

TRADE SECRETY: ANOTHER SOURCE OF MAYHEM IN THE COVID-STRICKEN WORLD

Himani Jaruhar, Riya Thawani*

ABSTRACT

The R&D industry is the key to mankind's social and cultural development, and the need to protect its interests cannot be emphasized enough. The present-day health emergency has left everyone helpless and vulnerable to contagion. The only ray of hope has been the pharmaceutical companies and their endless efforts towards developing the treatment for this virus. Still, what if the innovator company decides to hide the process of making the vaccine to exploit its creation fully and be the only manufacturer? Should the human population keep waiting for someone to reverse engineer or find an alternative treatment, or must we let people succumb to the virus? The commercial greed of the companies has the potential to lead us through this path. Trade secrets are such intellectual property that can grant indefinite protection without the requirement of public disclosure. Pharmaceutical companies' use of trade secrets can lead to disastrous results for the entire world, especially in light of current circumstances.

This article analyses trade secrets, their use and abuse across the world, as well as their position in our country. Towards the end, remedies to the abovementioned and other complications resulting from ignorance of this IP right are presented. Moreover, the efficiencies that are lost while protecting the secret information can be utilized to do away with the pandemic. One such efficiency discussed extensively in the paper relates to the disclosure of test data, even failed ones, to prevent duplicative research and proactively save scientific resources from being wasted.

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* Himani Jaruhar is a 4thYear BA LLB student at the National Law University Odisha. The author may be reached at jaruharnluo@gmail.com.

Riya Thawani is a 4thYear BA LLB student at the National Law University Odisha. The author may be reached at riyathawani18@gmail.com.

INTRODUCTION

The protection of intellectual property is imperative in the era of free-market economies to survive the surging competition existing in the market. In the era of industrialization dramatically followed by digitization, intellectual property has a crucial role in reflecting the country's economic growth. The major characteristics and principles for enforcement and protection are similar for all but one IP, i.e., trade secrets.¹ It has gained much more popularity and recognition in these digital times where information and data are the tools for economic superiority and dominance. The secret can be anything from an invented object to a process or even a compilation of publicly available data.² This has contributed to the ambiguity and inconsistency in the procedures followed in its administration.

The current discussion has been spiked by the international health emergency caused by the SARS-COV 2 virus and the necessity of appropriate medical systems across the world.³ A significant roadblock has been the sudden demand for health equipment and the incapacity of some manufacturing industries capable of producing and the lack of technical and other know-how of the remaining. The Roche incident of the Netherlands⁴ where the shortage of testing kits occurred due to the reliance of the entire medical system on one company for the test kits and its refusal to share the trade secret used to make the kit presents the magnitude of impact trade secrets can have in the present situation. This problem can show up in the case of vaccines and medicines being developed. Other than that, the transparency of research being carried on towards these treatments would also play a role in helping the world come out of this pandemic sooner.

The checks applicable to other IPs like patents include compulsory licensing, which have been invoked by various countries but are inapplicable in the case of trade secrets or at least unprecedented. This uncertainty revolving around the means to dilute the trade secret

¹ David M. Gould & William C. Gruben, *The role of Intellectual Property Rights in Economic Growth*, in DYNAMICS OF GLOBALIZATION AND DEVELOPMENT 209 (Satya Dev Gupta & Nanda K. Choudhry eds., 1997).

² OECD, *Approaches To The Protection Of Trade Secrets*, in ENQUIRIES INTO INTELLECTUAL PROPERTY'S ECONOMIC IMPACT 127 (2015), <https://www.oecd.org/sti/ieconomy/Chapter3-KBC2-IP.pdf>.

³ David S. Levine, *Trade Secrets and the battle against Covid*, 15 J. INTELL. PROP. L. & PRAC. 849 (Nov. 21, 2020), <https://academic.oup.com/jiplp/article-pdf/15/11/849/36633717/jpaa164.pdf>; Shamona Simpson et al., *Navigating facilitated regulatory pathways during a disease X pandemic*, 5(1) NPJ VACCINES 6 (2020), https://www.researchgate.net/publication/346367153_Navigating_facilitated_regulatory_pathways_during_a_disease_X_pandemic.

⁴ Joe C. Mathew, *Coronavirus: Will intellectual property be a hurdle in India's fight against COVID-19?*, BUSINESS TODAY (Apr. 5, 2020, 03:15 PM), <https://www.businesstoday.in/latest/trends/coronavirus-will-intellectual-property-be-a-hurdle-in-indias-fight-against-covid-19/story/400200.html>.

protection to prioritize public health is the authors' primary concern and shall be discussed in detail in this piece. The article would first lay down the necessity to deal with this topic under the concept of trade secrets and not Patents. It would then move towards a specific discussion with regards to the condition in India. In the later chapters, the authors have discussed the instances and impact of the trade secret abuse by its holder and the existing remedies which can be used in the present emergency. Consequently, we would attempt to provide some suggestions based on our analysis and what could be done to invigorate the balance of IP and public health.

I. TRADE SECRETS: RELEVANCE AND BACKGROUND

The rationale behind the protection granted to the owners of various intellectual property rights is encouraging investment in research. Further, the publication of the innovation and methods of its creation by the holders adds to the development of mankind and results in the overall betterment of society. While this is true for almost all the IPs, trade secrets are an exception as the 'publication' element is out of the picture. This creates various controversies around its administration and enforceability.

The discussion on the development of vaccines immediately brings attention to patents for the formula and copyright for the clinical tests. However, one of the essential elements often ignored is the trade secret or know-how or recipe, etc. In this chapter, we would first see why dialogue on trade secrets is relevant in the context of vaccines and then understand its framework and how it is used in vaccines.

A. Why Discuss Trade Secrets?

The development and manufacturing of vaccines are generally surrounded by the discussion of patents and not trade secrets. The patent holder has to disclose his creation to get the patent registered in his name, which gets open to the public after a certain point in time. However, the 'know-how' and the 'recipe' of the vaccine hold equal importance, which is generally protected as a trade secret by the manufacturing company. There is, thus, a need to discuss the concept of trade secrets and their pros and cons in light of the current pandemic. Various scholars have observed that manufacturing a patented vaccine by a third party is not viable with the product/process information contained in the patent application.⁵ There is much more to it, the

⁵ W. Nicholson Price, Arti K. Rai et al., *Knowledge transfer for large-scale vaccine manufacturing*, 369(6506) SCIENCE 912-914 (2020), <https://science.sciencemag.org/content/369/6506/912>.

process, the ideal order of mixing solutions, etc., which, if not known, may not give out the desired product.

Further, with the commercialization of pharmaceuticals and medical facilities, the companies do not disclose all the information in the application. They reserve with themselves certain information that is extremely necessary for manufacturing the vaccine. Thus, without the license or the cooperation of the patent holder, any third party cannot make the vaccine. This issue becomes much more critical today when the medical sector and the people need a larger production scale. The patent holder company manufacturing the vaccine or two-three large companies producing it cannot satisfy the requirement of vaccinating entire populations.

Various companies like Moderna and Gilead have participated in ‘Open Covid Pledge’ and have vowed not to enforce their patents.⁶ However, no other company has been able to create their vaccine or other medical products.⁷ The answer lies in the secret information, the manufacturing process, recipe, order of mixture, etc., which are most important for enabling other companies to produce the vaccines. Thus, we considered it appropriate to begin a discussion and look for solutions to this issue through this piece.

B. What Constitutes Trade Secrets?

The ambiguity and uncertainty revolving around trade secrets are not an indication of its novelty; instead, it has been a part of common law since the 1800s.⁸ The codification and statutory recognition came very late, and that too only in developed countries. The commonwealth countries still enforce trade secrets based on equity, contract, and common laws.⁹ The earliest definition of trade secrets can be pulled out from the observations of the Court of Massachusetts in 1868 as:

“If [a person] invents or discovers, and keeps secret, a process of manufacture, whether a proper subject for a patent or not, he has not indeed an exclusive right to it as against the public, or against those who in good faith acquires knowledge of it; but he has a property in it, which a Court of Chancery will

⁶ Jorge Contreras, *Intellectual Property Pledges For COVID-19: A Scorecard*, INFOJUSTICE (Apr. 26, 2021), <http://infojustice.org/archives/43114>.

⁷ Tom Lee & Christopher Holt, *Intellectual Property, COVID-19 Vaccines, and the Proposed TRIPS Waiver*, AMERICAN ACTION FORUM (May 10, 2021), <https://www.americanactionforum.org/insight/intellectual-property-covid-19-vaccines-and-the-proposed-trips-waiver/>.

⁸ Michael Risch, *Why do we have trade secrets?*, 11(1) MARQ.INTELL. PROP. L.REV. 13 (2007), <https://scholarship.law.marquette.edu/cgi/viewcontent.cgi?article=1089&context=iplr>.

⁹ See 1 Melvin F. Jager, TRADE SECRETS LAW49 (1991); See also Konrad Wiedemann GmbH v. Standard Castings Pvt Ltd, 10 IPLR 243 (1985); Taprogge GmbH v. IAEC India Ltd, AIR 1988 Bom. 157 (India).

protect against one who in violation of the contract and breach of confidence undertakes to apply it to his own use, or to disclose it to third persons.”¹⁰

Later, it was recognized in *EI Du Pont*¹¹ in 1917; and they soon came to be recognized as a part of the Restatement of Torts in 1939.¹² However, it was much later in 1979 that the Uniform Trade Secrets Act was recommended to the states.¹³ It defines a trade secret as any information that ‘derives independent economic value from its secrecy and for which ‘reasonable steps have been taken to maintain that secrecy.’¹⁴ Forty-eight states have adopted the Act until the year 2017.

The UTSA Act defines misappropriation as acquisition, disclosure, or use of trade secrets by improper means, i.e., theft, bribery, misrepresentation, breach or inducement of a breach of a duty to maintain secrecy or espionage through electronic or other means.¹⁵ The requirements are that it should not be in public knowledge, not be readily ascertainable, has been subject to reasonable efforts to maintain secrecy by the person claiming protection, and has actual or potential economic value due to its secrecy.

The international consensus to having a trade secret law was hinted at in the Paris Convention¹⁶ but expressly stated only in Article 39¹⁷ of the TRIPS Agreement, which protected information that is secret and not readily accessible, has commercial value owing to the secrecy which was the subject of reasonable steps in that regard. Post the agreement and its ratification by States, trade secrets have been included in the jurisprudence of many countries. Soon, the USA even passed a law that imposed criminal sanctions on breach of confidential information protected as trade secrets.¹⁸ In the EU, most countries have a law on trade secrets, but it was not uniform, and the definitions and enforcement varied from each until a Directive¹⁹ was passed by the Council, which aims to end that disjunction.

¹⁰ Peabody v. Norfolk, 98 Mass 452, 458 (1868).

¹¹ *EI Du Pont De Nemours Powder Co v. Masland*, 244 U.S. 100 (1917).

¹² Restatement (First) of Torts §757 (Am. Law Inst. 1939).

¹³ Uniform Trade Secrets Act, 14 U.L.A. 539 (1980).

¹⁴ *Id.* at § 1(4).

¹⁵ *Id.* at § 1(2).

¹⁶ Paris Convention for the Protection of Industrial Property art. 10bis, Mar. 20, 1883, 828 U.N.T.S. 30.

¹⁷ Agreement on Trade Related Aspects of Intellectual Property Rights art. 24(9), Apr. 15, 1994, 1869 U.N.T.S. 299.

¹⁸ Economic Espionage Act, 18 U.S.C. §1832 (1996).

¹⁹ Tanya Aplin, *A Critical Evaluation of the Proposed EU Trade Secrets Directive*, King’s C. London 25 (2014), <https://dx.doi.org/10.2139/ssrn.2467946>.

C. Trade Secrets and Technology Transfer Agreements

The trade secrets with respect to technical or scientific information can be either unpatented or unpatentable, i.e., it is something that the owner does not want to disclose or such, which cannot satisfy the registration requirements of patents. In these cases, the owner of the information may go for protection under trade secrets rather than patent law. On the other hand, information surrounding patented technologies, while not being patentable itself, may gain protection under trade secrets.²⁰ Further, in most cases, patents are the tips of icebergs in an ocean of trade secrets. Trade secrets precede, accompany, and follow patents.²¹ Thus, even if the technology has been published and disclosed, there is some confidential information regarding the process or know-how protected as trade secrets.

In such a scenario, even if the developer of the vaccine or treatment goes for a patent, they would still have some secrets to exploit their licensees. Also, with regard to existing technologies like 3D printing of ventilators, etc., the Inter-surgical had trade secrets in the form of a blueprint²² as to its know-how which it refused to disclose.²³ Even though the company took the defense of being bound by certain medical manufacturing regulations and some volunteers were able to reverse engineer the technology, this might not happen with every trade secret. There are provisions for compulsory licensing in patent law that are used in emergencies. However, they are not applicable to trade secrets, leaving no scope for making companies disclose their trade secrets even now when the coronavirus has wreaked havoc all over the world.

I. LEGISLATIVE FRAMEWORK

A. Trade Secret vis-à-vis India

India, albeit being one of the fastest-growing economies in the world, has deliberately ignored the area of trade secrets under its IP regime.²⁴ India has somewhat failed to fulfil its obligation under the TRIPs Agreement to protect undisclosed information, though being a signatory of

²⁰ GUILLERMO CABANELLAS & JOSE MASSAGUER, KNOW-HOW AGREEMENT AND EEC COMPETITION 17-18 (1991).

²¹ N.S. SREENIVASULU, LAW RELATING TO INTELLECTUAL PROPERTY 150 (2d ed. 2018).

²² Jordan M. Becker & Heather A. Boice, *What You Need to Know About 3-D Printing and Intellectual Property*, INDUSTRY WEEK (Mar. 13, 2017), <https://www.industryweek.com/technology-and-iiot/art/22003735/what-you-need-to-know-about-3d-printing-and-intellectual-property>.

²³ Jay Peters, *Volunteers produce 3D-printed valves for life-saving corona-virus treatments*, THE VERGE (Mar. 17, 2020, 6:51 PM), <https://www.theverge.com/2020/3/17/21184308/coronavirus-italy-medical-3d-print-valves-treatments>.

²⁴ David, *supra* note 1.

the Paris Convention. The mechanism adopted by India for dealing with matters related to a trade secret is that of judge-made law that derives its existence from the principle of equity and common law practices against the breach of confidence.²⁵ The cases concerned with the nitty-gritty of trade secrets are dealt with under Contract law, Copyright law, Information Technology Act, and Criminal Law.

Jurisprudence through Case Laws

The case laws depict an evolution of the perspective of Indian courts to address the concept of a trade secret from drawing their views extensively from English case laws to relying upon domestic jurisprudence. The Delhi High Court has iterated the view that the Court's intervention is desirable for restraining the breach of confidence independent of any right under any law.²⁶ For the definition of confidential information, Indian courts have extensively relied on the views presented by the Court of Appeal in *Saltman Engineering Co. vs. Campbell Engineering Co. Ltd*²⁷. It was held that something which is not public property or in public knowledge and the maker of the document had used his brain to produce a result that can further be produced by anyone who goes through the same process qualifies as confidential information.²⁸

The restrictive covenants like confidentiality or non-competitive clauses that the owners use to ensure the protection of trade secrets are viewed via the lens of Section 27 of The Indian Contract Act.²⁹ The apex court narrated the reasonableness of these covenants in the case of *Niranjan Shankar Golikari v. Century shipping and Mfg Co Ltd*, where it was held that unless the contract is unconscionable or excessively harsh or unreasonable or one-sided, it cannot be considered in restraint of trade.³⁰ On the other hand, in the absence of any confidential agreement, the Delhi High Court has held that irrespective of the existence of a formal contract, the protection against misappropriation and disclosure is sufficed by the fact that confidential information exists.³¹ If an employee who has possession of confidential information quits

²⁵ Ranjan Narula & Rachna Bakhru, *Protecting trade secrets in India*, LEXOLOGY (May 1, 2018), <https://www.lexology.com/library/detail.aspx?g=c83e8a6c-a02e-44ba-8723-94087d2e5e20>.

²⁶ Diljeet Titus, Advocate v. Alfred A Adebare, 130 DLT 330 (2006).

²⁷ *Saltman Engineering Co. v. Campbell Engineering Co. Ltd*, 65 RPC 203 (1948); *See also*, *Zee Telefilms Ltd. and Ors. v. Sundial Communications Pvt. Ltd. and Ors.*, 2003(5) BomCR 404; *Hi-Tech Systems and service Limited v. Suorabhat Ray and Ors.*, AIR 2015 Cal 261 (para 29, 32); *LifeCell International Private Limited v. Vinay Katrela*, O.A. Nos. 599 and 600 of 2018.

²⁸ *Id.*

²⁹ Indian Contract Act, 1872, §27, <https://www.indiacode.nic.in/bitstream/123456789/2187/1/A1872-9.pdf>.

³⁰ *Niranjan Shankar Golikari v. Century shipping and Mfg. Co. Ltd.*, AIR 1967 SC 1098 (India).

³¹ *John Richard Brady v. Chemical Process Equipments*, [1999] 81 D.L.T. 122 (India).

his/her service after a considerable amount of years spent in a particular company and uses the same to produce a similar product independently, he/she would be liable for breach of confidence.³² The deciding factor in such cases is to examine which party has a favourable balance of convenience.³³

Another area that has seen considerable deliberation in this field is the theft of trade secrets by third parties.³⁴ Whether it is done through physical custody or electronic means, it confines a liability for misuse of confidential information. The pattern of various cases filed in this context has reflected the pattern where courts, to fix a liability, have to examine whether “theft has been orchestrated by third parties or the third parties have been passive beneficiaries.”³⁵ The increasing dependence on information technology to store proprietary information has led to the emergence of the Informational Technology Act, 2000, to provide civil and criminal remedies against information theft.

