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ARITIFICIAL INTELLIGENCE AND CAPACITY BUILDING

The primary purpose of Artificial Intelligence **(AI)** is to ease and increase efficiency of human production. AI is distinguished from ordinary machines in terms of autonomy. Humans have evolved machines into deep learning networks capable of imitating human brain cognitions, thereby allowing them to operate with minimal or in the absence of input commands.

AI is emerging as a new factor of production, supplementing the traditional factors of production. It has the potential to overcome the physical limitations of capital and labour, and open up new sources of value and growth. Accenture in its 2017 report[1] provided estimates of economic impact of AI on select G20 Nations. It proposed that incorporation of AI techniques would boost India's annual growth rate by 1.3 percentage points by 2035.

Major economies like China, USA, UK, Canada have released their strategies for the integration of AI into domestic industries. A few Countries such as China and UAE have even adopted specific regulatory bodies to undertake the control and policy of AIs. In the context of India, recently in the Union Budget 2020, the annual financial statement, the Government has placed a strong emphasis on strengthening the scientific research ecosystem. Specific reference has been made to Artificial Intelligence (AI) to induce a transformation of our core industries including healthcare, agriculture, education, transportation and infrastructure. Previously India had formulated a Policy Discussion Paper[2] and a Task Force Report.[3]

India's 2018 Policy[4] highlights that adoption of AI in its core production sectors would provide a solution to social and economic issues prevailing in the society. In addition, it projects that in the long-term Indian AI Policy would serve to become a global solution to the prevailing conditions in other developing and least developing nations. However, the Indian policy aims

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[1] ACCENTURE, Rewire for Growth: Accelerating India's Economic Growth with Artificial Intelligence, Dec. 2017.
[2] NITI AAYOG, National Strategy for Artificial Intelligence, Jun. 2018.
[3] DR. V KAMAKOTI ET AL., The Artificial Intelligence Task Force Report, Mar. 2018.
[4] *supra* note 2.

to create a multi-stakeholder AI industry, without means of achieving this ambitious vision. The legal problem concerning the regulation of AI in India is the narrowly focused intellectual property laws. Further, there is a lack of formal field research to understand the efficacy of AI to the society and developing economy.

An ideal legal framework to deal with AI in developing nations such as India must examine this issue from the perspective of individual disciplines such as education, transport, agriculture and how it would serve to plug the gaps in these sectors. The specific law concerning introduction and management of AI must then be composed in line with public policy and its feasibility under the specific laws (intellectual property, criminal laws, competition law, privacy etc). This would create a balanced system wherein innovation, utility and practicability of AI would co-exist.

Hence, this paper discusses an ideal approach to policy measures which would enable developing nations, specifically India to adapt to AI systems. The first half of the paper lays down general policy measures which would enable the transition for adoption of AI for developing nations, and proceeds to suggest specific Intellectual Property **(IP)** Policy recommendations.

LAYING THE FOUNDATION FOR AI POLICY

While discussing AI policy, the foremost question to be addressed in this transition is the legal status of AI- whether it can be legal person? Most developing nations including India, have not addressed the personhood of AI. This would invariably affect the IP policy in terms of recognising AI rights and liabilities in addition to its being a subject matter of IP protection.

When a legal system confers legal rights and obligations on an entity, it treats that entity as though it were a person in fact. With machines increasingly deriving solutions autonomously or in conjunction with a natural person, it becomes important to formally acknowledge its intellectual property rights over such solutions. Practices in the European Union and United States where AI is relatively regulated, the theory of legal personhood of AI has been rejected. All actions incidental to AI has been ascertained to operators. In case if AI shows a behavior that could be an evidence of physiognomic qualities, it is an imitation or adherence to orders

is not a deliberate act itself. As some authors commented "simulation of a thing is not the thing itself".[5]

Secondly, research is fundamental to capacity building. Successful adoption of AI will depend upon three factors: People, Process and Technology.[6] This essentially means that the adoption of AI shall be made possible provided the technology advances, users are able to accept the technology and incorporate it into the process. These factors must be principally addressed in the domestic sphere. Hence, the governments need to foster an inter-disciplinary research to understand the interaction between AI and people. This is central to capacity building for adoption of AIs. It would also divulge regulatory lags and the way to go forward.

