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MANDATORY BLANKET LICENSING MODEL ON GENERATIVE ARTIFICIAL INTELLIGENCE AND COPYRIGHT: A CRITICAL ANALYSIS OF THE DPIIT PROPOSAL

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ABSTRACT

*India's aspiration to nurture Artificial Intelligence ["**AI**"] developers, apart from being an AI consumer, is reflected in its IndiaAI mission that has started in March, 2024. To realise this potential, a DPIIT committee was formed in early 2025 to look into the copyright roadblocks for the adoption of AI, and the committee has recently released a working paper, suggesting sweeping changes to Indian copyright law to accommodate the transforming technology. After deliberations of all possible solutions to AI's copyright problem, the paper has suggested a hybrid model, integrating the underlying principles of both statutory exceptions and licensing regimes. The committee rejected the industry body NASSCOM's proposal for introducing a text and data mining ["**TDM**"] exception like that of the European Union, and favoured a mandatory licensing model, wherein the data owners cannot withhold their data from being ingested into the AI training process. This compulsory taking of data is complemented by the right of the content holder to receive fair remuneration from the AI companies. While the model is certainly a positive development in terms of bringing the rightsholders to the centre of AI – copyright discussion, there are many theoretical, tactical and practical challenges to the suggested model from a law and economics point of view. The issues in this model are manifold. First, it raises incompatibility with India's international treaty obligations. Second, there are apprehensions about the fixing of prices and their probable distortionary effect on the market. The next issue comes in terms of the sharing of royalties as a portion of the global revenue of AI companies. And lastly, the difficulties around the implementation of the model and its retrospective effect. All these issues are critically discussed in this article, besides appending suggestions to make it more acceptable and sustainable from a copyright perspective.*

I. INTRODUCTION

AI has become an integral part of our common lexicon, influencing daily conversations, debates and discussions, ever since the introduction of market AIs, like ChatGPT, in late 2022. Unlike any other technologies that emerge and fade in our collective consciousness, the euphoria around AI and its impact is refusing to subside. On the contrary, it is being touted as one of the most significant inventions of human history, and the interest around the subject is growing remarkably with each passing year. While some experts believe that AI will herald a new era of positive

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transformation across society and economy, there is an equal amount of hesitation and skepticism towards its adoption, primarily due to a lack of transparency, ethical concerns, and disruptive potential.[1] The current phase of AI growth has been propelled by its promise to solve many of our problems across industrial process automation, healthcare, education, disaster response, planning, governance, and more. The AI wave is continuing to disrupt many fields, and it will surely rewrite the future of our planet, hopefully in a positive way. Nonetheless, the growth of AI has also, knowingly or inadvertently, stepped into many legal minefields, springing up challenges around data privacy,[2] intellectual property (IP), liability issues,[3] etc. Among the IP issues, the conflicts around copyright law have emerged as the most vexatious and far-reaching. Inevitably, it has generated the most heated discussions, both in the courtroom and outside, in an attempt to settle the issues.

The AI's conundrum with copyright is inherent in the technology itself, as it is heavily dependent on diverse datasets that are often copyrighted, on whose foundation the AI model is trained and tested. Large language models ["**LLMs**"] derive intelligence from the underlying data and function as an obedient learner, only to produce analysis and inference efficiently, as and when required. The current capabilities of AI have been made possible by several years of advancement in data mining – the technology through which large amounts of data are analysed to extract patterns, trends, and correlations.[4] Since data includes both text and non-textual data, the technology is also referred to as TDM. While the data that has fallen into the public domain may have a different standing in the debate, the use of copyrighted data, which forms a major part of the training dataset, heavily impinges upon the rightsholders, by curtailing the method of exploitation of their economic rights conferred by copyright law. Prima facie, the extraction of data defeats the right of reproduction; the processing of data strikes the right to make an adaptation; AI outputs containing expressive elements of the work violate the right to distribution and public communication, among others.[5] Moreover, it is argued that the TDM life cycle also infringes upon the authors' moral rights by tampering with attribution and distorting the integrity of the original

[1] Ray Eitel-Porter, *Beyond the Promise: Implementing Ethical AI*, 1 AI ETHICS J. 73 (2021).
[2] *Rethinking Privacy in the AI Era: Policy Provocations for a Data-Centric World*, STANFORD HAI (Feb. 22, 2024), https://hai.stanford.edu/policy/white-paper-rethinking-privacy-ai-era-policy-provocations-data-centric-world.
[3] Herbert Zech, *Liability for AI: Public Policy Considerations*, 22 ERA FORUM 147, 150 (2021).
[4] (Data mining is a tool to uncover patterns and insights from large data sets using computational and statistical methods. In the legal understanding, one definition from the European Union (EU) can be culled out for reference. As per Article 2(2) of the 2019 Digital Single Market Directive of the EU, Text and Data Mining (TDM) is defined as "any automated analytical technique aimed at analysing text and data in digital form in order to generate information which includes but is not limited to patterns, trends and correlations". Though AI is an application of TDM technology, both are fuelling and complementing each other).
[5] Joseph Will, *Rage against the Machine: Copyright Infringement in AI-Generated Music Note*, 31 J. INTELL. PROP. L. 378, 393 (2024).