An Attempt at Statutory Recognition

In 2008, India came up with a National Innovation Draft Bill³⁶ that gave due consideration to the recognition of trade secrets. The Preamble expresses the inclination of the Bill to codify and consolidate the law of confidentiality in aid of protecting confidential information, trade secret, and innovation.³⁷ Chapter VI of the Bill has provisions for confidential information and confidentiality. It further mentions the offenses and remedies related to the same. It was the only legislation so far that has shown serious concern for trade secrets and overtly tried to incorporate the provisions of the TRIPS Agreement for undisclosed information.³⁸ Nevertheless, various cons have still kept the Bill under observation.³⁹

On May 12th, 2016, India adopted a National IP rights Policy that “*recognizes the abundance of creative and innovative energies that flow in India, and the need to tap into and channelize*

³² V.V Sivaram and Ors v. Foseco India Limited, (2005) 1 K.C.C.R. 429 (India).

³³ Escorts Construction Equipment Ltd v. Action Construction Equipment P. Ltd, (1998) SCC OnLine Del 779 (India).

³⁴ Homag India Private Ltd v. Ulfath Ali Khan (2012) S.C.C. OnLine Kar 9199 (India); Base International Holdings v. Pallava Hotels Corporation Limited, (1998) S.C.C. OnLine Mad 614 (India).

³⁵ Chandni Raina, *Trade Secret Protection in India: The Policy Debate* 17 (Centre for WTO Studies, Working Paper No. 22, 2015), <http://wtocentre.iift.ac.in/workingpaper/Trade%20Secret%20Protection%20in%20India-%20The%20policy%20debate.pdf>.

³⁶ National Innovation (Draft) Act, 2008 (Sept. 10, 2020, 10:00 A.M), <http://www.gnaipr.com/Acts/Draft%20Innovation%20Law.pdf>.

³⁷ *Id.* at Preamble.

³⁸ *Id.* § 11(c), § 12(4), § 14.

³⁹ GOURAMMA PATIL, CRITICAL ANALYSIS OF ‘THE NATIONAL INNOVATION (DRAFT) ACT, 2008 (2013), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239718.

these energies towards a better and brighter future for all.”⁴⁰ One of the objectives of this policy is to ingrain the protection of trade secrets. Ironically, though the policy evinces a holistic approach to intellectual property in India, trade secrets have only been mentioned once. There is no discourse as to how the protection would be granted to it. It makes a mockery of the statement given in the policy that claims that “*India has a TRIPS compliant, robust, equitable and dynamic IPR regime.*”⁴¹

Another significant deliberation concerning trade secrets was observed in The Joint Statement on Trade Forum between India and the United States on October 20th, 2016. The parties ingeminated their roles and responsibilities for the effective protection of trade secrets in their respective countries, including the pursuit of a mechanism for trade secret protection.⁴² The Forum also propounded the idea of a toolkit that would highlight various laws and policies that would be applicable, to facilitate the industries and small, medium enterprises to protect their trade secrets. India also proposed to initiate a training module focusing solely on trade secrets for judicial academies. Additionally, India offered to commence studies on legal approaches to the protection of trade secrets.⁴³

Additionally, several other instances augment the non-inclination of policy framers to incorporate the concept of a trade secret in Indian Legislation. Firstly, the 1989 discussion paper of the General Agreement on Tariffs and Trade (GATT) refused to consider trade secrets as IP rights because trade secrets demand confidentiality as against other IP rights, which prima facie rest on disclosure, publication, and registration.⁴⁴ Secondly, the implication of the word ‘possibly’ mentioned in Article 39 of the TRIPS agreement has a connotation with the legal system and not necessarily in the IP framework of the member nation. This somewhere liberates India of its obligation to create a separate mechanism to protect Trade Secret. Lastly, in 2016, The Delhi High Court in *Ritika Pvt. Ltd. v. Biba Apparels Pvt. Ltd.*⁴⁵ held that to grant an injunction for protecting the disputed trade secret, it is mandatory to mention the specific

⁴⁰ Swaraj Barooah, *India's National IPR Policy Approved*, SPICYIP (May 13, 2016), <https://spicyip.com/2016/05/indias-national-ipr-policy-approved.html>.

⁴¹ DEPARTMENT FOR PROMOTION OF INDUSTRY AND INTERNAL TRADE, NATIONAL INTELLECTUAL PROPERTY RIGHTS POLICY 1 (2016), <https://dipp.gov.in/sites/default/files/national-IPR-Policy2016-14October2020.pdf>.

⁴² *India and United States Joint Statement on the Trade Policy Forum*, OFFICE OF THE USTR (Oct. 20, 2016), <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2016/october/%E2%80%8BIndia-US-Joint-Statement-TPF>.

⁴³ *Id.*

⁴⁴ Ranjan, *supra* note 25.

⁴⁵ *Ritika Pvt. Ltd. v. Biba Apparels Pvt. Ltd.*, (2016) 230 D.L.T. 109 (India).

trade secret and the ownership details of the plaintiff. Hence the pronouncement of the Delhi HC wipes the essential requirement that enabled protection to trade secrets.

To summarize, it can be articulated that Indian legislation did not show enough enthusiasm to bring a firm policy or specific law into existence to bring trade secrets under the framework of its IP regulations.

II. TRADE SECRET ABUSE AND EFFECT ON HEALTH SECTOR IN CURRENT SCENARIO

Industrial property rights are the support systems of businesses, especially those engaged in research and development. The creators wish to capitalize on their work, and for that, they seek the path where they have maximum protection and the least restrictions. As already discussed above, not all components of a patent are patentable, and even if they are, the businesses do not get all of them registered so as to have something to exploit after the duration of the patent protection.⁴⁶To achieve that, they divide up the technology into patents and trade secrets. Now, trade secrets do not get absolute protection, and third parties could reverse engineer or develop the secret independently, and the holder would not have any claim against them. The technology owner would set aside those components which have the possibility of being reverse engineered and get them registered as patents, and those which have a lesser possibility of that would be instituted as trade secrets. This allows them to exploit their invention for a longer duration as compared to the case where they would only have patent protection.

This type of arrangement, however, has also been a point of conflict in some jurisdictions. US Court in *Wyeth v. Natural Biologics*⁴⁷ allowed an IP holder to protect the manufacturing process of his drug as a trade secret even after the patent in that drug had expired. In India, in a recent judgment⁴⁸ of the Delhi High Court on the intersection between Patents and Trade Secrets, it was held that the know-how in an invention would be deemed to be in the public domain if the patent protection is not availed. The IP holder did not have patent protection in India, and only licensed know-how and his patent in the US had expired. There needs to be more clarity on this issue in India through appellate proceedings or legislative intervention.

⁴⁶ Katarzyna A. Czapracka, *Antitrust and Trade Secrets: The U.S. and the EU Approach*, 24(2) SANTA CLARA HIGH TECH L. J. 207 (2012).

⁴⁷ *Wyeth v. Natural Biologics*, 395 F.3d 897.

⁴⁸ Prof. Dr. Claudio De Simone and Anr. v. Actial Farmaceutica Srl. and Ors., 2020 S.C.C. OnLine Del 476 (India).

With respect to competition law, trade secrets have been considered to be potentially less dangerous than other IPs majorly because of the absence of the strict exclusivity protection as granted to other IP holders.⁴⁹ Nonetheless, the application of competition principles has been the same as with other IPs being regulated under similar licensing restrictions. However, in cases where there is a mix of patents and trade secrets, the IP holder has significant power to control and influence the market with the exclusivity of patents and absolute protection of trade secrets.⁵⁰ In a US case, the IP owner of a rifle was alleged to have retained monopoly by not disclosing sufficient information in his patent application and thereby having exclusive protection beyond the life of patents.⁵¹ The Court, however, held that the information was not within the scope of a patent application and the patent law did not oblige the IP owner to disclose it, and the arguments that the trade secrets were difficult to reverse engineer cannot be a ground for mandating their disclosure.⁵²

The trade secrets in the health sector can affect the life of the whole population, which makes it necessary to create a balance between commercial ethics and public health.⁵³ Article 39(3) of the TRIPS Agreement is a brilliant step towards gaining that balance. It says:

“Members, when requiring, as a condition of approving the marketing of pharmaceutical or of agricultural chemical products which utilize new chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against unfair commercial use. In addition, Members shall protect such data against disclosure, except where necessary to protect the public or unless steps are taken to ensure that the data are protected against unfair commercial use.”⁵⁴

Most governments, including India, require pharmaceutical companies to disclose the contents and test data of the new chemicals and drugs to the appropriate authority. This information, however, needs to be protected from disclosure to the public, and this requirement comes from either the statute like in the US and EU or common law as in India.⁵⁵ In India, the Drugs and Cosmetics Act provides for the submission of test data to the authorities for verification of its

⁴⁹ ROGER M. MILGRIM, MILGRIM ON TRADE SECRETS 10.01(l)(a)(ii) & (c)(ii) (2007).

⁵⁰ Wyeth, *supra* note 47.

⁵¹ Christianson v. Colt Indus Operating Corp, 870 F.2d 1292 (7th Cir 1989).

⁵² *Id.*

⁵³ Thomas O. McGarity & Sidney A Shapiro, *The Trade Secret Status of Health and Safety Testing Information: Reforming Agency Disclosure Policies*, 93(5) HARVARD L. R. 837 (1980).

⁵⁴ *Supra* note 17, art. 39.

⁵⁵ Dr. N. S. Gopalakrishnan & Adv. Benoy K. Kadavan, *Study on Test data Protection in India*, CENTRE FOR INTELLECTUAL PROPERTY RIGHTS STUDIES, COCHIN UNIVERSITY OF SCIENCE & TECHNOLOGY (2003), http://wtocentre.iift.ac.in/DOC/Report%20-%20_Natural%20Resources%20Pricing_NSg.pdf.

safety and effectiveness⁵⁶. However, the provisions do not include the confidentiality requirements, and they have been incorporated through common law.⁵⁷ Owing to the common law origin and protection of the test data, the scope, and extent of the protection is not that clear. Regardless of the form of protection, both the systems provide for the exception of public interest to this confidentiality requirement.⁵⁸

A. Current Scenario

The unprecedented and unforeseeable situation today has brought everything to a standstill, and it has been difficult to determine the right path or action to overcome it.⁵⁹ The virus that originated in one city in China has spread across the world and has changed the lives of the entire human population. Medical workers and drug manufacturers, and research institutes have been on their feet to develop vaccines and treatment mechanisms for this virus. China had released the genetic data on the virus during the initial period only, and it has been used to manufacture the test kits and tools, though the vaccines are a far thought for now.⁶⁰

Concerns in the Pandemic

The Roche incident in the Netherlands is a bewildering example of the impact trade secrets can have on the public health systems, especially during the current health emergency. Roche Diagnostics, a pharmaceutical company, was manufacturing the test kits for coronavirus mainly for the Netherlands but had orders from the US and other countries.⁶¹ The test kits involved the use of a secret lysis buffer formula which was not available with the competitors of Roche; as a result of which, the majority of labs in the Netherlands became dependent on Roche for the test kits and machines. This led to restricted testing of coronavirus and the full potential of healthcare systems remaining unutilized.

⁵⁶ The Drugs and Cosmetics Act, 1940, § 18B.

⁵⁷ *Id.*

⁵⁸ Erika Lietzan, *A New Framework for Assessing Clinical Data Transparency Initiatives*, 18 MARQ. INTELL. PROP. L. R. 33 (2014).

⁵⁹ See Viviana Muñoz Tellez, *The COVID-19 Pandemic: R&D and Intellectual Property Management for Access to Diagnostics, Medicines and Vaccines* (South Centre, Policy Brief No. 73, Apr. 2020), https://ipaccessmeds.southcentre.int/wp-content/uploads/2020/05/PB73_The-COVID-19-Pandemic-RD-and-Intellectual-Property-Management-for-Access-to-Diagnostics-Medicines-and-Vaccines_EN-3.pdf.

⁶⁰ Lisa Schnirring, *China releases genetic data on new coronavirus, now deadly*, CIDRAP NEWS (Jan. 11, 2020), <https://www.cidrap.umn.edu/news-perspective/2020/01/china-releases-genetic-data-new-coronavirus-now-deadly>.

⁶¹ Elke Van Ark & Jan-Hein Strop, *Roche releases recipe after European Commission considers intervention due to lack of coronavirus tests*, FOLLOW THE MONEY (Mar. 27, 2020), <https://www.ftm.nl/artikelen/roche-releases-recipe-after-public-pressure-while-european-commission-considers-intervention-due-to-coronavirus-test>.

The national authorities or the European Commission could have used the compulsory license tool to force Roche to supply the formula to other companies as being done by various countries to ensure proper supply of healthcare items in the market.⁶² However, the formula used by Roche was not a patent but a trade secret, and there was no provision either in the TRIPS Agreement or national laws as to the applicability of compulsory licenses to trade secrets. In this case, the European Commission forced the company to release the formula based on the abuse of a dominant position, and the company did not resist that order.⁶³

Further, in the absence of complete information on clinical tests and manufacturing,⁶⁴ vaccines have not been produced by other companies.⁶⁵ Lack of transparency in the clinical data has led to misinformation, subsequently forming the cause of vaccine hesitancy.⁶⁶ Clinical data is mostly protected as copyright by pharmaceutical companies, and in countries like India, it can be protected as a trade secret.⁶⁷

Confidentiality in a trial is an accepted norm. Concerns of the companies conducting the trials pertain to the premature release of information that can cause bias at the stage of an investigation.⁶⁸ However, releasing data post-trials has greater good than harm. It allows independent researchers to assess and verify the data. It could be used in a way to prompt further studies. It maximizes the degree of acceptance for a drug in society. Independent research conducted through those data could add value to the existing analysis by accessing its efficiency for different groups of people such as people with obesity, people with diabetes, and pregnant women, etc. This would instigate more confidence in the public about the vaccine and even trace any foreseeable safety risk that had not been brought to light. In the end, the goal is to supply a vaccine that has maximum efficacy, and that cannot be achieved without creating a balance between stringency and transparency.

⁶² Jesse Vermeij, *A compulsory licence on trade secrets? In times of corona, much is possible*, SOLV. (Apr. 24, 2020), <https://solv.nl/en/blog/a-compulsory-licence-on-trade-secrets-in-times-of-corona-much-is-possible/>.

⁶³ Nirmalya Syam, *Countries Are Adapting Intellectual Property Laws to Prioritise Health during COVID-19*, THE WIRE (Jul. 24, 2020), <https://thewire.in/trade/intellectual-property-laws-covid-19>.

⁶⁴ Karan Thapar & Prabuddha Kundu, *Waiving IP Rights Is Fine but Vaccine Can't Be Copied Without Tech, Manufacturing Secrets*, SCIENCE THE WIRE (May 12, 2021), <https://science.thewire.in/health/karan-thapar-prabuddha-kundu-interview-covid-19-vaccine-ip-rights-waiver/>.

⁶⁵ Harshit Sabarwal, *Moderna sees no impact on Covid-19 vaccine from potential patent waiver*, REUTERS (May 6, 2021, 4:41 PM), <https://www.reuters.com/business/healthcare-pharmaceuticals/moderna-raises-2021-sales-forecast-covid-19-vaccine-192-bln-2021-05-06/>.

⁶⁶ *Covid vaccine confidence requires radical transparency*, NATURE (Sept. 29, 2020), <https://www.nature.com/articles/d41586-020-02738-y>.

⁶⁷ Right to Information Act, 2005, § 8(1)(e)-8(1)(f).

⁶⁸ *Supra* note 66.

Another prong of the argument could be brought up through the lens of the participants of the clinical trials. The participants put their health at risk to help further results that can benefit society at large. Considering the novelty of such a vaccine, benefiting from the trial is the incentive that could substantiate their willingness to participate voluntarily. Therefore, it is necessary to share the data to maximize the objective of creating an efficient vaccine and gaining public trust, without which the pledge to disrupt the growth of the pandemic will be a herculean task.

Lack of transparency has led to distrust in vaccines at a global level. Reservation for vaccines proliferated in the United States, the leading cause being political influence and halt in trials as reported by the media.⁶⁹ Europe too has joined the race as people are being sceptical of the vaccine owing to the closed-door negotiation between companies.⁷⁰ India, too, is facing a public concern as recently, the Government rejected the application of two RTI activists to seek clinical data and other information for the sake of public interest and to achieve transparency.⁷¹ The Union Health Ministry of India has refused to furnish the data and make the documents public '*citing the reasons for commercial confidence, trade secrets, intellectual property rights, and that the information being sought is with the regulatory agency in a 'fiduciary relationship.*'⁷² Another reason provided was to protect the competitive position of the pharmaceutical companies.⁷³

Though the growing concern of the distrust has led to the release of data by three leading players in the race of vaccine manufacturing, i.e., AstraZeneca, Moderna, and Pfizer⁷⁴, other significant players like China, Russia, and India are still hesitant to join the race.

These episodes reflect the attitude of the health industry towards the public interest in these times. They thus indicate the need for proper mechanisms to deal with the potential trade secrets

⁶⁹ Biswajit Dhar & K.M. Gopakumar, *Safeguard the World's Response to COVID-19 from the Intellectual Property Police*, THE WIRE (Oct. 17, 2020), <https://thewire.in/business/safeguarding-the-worlds-response-to-covid-19-from-the-intellectual-property-police>.

⁷⁰ Smriti Mallapaty & Heidi Ledford, *COVID-vaccine results are on the way and scientists' concerns are growing*, NATURE (Sept. 25, 2020), <https://www.nature.com/articles/d41586-020-02706-6>.

⁷¹ Devyani Madik, *Health Ministry Refuses to furnish data used for Approval of COVID Vaccines Under RTI*, THE LOGICAL INDIAN (Jan. 22, 2021, 6:46 PM), https://thelogicalindian.com/health/health-ministry-refuses-to-furnish-data-used-for-approval-of-covid-vaccines-covaxin-covishield-under-rti-26322?infinite_scroll=1.

⁷² Gaurav Vivek Bhatnagar, *Health Ministry Refuses to Share Info on COVID-19 Vaccine Rollout*, SCIENCE THE WIRE (May 10, 2021), <https://science.thewire.in/health/455364/>.

⁷³ Smriti, *supra* note 70.