Further, the prevailing security and privacy laws shall be fortified. Inevitably, introduction of AI would permeate every sphere of human lives. The generation, collection, processing and sharing large amounts of data in AI technology about an individual would constitute a breach of privacy. This would steer to issues of data exploitation, unauthorized recording of data, individual profiling amongst many others. The right to privacy has been recognized as a human right in UDHR,[7] ICCPR[8] and ECHR[9] etc. Most Countries including India[10] have prescribed it as a fundamental right. The main issue in implementation of policy measure for protection of privacy is the varied degrees of AI ranging from to AI- based products to deep learning machines. Furthermore, there is a lack of definitive threshold of privacy. A good IP-privacy legislation in the age of AIs shall include transparency, choice to opt out, choice to delete, limitation of data collection by system design and defining boundaries of right of AI to collect information.[11]

The final contemplation of governments shall be the impact on labour. Many developing nations including India are supported by labour-intensive industries which is threatened by technological replacement. However, introduction of AIs hatches a paradox of 'creative

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[5] Solum B, *Lawrence Legal Personhood for Artificial Intelligences*, North Carolina Law Review. Volume 70, Number 4, p. 1262 (1992).
[6] *Id.*
[7] UN General Assembly, Universal Declaration of Human Rights, Dec. 10 1948, 217 A (III), Art.12.
[8] International Covenant on Civil and Political Rights, Mar. 23 1976, 999 U.N.T.S. 171, Art. 17
[9] Convention for the Protection of Human Rights and Fundamental Freedoms, Nov. 4, 1950, Europ.T.S. No. 5; 213 U.N.T.S. 221, Art.8
[10] The Constitution of India, 1950, Article 21; Justice K. S. Puttaswamy (Retd) vs Union of India, Writ Petition (Civil) No. 494 Of 2012.
[11] *Rethinking Privacy for the AI Era*, FORBES (14th Feb. 2020) https://www.forbes.com/sites/insights-intelai/2019/03/27/rethinking-privacy-for-the-ai-era/#772b43157f0a

destruction' wherein unemployment caused by replacement is pitted by new forms of employment operating, making and servicing AIs. Measures to re-skill labour through education and training must be undertaken.

IP POLICY CONSIDERATIONS

The subsequent phase to capacity building is to shift the focus to IP Policy. The primary cause of technological gap between countries advancing in AI and those in nascent stage is IP laws and regulations. Countries with relatively stronger IP Laws have accelerated in the adoption of AIs.

Foremost, IP laws must recognise and protect AI software to encourage innovation. To facilitate this, a legal distinction between types of AI models shall be made. This includes supervised and unsupervised machines, machine learning and deep learning etc. Varying degrees of protection shall be extended accordingly.

Current patent laws in India treat AI software inventions as logical algorithms implemented on the computer. While, this is valid protection, there is little out how to deal with deep learning AIs. Deep Learning AI is often regarded as heuristic due to its ability to display higher intelligence over other rule-based systems. Thereby it is not only the subject matter of a patent, but may also produce patentable outputs. Obtaining patents over AI software in jurisdictions with weak IP norms would inevitably discredit the inventor. Hence, despite being invented in India or alike, the inventor may prefer to sell the invention to bidders equipped to patent these AIs in countries with sound legal frameworks.

It is also important to note that the patent laws in the USA and European Union are particularly attractive in this respect. In the USA, recitations of specific data structures, specific rules, specific combinations of steps, or specific hardware configurations of the AI that result in improvement of the functioning of a computer have been found to cover eligible subject matter.[12]

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[12] 35 U.S.C § 101 (2020).