work.[6] Understandably, the rightsholders have challenged the use of their work for AI in various courts all around the globe, major ones being the case of the *New York Times v. OpenAI* ["**NY Times case**"][7] *& Microsoft* in the USA and *ANI v. OpenAI* ["**ANI v. OpenAI**"]in India.[8] While the outcomes of these two cases are still pending before the respective courts, a significant legislative effort is also being made in the respective countries to address the perplexing questions surrounding AI's copyright issues.

The U.S. Copyright Office is leading the effort through a series of reports on copyright and AI,[9] suggesting areas where legislative reform may be required while discussing the evolving jurisprudence of AI's impact on copyright law. The most recent report (third one in the series) arrived in May, 2025, titled "Generative AI Training," wherein the use of copyrighted content in AI training is scrutinized to ascertain its legal tenability. The report endorsed the view that the use of copyrighted material for AI training is essentially an act of infringement, and opined that it would be problematic to outrightly declare it as fair use.[10] As a solution, it suggested licensing in case of commercial use to mitigate risk, though it did not favour compulsory licensing of AI training data.[11] Significantly, it cautioned against any kind of hasty state regulation and instead recommended market-based solutions to these highly nuanced issues. Similarly, India has entered the AI discussion, with the publishing of the first report from the DPIIT, in Dec, 2025.[12] The DPIIT committee was formed in May, 2025, to look into the intersection between copyright law

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[6] Joshua Yuvaraj, *I Do Not Consent: Moral Rights and Machine Learning in Australian Copyright Law*, SSRN (Oct. 7, 2025), https://papers.ssrn.com/abstract=5576350.

[7] (The case of New York times (*The New York Times Company v. Microsoft Corporation*, 1:23-cv-11195 (S.D.N.Y. filed Dec. 27, 2023) is an ongoing litigation, and it has been filed in the United States District Court for the Southern District of New York. This was one of the first few cases in the United States wherein the AI's copyright problem was brought into the judiciary, interestingly, after a failed negotiation between the parties. As per the latest information, the judge has allowed many of the copyright infringement claims to proceed further, rejecting the motions of OpenAI to dismiss the same. The outcome of this case will bring further clarity on the US position on AI training).

[8] (The case of *ANI Media Pvt. Ltd. v. OpenAI OPCO LLC & Anr.* (CS(COMM) 1028/2024), has been filed in the High Court of Delhi in 2024. This is also a pending litigation and first of its kind in India to decide on the copyright infringement in AI training in the context of copyright law. While OpenAI has agreed to block ANI content from its future training, there are many legal questions that would be answered by this case).

[9] (Since 2023, the U.S. Copyright Office has been examining the impact of AI on copyright law and policy. As of December 2025, it has published three reports in this series; first one on digital replicas, second one on the issues of copyrightability and third one on the Generative AI training issues. More information *available at* https://www.copyright.gov/ai/).

[10] (The official report of the U.S. Copyright Office (p. 107) (Copyright and Artificial Intelligence, Part 3: Generative AI Training Pre-Publication Version, May, 2025), concludes by stating that "various uses of copyrighted works are likely to be transformative... but, making commercial use of copyrighted works to create content that can compete in the existing markets ...goes beyond established fair use boundaries").

[11] (As stated in the USA Copyright Office's May 2025 report (p.104), a compulsory licensing regime for AI training will have "significant disadvantages", owing to the fact that they will tend to make royalty rates inflexible, and after their adoption in the industry, it would also be tough to undo those changes. Further, it will thwart the possibility of developing market-based solutions).

[12] *DPIIT Publishes First Part of Working Paper on AI–Copyright Interface*, PRESS INFORMATION BUREAU (Dec. 09, 2025), https://www.pib.gov.in/PressReleasePage.aspx?PRID=2200741&reg=3&lang=2.

and AI, and suggest solutions to the problems posed by their interaction. As per the mandate, it has been published as a "*Working Paper on Generative AI and Copyright,*" suggesting many changes in the current copyright law, and most importantly, the introduction of a hybrid licensing model, as a "one nation one license one payment" model. The model indeed takes away the power of the copyright owner to deny licensing of their data, with a guarantee for compensation. The proposal has gathered mixed reactions from the stakeholders, with the industry body NASSCOM disagreeing with the idea of such licensing, mainly at the prospect of raising the cost of compliance, besides being difficult to implement (if not impossible).[13] The idea of a hybrid model to provide copyrighted work to train AI, through a right based jurisprudence, along with a promise of fair compensation, is a new frontier in the discussion, and it will have sweeping implications in the domain of copyright law. The desirability of such a model, especially from the standpoint of the primordial copyright objective of fostering creativity, is, arguably, a point of contention, in addition to the practicality of implementing such a system. Therefore, a detailed jurisprudential analysis is needed on this proposal, including its implication to our society, from the law and economics point of view.