⁷⁴ *Pfizer and BioNTech Confirm High Efficacy and No Serious Safety Concerns Through Up to Six Months Following Second Dose in Updated Topline Analysis of Landmark COVID-19 Vaccine Study*, BUSINESS WIRE (Apr. 1, 2021, 6:45 AM), <https://www.businesswire.com/news/home/20210401005365/en/>; *Antibody Persistence through 6 Months after the Second Dose of MRNA-1273 Vaccine for Covid-19*, THE NEW ENGLAND JOURNAL OF MEDICINE (Jun. 10, 2021), <https://www.nejm.org/doi/full/10.1056/NEJMc2103916>.

in the vaccines and medicines being developed to fight the virus. As already discussed above, the IP in inventions can be bifurcated into patents and trade secrets to exploit the creation better. In such a scenario, if the vaccine developed is protected as a patent but the know-how as trade secrets, there needs to be a way to ensure efficient distribution of the vaccine while creating a balance between the interests of the IP owner and the public health.

Measures undertaken by the States and their efficacy

In October 2020, India and South Africa communicated to the World Trade Organization (WTO) their proposal for waiving certain provisions of the TRIPS agreement for the prevention, containment, and treatment of COVID-19.⁷⁵ The motive behind this move is to ensure that certain IP provisions such as copyrights and related rights, industrial design, patents, and undisclosed information do not become a barrier to the accessibility and mobility of medical products. The proposal intended for the collaboration of WTO countries to effectively contain the outbreak by extending their support in favor of the waiver. The objective behind this move is to secure the superfluity, accessibility, and affordability of medical necessities to tackle the global demand.

The proposal will expedite the process of manufacturing and supply scale as countries struggling with the outbreak would not have to involve in extensive negotiation to procure the supplies along with the advantage of the relaxation of export restrictions. The technology transfer would be carried out in a controlled and transparent way. The problem regarding the proposal is that it might turn out to be just a patent waiver⁷⁶ hence limiting the scope of the whole initiative. No doubt, patents are an important part of this discussion, but this outlook will undermine the problem caused by other IP rights, the major one being trade secrets. Proper utilization of trade secrets can augment production, which is a sine qua non to tackle the demand-supply gap. Compulsory licensing of patented products cannot solve the entire problem because it cannot substantiate the gap created by the trade secret associated with the know-how of the product.

⁷⁵ Council for Trade-Related Aspects of Intellectual Property Rights, Waiver from certain provisions of the TRIPS Agreement for the Prevention, containment and treatment of Covid-19: Communication from India and South Africa of Oct. 2, 2020, WTO Doc. IP/C/W/669, <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W669.pdf&Open=True>.

⁷⁶ Prashant Reddy & Yogesh Pai, *Why intellectual property waiver for vaccines is not so 'IP' hooray at all*, THE ECONOMIC TIMES (May 6, 2021, 11:46 PM), <https://economictimes.indiatimes.com/opinion/et-commentary/why-intellectual-property-waiver-for-vaccines-is-not-so-ip-ip-hooray-at-all/articleshow/82438489.cms>.

It is ironic for countries like India, which has a reputation for pharmaceutical industries, to stand in a position where its citizens are struggling with vaccine and medicine shortages. This is so because the Government is not taking enough steps to expand production.⁷⁷ A country with the second-largest population in the world depends on the production ability of two companies having the 'know-how' (Bharat Biotech and Serum Institute of India) (*hereinafter* Active companies) to meet the vaccination demand. This is at a stage where the pandemic is at its worst. The companies responsible for production cannot be blamed for the shortage. Moreover, it was recently reported that Vietnam is willing to share the know-how and technology, but they are sceptical about the production capacity of the manufacturers.⁷⁸

India is acting as a forerunner to the idea of the TRIPS waiver. Article 39(3) protects the submission of undisclosed tests or other data against unfair commercial use.⁷⁹ Ironically, on the one hand, through the TRIPS waiver, India is seeking to relax this provision. However, on the other hand, Government Officials in India are taking the defense of an exception under RTI, claiming to protect the trade secret while neglecting the public interest at large. If we view it through a different lens, Article 39 contains an exception for protecting the public when it comes to the disclosure of any data. By denying the request of the RTI activist, India is already acting against the TRIPS provision.

It is opening its gate for the entry of foreign vaccines granted emergency approval in their respective countries. The approval was granted by drawing a comparison between clinical trial interim data, which the Subject Expert Committee (SEC) found comparable with Phase III clinical trial data of the respective country. There will likely be public concerns regarding the effectiveness of such vaccines in India. A way to tackle such a concern would be to commit to transparency for the sake of public interest.

Additionally, unlike countries like the US, India does not have a trade secret regime, and its protection is regulated through contract law. However, contract laws provide a remedy only when there is a breach of confidence by the infringer of trade secrets. Such limited protection is of no use and is as good as no protection. Unlike other IP rights, trade secrets cannot be protected once released. This is the reason many developed countries have been opposing the

⁷⁷ Geetika Mantri, *Why removing patents on COVID-19 vaccines is the need of the hour*, THE NEWS MINUTE (May 6, 2021, 3:28PM), <https://www.thenewsminute.com/article/why-removing-patents-covid-19-vaccines-need-hour-148408>.

⁷⁸ Jenny Lei Ravelo, *COVID-19 Vaccine developer in Vietnam willing to share data*, DEVEX (Mar. 18, 2021), <https://www.devex.com/news/covid-19-vaccine-developer-in-vietnam-willing-to-share-data-99413>.

⁷⁹ *Supra* note 17, §39(3).

TRIPS waiver proposal since the beginning. A waiver would not be beneficial in such a situation as it would neither be able to protect the secrets of the company after the emergency period nor would the companies be motivated to release all their manufacturing secrets to enable smooth production of vaccines. The waiver does not guarantee full cooperation by the companies, which would be required if such complex procedures have to be adopted. The companies would not disclose their valuable secrets in a state where no policy framework exists to protect them against improper use. Thus, the lack of a proper framework on Trade Secrets in India would hinder the large-scale production of vaccines even if the waiver is allowed. Therefore, a waiver is not an urgent requirement because TRIPS has sufficient relaxation to tackle the immediate IP concerns prevalent in countries like India.

III. REMEDIES TO ENSURE THE NON-HINDRANCE OF THE TRADE SECRET IN ACCESSING NECESSITIES GENERATED BY COVID-19

The accessibility and availability of various medical necessities generated by this pandemic will be affected by the kind of management assigned to regulate the intellectual property rights related to this field.⁸⁰ There is a pressing need for global collaboration and effective coordination of various efforts to ensure a safe and expedited future for the COVID-19 vaccine.⁸¹

A. Existing Remedies

It is estimated that an average drug requires somewhat between 4.5 to 8.5 years of testing and an average cost between 2.7 to 4.7 million dollars to complete its journey from its discovery to marketability.⁸² Therefore, the company considers it their right to take credit for the innovation and carve out ways to gain profitability. They choose the path of trade secrets to protect their innovation owing to the indefinite period of protection offered. Pharmaceutical companies may not be willing to share their trade secrets and other intellectual property rights related to any drug because of various parameters like competitive barriers, follow-on drug manufacturing, etc. A global pandemic and the importance of prioritizing public health may not necessarily impel them to give up their profitable interest for the sake of the greater good or public interest.

⁸⁰ *Supra* note 59.

⁸¹ Seth Berkley, *COVID-19 needs a big science project*, 367 SCIENCEMAG 1407(2020), <https://science.sciencemag.org/content/367/6485/1407>.

⁸² HAROLD A. CLYMER, *THE ECONOMICS OF DRUG INNOVATION* IN THE DEVELOPMENT AND CONTROL OF NEW DRUG PRODUCTS 124 (1972).

In such a scenario, it is the Government's responsibility to come up with a parallel compensatory scheme to provide companies with an incentive to prioritize public health and safety. A fair and equitable reimbursement scheme can also be helpful to tackle the hindrance as provided by the US Environmental Protection Agency if it grants an exception for testing of chemical substances and mixtures⁸³ Under this provision, the Administrator of the Environmental Protection Agency can order the development of information for any chemical substance or mixture whose application can probably pose a threat or unreasonable risk of injury to health or environment. However, if an exemption is granted to an applicant from developing such information on the grounds of past existence of the required information, the applicant is obligated to provide fair and equitable reimbursement to the person(s) who previously submitted such information, provided such exemption was granted during the reimbursement period which is generally five years after the submission of that information. This practice is an indication of maintaining a harmonious balance between handling public health concerns and the financial concerns of the concerned stakeholders.

The global pooling mechanism proposed by the President of Costa Rican to "*facilitate access to and use of intellectual property for technologies that are useful for the detection, prevention, control, and treatment of the COVID-19 pandemic*"⁸⁴ can be another remedy to this problem. This mechanism can be seen as a centralization of patents' rights and its further licensing based on an agreed procedure.⁸⁵ This proposal acts as a vanguard of the Medicines Patent Pool (MPP) that provides access to needed drugs through voluntary licensing arrangements.⁸⁶ Unlike the already existing MPP that intends to benefit the developing and least developed countries primarily, this proposal has a broader ambit⁸⁷.

This proposal also sheds light on the fact that access to medicine forms a part of the right to health and is linked to human rights.⁸⁸ It has been contended that the knowledge component of

⁸³ *Testing of Chemical Substances and Mixtures*, Title 15, U.S. Code 1976, § 2603(c) (3) (A), (4) (A).

⁸⁴ *Open letter to the World Health Organization (WHO) and its Member States on the proposal by Costa Rica to create a global pool for rights in the data, knowledge and technologies useful in the prevention, detection and treatment of the coronavirus/COVID-19 pandemic*, KNOWLEDGE ECOLOGY INTERNATIONAL (Mar. 27, 2020), <https://www.keionline.org/32599>.

⁸⁵ Jorge Contreras, *Patents and Corona virus - A Role for Patent Pools?*, INFOJUSTICE (Apr. 13, 2020), <http://infojustice.org/archives/42242>.

⁸⁶ Muhammad Zaheer Abbas, *Treatment of the novel COVID-19: why Costa Rica's proposal for the creation of a global pooling mechanism deserves serious consideration?*, 7(1) J.L.BIOSCIENCES1-10 (2020).

⁸⁷ *Id.*

⁸⁸ World Health Organisation, *Chapter 15: Access to essential medicines as part of the right to health*, in *ADVANCING THE RIGHT TO HEALTH: THE VITAL ROLE OF LAW* (2020), <https://www.who.int/healthsystems/topics/health-law/chapter15.pdf>.

medicine can be termed as a global public good.⁸⁹ However, it would be unfair to the institutions that have invested in developing this knowledge and have underpinned the high cost and risk for the same. Ensuring that the medicines are accessible to all as a matter of human rights is further hindered by restricted and unidirectional investment in research and development.⁹⁰

Examining the objectives set forth by the WTO Doha Declaration on TRIPS and Public Health (2001), it is evident that the onus is on the WHO to come up with certain guidelines to formalize the pattern of investment so that every member country in favor of accessing the medicines can contribute to the R&D. An obligation is then bestowed on member states to individually ensure that the lack of funds should not hinder the development in the field of medicines.

B. Suggestions

To override the intellectual property rights and prioritize the global health requirement, the countries can resort to Article 73 of the TRIPS agreement that lays down provisions for security exceptions. The relevant part of the article states that “*nothing in the agreement shall be construed to prevent a member from taking any action which it considers necessary for the protection of its essential security interest taken in time of emergency in international relations.*”⁹¹ The declaration of Public Health Emergency of International Concern over the COVID-19 outbreak is sufficient to consider this situation as an emergency in international relations.⁹² Various parameters like allocation of scarce resources, international trade and travel restraint, economic downturn, and social unrest forms a part of instigating emergency in international relations, all of which being a consequence of the pandemic. The protection of public health is related to an essential security interest as it forms a part of the obligation bestowed on every state. This justifies the invocation of Article 73 of the TRIPS Agreement to tackle such emergencies.

The least developed countries have been the most vulnerable to the ravaging effects of the COVID-19 pandemic. A limited manufacturing capacity, along with the insufficient

⁸⁹ Surie Moon, *Focusing on quality patient care in the new global subsidy for malaria medicines*, 6(7) P.L. O.S. MED. 2 (2009).

⁹⁰ WOLFGANG HEIN & SURIE MOON, *INFORMAL NORMS IN GLOBAL GOVERNANCE: HUMAN RIGHTS, INTELLECTUAL PROPERTY RULES AND ACCESS TO MEDICINES* 63-64 (2016).

⁹¹ *Supra* note 17, art. 73.

⁹² Frederick Abbott, *The TRIPS Agreement Art 73 Security Exceptions and the COVID-19 Pandemic*(South Centre, Research Paper No. 116, Aug. 2020), <https://www.southcentre.int/wp-content/uploads/2020/08/RP-116.pdf>.

technological capacity to procure drugs makes it even more challenging for these countries to tackle the current situation. They are currently dependent on the relief provided by Article 31bis of the TRIPS Agreement that allows the use of compulsory licensing to export medicines to LDCs due to their incapability to produce them independently.⁹³ The transition period provided to LDCs to apply the key provisions of the TRIPS Agreement for pharmaceuticals has been extended till 2033, providing a helping hand to deal with the pandemic. Nevertheless, they still face difficulties in accessing primary medical necessities such as sanitizers, masks, PPE kits, etc. WHO should come up with certain incentives to provide such basic amenities to LDCs at a subsidized rate so that they can stand firm in this global fight. Additionally, to promote and develop the technological base, the developed countries should provide incentives for technology transfer to LDCs, as per the provisions of Article 66.2 of the TRIPS Agreement.⁹⁴ It is necessary to resolve the issue of private contracts and rights associated with technology transfer so that it can be smoothly implemented to meet the requirements created by the pandemic.⁹⁵

There might be pharmaceutical companies able (*hereinafter* X companies) to contribute to the production of the approved vaccines but unable to do so because they do not have access to the ‘recipe,’ which is safely protected as a trade secret. Another solution for this condition could be a tripartite agreement among the Government, X companies, and the Active companies. The government and X companies can split the payment or share the contribution of incentives given to Active companies to share the know-how with the X companies to augment production. At the same time, the Active companies should be assured that the know-how would not be misappropriated and that the X companies would not indulge in unfair commercial practices. The X companies and the Government can segregate the monetary payment in whatever proportion suitable to all the three parties to receive the know-how. The X companies can share some part of the revenue as royalties, whose terms should be negotiated in the agreement. The governments of other countries like Vietnam can also utilize such an

⁹³ WORLD TRADE ORGANIZATION ET AL., PROMOTING ACCESS TO MEDICAL TECHNOLOGIES AND INNOVATION: INTERSECTION BETWEEN PUBLIC HEALTH, INTELLECTUAL PROPERTY AND TRADE⁹³ (2d ed. 2020), https://www.wto.org/english/res_e/booksp_e/who-wipo-wto_2020_e.pdf.

⁹⁴ *WTO members stress role of IP system in fighting COVID-19*, WORLD TRADE ORGANIZATION (Jul. 30, 2020), https://www.wto.org/english/news_e/news20_e/trip_30jul20_e.htm.

⁹⁵ Council for Trade-Related Aspects of Intellectual Property Rights, Proposed New Template for Annual Reporting Under Art 66.2 of the Agreement on Trade-Related Intellectual Property Rights (TRIPS): Communication on behalf of Chad for LDCs of Jul. 17, 2020, WTO Doc. IP/C/W/664, <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W664.pdf&Open=True>.

agreement to benefit from the production capacity of pharmaceutical manufacturers in different countries.

CONCLUSION

The challenges faced by the world to fight the novel coronavirus have led to the discovery of certain restraints that stand as a barrier in this fight against the pandemic. The ambiguity surrounding the protection of trade secrets is one of them. The disclosure of a trade secret becomes indispensable when the public interest in the disclosure undermines the interest that a company holds through that trade secret. The public harm may outweigh any competitive harm that the owner of a trade secret may suffer. It will also ensure awareness in the public at large as they may be capable of making an independent judgment of the impacts of the products and decide whether to utilize them or not.⁹⁶ Additionally, this would help in preventing unnecessary duplicative testing; hence those who are battling with this virus could have access to proven treatments.⁹⁷

This pandemic has created a dire need for sharing interests and responsibilities to tackle the availability of resources. The remedies like the pooling of IP rights sound to be a viable option but the voluntariness assigned to it by WHO seems to create a problem. Also, it only revolves around the accumulation of patents, while the main protagonist seems to be trade secrets, which do not form a part of such a proposal. Therefore, strict provisions requiring mandatory action need to be enacted to confront this barrier and prioritize global health issues. Openness in research, sharing data, research tools, and avoiding intellectual property barriers to create a smooth pathway for the development of drugs is a sine qua non to resolve this emergency.

TRIPS waiver, if considered, has the potential to boost the knowledge-sharing mechanism speedily without the need to indulge in rigorous negotiations. It would help tackle the geographical limitations of productions. Waiving trade secret restrictions could help in achieving global harmonization and coordination. However, it seems unlikely that the discussions and negotiations on the proposal will have a positive outcome anytime soon. Countries like Germany are not in favor of a waiver because it thinks this will act as a disincentive to pharmaceuticals to respond to such situations in the future.

⁹⁶ Thomas O. McGarity & Sidney A. Shapiro, *The Trade Secret Status of Health and Safety Testing Information: Reforming Agency Disclosure Policies*, 93 HARV. L. REV. 837 (1980).

⁹⁷ *Id.*

Additionally, history reveals that such negotiations involving developed, developing, and least developing countries take an inordinate amount of time owing to their diverging interests. For example, the Doha Declaration on TRIPS and Public health⁹⁸, proposed in 1996, took five years to finally get approval in 2001. Moreover, the next discussion on the TRIPS waiver is scheduled for November 2021⁹⁹. Though the United States has changed its stance to support the waiver along with the waiver¹⁰⁰, followed by European Union, New Zealand, and France¹⁰¹, it is highly unlikely that these countries will show unhindered support for the provisions of the waiver. Ironically, the support from the United States for TRIPS waiver was announced after it accumulated surplus vaccines and was in a position to supply vaccines on demand.

Considering the aftermath of the second wave in countries like India, Bhutan, Nepal, Thailand, etc.,¹⁰² This proposal is not going to help eradicate the immediate chaos caused by the pandemic. Policymakers and pharmaceutical companies should work in alliance with researchers and publishers to curb vaccine hesitancy. It is crucial for countries to realize the need of the hour, i.e., expedite the production and regain public trust, and act in a manner effective enough to resolve the ongoing crisis. It is high time that we come up with a solution that balances the risk of competition with the benefit of further innovation.

