AI systems by giving them electronic personalities.[45] Canada focuses more on research rather than regulation but still has laws regulating self-driving cars.[46]

Conclusion

AI is set to transform society as its development will affect nearly all human endeavours. With that, there is an unprecedented risk as we can't predict the scale of impact of AI-based systems in our society. I have enumerated primary concerns that every regulator will face regarding AI regulations and how these issues will affect the governance of supplementary fields to AI.[47] The biggest issue for the nations is the locus of responsibility in case of harm caused by AI systems as multiple people are involved in working on AI. From an innovator to a manufacturer and user all have substantial inputs in the working of AI, and it will be tedious for a regulator to devise a criterion to ascertain the liability. Further, if the harm is caused by AI while carrying out its primary functioning, can the blame be

[40] Report on Artificial Intelligence and Human Society, Advisory Board on Artificial Intelligence and Human Society (March 24 2017). https://www8.cao.go.jp/cstp/tyousakai/ai/summary/aisociety_en.pdf.

[41] FOTs in the Tokyo Waterfront Area – Cross-Ministerial Strategic Innovation Promotion Program – Innovation of Automated Driving for Universal Services (SIP-adus), Bureau of Science, Technology and Innovation Cabinet Office (November 13, 2018), https://www8.cao.go.jp/cstp/english/20181113_sipadus.pdf.

[42] *Autumn Budget 2017*, HM TREASURY (Nov. 22, 2017), https://www.gov.uk/government/publications/autumn-budget-2017-documents/autumn-budget-2017.

[43] Automated and Electric Vehicles Act 2018, https://www.legislation.gov.uk/ukpga/2018/18.

[44] Anthony Cuthbertson, UK Government Developing Flying "Killer Robots*", Investigation Reveals*, INDEPENDENT (Nov. 13, 2018), https://www.independent.co.uk/life-style/gadgets-and-tech/news/drones-robots-uk-autonomous-artificial-intelligence-ministry-defence-a8631211.html.

[45] European Parliament Resolution of 16 February 2017 with Recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL), doc. no. P8_TA(2017)0051, http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P8-TA-2017-0051&language=EN&ring=A8-2017-0005.

[46] Pilot Project – Automated Vehicles, O. Reg. 306/15, https://www.ontario.ca/laws/regulation/r15306.

[47] Supra note 27.

thrown at the creator after the AI system has cleared the standards[48] (if any) established by regulators? Regulators will need to find optimal regulations which promote the development of AI without hampering its growth and implementation in the society. It is ubiquitous with disruptive innovation like AI to be defying regular standards of law. Data based regulation which involves start-ups and established companies, regulators, experts and the public, which will help in creating flexible and more inclusive laws, is one way to go. AI is inevitably going to have a large scale impact, which will transform our society. Regulators need to formulate an advanced strategy to effectively regulate AI and its accompanying changes in the society.

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[48] Supra note 42.