The article first discusses the core substance of the model, as it is proposed by the DPIIT. Then, it dives into segment wise assessment of the model. In the assessment, it makes separate analysis into the effects the model brings with respect to the treaty obligations India have, followed by jurisprudential analysis, pricing issues and its effect on the market, operational difficulties in implementing the model, and the issue of retroactivity in application, among others. Lastly, the article concludes by making few suggestions that can remedy the difficulties posed by the model.

II. THE PROPOSED MODEL IN BRIEF

The proposed model, conceptualized as a mandatory licensing model, has been necessitated to resolve the impasse between access to AI training data and the obligation to compensate the rightsholders. As a hybrid approach, it has prudently stitched the ideas behind statutory exception (like fair use) and licensing regime, by combining both the right to access and right to compensation aspects with respect to the AI training data. The model proposes that the AI developers shall have the right to ingest all the lawfully accessed data for AI training, and no rightsholders can withhold their works from such a purpose. In the same breath, it has bestowed copyright holders with the right to obtain fair compensation for their work used in the training process. The payment mechanism is suggested to accrue only after the commercialization of the

[13] Sejal Sharma, *Nasscom Pushes Back against DPIIT Plan*, HINDUSTAN TIMES (Dec. 11, 2025), https://www.hindustantimes.com/india-news/nasscom-pushes-back-against-dpiit-plan-101765436303176.html.

model, which is intended to provide relief to the startups who are going through the critical designing and initial testing phase. The royalty is suggested to be distributed as a percentage of the global revenue of the AI company and the rates are slated to be decided by a government-appointed rate setting committee. As per the DPIIT working paper, the proposed rate setting committee shall consist of senior government officers, and several experts from legal, financial, and technical domains, having knowledge of emerging technologies. The said committee will be expected to set royalty rates based upon the expert recommendations, and review the rates every third year to cater the changing needs of market and technology. Moreover, the royalty rate will be subject to judicial review. The model suggests for a retroactive application of the licensing model, in order to undo the damages already occurred and provide a level playing field to all the players.

Additionally, it suggests the creation of an institutional architecture to implement the model, through a centralized entity in the name of Copyright Royalties Collective for AI Training ["**CRCAT**"]. Further, it mandates the AI companies to furnish an AI Training Data Disclosure Form, delineating the dataset use in their AI system, to bring the much-needed transparency and accountability in their working. The disclosure form shall contain a "Sufficiently Detailed Summary" of the dataset, and shall include the "category" (and subcategory) of data as per Section 14 of the Copyright Act of 1957, mentioning the classes of work like text, images, videos files etc. Additionally, the "sources" of the data, such as social media, online libraries, proprietary dataset etc., shall also be mentioned, along with the "nature" of the data, such as news, literature etc. For the rightsholders, a system of registration is prescribed to establish their connection to the governing apparatus that will implement the hybrid model and distribute royalties accurately. Finally, the report has also suggested a value-based matrix to track a class of work and its contribution to the neural network, which can help in determining the royalty rates. To implement all these suggestions, the DPIIT paper has proposed to bring necessary amendments in the Indian Copyright Act of 1957 and the Copyright Rules thereunder.

III. ASSESSMENT OF THE MODEL

The following discussion will examine the model's desirability and suitability in the Indian context, focusing on its strengths and weaknesses from a copyright perspective. The theoretical basis of each component of the model will be examined, keeping in mind the larger objective of copyright law, and its correlation with the general IP jurisprudence. Further, the operational feasibility of the model will be discussed, considering the Indian experience, and also drawing from other jurisdictions, as the technology that is working behind an AI system is largely jurisdiction agnostic, giving similar experiences in other jurisdictions.