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⁹⁸ World Trade Organization, Ministerial Declaration of 20 November 2001, WT/MIN(01)/DEC/2, https://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_trips_e.htm.

⁹⁹ *Members discuss TRIPS waiver, LDC transition period and green tech role for small business*, WORLD TRADE ORGANIZATION (Mar. 11, 2021), https://www.wto.org/english/news_e/news21_e/trip_11mar21_e.htm.

¹⁰⁰ Press Release, Statement from Ambassador Katherine Tai on the Covid-19 Trips Waiver, Office of the United States Trade Representative, (May 5, 2021), <https://ustr.gov/about-us/policy-offices/press-office/press-releases/2021/may/statement-ambassador-katherine-tai-covid-19-trips-waiver>.

¹⁰¹ *Trips waiver, there's more to the story than vaccine patents*, THE CONVERSATION (May 8, 2021, 2:37 AM), <https://theconversation.com/trips-waiver-theres-more-to-the-story-than-vaccine-patents-160502>.

¹⁰² Jinshan Hong Randy & Jason Scott, *After sweeping India, fierce Covid-19 waves hit other developing nations*, BUSINESS STANDARD (May 4, 2021, 11:46AM), https://www.business-standard.com/article/international/it-s-not-just-india-fierce-covid-19-waves-hit-other-developing-nations-121050400368_1.html.

INDIAN AD TECH INDUSTRY AT LOGGERHEADS WITH AD-BLOCKING: POTENTIAL COPYRIGHT VIOLATIONS AND NET NEUTRALITY ISSUES

Mohit Kar, Shreya Sahoo*

ABSTRACT

With the ever-rising amount of digital content and desire to garner more audience by delivering content free of cost, digital content creators are resorting to online advertisements to support their work. The ad tech industry, which is the brains behind such practice of ad monetization, has been facing scornful criticism for designing annoying and intrusive ads that are mostly built with tracking cookies embedded in them. Many advertisers, instead of self-regulating, are claiming that ad-blocking amounts to copyright infringement of a content creator's work and opposes the ethos of Net Neutrality. In this article, the authors contend that legitimate ad-blocking does not amount to copyright infringement and is, in fact, a reasonable traffic management practice on the internet. The article first seeks to shed a light on ad-blockers, their economic significance and relevance on the internet. The article then discusses the potential copyright infringement aspects of ad-blocking software. The article further discusses the tortious interference aspects of ad-blockers and proceeds to address the net neutrality concerns that could arise out of the use of ad-blockers. The last part of the article contains conclusory remarks.

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* Mohit Kar is a 5th Year law student at the Maharashtra National Law University, Aurangabad. The author may be reached at 17ballb44@mnlua.ac.in.

Shreya Sahoo is a 5th Year law student at the National Law University, Odisha. The author may be reached at shreya.sahoo.148@gmail.com.

INTRODUCTION

Over the last few years, banner ads or web banners have become a new form of advertisement on the internet, appearing on web pages that direct the user to the advertiser's website with a click. The advertisement is created using an image, animation, sound, JavaScript program or a multimedia object involving platforms like Shockwave Flash. The mechanism of the banner-website compilation, often termed as 'impression,' displays the ads unheralded when the particular webpage is loaded on a web browser.¹ Such a mechanism has been considered annoying by most web users as it distracts them from the actual content of the web page and also wastes bandwidth.

Ad-blocking software is a browser add-on extension that allows the users to determine the content made available to them when they enter a website.² Generally, the ad-blocking software runs a comparison between the loading content and the user's list, thereby restricting any coincident matches.³ The comparison mechanism of the software can use a self-curated list by the user or a pre-made index of unwanted website elements.⁴ A user, by enabling an ad block software, retains the autonomy to view what they want to view and restrict unnecessary advertisements.

According to a report published in 2019, it was found that 47% of users are resorting to ad-blockers to shut down irrelevant ads and 26% to prevent their online privacy from being compromised.⁵ According to another report, the number of people using mobile browsers with built-in ad-blocking mechanisms has shot up by 64% since 2016 and was recorded to be 527 million.⁶ Asian users make up a whopping 400 million of the aforementioned number of active users of UC browser.⁷ In 2016, major news publishing houses in India such as Times of India and Hindustan Times had urged their readers to disable ad-blocking software to access their

¹ Gordon Smith et. al, *Managing Intellectual property in the advertising Industry*, WIPO (2011), https://www.wipo.int/edocs/pubdocs/en/copyright/1021/wipo_pub_1021.pdf.

² Andrew Steele, *Is It Reasonable To Block Unreasonable Advertisements & As Examination Of The Legality Of Ad-Blockers*, 37(3) CARDOZO ARTS & ENT. L.J. 835 (2019).

³ *Id.* at 692.

⁴ *Id.*

⁵ Global Web Index, *Ad-blocking behaviors around the world*, <https://www.globalwebindex.com/reports/global-ad-blocking-behavior>, (last visited Aug. 10, 2021).

⁶ BLOCKTHROUGH REPORT, GROWTH OF THE BLOCKED WEB: 2020 PAGEFAIR ADBLOCK REPORT (2020), <https://f.hubspotusercontent10.net/hubfs/4682915/Adblock%20Reports/Blockthrough%20Report%202020.pdf>.

⁷ *Id.* at 7.

content.⁸ Readers cannot view the entire news report and may only view the homepage or few initial paragraphs of the content if they use an ad-blocker.⁹

In 2020, ad blockers could cost the publishers an estimated loss of \$78 billion and \$16 billion in case all the counter measures are taken by the publishers.¹⁰ Publishers, content creators, marketers and agencies face the detrimental effect of ad-blocking or filtering as they rely on the revenue generated by such ads.¹¹ The advertisers pay the website or host per one thousand ad views because the content is mostly free to access.¹² Ad-blocking provides the user access to the content without producing any ad revenue for the content provider, thereby depriving him of his due remuneration. Now, certain websites having taken cognizance of this impact have enabled a feature called ad-wall, which requires the users to disable ad-blocking software if they want to access the content of the website.¹³ This strategy has been found to be ineffective as either the users are abandoning sites which limit their access or overriding the working of ad walls completely.¹⁴

Internet users usually have to face the intrusive and annoying nature of advertisements that lead to a negative web experience.¹⁵ Threats caused by these “maladvertisements” tripled in 2014 and had even permeated popular websites like Yahoo¹⁶ and Forbes.¹⁷ The frequent display of retargeted and behavioural ads raises privacy concerns,¹⁸ consumes data costs and slows down the loading time.¹⁹ In order to tackle this issue, the users are using ad-blocking software

⁸ Anuj Srivas, *All Eyeballs on Reader Reaction as Ad-Blocking War Comes to India*, THE WIRE (Jun. 30, 2020), <https://thewire.in/economy/all-eyeballs-on-reader-reaction-as-ad-blocking-war-comes-to-india>.

⁹ *Id.*

¹⁰ Vishveshwar Jatain, *How to Tackle the Rising Cost of Ad Blocking*, FORTUNE (Aug. 8, 2020), <https://www.forbes.com/sites/forbescommunicationscouncil/2020/08/06/how-to-tackle-the-rising-cost-of-ad-blocking/?sh=4219c1f268d7>

¹¹ eMarketer Staff, *US Ad Blocking to Jump by Double Digits This Year*, EMARKETER (Jun. 21, 2016), <https://www.emarketer.com/Article/US-Ad-Blocking-Jump-by-Double-Digits-This-Year/1014111>.

¹² Ian C. Butler, *The Ethical and Legal Implications of Ad-Blocking Software*, 49 CONN. L. REV. 689 (2016).

¹³ Tyler Barbacovi, *Blocking Ad Blockers*, 16 J. MARSHALL. REV. INTELL. PROP. L. 272 (2017).

¹⁴ David Tromholt, *How to Bypass ad-blocker Detection on Websites*, TECHSTACKER (Nov. 24, 2019), <https://techstacker.com/how-to-bypass-website-ad-blocker-detection/>.

¹⁵ Ben Miroglio et. al, *The Effect of Ad Blocking on User Engagement with the Web*, WWW'18: PROCEEDINGS OF THE 2018 WORLD WIDE WEB CONFERENCE 813-821 (2018), <https://research.mozilla.org/files/2018/04/The-Effect-of-Ad-Blocking-on-User-Engagement-with-the-Web.pdf>.

¹⁶ Kif Leswing, *Yahoo Mail Tried to Block Ad blockers, And it Might have backfire*, FORTUNE (Nov. 23, 2015), <https://fortune.com/2015/11/23/yahoo-ad-block/>.

¹⁷ Violet Blue, *You Say Advertising, I Say Block That Malware*, ENGADGET (Jan. 8, 2016), <https://www.engadget.com/2016/01/08/you-say-advertising-i-say-block-that-malware/>.

¹⁸ Sophie C. Boerman, S. Kruikemeier et al., *‘Online Behavioural Advertising: a literature review and research agenda’*, 46(3) J. ADVERT. 363 (2017).

¹⁹ Farhad Manjoo, *Ad Blockers and the Nuisance at the Heart of the Modern Web*, THE NEW YORK TIMES (Aug. 19, 2015), <https://www.nytimes.com/2015/08/20/technology/personaltech/ad-blockers-and-the-nuisance-at-the-heart-of-the-modern-web.html>.

programs such as Adblock, Adblock Plus and μ Block Origin.²⁰ This action of skipping advertisements in order to avoid interruptions is known as ‘commercial skipping’.

Using an ad-blocking software may pose challenges of copyright infringement and tortious intervention to a contractual association.²¹ The basis of copyright infringement claim would be “that the ad-blocking service in question infringes publisher’s copyrights by impermissibly changing the publisher’s pages.”²² Essentially, it means that such software programs empower users to determine what website content they seek to display and ergo, ad blockers attract vicarious liability for the infringement caused by a user in relation to the copyright interest of a publisher.²³

In India, as far as commercial skipping in regards to a website is concerned, the specific page must meet all the prerequisites for copyrightability²⁴ as copyright cannot be extended to the website as a whole.²⁵ In this regard the authors contend that copyright infringement claims of the websites or content providers are weak as neither can the compilation of an ad with content be a copyrightable subject matter nor does the ad-blocking software constitute any sort of unauthorised derivative work.

I. DO AD-BLOCKERS INFRINGE COPYRIGHT?

Blocking advertisements through ad-blockers causes a huge loss of revenue to the advertisers. These advertisements are paid for and blocking them could be considered as unlawful. One aspect of its illegality lies in the infringement of copyright. In a suit for copyright infringement, one must deal with three different issues. Firstly, one must prove that the functionality behind ad-blockers infringes copyright. Secondly, the liability of infringement will have to be set upon the “author” or the one who is behind the ad-blocker. Thirdly, the defences to copyright have to be overcome.

The Test of Copyrightability

With regards to ad-blockers and copyright infringement, the first and foremost question would be to answer what the “work” at issue is. Secondly, one needs to figure out whether the work

²⁰ Tyler Baracovi, *supra* note 13, at 273.

²¹ Ian C. Butler, *supra* note 12.

²² Russell A. Miller, *The Legal Fate of Internet A-Blocking*, 24 B.U. J. SCI. & TECH. L. 299 (2018).

²³ *Gershwin Publ'g Corp. v Columbia Artists Mgmt., Inc.*, 443 F.2d 1159, 1161-62 (2d Cir. 1971).

²⁴ The Copyright Act, 1957, § 13.

²⁵ *Frequently Asked Questions*, Copyright Office (GOI), <http://copyright.gov.in/frmFAQ.aspx>, (last visited Aug. 10, 2018).

at issue is “copyrightable.” The third fundamental question would be whether the work at issue was “original.”

The preliminary question with regards to a copyright infringement suit would be what the “work” constitutes. In the present context it may be the website as a whole or the individual components present on the website. Websites in general have many intellectual property rights instilled in them such as domain name rights,²⁶ copyrights over every original piece of work that is displayed, and trademark rights over any displayed trademark that has been registered by the parent company.²⁷ In India, an entire website is not entitled to copyright. In the case of *Rediff.com India Ltd. v. E-Eighteen.com Ltd.*,²⁸ the plaintiffs owned the copyright over “Dial”, a literary cum artistic work which served as an instrument on a financial website for users to make an assessment in relation to a stock or a mutual fund. The point of contention raised by them was whether the defendants, by merely effecting re-arrangement or alteration of “Dial,” have committed copyright violation. The Delhi High court dismissed the case and denied injunction. This is demonstrative of the fact that in India, unlike the U.S laws, individual elements of websites are copyrightable, and not the whole of the website.

Accessing a website without permission is normally acceptable by copyright laws due to an explicit or implicit license.²⁹ As a norm, majority of websites run on an implicit license providing open access to their content.³⁰ These websites are also indexed on search engines like Google, Microsoft Bing and others, thus inviting users to their website. However, certain websites have explicit licensing mechanisms thus restricting access and user permits.³¹ These websites also provide directions as to how users can use their website; thus, copying content could amount to copyright infringement. Websites such as Wall Street Journal, the Economist, Newslaundry, etc. are certain websites that require online subscriptions because they have adopted a subscription model and sustain on advertising revenue. These websites also promote the non-use of ad blockers by displaying messages like “*The best things in life aren’t free*” and

²⁶ Nitsimar Guliani, *Domain name and Trademark rights in India*, LEXOLOGY (Jul. 31, 2018), [https://www.lexology.com/library/detail.aspx?g=daafca2-6a68-4134-bd29-27aa941a1f03#:~:text=Protection%20of%20domain%20names%20in%20India&text=In%20India%2C%20domain%20names%20may,Act%20\(as%20enumerated%20above](https://www.lexology.com/library/detail.aspx?g=daafca2-6a68-4134-bd29-27aa941a1f03#:~:text=Protection%20of%20domain%20names%20in%20India&text=In%20India%2C%20domain%20names%20may,Act%20(as%20enumerated%20above).

²⁷ Akshara Bala, *How to copyright your website*, QUICKCOMPANY (Oct. 16, 2018), <https://www.quickcompany.in/articles/how-to-copyright-your-website>.

²⁸ *Rediff.com India Ltd v. E-Eighteen.com Ltd*, 2013 SCC OnLine Del 2747.

²⁹ S.V. JOGA RAO, *COMPUTER CONTRACTS & INFORMATION TECHNOLOGY LAW* 1226 (2003).

³⁰ Orit Fischman Afori, *Implied License: An Emerging New Standard in Copyright Law*, 25 (2) SANTA CLARA HIGH TECH. L. J. 275 (2009).

³¹ Yi-Hsuan Lin, Tung-Mei Ko, Tyng-Ruey Chang et al., *Open Source Licenses and the Creative Commons Framework: License Selection and Comparison*, 22 J. INFO. SCI & ENG’G 1-17 (2006).

actively restrict it.³² If a website explicitly conditions that it does not permit the use of an ad-blocker, then the usage of one³³ by a user can cause termination of the license agreement as the license agreement clearly states that license is subject to non-usage of an ad blocker. There are “Anti-Adblock Detector” applications available which allow users to bypass the ad-blocking mechanism and allow browsing such websites without disabling the ad blocker. Bypass Adblock Detection and Anti Adblock Detector are some anti-ad blocking extensions available on Google Chrome that allow users to help disable the detection of an ad blocker. So, in cases where a contract which includes the copyright license has a clause (other than the copyright license clause) of not using an ad block, and the website/app user uses an ad block, then the license cannot be terminated. This is because the extension bypasses the circumvention created to control access to the content and the user is smoothly facilitated to view the website without having to come across the revenue raising channel of online advertisements. It may count as breach of contract but not lead to suspension of license.

A pertinent thing to note here would be that many big advertising companies make payments to popular ad-blocking apps to take their names out of their list.³⁴ This initiative is known as “Acceptable Ads” and was started by Adblock Plus.³⁵ All the ads that are to be added to the list must conform to the requirements set by the initiative. The details of the advertisers on the list are unclear but it can be estimated that many companies like Amazon, Facebook and Google would have to pay a hefty amount to be added to the list.³⁶ Such initiatives by ad blocker software may give it a pathway to legality and save it from infringement suits from advertising agencies.

With respect to copyright infringement, the petitioner has to primarily prove that the website at issue is “original” and he/she is “owner” of it.³⁷ In this regard it is worthwhile to note that the Supreme Court of India has put reliance on a standard which is not as simple as the “sweat of the brow” doctrine but concurrently is not as high a threshold envisaged by the “modicum

³² Robert Cookson, *News media move to ban ad blockers from websites*, FINANCIAL TIMES (Jul. 6, 2016), <https://www.ft.com/content/abf110aa-00b0-11e6-99cb-83242733f755>.

³³ David Tromholt, *supra* note 14.

³⁴ Adblock Support, *About the Acceptable Ads program and "non-intrusive" ads*, ADBLOCK HELP (Jan. 17, 2020), <https://help.getadblock.com/support/solutions/articles/6000092027-about-the-acceptable-ads-program-and-non-intrusive-ads>.

³⁵ Lara O'Reilly, *Google, Microsoft, and Amazon Are Paying AdblockPlus*, BUSINESS INSIDER (Feb. 3, 2015), <https://www.businessinsider.in/advertising/Google-Microsoft-and-Amazon-are-paying-Adblock-Plus-huge-fees-to-get-their-ads-unblocked/articleshow/46109705.cms>.

³⁶ *Id.*

³⁷ *Supra* note 24.

of creativity” test.³⁸ Therefore, the Indian judiciary has acknowledged the shift, and requires that not every industry or effort, or expending of skill will result in a subject matter worthy to be protected by copyright.³⁹ Only works that are instilled with distinct character, entailed intellectual efforts and were created with a certain level of creativity are copyrightable.⁴⁰ In the light of such imperatives, a simple compilation of commercial-plus-web content does not meet the threshold of originality. Thus, “originality” is an essential requirement in an infringement suit and the plaintiff must compulsorily prove it. A website is nothing but a webpage or a group of interlinked web pages, stored or hosted on a server, and is made accessible online to the public. The information, underlying work and other rudiments displayed on the website may be subject to copyright that falls within the purview of Section 13 of the Act. Section 13 of the Act deals with the classes of works which can be conferred with copyright and they are original literary, dramatic, musical, and artistic works. Further, works such as cinematograph films and sound recordings also qualify as copyrightable works. Indian copyright law does not confer copyright protection to websites as a whole and therefore a separate application must be submitted by an applicant claiming copyright for each component work or content displayed on a website. An important aspect to note is that common or unoriginal material like names, familiar symbols, icons, etc. are not copyrightable. But the copyrightability will depend on each website and there is no straitjacket answer for what website is original or what website is not original. It cannot be disputed that certain websites are not original at all like the ones that host pirated content; and therefore, the answer to the question of copyrightability will be quite straightforward in those instances. Some websites might be a host to licensed works such as movies, but ad blockers would not affect them insofar as a user just visits the website. However, none of these arguments would matter if the infringing work itself is not original or fixed. The potential infringing work also has to be a derivative work.