While European Laws step further ahead to permit protection to "computer-implemented inventions," i.e., inventions that involve a software component together with something else. The "something else" has to provide a "further technical effect"—for example, it has to interact with the real world in some way.[13]

Hence, developing nations must institute AI specific patent laws to boost production and improve protection of existing cognitive machines to encourage indigenous producers to seek protection within the jurisdiction. This would also ensure that the product is sold internally and its efficacy contributes to the domestic industries. On a macro level, agreements must be reached on terms of sale and use of AIs across jurisdictions without disadvantaging the place of origin. A system similar to that of parallel imports must be created to implement this.

The disparity in development of AI technology across the world must also be attributed to lack of conversation between technologically strong and weak nations. The IP5[14] is a co-operation comprising of EPO, JPO, KIPO, CNIPA and USPTO which incidentally are dominant jurisdictions of AI production. It is notable that majority of patent laws and doctrines have materialised in these jurisdictions. Hence, that technological gaps can be reduced through dialogue on IP Policies between nations spanning across different levels of technological advancements.

The second issue instrumental to the technological gap is unequitable rights to data. Data is integral to AI systems. The function of an AI system is to learn from data and apply it to its tasks. To put it simply, data forms the core of all AI systems and software. AI inventors integrate data from multiple sources to create a single source in the form of an AI. The point of controversy arises when precedent sources are not given adequate credit.

Data is produced and published in plentiful portions, for a significant range of purposes, and through varied activities of modern-day society and the economy including computing systems, manufacturing and production, transportation systems, research, academia, surveillance and safety systems, sports, entertainment and media etc.

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[13] Christopher J. White & Hamid R. Piroozi, Drafting Patent Applications Covering Artificial Intelligence Systems, AMERICAN BAR (14th Feb. 2020) https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2018-19/january-february/drafting-patent-applications-covering-artificial-intelligence-systems/
[14] https://www.fiveipoffices.org/index

In this discourse, developing nations are often jeopardized. Firstly, data is collected abundantly from developing nations and is used to institute AIs in advance economies, while neglecting the data source. Living on the brink of the 'fourth technological revolution',[15] data is developing into a consequential asset. Tech giants such as Google, Facebook, Amazon, Apple, Samsung are companies building their IP not solely on technology, but rather on proprietary data and its derivatives, thus establishing themselves as monopiles. The commonality in these data monopolies are that they have emerged from developed nations with robust legal frameworks which are advancing parallel to inventive actions of these companies.

On the contrary, developing nations are yet to resolve issues of privacy laws, data protection and ownership, data commercialisation etc. In this state of disequilibrium, the tech giants exploit weak IP laws and resources to extract data. This poses ethical issues, copyright violations, privacy infringement, public law considerations etc.

Secondly, research is outsourced to service- intensive developing economies such as India and Brazil, where price of obtaining data is relatively low and legal norms are relaxed. The developed AI is then patented for the benefit an alien economy.

These jurisdictional issues of IP and data protection also contribute to the gaping technological gap. Therefore, the solution to data issues is two- fold. Developing Nations must invest research in edifying stronger laws with respect to commercialisation of data. While on an international level, an ideal policy recognising the right of data- supplying countries over the AIs would ensure parity.

Additionally, a standard setting- data storage and privacy settings, communication standards etc. must be formulated. This would aid interpretability for AI networks and actions. Consequently, the potential law may recognise a uniform setting thereby eliminating the probability of information gaps across jurisdictions.

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[15] Xu, Min & M. David, Jeanne & Hi Kim, Suk, *The Fourth Industrial Revolution: Opportunities and Challenges*, International Journal of Financial Research (2018).

CONCLUSION

In conclusion, it must be understood that capacity building is unique to each country's legal system and conditions prevailing therein. Capacity building must be ideated across all spheres and disciplines. Therefore, it would require a specialised understanding and extensive research. In context of developing nations, introduction of AIs must be evolutionary and be complemented by a dynamic policy framework.