The Test of “Relatedness”

One of the arguments to uphold the notion that functioning of ad blocker software constitutes copyright infringement is that they result in the production of an unauthorised derivative work. According to this view, ad blocking leads to the production of an altered version of the original work. The issue regarding copyright infringement can be determined once the question, whether copyright is vested in such a work, is resolved.⁴¹ The definition of an “author” can be

³⁸ Eastern Book Company v. D. B. Modak, (2008) 1 SCC 1.

³⁹ *Id.*

⁴⁰ *Supra* note 38.

⁴¹ P. N. Krishna Murthy v. Co-operative for American Relief Everywhere, 2000 SCC OnLine Del 825.

found in Section 2 (d) of the Act⁴² which states that an author in relation to a literary, dramatic, musical, artistic work, cinematograph film and sound recording is the person who causes such works to be created. The pop-up advertisement in an entirely different webpage which may contain subject matter that is copyrightable however cannot be called a copyrightable subject when presented with online content.⁴³ The content creator may claim copyright in the content created by them and published on the webpage which they had chosen for such publication. However, a content creator cannot assert copyright protection for content associated with a different webpage, which is merely compiled with the original content of the content creator.

Furthermore, integration of an advertisement preceding a video or a movie does not result in the creation of an audio-visual work or a cinematograph film.⁴⁴ An explicit definition of “*audio-visual works*” has been provided in U.S copyright law, according to which the work should “*consist of a series of related images*”.⁴⁵ The interpretation of cinematograph or the art of cinematography used in the making of an audio-visual work is important in order to discern the fact that the integration of an advertisement with an audio-visual work does not entitle the combined work to copyright protection. The Indian copyright statute contains the definition of the term “*cinematograph film*” which is similar to the term “*audio-visual works*”. Section 2 (f) of the Copyright Act, 1957 (“the Copyright Act”) defines cinematograph film as “*any work of visual recording and includes a sound recording accompanying such visual recording*.”⁴⁶ The occurrence of determiner “such” in the definition indicates that the sound recording must be in relation to the visual recording.

Further, as mentioned above, advertisements may also precede video films. Thus, it is pertinent to note that video films are covered within the purview of cinematographic work by virtue of them being “*work produced by any process analogous to cinematography*”. To clearly understand the meaning of the term cinematograph, we shall take a look at the definition provided for it in Section 2 (c) of the Cinematograph Act, 1952 which says it is the “*apparatus for the representation of moving pictures or series of pictures*.” The expression “*series of pictures*” signifies that the pictures used for the creation of a cinematographic work must be related in order to compose a “series”. So, the requirement of ‘relatedness’ is attained if the

⁴² The Copyright Act, *supra* note 24, at § 2.

⁴³ *Pop-Up Ad*, TECHOPEDIA (Dec. 15, 2016), <https://www.techopedia.com/definition/15480/pop-up-ad>.

⁴⁴ Bingbin Lu, *The unique Chinese legal approach to online ad blocking: is it in the right direction?*, 33(6) COMP. LAW & SEC. REV. 786 (2017).

⁴⁵ 17 U.S.C. § 101 (2021).

⁴⁶ *Supra* note 42.

pictures are in succession, dealing with the same subject matter. However, the only similarity which can be drawn between an online ad and a video or a movie is their purpose of monetization and apart from that nothing on the basis of content is related. Therefore, there can be no situation of copyright infringement as there exists no cinematographic work in the first place to be violated.

The Fair Dealing Defence

The defence of fair dealing can be used by ad blockers if they are faced with an infringement suit. However, the success of such a reasoning might not be espoused in the eyes of law. The Copyright Act under Section 52(1) lists out various actions that would not count as copyright infringement in India.⁴⁷ It then proceeds to mention about “fair dealing” and states that acts done in private use for the purposes of research, criticism or review of other work, reporting of current events would be within its ambit.⁴⁸ In the case of *Civic Chandran v. Ammini Amma*, it was observed that Section 52(1)(a) and Section 52(1)(b) specifically deal with “fair dealing” or work, and not “reproduction of the work”. In accordance with this observation, re-production of substantial or whole of the original work would not be permitted and only extracts or quotations from the work will only be upheld as fair dealing.⁴⁹ The court further held that in such situations the following have to be taken in consideration – (1) quantum and value of the matter taken in relation to the comments or criticism; (2) the purpose for which it is taken; and (3) the likelihood of competition between the two works. In another case, the Delhi High Court held that the rights originating under Section 52 of the Act are to be construed in accordance to the same rules as the rights vested in the holder of copyright and therefore, such rights are not be interpreted in a narrow or strict or by limiting the ambit of Section 52. It clearly observed “Sections 14 and 51 on the one hand and Section 52 on the other hand are to be read as any two provisions of a statute.”⁵⁰

Thus, it can be said that fair dealing does not enable the violation or infringement of the exclusive right of a copyright holder. This provision cannot be used when there is blatant copying by an individual or a company from a copyrighted work. Copyright protection is conferred on such work wherein reasonable skill and addition has been administered in order to make it reach the threshold of originality; and therefore, cases wherein substantial part of

⁴⁷ The Copyright Act, *supra* note 24 at § 52 (1).

⁴⁸ *Id.*

⁴⁹ *Civic Chandran v. Ammini Amma*, 1996 PTC 670 (Ker HC) 675-677.

⁵⁰ *University of Oxford v. Sameshwari Photocopy Services*, (2016) 160 DRJ (SN) 678.

the work is emulated from an existing work will not be termed as “fair” and “legitimate”.⁵¹ Analysing this in the context of ad-blockers, it is unlikely that the work done by them is transformative in nature. Transformative works come into play only when there is something in addition to the original or when they add a different functionality. In the case of ad blockers, they merely remove the advertisements from a webpage. A web page which has advertisements in it if compared to a website which is visited with the help of an ad-blocker would look different but may not offer any added features or content for the user. So, ad-blockers may not succeed if they take use of the fair dealing provisions of the Copyright Act.

Contributory Infringement

The question of contributory infringement has not come before the courts in India as of now. Section 51(a)(ii) of the Copyright Act deals with the issue of contributory infringement but it has not yet been expanded for use in modern technology like ad blocking.⁵² Contributory infringement would be proper in the cases where one party assists the infringement of another party. The maker of an ad blocker contributorily infringes a website when he provides the software that creates the infringing work and advertises his product. The role of intermediaries in such cases of infringement has not been discussed due to the complications that arise with it. Even though the Delhi High Court applied this provision to internet intermediaries in the MySpace case, it would be difficult to apply that to ad blockers.⁵³ The court while taking a liberal interpretation of Section 51(a)(ii) stated that liabilities on internet intermediaries would arise only in certain scenarios where there is actual knowledge of infringement. Thus, the maker of an ad-blocker could be held liable under this provision. However, unlike direct infringement, contributory infringement focuses on the infringer’s knowledge or purpose. The individual must have a “specific” understanding of the infringing conduct. Because contributory responsibility requires that the secondary infringer to “know or have reason to know” of direct infringement, the phrase “particular or specific knowledge” is the key here.⁵⁴ Thus, if cases do come up against ad-blockers, the plaintiffs must show that the makers of such software had direct knowledge of potential infringement.

⁵¹ Ishan Sambhar, *Concept of fair Use and Fair dealing in copyright*, MONDAQ (May 13, 2020), <https://www.mondaq.com/india/copyright/930556/concept-of-fair-use-and-fair-dealing-in-copyright>.

⁵² The Copyright Act, *supra* note 24 at § 13.

⁵³ MySpace Inc. v. Super Cassettes Industries Ltd., 2011 (48) PTC 49 (Del).

⁵⁴ See Sneha Jha & Samar Jha, *An Analysis of the Theory of Contributory Infringement*, 11 J. INTELL. PROP. RTS. 318-325 (2006).

II. TORTIOUS INTERFERENCE

Another possible argument for advertisers and content providers would be of tortious interference by the ad block software with a contractual relationship subsisting between them. Such claims come into play when a third-party who is not a party to the contract intervenes with the said contract.⁵⁵ In the current situation, the contract between the advertiser and the website owner would comprise items such as rate per mille of ad views, guarantee of a stipulated number of views in consideration for a flat rate, higher per mille of ads once the ad views surpasses the stipulated number of views, etc.⁵⁶ It is needless to state that the functioning of ad-blockers do interfere with the contract extant between the website owners and advertiser. However, the point of contention is whether the claim of website owners that this interference qualifies as tortious interference is feasible or not.

The case of *Lindsay International Pvt. Ltd. and Ors. v. Laxmi Niwas Mittal*⁵⁷ was one of the first decisions in India which elucidated on tortious interference. The ingredients that may give rise to tortious interference are - existence of an identifiable contract, knowledge of the existence of the contract, application of unlawful means to cause the breach of contract and finally, damages resulted due to the breach.⁵⁸ There must exist an intentional invasion of contractual rights in order for tortious liability to arise.⁵⁹ Further, the principle elucidated in the Lindsay case was that interference to a subsisting contract may be caused by hindering or preventing the performance of the contract, even though the action may not qualify as breach of contract.⁶⁰

An identifiable contract between the advertiser and the website owners must exist for them to claim tortious interference. For the purpose of analysis, the authors assume that a contract subsists between the advertiser and the website owner because ordinarily a contractual relationship entails the operation of an ad on a website. The knowledge of this contract by the ad blocking entities may be deemed to exist after a reasonable inquiry. However, the element of intent is difficult to ascertain in this instance. In order to interpret the meaning of 'intention'

⁵⁵ LOUIS ALTMAN & MALLA POLLACK, CALLMANN ON UNFAIR COMPETITION, TRADEMARKS AND MONOPOLIES (4th ed. 2018).

⁵⁶ Alex Hem, *Adblock Plus: The Tiny Plugin Threatening the Internet's Business Model*, THE GUARDIAN (Oct. 14, 2013), <https://www.theguardian.com/technology/2013/oct/14/the-tiny-german-company-threatening-the-internets-business-model>.

⁵⁷ *Lindsay International Pvt Ltd and Ors v. Laxmi Niwas Mittal*, 2017 SCC OnLine Cal 270.

⁵⁸ *Inox Leisure Ltd v. PVR Ltd*, 2020 SCC OnLine Del 673.

⁵⁹ *Lumley v. Gye*, (1853) 2 E&B 216.

⁶⁰ *Lindsay*, *supra* note 58.

it is necessary to differentiate between conduct and consequences, because even when a tortious liability is based on the presence of intention of giving rise to particular consequences, liability of such a conduct may not rest in the intention of such conduct.⁶¹ The concept of intention with regards to conduct can be found on the edifice of ‘idea of choice’; and with regards to consequences, on the basis of aim, objective and purpose.⁶²

Basically, the intention driving the conduct of a person to produce a consequence lies in the ‘purpose’ for producing such consequence by their conduct.⁶³ In the functioning of an ad blocking software, the purpose is to let users experience hassle free internet services without disruptions caused by advertisements. Most importantly, the plaintiff has to prove that intervention caused to its contractual rights were intended and not merely a natural repercussion of the defendant’s conduct. It is imperative to show that the breach of contract was an “*end in itself or the means to an end.*”⁶⁴ The resultant harm suffered by the website owners and advertisers is incidental and unintended and therefore there exists no intention, whatsoever, to encroach upon a contractual obligation of the website owners.

In regards to the aspect of presence of intent in committing a tortious interference, courts have also had contrasting views that “*the defendant must have either desired to bring about the harm to the plaintiff or have known that this result was substantially certain to be produced by his conduct.*”⁶⁵ The same reasoning could be applied in order to discern the intention of operation of ad blocker. According to this view, although the intention of the ad blockers is not to divest the website owners of any of their contractual prerogatives, it is justifiable to infer that they are, by and large, certain of the outcome of the function of the ad blocker. However, in tort law, this view may be discredited by the concept of ‘justification’ of good motives.⁶⁶ It is well established that interference with contractual rights is reasonable when the impugned action is purported to protect or stimulate some social or moral principle of good conduct and if the means resorted to bring about such interference are not unlawful.⁶⁷ In this situation where the intention behind ad blockers may be seen as harmful because they give rise to a competitive market activity, the law mandates the presence of either unlawfulness or a predominantly bad

⁶¹ Peter Cane, *Mens Rea in Tort Law*, 20 (4) OXF. J. LEG. STUD. 533 (2000).

⁶² *Id.* at 534.

⁶³ *Id.*

⁶⁴ OBG Ltd v. Allan, [2005] QB 762.

⁶⁵ Restatement (Second) of Torts Ch. 37, at 5 (1977).

⁶⁶ Peter Cane, *supra* note 62.

⁶⁷ JOHN DYSON HEYDON, *ECONOMIC TORTS* (1978).

motive.⁶⁸ The authors believe that law which takes a pluralistic view may not take cognisance of each good motive because every good motive cannot justify a wrongful conduct. Yet, securing one's own contractual rights or advancing some public interest in the course of interfering with an existing contractual obligation should not qualify as tortious interference.

III. NET NEUTRALITY

Net neutrality as a concept has been much talked about in recent times. Before analysing the clashes between net neutrality and ad blockers, it is useful to get a brief background on the concept and its use in India. Net neutrality can be called as the "free speech" doctrine of the internet and it proposes that all Internet Service Providers ("ISPs") should strive to give equal and fair access to all content and services.⁶⁹ The main reason behind this is to ensure that access to internet services should be available to everyone and the internet should be an equal playing field. This would promote competition and make sure that smaller players are not held back by the money and power of the big technology companies. On the more civil side, this would also ensure that there is free speech and openness of thoughts on the internet and less of content moderation by the big players.

With the advancement of the internet and ubiquitous presence of telecom access across India, there is a need to protect and preserve the openness of the internet. This is why the demand for net neutrality increased and currently, India is said to have the strongest net neutrality rules in the world.⁷⁰ Net neutrality on the internet is attained when there is no discrimination with respect to the type of data being provided to the end users i.e., consumers.⁷¹ Ad-blocking, which is mainly an end user enabled service ensuring a blanket blockage or selective blockage⁷² of advertisements, must be compatible with net neutrality rules. This implies that ISPs must operate in consonance as net neutrality principles mandate the restriction of any form of interference or discrimination in the dealing of online content, including actions like degrading, blocking, according preferential treatment or speed to any content.⁷³ Moreover, the ad tech

⁶⁸ Peter Cane, *supra* note 62.

⁶⁹ *Id.*

⁷⁰ BBC Staff, *India adopts world's strongest net neutrality norms*, BBC NEWS (Jul. 12, 2018), <https://www.bbc.com/news/world-asia-india-44796436>.

⁷¹ Debarshi Mukherjee & Sonia Dhir, *Net Neutrality Issues and Different Cross Sections of Society – An Indian Perspective*, 6 (2) IPE J. MGMT. 80 (2016).

⁷² Jessica Davis, *Inside Axel Springer's war with AdBlock Plus*, DIGIDAY (Apr. 19, 2019), <https://digiday.com/media/inside-axel-springers-war-adblock-plus/>.

⁷³ Stan Adams, *Net Neutrality: India Gets It*, CDT (Jul. 13, 2018), <https://cdt.org/insights/net-neutrality-india-gets-it/>.

industry cannot be allowed to leverage the net neutrality framework to harbour their financial gains at the cost of the consumer's choice, privacy and safety.⁷⁴

In 2018, the Department of Telecommunication (DoT) had issued a letter in regards to 'Net Neutrality Regulatory Framework' which contains policy directives regarding net neutrality. According to it, the terms of the license agreements administering the ISPs were to be amended in order to include provisions of non-discriminatory dealing of online content along with apposite exceptions and exclusions.⁷⁵ One such provision is concerning the 'reasonable traffic management' measures used by the licensee.⁷⁶ Albeit, such measures ought to be proportionate, transparent and tentative in nature.⁷⁷ Measures concerning congestion management, network limitations and legal public policy necessities are certain acceptable traffic management approaches on the internet.⁷⁸

Many ads have been programmed such that they can "chat" with the user profile or its device and its settings.⁷⁹ Additionally, these ads frequently send signals across the network and all these activities result in an exacerbated congestion.⁸⁰ It is for this reason that the Body of European Regulators for Electronic Communications (BEREC), which is the regulating agency of the telecommunication market in the European Union, had noted ad-blocking as a "reasonable" practice for tackling network congestion. Furthermore, BEREC also conceded to "allow network-internal blocking by the ISP if it is done at the request of the end-user and is under the control of the end-user, since they considered the most important principle was that the end-user could decide."⁸¹ Chapter 10 of the Net Neutrality report discusses the permissible traffic management approaches to preserve the integrity and security of a network in order to tackle the undesirable elements like spam, viruses, DOS (Denial of service) attack, worms, etc.⁸² Ad-blocking when done with a legitimate purpose of securing the health of the network

⁷⁴ UN IGF, NET NEUTRALITY RELOADED: ZERO RATING, SPECIALISED SERVICE, AD BLOCKING AND TRAFFIC MANAGEMENT (Luca Belli ed., 1st ed. 2016), https://internet-governance.fgv.br/sites/internet-governance.fgv.br/files/publicacoes/net_neutrality_reloaded.pdf#page=53.

⁷⁵ DEPARTMENT OF TELECOMMUNICATIONS, REGULATORY FRAMEWORK ON NET NEUTRALITY (2018), https://dot.gov.in/sites/default/files/DoT%20Letter%20on%20Net%20Neutrality%20Regulatory%20Framework%20dated%2031%2007%202018_0.pdf?download=1.

⁷⁶ *Id.* at 2, 5.

⁷⁷ *Id.*

⁷⁸ Department of Telecommunication Committee, NET NEUTRALITY 15 (2015), https://dot.gov.in/sites/default/files/Net_Neutrality_Committee_report%20%281%29_0.pdf.

⁷⁹ Roslyn Layton, *User's rights, ad blocking and net neutrality*, in NET NEUTRALITY RELOADED: ZERO RATING, SPECIALISED SERVICE, AD BLOCKING AND TRAFFIC MANAGEMENT 187 (Luca Belli ed., 2016).

⁸⁰ *Id.* at 187.

⁸¹ Roslyn Layton, *supra* note 80, at 184.

⁸² Department of Telecommunication Committee, *supra* note 79, at 54.

by skipping unwanted advertisements cannot be said to be a contravention of the net neutrality framework.

Chapter 11 of the Net Neutrality report elucidates the amenability of communication networks to security and privacy concerns and thus highlights the need for regulatory action to be shouldered by communication service providers.⁸³ Any slack in relation to the security and integrity of communication networks could impact the data and information of the end user. Also, the ever-increasing competition is stimulating content creators to devise new tactics for improved user experience, some of which may lead to deleterious impact on the security of the user's network thereby having direct implications on net neutrality. For instance, a malware called 'Hummingbad' was responsible for a maladvertisement attack and unpermitted installation of fraudulent applications.⁸⁴ The malware surfaced from a seemingly licit platform Yingmob, which controlled it and infiltrated 85 million⁸⁵ Android devices, generating fraudulent ad revenue amounting to \$300,000 per month.⁸⁶ The malware was designed to steal user data. This is the reason why users appreciate legitimate blocking mechanisms of ISPs to block ads filled with malware, spam, viruses, and other undesirable data at the network level.

The DoT committee report⁸⁷ which was published in 2015 has made numerous mentions of the terms 'data protection' and 'privacy' in the digital space and has briefly talked about the unregulated platform for online content providers. In India, the Personal Data Protection Bill which was passed in 2019 provides a statutory framework to implicate such offenders who in the garb of net neutrality are committing data theft. The Bill does not in entirety seek an absolute prohibition on processing of data. Operations such as "*collection, recording, organisation, structuring, storage, adaptation, alteration, retrieval, use, alignment or combination, indexing, disclosure by transmission, dissemination or otherwise making available, restriction, erasure or destruction*" constitute processing of personal data of an individual.⁸⁸ The Bill mandates that the user be apprised with information of likelihood of such data collection and the purpose of its subsequent processing.⁸⁹ Therefore, Section 23 of the Bill

⁸³ *Id.* at 61.

⁸⁴ Gina Hall, *Android malware Hummingbad infected 85 million devices*, BIZ JOURNALS (Jul. 5, 2016) <https://www.bizjournals.com/sanjose/news/2016/07/05/android-malware-hummingbad-infected-85-million.html>.

⁸⁵ *Id.*

⁸⁶ *From HummingBad to Worse: New In-Depth Details and Analysis of the Hummingbad Android Malware Campaign*, CHECK POINT, <https://blog.checkpoint.com/2016/07/01/from-hummingbad-to-worse-new-in-depth-details-and-analysis-of-the-hummingbad-android-malware-campaign/>, (last visited Aug. 11, 2021).

⁸⁷ Department of Telecommunication Committee, *supra* note 82, at 25, 76, 78.

⁸⁸ Personal Data Protection Bill, 2019, 2019, § 3(31) [hereinafter Data Protection Bill].

⁸⁹ Data Protection Bill, § 23.

imposes an obligation on data fiduciary to maintain such transparency.⁹⁰ The data principal is at liberty to either grant or withdraw their consent to the data fiduciary for such processing.⁹¹ Now, data processors are such entities which process personal data on behalf of a data fiduciary.⁹² In order to understand this concept let us take the example of Facebook. In cases where data collected by Facebook is used by the advertisers to place ads, it plays a role of data fiduciary. In such capacity, Facebook has an obligation to give notice to its users about the categories of personal data to be collected,⁹³ the purpose for such collection,⁹⁴ basis of processing,⁹⁵ the data processors with whom such data has been shared,⁹⁶ etc. at the time of collection of data. Additionally, categories of personal data usually collected and purpose for which it is usually processed has to be made available by Facebook and the same can be consented to or not by the user.⁹⁷ Facebook on the other hand will be a data processor when it operates with businesses and other third parties. For instance, Facebook is a data processor when it processes data on behalf of an advertiser with a motive to assess the advertising campaign's performance and reach, and thereafter communicate insight about the individuals who interacted with the ad. A relevant example is Data File Custom Audiences.⁹⁸ In such a case Facebook has to rely on the data fiduciary, that it has provided a notice to the data principal in accordance with Section 7 of the Bill. Therefore, any implementation of online ads for processing of end user's personal data without receiving consent of data principal will fall afoul of Section 11 and Section 34 of the Bill.⁹⁹

The Telecom Regulatory Authority of India (TRAI) released a consultation paper entitled 'Traffic Management Practices and Multi-Stakeholder Body for Net Neutrality' in January 2020.¹⁰⁰ In the paper, TRAI has mentioned the legitimate grounds for deployment of a traffic management practice which includes traffic congestion and network integrity/security requirements.¹⁰¹ Further, it has suggested the premises upon which a TMP may be defined.

⁹⁰ *Id.*

⁹¹ *Id.*

⁹² Data Protection Bill, § 3(15).

⁹³ Data Protection Bill, § 7(1)(b).

⁹⁴ Data Protection Bill, § 7(1)(a).

⁹⁵ Data Protection Bill, § 7(1)(e).

⁹⁶ Data Protection Bill, § 7(1)(g).

⁹⁷ *Id.*

⁹⁸ Gavin Llewellyn, *Custom audience and identity based targeting*, SMART INSIGHTS (Jun. 12, 2019) <https://www.smartinsights.com/internet-advertising/custom-audiences-and-identity-based-targeting/>.

⁹⁹ Data Protection Bill, § 34.

¹⁰⁰ TELECOM REGULATORY AUTHORITY OF INDIA, CONSULTATION PAPER ON TRAFFIC MANAGEMENT PRACTICES AND MULTI-STAKEHOLDER BODY FOR NET NEUTRALITY (2020), <https://traai.gov.in/consultation-paper-traffic-management-practices-tmps-and-multi-stakeholder-body-net-neutrality?page=1>.

¹⁰¹ *Id.* at 6.

One instance elaborated by TRAI is the practices which may have an impact on Quality of Services (QoS) of an application by resorting to prioritisation and/or throttling of certain applications. It is inevitable that the end-user experience on the internet enhances by deploying an ad blocker which tackles traffic congestion, thereby increasing the user's bandwidth; and concurrently, security of a device is preserved.

The authors do realise that ad blocking is not a real solution in the current 'arms race' and therefore, a balanced solution favouring the user, content creators and ad tech industry must be reached. Innovation will play a significant role in bringing a shift as to how online ads are created. Platforms such as Privacy Butler¹⁰² are already harnessing such opportunities and have created an example of privacy by design technology which can observe a person's presence and try to make rectifications to changes stated by the user. Users may resort to using ad management tools such as Ghostery which can expose tools embedded in a website for tracking, thereby empowering the user to decide whether to run the application or visit the content.

CONCLUSION

It can be concluded that ad blockers do not necessarily violate any laws. The owners of websites and the contents therein do not have a cause of action under copyright law and tortious interference. But there is a way out for them through the Acceptable Ads initiative by several ad blocking software. Ad blocking software is not bad in general; they do offer the public a chance to block several unnecessary ads. There is an undeniable public consensus on blocking certain types of advertisements, but this should not encroach onto meaningful advertisements. The forthcoming personal data protection law will definitely be able to ensure a suitable balance between the rights of the data principal and such individuals or entities who have an ad-based business model.

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¹⁰² Ryan Wishart et. al, *Privacy Butler: A personal privacy rights manager for online presence*, 8TH IEEE INTL. CNF PERVASIVE COMP. COMM. WORKSHOPS 672 (2010).

CAN DEEP THOUGHT PATENT THE EARTH? ARTIFICIAL INTELLIGENCE'S TRYST WITH PATENT LAW*

ARVIND SANKAR & JITMANYU SATPATI**

ABSTRACT

Artificial Intelligence (AI) systems are increasingly being used in various fields to generate novel and creative inventions. However, the patent law system has not kept pace with these innovations and consequently there are several unresolved issues with respect to the patentability of inventions generated by AI systems. This essay focuses on two of these issues: the grant of inventorship status to AI systems and the application of the current non-obviousness standard to AI generated inventions. It begins by discussing the developments and the state of the art in the field of invention generating AI systems. It then goes on to analyze the inventorship requirement and examines whether AI systems qualify as 'inventors' under the existing patent regime. In this regard it examines the procedural and technical requirements for filing patent applications, the jurisprudential understanding of an 'inventor', and the decisions of the few Patent Offices which have dealt with this issue. It cautions against the dismissal of AI patent applications on purely formalistic grounds when the AI systems in question fulfil the substantive requirements for inventorship. It further examines the implications of such dismissals and makes policy recommendations. It then examines the current non-obviousness standard for patentability and argues that the current standard is inadequate for dealing with AI generated inventions. It concludes by proposing a

* After the article was cleared for publication, there were updates from some jurisdictions.

In Australia, the Federal Court ruled that an A.I. system can be named as an "inventor" of a patentable subject matter. (Thaler v Commissioner of Patents, [2021] FCA 879). This was based on a judicial review of the Deputy Commissioner of Patents' refusal to treat DABUS as an inventor. The Commissioner of Patents will be appealing the decision.

South Africa has also granted a patent to an application where DABUS was listed as an inventor. But the patent procedure only consists of a formal examination step. Since there is no substantive examination, the courts will be highly likely to be called to make a judicial determination.

In the USA, a federal judge ruled that an A.I. cannot be listed as an inventor. [Thaler v. Hirshfeld, 20-903, U.S. District Court for the Eastern District of Virginia (Alexandria)] This appeal was against the USPTO rejection.

** Arvind Sankar is a 5th Year student at the National Law University, Odisha. He may be contacted at asankar31@gmail.com.

Jitmanyu Satpathi is a 5th Year student at the National Law University, Odisha. He may be contacted at jitmanyusatpathi@gmail.com.

new standard which substitutes the human PHOSITA with an equivalent skilled AI system, focusing on reproducibility rather than obviousness.

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INTRODUCTION

Douglas Adams' *The Hitchhiker's Guide to the Galaxy*¹ is considered to be one of the most popular science fiction books to have ever been written and it has achieved an almost cult-like following across the world. One oft-referenced scene from the book is when Deep Thought, an Artificial Intelligence ("AI") system built by hyper-intelligent pan-dimensional beings, is tasked with computing the answer to the 'Great Question of Life, Universe and Everything'. After seven-and-a-half million years of computation, Deep Thought gives '42' as the answer and points out that the answer appears meaningless as the programmers who assigned it the task never knew what the question was or meant. When asked to produce the question, Deep Thought declines and instead offers to design a computer more powerful than itself to find the question. This computer is later revealed to be the Earth.

While AI systems will probably not be creating planets anytime soon, the technology behind them has advanced to the point where they are able to come up with patentable inventions autonomously. These inventions raise several questions for the existing patent regime with respect to their patentability and the entity having inventorship rights over them. Both the World Economic Forum and the World Intellectual Property Organization have recognized these challenges and have stressed on the need for effective policies that accommodate the changes that AI inventors bring to the inventive process.²

This essay explores some of the issues and conflicts between AI inventorship and the existing patent regime. This essay is divided into two parts. Part I of this essay details the developments and the current state of the art in the field of AI systems which are used for generating inventions. It primarily focuses on 3 AI systems viz. the Creativity Machine, the Invention Machine and Watson, and discusses the mechanisms they use to generate inventions. Part II of this essay focuses on the issues of AI inventorship of inventions and the challenges in applying the current non obviousness standard to AI generated inventions. In this regard, this essay discusses the implications of decisions made by Patent Offices across different jurisdictions and concludes by identifying various considerations for making a sound policy decision.

¹ DOUGLAS ADAMS, *THE HITCHHIKER'S GUIDE TO THE GALAXY* (1979).

² KAY FIRTH-BUTTERFIELD ET AL., *ARTIFICIAL INTELLIGENCE COLLIDES WITH PATENT LAW* (2018), http://www3.weforum.org/docs/WEF_48540_WP_End_of_Innovation_Protecting_Patent_Law.pdf; *WIPO Conversation on Intellectual Property and Artificial Intelligence*, WIPO (Oct. 1, 2019), https://www.wipo.int/about-ip/en/artificial_intelligence/news/2019/news_0007.html.

I. ARTIFICIAL INTELLIGENCE IN THE INVENTIVE PROCESS

Computers have been used in the inventive process in some capacity or other since at least the latter half of the 20th century.³ However, while early computers were primarily used as tools to help human inventors in coming up with inventions, recent advancements in AI technology has enabled computers to come up with potentially patentable inventions autonomously or with minimal human input.⁴ Some of the prominent examples of AI which have autonomously come up with patentable inventions are discussed below.

A. The Creativity Machine

One of the first examples of an AI which was capable of autonomously generating inventions was the ‘Creativity Machine’ which was developed by computer scientist Dr. Stephen Thaler.⁵ The Creativity Machine employs a software concept known as ‘artificial neural networks’ – collections of on/off switches that connect automatically to create software without human intervention – in order to generate novel ideas.⁶ The Creativity Machine, at its most basic level, combines an artificial neural network which generates output as a result of self-stimulation of its connections with another network that perceives value in the output so generated.⁷ These artificial neural networks mimic the functioning of the human brain’s major cognitive pathway (the thalamo-cortical loop), which enables them to generate novel ideas or patterns and adapt to new scenarios without requiring additional human input.⁸ The Creativity Machine has been credited with coming up with numerous inventions such as the cross-bristle design of the Oral-B Cross Action toothbrush and a new type of super strong material among others.⁹ Dr. Thaler also claims that the Creativity Machine was the real inventor of the subject matter of a patent titled ‘Neural Network Based Prototyping System and Method’.¹⁰ However it is important to note that the patent was filed in Dr. Thaler’s name and he did not disclose the involvement of the Creativity Machine to the Patent Office in the application.¹¹

³ Ryan Abbott, *I Think, Therefore I Invent: Creative Computers and the Future of Patent Law*, 57(4) B.C. L. REV. 1079, 1083 (2016) [hereinafter *Creative Computers*].

⁴ E.g., Ben Hattenbach & Joshua Glucoft, *Patents in an Era of Infinite Monkeys and Artificial Intelligence*, 19 STAN. TECH. L. REV. 32, 36 (2015).

⁵ *Creative Computers*, *supra* note 3; U.S. Patent No. 5.659.666 (filed Oct. 13, 1994).

⁶ Stephen L. Thaler, *Synaptic Perturbation and Consciousness*, 6 INT’L J. MACHINE CONSCIOUSNESS 75 (2014).

⁷ *Creative Computers*, *supra* note 3, at 1084.

⁸ Stephen Thaler, *Creativity Machine® Paradigm*, in ENCYCLOPEDIA OF CREATIVITY, INVENTION, INNOVATION, AND ENTREPRENEURSHIP 451 (Elias G. Carayannis ed., 2013).

⁹ *Id.*

¹⁰ *Creative Computers*, *supra* note 3, at 1085; U.S. Patent No. 5.852.815 (filed May 15, 1998).

¹¹ *Creative Computers*, *supra* note 3, at 1085.

B. The Invention Machine

A second type of AI software which has seen some success in coming up with patentable inventions is Genetic Programming (GP).¹² GP is modelled after the process of biological evolution and tries to emulate the basic evolution processes (like mutation, natural selection and sexual recombination etc.) digitally to achieve machine intelligence.¹³ GP uses algorithms which apply analogues of the basic evolution processes to existing solutions of a problem in order to come up with new solutions.¹⁴ This process is then repeated iteratively on the new solutions till the software comes up with a solution that meets some specified termination criteria.¹⁵ Thus while human operators provide the initial set of solutions and specify the termination criteria, there is minimal human intervention during the execution of the program itself. GP is especially useful for optimizing pre-existing inventions and in fields where even minor improvements in performance over the existing technology is significant.¹⁶ An example of a GP based AI which has come up with patentable inventions is the ‘Invention Machine’, which was created by computer scientist and GP pioneer Dr. John Koza. Dr. Koza claims that the Invention Machine came up with an improved version of a controller which was the subject matter of a patent titled ‘Apparatus for improved General-Purpose PID and non-PID Controllers’.¹⁷ The Invention Machine was only supplied with information about basic electronic components and desired performance specifications, and it was able to come up with the improved controller without any further human intervention.¹⁸ Like the Creativity Machine, the patent for these inventions were filed in Dr. Koza’s name and the involvement of the Invention Machine was not disclosed to the Patent Office.¹⁹

C. Watson

IBM’s Watson is another example of an AI which has autonomously come up with creative and patentable inventions. Watson was originally developed to compete on the game show

¹² E.g., Erica Fraser, *Computers as Inventors – Legal and Policy Implications of Artificial Intelligence on Patent Law*, 13(3) SCRIPTED 305, 316 (2016).

¹³ John R. Koza et al., *Evolving Intentions*, 288(2) SCIENTIFIC AMERICAN 52 (2003).

¹⁴ Riccardo Poli & John Koza, *Genetic Programming*, in SEARCH METHODOLOGIES: INTRODUCTORY TUTORIALS IN OPTIMIZATION AND DECISION SUPPORT TECHNIQUES 143 (E Burke & G Kendall eds., 2014).

¹⁵ *Id.*

¹⁶ Fraser, *supra* note 12, at 316.

¹⁷ Jonathan Keats, *John Koza Has Built an Invention Machine*, POPULAR SCIENCE (Apr. 19, 2006), <https://www.popsci.com/scitech/essay/2006-04/john-koza-has-built-invention-machine/>.

¹⁸ *Creative Computers*, *supra* note 3, at 1087.

¹⁹ Keats, *supra* note 17.

Jeopardy!, and it successfully defeated two former *Jeopardy!* winners on the show in 2011.²⁰ IBM later developed new algorithms for Watson which enabled it to be put to more pragmatic uses.²¹ Watson uses increased computational power in conjunction with access to huge databases in order to “generate millions of ideas out of the quintillions of possibilities, and then predicts which ones are [best], applying big data in new ways”.²² Watson has been successful in generating novel food recipes in response to user inputs such as ingredients, type of dish and style of cooking, and some of these recipes are potentially patentable.²³ IBM has also made Watson available to software developers and Watson is now being used in a variety of applications which include financial planning, developing treatment plans for cancer patients, genetic profile testing for drug delivery and even acting as a personal travel concierge.²⁴

II. PATENT LAW AND ARTIFICIAL INTELLIGENCE

The use of AI systems in generating inventions raises many patent law issues. The most pressing issue is whether AI systems can be considered as ‘inventors’ of the inventions they generate under the current patent law regime. Another important issue is the implications of the increased use of AI systems on the current non obviousness standard for patentability. Both these issues are discussed below.

A. Inventorship

Before discussing whether AI systems can be considered as ‘inventors’, it is important to distinguish between ‘ownership’ and ‘inventorship’. Patents, or any intellectual property for that matter, are essentially a bundle of rights. Owners of a patent enjoy the economic rights associated with the patent (such as the exclusive right of making, using, offering for sale or selling the invention),²⁵ while the inventor of a patent enjoys the moral rights associated with it.²⁶ Granting ownership rights to AI systems does not merit discussion at this time since AI

²⁰ Jo Best, *IBM Watson: The inside story of how the Jeopardy-winning supercomputer was born, what it wants to do next*, TECHREPUBLIC (Sep. 9, 2013), <https://www.techrepublic.com/essay/ibm-watson-the-inside-story-of-how-the-jeopardy-winning-supercomputer-was-born-and-what-it-wants-to-do-next/>.

²¹ *Creative Computers*, *supra* note 3, at 1089.

²² *Id.*

²³ *Watson cooks up computational creativity*, IBM, https://www.ibm.com/thought-leadership/innovation_explanations/essay/florian_pinel.html [<https://perma.cc/GGV7-NHT4>]; Gene Quinn, *The Law of Recipes: Are Recipes Patentable?*, IP WATCHDOG (Feb. 10, 2012), <https://www.ipwatchdog.com/2012/02/10/the-law-of-recipes-are-recipes-patentable/id=22223/>.

²⁴ *Creative Computers*, *supra* note 3, at 1091.

²⁵ *E.g.*, The Patents Act, 1970, § 48 (India); 35 U.S.C. § 271; Convention on the Grant of European Patents art. 64, Oct. 5, 1973, 1065 U.N.T.S. 199 [hereinafter *EPC*].

²⁶ *E.g.*, *EPC*, *supra* note 25, art. 62; Paris Convention for the Protection of Industrial Property art. 4*ter*, Mar. 20, 1883, 828 U.N.T.S. 305.

systems do not have the capacity to use these rights, or to license them to others. This would effectively result in the rights going unused and the general public would also be deprived of the benefits of the invention. Therefore, the following discussion will only focus on whether AI systems can qualify as ‘inventors’ under the current legal regime.

Procedural And Technical Barriers

The first legal barrier faced by AI systems in obtaining inventorship status lies in the procedural requirements which govern the filing of patent applications. All patent applications require one or more named inventors who must usually also be ‘persons’ or ‘individuals.’²⁷ Thus, AI systems must first satisfy the requirements to be considered as a ‘person’ before they can be considered as an inventor. The precise definition of a ‘person’, however, is likely to vary from jurisdiction to jurisdiction.

In India, for example, the Patents Act does not define the word ‘person’. The latest edition of the Manual of Patent Office Practice and Procedure (which is a manual issued by the Indian Patent Office for practitioners) also does not define the word ‘person’ but only provides that it includes the Government,²⁸ although an earlier version redirected to the definition of ‘person’ present in the General Clauses Act, 1897.²⁹ The General Clauses Act provides a general definition of the word ‘person’ where it is defined broadly to include corporations, associations and bodies of individuals in addition to natural persons.³⁰ Courts in India have also considered animals,³¹ religious idols³² and rivers³³ as ‘juristic entities’ having the rights and obligations of living persons in contexts outside of intellectual property rights. However, the legal personality of these entities is deemed to be complete only when a human agent is appointed to act on their behalf.³⁴ Thus, AI systems could potentially qualify as persons either under this reasoning with

²⁷ *E.g.*, The Patents Act, 1970, § 6 (India); U.S. PATENT & TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE § 602.01(b) (9th ed. Rev July 2017) [hereinafter *MPEP*].

²⁸ THE OFFICE OF CONTROLLER GENERAL OF PATENTS, DESIGNS AND TRADEMARKS, MANUAL OF PATENT OFFICE PRACTICE AND PROCEDURE 10 (2019), http://www.ipindia.nic.in/writereaddata/Portal/Images/pdf/Manual_for_Patent_Office_Practice_and_Procedure_.pdf.

²⁹ THE OFFICE OF CONTROLLER GENERAL OF PATENTS, DESIGNS AND TRADEMARKS, MANUAL OF PATENT OFFICE PRACTICE AND PROCEDURE 7 (2011), http://www.ipindia.nic.in/writereaddata/Portal/IPOGuidelinesManuals/1_28_1_manual-of-patent-office-practice_and-procedure.pdf.

³⁰ The General Clauses Act, 1897, § 3(42) (India).

³¹ *See* Karnail Singh & Ors. v. State of Haryana, 2019 SCC OnLine P&H 704.

³² *See* Yogendra Nath Naskar v. Commissioner of Income Tax, (1969) 1 SCC 555.

³³ *See* Mohd. Salim v. State of Uttarakhand, 2017 SCC OnLine Utt 367.

³⁴ *See* Shiromani Gurudwara Prabandhak Committee v. Shri Som Nath Dass, (2000) 4 SCC 146.

the owner of the AI system being the human agent acting on its behalf, or under a purposive and dynamic interpretation of the word ‘person’ in the General Clauses Act.

Even if AI systems satisfy the definition of ‘person’, they appear to suffer from a practical barrier. AI systems cannot file patent applications on their own and they will require the aid of a human assignee to actually file the patent application on their behalf and complete the application procedure. In India, for example, such an assignee would have to file a number of forms including Form 1 for the Application of Grant, Form 2 with the Complete Specification and a Statement and Undertaking with Form 3³⁵. Form 1 requires a declaration of inventorship from the inventor(s) and this declaration needs to be signed by the inventor(s).³⁶ Other jurisdictions also have broadly similar signature requirements.³⁷

These signature requirements pose a problem for AI systems as they cannot physically make these signatures themselves. The most obvious solution would be for the owner of the AI system to make the signature on its behalf, with the owner acting as the AI system’s legal guardian or manager. Another possible solution could be to use digital signatures linked to the AI system or registered under the AI system’s name. However, it remains to be seen whether Patent Offices accept these workarounds, given the lack of statutory or judicial guidance around this issue. These signature requirements are not mere formalities either, as some Patent Offices have deemed patent applications to be withdrawn or abandoned for want of the inventor’s signature.³⁸

The ‘Human’ Requirement

A more fundamental argument against granting inventorship status to AI systems looks to the overall purpose of intellectual property law. Proponents of this line of reasoning argue that the purpose of intellectual property law is to reward human ingenuity and creativity, and therefore intellectual property law should only protect the creations of natural persons.³⁹ This argument has not been examined in any depth under existing patent law jurisprudence, although patent statutes often use the word ‘person’ and ‘individual’ interchangeably⁴⁰. However, there is some analogous jurisprudence under copyright law around the issue of non-human authorship of

³⁵ See The Patents Act, 1970, ch. II & IV (India); The Patent Rules, 2003, ch. II & IV (India).

³⁶ The Patent Rules, 2003, Form 1, para. 12 (India).

³⁷ E.g., *MPEP*, *supra* note 27; EUROPEAN PATENT OFFICE, FORM 1002: DESIGNATION OF INVENTOR, [http://documents.epo.org/projects/babylon/eponet.nsf/0/FD7E907381446E11C125737E004E0ED7/\\$File/epo_form_1002_12_07_editable.pdf](http://documents.epo.org/projects/babylon/eponet.nsf/0/FD7E907381446E11C125737E004E0ED7/$File/epo_form_1002_12_07_editable.pdf).

³⁸ See *infra* pt. 3.1.4.

³⁹ *Creative Computers*, *supra* note 3, at 1099-1100.

⁴⁰ E.g., 35 U.S.C. §§ 115-116.

copyrightable material.⁴¹ For example, various Copyright Offices have adopted the policy of denying copyright protection to works generated by non-humans.⁴²

Copyright protection for non-humans was squarely at issue in the case of *Naruto v. Slater*⁴³, which is popularly known as the ‘Monkey Selfie’ case. In that case, the U.S. Ninth Circuit Court of Appeals found that Naruto (a crested macaque) did not have statutory standing to sue under the U.S. Copyright Act. The Court based its decision on the absence of any express language in the U.S. Copyright Act which authorized animals to file for copyright infringement under the statute, and the presence of words like ‘children’, ‘grandchildren’, ‘legitimate’, ‘widow’ and ‘widower’, which implied humanity and thereby necessarily excluded animals.⁴⁴ The Court also cautioned against the extrapolation of statutory rights to animals (and by extension other non-humans) unless the statute in question explicitly conferred those rights on them.⁴⁵

Conception and Inventorship

An analysis of case law shows that courts have traditionally defined an inventor as someone who has ‘conceived’ an invention.⁴⁶ Conception, in this context, has been defined as “the formation in the mind of the inventor of a definite and permanent idea of the complete and operative invention as it is thereafter to be applied in practice.”⁴⁷ Furthermore, in order to conceive an invention, it is necessary for there to be a complete performance of the mental part of the inventive act.⁴⁸ This concept was first recognized and applied in India in the case of *VB Mohammed Ibrahim v. Alfred Schafrank*⁴⁹ where the High Court of Mysore held that firms and other corporations could not be considered as ‘inventors’ since they were incapable of ‘conceiving’ an invention.

Modern AI systems have proven themselves to be capable of conceiving an invention in the technical sense⁵⁰, although it is of course impossible for them to perform any sort of mental act. However, most jurisdictions have moved away from the ‘mental act’ requirement for

⁴¹ See MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 5.01[A] (2015).

⁴² E.g., U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.2 (3d ed. 2014) [hereinafter *CCOP*].

⁴³ *Naruto v. Slater*, 888 F.3d 418 (9th Cir. 2018).

⁴⁴ *Id.* at 426.

⁴⁵ *Id.*

⁴⁶ See, e.g., *Townsend v. Smith*, 36 F.2d 292, 295 (C.C.P.A. 1929).

⁴⁷ *MPEP*, *supra* note 25, § 2138.04.

⁴⁸ *Townsend*, 36 F.2d at 295.

⁴⁹ *VB Mohammed Ibrahim v. Alfred Schafrank*, 1960 A.I.R. 173 (Mys.) 175.

⁵⁰ See discussion *supra* Part 1.

inventorship.⁵¹ The best example of this is the United States, where the ‘flash of genius’ doctrine⁵² (which accepted inventions conceived through a “flash of creative genius” rather than through toil and experimentation) was replaced by the current non-obviousness requirement present in 35 U.S.C. § 103 which disregards the “manner in which an invention is conceived.” AI systems could potentially satisfy this understanding of the conception requirement, although some scholars have argued that these statutory changes were only intended to address the process of inventing undertaken by human inventors.⁵³

Another approach that is used to determine whether a person qualifies as an ‘inventor’ is to ascertain whether that person has made sufficient contribution towards the conception of an invention.⁵⁴ This approach is especially pertinent in cases of joint inventorship, and it also assumes importance in the context of inventions where there is both AI and human involvement. For such inventions it is necessary to ascertain the level of contribution towards the conception of the invention by both entities (i.e., the human agent and the AI system) in order to determine who should get the inventorship status. There are broadly three factual situations that can arise in this context.

The first situation is where the AI system is used as a mere tool (like a calculator) while the invention is conceived and implemented by the human agent. In this case the human agent should get sole inventorship. The second situation is where the human agent uses the AI system to analyze data (which has been curated by the human agent) and output the invention. In this case both the AI system and the human agent should get joint inventorship. The third situation is where the AI system generates an invention from data supplied to it by the human agent, but the invention could not have been anticipated at the time of supplying the data. In this case the AI system should get sole inventorship as the human agent had no part to play in the conception of the invention.⁵⁵ AI systems like the Invention Machine and the Creativity Machine have demonstrated that they are capable of conceiving and implementing inventions with little to no human involvement⁵⁶, and they should therefore be eligible for inventorship rights over those inventions.

⁵¹ Ryan Abbott, *Everything is Obvious*, 66 U.C.L.A. L. REV. 2, 13-15 (2018) [hereinafter *Everything is Obvious*].

⁵² *Cuno Engineering Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941).

⁵³ *E.g.*, Hattenbach & Glucoft, *supra* note 4, at 45-46.

⁵⁴ *MPEP*, *supra* note 27, § 2137.01 (II).

⁵⁵ *See Ex parte Smernoff*, 215 U.S.P.Q. 545, 547 (Bd. App. 1982); *See generally* Shyamkrishna Balganes, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569 (2009).

⁵⁶ *See* discussion *supra* Part 1.

A potential barrier faced by AI systems in obtaining inventorship rights under the ‘contributive conception’ analysis discussed above lies in the decision rendered by the U.S. Supreme Court in the case of *Burrow-Giles Lithographic Co. v. Sarony*⁵⁷. In that case the Court had to deal with the issue of whether a photograph of Oscar Wilde qualified as the ‘work’ of an author. It was argued that it did not qualify as a Copyrightable ‘work’ since a photograph was essentially a mechanical reproduction of a natural phenomenon. The Court disagreed with that characterization and held that the photographer had exercised sufficient control over the subject of the photograph to qualify it as an expression of his idea, and that the mere use of a tool such as a camera would not negate human authorship over the photograph.⁵⁸ This case later formed the foundation of the ‘human authorship’ requirement endorsed by the U.S. Copyright Office under which non-humans were denied copyright protection.⁵⁹ However, it would be inappropriate to import the holding of this case into patent law given that modern AI systems are capable of generating patentable inventions autonomously with almost no human control or supervision. In that sense, these AI systems are very different from a camera and it would be unfair and inappropriate to grant the human agent inventorship rights over their inventions or to deny their inventions patent protection altogether.

Recent Developments

Until recently, it was a practice among patent applicants to avoid the disclosure of AI involvement in their patent applications and to list the creator or owner of the AI system as the inventor.⁶⁰ This was largely due to the legal uncertainties involved in the recognition of AI systems as ‘inventors’. However, this is not an optimal solution as it is inefficient and unfair to reward the creator or owner of an AI system when they had minimal involvement in the inventive process.⁶¹ Allowing human agents to claim inventorship over inventions generated by AI systems is also unfair to human inventors who came up with their inventions on their own instead of depending on an AI system. Moreover, granting inventorship status to AI systems is likely to encourage innovation as computer scientists will be incentivized to develop better and more creative AI systems.⁶²

⁵⁷ *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53 (1884).

⁵⁸ *Id.* at 56.

⁵⁹ *CCOP*, *supra* note 42, § 306.

⁶⁰ See *Creative Computers*, *supra* note 3, at 1083 & 1088.

⁶¹ Ryan B. Abbott, *Patenting the Output of Autonomously Inventive Machines*, AMERICAN BAR ASSOCIATION (2017), https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2017-18/september-october/patenting-output-autonomously-inventive-machines/.

⁶² *Id.*

The legal uncertainty surrounding the eligibility of AI systems to be considered as inventors spurred Ryan B. Abbott, a law professor at the University of Surrey, and a group of patent attorneys across the world to create the Artificial Inventor Project.⁶³ In 2018, the Project filed patent applications for two inventions with an AI system called DABUS listed as the inventor before the European Patent Office and the national Patent Offices of the UK, USA, Germany, Israel and a few other countries.⁶⁴ As of the date of writing this essay, the European Patent Organization and the national Patent Offices of the UK and the USA have denied DABUS's applications, although all three decisions are currently under appeal.⁶⁵ These decisions are discussed below.

The UK Intellectual Property Office ("UKIPO") decision, while acknowledging that the office had earlier pre-emptively refused patent applications with AI systems as inventors in accordance with the practice endorsed in its formalities manual,⁶⁶ emphasized that the application had been considered on its merits.⁶⁷ The UKIPO had found against DABUS on two grounds: *firstly*, that DABUS was ineligible to be considered as an inventor because it was not a natural person, and *secondly*, that DABUS could not have transferred ownership rights to the patent applicant since DABUS itself could not hold any property under the existing law.⁶⁸ However, the UKIPO clarified that it was not rejecting the application merely because an AI system was listed as the inventor, but it was instead treating the application as withdrawn due to non-fulfilment of formal requirements.⁶⁹ The UKIPO's decision was subsequently affirmed by the UK High Court.⁷⁰

The European Patent Office ("EPO") grounded its decision to dismiss DABUS's application on the fact that DABUS was not a natural person and that it lacked legal capacity to hold any rights, let alone transfer them to the patent applicants through assignment.⁷¹ The EPO looked

⁶³ Ryan Abbott, *The Artificial Inventor Project*, WIPO MAGAZINE (Dec. 2019), https://www.wipo.int/wipo_magazine/en/2019/06/essay_0002.html.

⁶⁴ THE ARTIFICIAL INVENTOR PROJECT, <http://artificialinventor.com/patent-applications/>, (last visited Aug. 10, 2021).

⁶⁵ *Id.*

⁶⁶ U.K. INTELLECTUAL PROPERTY OFFICE, FORMALITIES MANUAL (ONLINE VERSION) § 3.05 (2017), <https://www.gov.uk/guidance/formalities-manual-online-version/chapter-3-the-inventor>.

⁶⁷ *Re* Stephen Thaler, No. BL O/741/19 (U.K.I.P.O., Dec. 4, 2019), at para. 18-20, <https://www.ipo.gov.uk/p-challenge-decision-results/o74119.pdf>.

⁶⁸ *Id.* at 21-23.

⁶⁹ *Id.* at 26.

⁷⁰ *Thaler v. The Comptroller-General of Patents, Designs and Trademarks*, [2020] EWHC 2412 (Pat.).

⁷¹ Grounds for the EPO decision of 27 January 2020 on EP 18 275 163, para. 19-21 & 27, <https://register.epo.org/application?documentId=E4B63SD62191498&number=EP18275163&lng=en&npl=false>.

to the legislative history of the European Patent Convention to hold that inventors needed to be natural persons.⁷² The EPO also held that since AI systems could not hold moral rights there was no duty to list them as the inventor.⁷³ The U.S. Patent and Trademark Office applied strict statutory construction and looked to Federal Circuit precedent to categorically hold that only natural persons could be inventors under U.S. patent law.⁷⁴

The Way Forward

A commonality that runs through all the three Patent Office decisions discussed above is that while they deny inventorship status to AI systems, they do not provide any alternative way for the inventions of such AI systems to gain patent protection. It is also interesting to note that while the Patent Offices deemed the patent applications to be withdrawn or abandoned due to the non-designation of a human inventor, they did not find the inventions themselves to be non-patentable on any substantive grounds. It is submitted that dismissing the patent applications of otherwise patentable inventions because of the non-designation of a human inventor is inefficient and illogical. Disallowing such applications would force applicants to either list a natural person as the inventor to avoid risking forced abandonment or protect their inventions through means other than obtaining a patent. While the former route would dilute the integrity of the inventorship status, the latter would discourage innovation by removing the incentive for owners of AI systems to continue inventing and disclosing such inventions to the public.⁷⁵

Some scholars have argued that the current patent system may be irrelevant for AI generated inventions as there are other systems and models that are more conducive for promoting and protecting such inventions.⁷⁶ Others have argued that patent protection is not the primary motivation behind innovation in certain settings (such as universities),⁷⁷ and therefore it cannot be automatically assumed that a lack of protection for AI generated inventions will lead to the death of innovation in that field.⁷⁸ However, it is uncertain whether such alternative models

⁷² *Id.* at 23-24.

⁷³ *Id.* at 39.

⁷⁴ Decision on Petition filed by DABUS c/o Stephen Thaler *re* Patent App'n No. 16/524, 350 (U.S.P.T.O. Apr. 27, 2020), https://www.uspto.gov/sites/default/files/documents/16524350_22apr2020_3.pdf.

⁷⁵ *Creative Computers*, *supra* note 3.

⁷⁶ *E.g.*, Dr. Shlomit Y. Ravid & Xiaoqiong (Jackie) Liu, *When Artificial Intelligence Systems Produce Inventions: An Alternative Model for Patent Law at the 3A Era*, 39 CARDOZO L. REV. 2215 (2018).

⁷⁷ See WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* 312-13 (2003).

⁷⁸ Ravid & Liu, *supra* note 76, at 2239.

will adequately perform or substitute the public disclosure function of the existing patent system.

At the same time, it is also not wise to ignore the possible negative implications of granting inventorship status to AI systems. Granting patent protection to AI generated inventions, some argue, can aid the establishment of technological monopolies, patent thickening and the creation of barriers to entry into the field.⁷⁹ This can destroy the delicate balance between granting exclusivity to the inventor and maintaining innovation in the industry.⁸⁰ This apprehension is especially concerning due to the pace at which AI systems can generate inventions. The pace of innovation has already increased to such an extent that technologies tend to become obsolete even before the patent expires in some industries, and it is only expected to increase with the use of AI systems to generate inventions. The software industry, for example, has already been forced to use intellectual property in unconventional ways in the form of Open-Source Licenses.

For the patent system to hold continued relevance, it must adapt to technological changes in a manner that successfully achieves the primary goal of a patent system, i.e., the promotion of innovation. In the context of AI generated inventions this might entail recalibrating the incentive structure to ensure that further innovation is not stifled by abuse. One way this recalibration can be achieved is by shortening the 20 year patent monopoly period to ensure that the reward is at par with the labour.⁸¹ Patent Offices can also introduce ‘method of invention’ as a requirement in patent applications in order to obtain empirical information about AI inventors and to efficiently measure patent effectiveness and industry trends.⁸² This requirement will also help Patent Offices to identify the relative contributions of human agents and AI systems towards an invention and to attribute inventorship accordingly.

B. Non-Obviousness

The use of AI systems in generating inventions also raises issues of ‘obviousness’.⁸³ Most patent regimes require an invention to be non-obvious to a person having ordinary skill in the

⁷⁹ See generally Lisa Larrimore Ouellette, *Access to Bio-Knowledge: From Gene Patents to Biomedical Materials*, 2010 STAN. TECH. L. REV. N1, <https://law.stanford.edu/wp-content/uploads/sites/default/files/publication/662898/doc/slspublic/ouellette-access-to-bio-knowledge.pdf>.

⁸⁰ Fraser, *supra* note 12, at 330.

⁸¹ Fraser, *supra* note 12, at 332-333.

⁸² *Id.*

⁸³ E.g., Ravid & Liu, *supra* note 76, 2247-2248 (2018).

art (PHOSITA) in order to be patentable.⁸⁴ This standard is sometimes also expressed in the form of a requirement that an invention must involve an ‘inventive step’ over the existing prior art in order to be patentable.⁸⁵ Essentially, a patent cannot be granted if a PHOSITA would find the difference between the subject matter of the patent and the existing prior art, obvious.

The non-obviousness inquiry requires the decision maker (a patent examiner or a judge) to put themselves in the shoes of the average worker having the ordinary level of skill in the field of the claimed invention, and then determine whether the claimed invention would have been obvious to such a person.⁸⁶ Determining the level of ordinary skill is thus crucial for the purposes of the non-obviousness inquiry.⁸⁷ Advanced AI systems with increased processing power, widened access to searchable information and improved tools for efficiently analysing such information are likely to be more skilled than the average human worker in a particular field.⁸⁸ To put it another way, what is not obvious to the average human worker may be very obvious to the average AI system, and the non-obviousness hurdle must be set accordingly.

The first step towards doing that is to gather information about the prevalence and use of AI systems in a particular field. One way to gather this information is for the Patent Office to conduct periodical surveys to determine the extent to which AI systems are being used in the inventive process. However, this method is likely to be expensive and cumbersome.⁸⁹ A better method would be for the Patent Office to create a special disclosure requirement in patent applications.⁹⁰ The Patent Office can require patent applicants to disclose the use or involvement of AI systems in the inventive process in a manner similar to the current inventorship disclosure requirements for human inventors.⁹¹ Patent applicants can be incentivized to be truthful in their disclosures by allowing for patents to be invalidated if patent applicants conceal the involvement of AI systems in their applications. The Patent Office can then aggregate these disclosures and determine whether the use of AI systems in a particular field is widespread enough to be considered as standard in that field.

⁸⁴ *E.g.*, 35 U.S.C. § 103 (2018).

⁸⁵ *E.g.*, The Patents Act, No. 39 of 1970, § 2(1)(ja) (India); *EPC*, *supra* note 25, art. 52(1) & 56; Agreement on Trade-Related Aspects of Intellectual Property Rights art. 27, Apr. 15, 1994, 33 I.L.M. 1197, 1208.

⁸⁶ *Everything is Obvious*, *supra* note 51, at 17-18.

⁸⁷ *Id.*

⁸⁸ Ravid & Liu, *supra* note 76, at 2248.

⁸⁹ *Everything is Obvious*, *supra* note 51, at 34-35.

⁹⁰ *Id.*

⁹¹ *E.g.*, 37 C.F.R. § 1.56 (2018).

Once the Patent Office makes such a determination, it should then proceed to examine the precise nature of the AI system(s) involved. The AI systems can be broadly divided into two groups in this step: AI systems which require non-trivial human input or involvement during the inventive process, and AI systems which operate almost autonomously with little to no human involvement.⁹² The level of human involvement should be determined as a question of fact on a system-by-system basis. The PHOSITA standard for the first group of AI systems should incorporate the fact that the average skilled worker is now augmented by the use of AI systems, while the PHOSITA standard for the second group should substitute the average human worker with the average AI system. The PHOSITA standard for the field as a whole should depend on what type of AI system is more prevalent.

Of course, substituting, or even augmenting the traditional PHOSITA standard with AI systems comes with its own problems. The biggest problem lies in characterizing the average AI system in a particular field, given that it is possible, and even likely, that a variety of AI systems with different levels of creativity, skill or sophistication are in use simultaneously at any given point in time.⁹³ One possible solution could be to characterize the standard AI system as a hypothetical entity which is based on the general capabilities of the AI systems in use in a particular field (like the fictional human PHOSITA).⁹⁴ A better alternative, however, would be to characterize the average AI system in terms of one or more specific AI system(s) that are actually being used in a particular field.⁹⁵ The most obvious candidate for this is the AI system which is the most widely used; however, a combination of two or more different systems could also be used to make the standard more balanced.

Another problem with substituting the average AI system for the human PHOSITA is that human decision makers would have to judge, in hindsight, what a machine would have found obvious. Although this problem is present in the traditional PHOSITA analysis as well,⁹⁶ the use of AI systems is likely to present even greater difficulties. One possible way to circumvent this problem is to focus on reproducibility rather than obviousness. In other words, the decision maker would focus on whether the average AI system would be able to reproduce the claimed invention in a reasonable period of time rather than whether it would find the claimed invention

⁹² *Everything is Obvious*, *supra* note 51, at 27-30.

⁹³ See KAY FIRTH-BUTTERFIELD ET AL., *supra* note 2, at 12.

⁹⁴ *Everything is Obvious*, *supra* note 51, at 40.

⁹⁵ *Id.*

⁹⁶ See generally Gregory N. Mandel, *Patently Non-Obvious: Empirical Demonstration that the Hindsight Bias Renders Patent Decisions Irrational*, 67 OHIO ST. L. J. 1391 (2006).

obvious. The reproducibility test could also be coupled with other objective factors such as long-felt but unsolved needs, the failures of others and real-world evidence of an invention's reception in the market – in order to alleviate some of the problems with applying a 'cognitive' non-obviousness standard to AI systems.⁹⁷

CONCLUSION

There is an imminent need for a sound and comprehensive policy to promote innovation while minimizing the negative impacts of adopting AI in the inventive process. Such a policy must clearly lay down factors for attributing inventorship and ownership among other considerations that may affect the pace of innovation. The discussion so far either tries to forcefully fit AI systems into the existing patent regime through dynamic interpretations of statutes, or excludes them from the purview of patent regimes through originalist interpretations. The policy discussions must instead focus on what our goals are for these new technologies, what we want our world to look like, and how the law can make it so.⁹⁸

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⁹⁷ *E.g.*, Daralyn J. Durie & Mark A. Lemley, *A Realistic Approach to the Obviousness of Inventions*, 50 WM. & MARY L. REV. 989, 1004-1007 (2008).

⁹⁸ *Everything is Obvious*, *supra* note 51, at 52.

OF WAIVERS AND APPEALS

The year 2020-2021 has seen many unprecedented changes in the world; the world of intellectual property is no exception. Internationally, nations have fought hard to combat the pandemic while medical professionals and scientists were the front-end warriors combating the disease at the care-giving stage as well as in laboratories, developing medicines and vaccines that would help to best Sars-Cov-2, the organism responsible for the COVID-19 pandemic. At no other time in history has the underlying jurisprudential justification for intellectual property, particularly patents, been questioned by individuals, civil societies, other organizations as well as developing countries in the post-TRIPS intellectual property regime.

The WTO Waiver proposal is a watershed moment in the history of international intellectual property protection¹. While presently languishing in the forum and not expected to be taken up before December 2021, this proposal, with multitude of interpretations, text-based and otherwise, put forward by even the supporting countries, nevertheless presents a contrary position to the so-called uniformity of intellectual property in the post-TRIPS era. The premise that the flexibilities inbuilt in TRIPS Agreement are sufficient even for developing countries in fulfilling their obligations to their people has been sorely tested in the context of right to health during the pandemic.

Another interesting development is that the Intellectual Property Appellate Board was dissolved by the Union Government on 4th April, 2021, implementing the Tribunals Reforms (Rationalization and Conditions of Service) Ordinance, 2021. The Board, conceived to settle appeals from the against the Registrar's decisions under the Indian Trademarks Act, 1999², and the Geographical Indications of Goods (Registration and Protection) Act, 1999³, later started hearing disputes arising out of the Protection of Plant Varieties and Farmers' Rights Act, 2001⁴,

¹ Proposal for Waiver from Certain Provisions of the TRIPS Agreement for the Prevention, Containment and Treatment of COVID-19, IP/C/W/669/Rev.1 (25th May 2021). <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W669R1.pdf&Open=True>

² Ministry of Commerce and Industry, S.O. 1049(E) (Notified on September 15, 2003 <https://egazette.nic.in/WriteReadData/2003/212524.pdf>)

³ *Id.*

⁴ Ministry of Agriculture, S.O. 1797(E) (Notified on October 19, 2006) https://egazette.nic.in/WriteReadData/2006/E_1258_2011_004.pdf.

Patents Act, 1970⁵ and Copyright Act, 1957⁶. The decision to dissolve the IPAB and other tribunals is speculated to be partly due to the difficulty in appointing members to the Board.⁷

In its time, IPAB has delivered important decisions in IP; however, problems abound. Of late, such tribunals have had a troubled history in India and abroad; the primary reason being questions regarding appointment of members. It must be ensured that the members are qualified, and in the case of IPAB, one of the criteria is qualification to be appointed a High Court Judge. However, when members of the executive are appointed as members of tribunals, which IPAB allows⁸, it affects the independence of the judiciary and the quality of judgements. At the same time, the Indian situation was aggravated by woes of timely appointment as well as inadequate infrastructure.

The case of *U.S. v. Arthrex, Inc*⁹ deals with the US Patent Trial and Appeal Board (PTAB), a body similar to the IPAB which evaluates patents in the US assumes relevance here; the SCOTUS issued a decision invoking new oversight from the Director of the USPTO. This additional tier of review contributes further to the *inter partes* review envisaged under the Leahy–Smith America Invents Act, 2011. This matter in USA is similar to the Indian situation and the review of the PTAB decision was included so as to render ‘unreviewable’¹⁰ decisions subject to review; the Indian disbanding of the IPAB is also based on the premise that additional layers of dispute settlement results in vexation without appropriate settlement.

Moreover, the Supreme Court has held that tribunals cannot answer questions of law.¹¹ The National Tax Tribunal was struck down as unconstitutional by the Supreme Court in 2014, as it encroached into the power of judicial review vested in High Courts.¹² The Law Commission had recommended two sets of changes to Tribunals in India, citing, among others, jurisdictional and judicial issues.¹³

⁵ Ministry of Commerce and Industry, S.O. 509(E) (Notified on April 2, 2007) https://egazette.nic.in/WriteReadData/2007/E_350_2011_008.pdf.

⁶ Ministry of Finance, S.O. 1696(E) (Notified on May 26, 2017) <https://egazette.nic.in/WriteReadData/2017/176250.pdf>.

⁷ *Dissolution Of IPAB*, MONDAQ <https://www.mondaq.com/india/trademark/1066942/dissolution-of-ipab>.

⁸ Shamnad Basheer, *Fixing the tribunal mess*, FINANCIAL EXPRESS, OCT. 10, 2014, <https://www.financialexpress.com/archive/fixing-the-tribunal-mess/1296977/>.

⁹ *United States v. Arthrex Inc.*, No. 19-1434 (Supreme Court of the United States Jun. 20, 2021).

¹⁰ George Quillin and Jeanne Gills, *Justices scale back “unreviewable authority” of administrative patent judges*, SCOTUSBLOG, <http://www.scotusblog.com/?p=301936>.

¹¹ *Madras Bar Association v. Union of India & Anr.*, AIR 2015 SC 1571.

¹² *Id.*; J. Venkatesan, *National taxation tribunal law unconstitutional: SC*, THE HINDU, Sep. 25, 2014, <https://www.thehindu.com/news/national/sc-strikes-down-national-tax-tribunal-act/article6445065.ece>.

¹³ Twenty First Law Commission of India, *Assessment of Statutory Frameworks of Tribunals in India*, Two Hundred and Seventy Second Report (2017), <https://lawcommissionofindia.nic.in/reports/Report272.pdf>.

In this context, giving appellate powers back to High Courts may be advantageous in eliminating a layer of dispute settlement; at the same time, they may pose an increase in the caseload of High Courts. Setting up of specific IP benches, or an IP Division in commercial benches, as created by the Delhi High Court¹⁴ would be useful to IP litigants. However, the Parliamentary Committee on IP its 161st report suggested reviving of IPAB instead of shutting it down,¹⁵ indicating that the matter has not yet been resolved.

Yet another momentous case on intellectual property is the SciHub Libgen case, which carries momentous significance to the academia and research community. The case was filed by Elsevier Ltd., Wiley India Pvt. Ltd. and American Chemical Society¹⁶; intervention from Delhi Science Forum, Society for Knowledge Commons and students and scholars followed. It brings back to the table the matter of money being a factor in determining access to scientific and academic knowledge repositories and the relevance and application of fair dealing. While American decisions¹⁷ have been against these ‘altruistic’ sites, the Indian intellectual property paradigms are different; hence outcomes should also be different and in line with the DU photocopy case.

Hence, while the past year has been tumultuous, most of these issues will gain closure only at a later point of time; yet 2021 is instrumental in questioning the so-called ideas and ideals of IP- it has shown us that nothing is set in stone and that change is the only constant.

¹⁴ High Court of Delhi, New Delhi, No. 667/Original Side/DHC, Jul. 7, 2021, https://delhihighcourt.nic.in/writereaddata/Upload/PublicNotices/PublicNotice_4W1UGE3WNT9.PDF.

¹⁵ Department Related Parliamentary Standing Committee on Commerce, *Review of the Intellectual Property Rights Regime in India*, Jul. 23, 2021, https://iprlawindia.org/wp-content/uploads/2021/07/GOI_IP-Review.pdf.

¹⁶ Elsevier Ltd. & Ors. v. Alexandra Elbakyan & Ors., C.S. (COMM) No. 5722020 of 2020 (Delhi HC)

¹⁷ ‘US court grants Elsevier millions in damages from Sci-Hub’. Nature. doi:10.1038/nature.2017.22196.