A. Positive Shift in The AI Copyright Discourse

In the last few decades, the rapid advancement of technology has constantly threatened the domain of copyright law. The effect is particularly intense in the case of new and emerging technologies in the digital world, which have been disturbing the existing copyright markets by simplifying the access and copying of protected works with unmatched scale and anonymity. Historically, copyright law has responded to technological challenges by broadening its scope through judicial interpretation when required and by adding new rules to address them.[14] The constant disruptions that were brought by new technologies have forced the copyright law to evolve and recalibrate in order to remain relevant and effective. However, it is not always desirable to unnecessarily expand the interpretation of fair use to embrace newer technologies. In this context, the DPIIT proposal, which has centred the discussion around the rights of the content owners, is a welcome step. Instead of taking a pro-technology stance to deem the copying of content for AI training as fair use, it has clearly and unequivocally discarded the argument of fair use, and accordingly, suggested methods to compensate the right holders. Further, it has made the right to be compensated a central issue and has deliberated on various ways to design a suitable framework for its implementation. Therefore, this is a positive development: the discourse around AI's copyright problem is shifting from unreasonably accommodating the technology to acknowledging the legitimate interests of rightsholders, economic or otherwise, and coalescing policy development around the protection of those rights. This is not to say that it is advocating for an expanded copyright, this seems to be an effort to balance the urgent technological aspirations of society with the need to incentivise the creative community of society. Exploiting the copyrighted work for AI training or TDM, without finding a suitable mechanism to compensate the rightsholders, will negatively impact the sustainability of the same, besides ensuing numerous litigations in this space that would threaten the domain with a lot of risk and uncertainty.

B. Issues with International Treaty Compliance

IP law is fundamentally territorial, applying within a country's jurisdiction. However, international treaties also play a significant role in the administration of IP, by prescribing minimum standards of protection, apart from establishing global frameworks for harmonizing the law, and its procedure, to ensure international co-operation. In the case of copyright, the Berne Convention of 1886 ["**Berne Convention**"] and the Trade-Related Aspects of Intellectual Property Rights

[14] (With the progress of technology came the need to reshape the contours of copyright law. In the Indian context, computer programs and databases were added to the definition of "literary work" (*see* section 2(o) of the Copyright Act of 1957) to ensure their protection under IP law. Similarly, the regulations around technological protection measures were also introduced over time, and many more changes followed).

["**TRIPS**"], 1995, have been the foundational treaties, and India is a signatory to both. Consequently, India is obliged to honour the treaty obligations and adhere to the minimum standards prescribed in those treaties. In this context, the DPIIT proposed licensing model, perhaps, will come into conflict with the famous "three-step test" of the Berne Convention that has become the gold standard for checking the acceptability of copyright exceptions. The three-step test permits limitations and exceptions to an author's rights, provided that, they are meant for certain special cases and do not conflict with the normal exploitation of the work, besides also ensuring that the exception do not unreasonably prejudice the author's legitimate interests. This test, which later got incorporated into Article 13 of the TRIPS agreement, has three facets: first, the exceptions must be narrow in scope and have clear definition; second, it should not deprive the rightsholders of actual or potential source of income; and third, it should not create any unreasonable harm to the rightsholders. Though Indian Copyright law regime has exhaustive list of copyright exception in terms of fair dealing, courts have used the tenets of the three-step test to decide matters, and the case of *Chancellor, Masters & Scholars of University of Oxford v. Rameshwari Photocopy Services* [Photocopy case] is one of them.[15] In this case, the High Court of Delhi ruled that 'educational use' is a special case, and when students use the photocopy of books for instruction, it doesn't conflict with the normal exploitation of the work, as students do not form part of the market for pricey books This test remains a bulwark against dilution of the author's rights, an important sphere within the larger framework of copyright, and prevents unwarranted application of copyright exceptions.[16] However, in the present context, the exception to the rights of content holders, suggested via the proposed DPIIT model, is considered through the lens of three-step test, not in a case specific scenario.[17]

When the rightsholders are stripped of the option to opt out their data from the AI training process, the limited power given by copyright law to control and prevent unauthorised access and reproduction of their work is further diluted. However, another factor in this equation is the right to receive remuneration. This kind of system upends the IP rights, converting it from a system of property rule to liability rule; thereby reducing absolute entitlement to only offering a right to claim compensation in case of harm (AI training in this case). To contrast property rule with liability rule, it is traditionally understood that, the former (property rule) allows a right to be taken away

[15] *The Chancellor, Masters & Scholars of the University of Oxford & Ors v. Rameshwari Photocopy Services & Anr*, 2016 SCC OnLine Del 5128.
[16] Daniel Gervais, *Making Copyright Whole: A Principled Approach to Copyright Exceptions and Limitations*, 5 U. OTT. L. TECH. J. 1, 9 (2008).
[17] Rubén Calderón, *AI Training Through Copyrighted Works as Infringement: Perspectives Under the Berne Three-Step Test and the Pane Fair Use Test and Plausible Solutions*, 65 IDEA (2024).

from the owner only through a voluntary transaction, and at a price that is agreed by the owner. However, in liability rule, the entitlement can be taken without the owner's consent, provided there is payment of damages.[18] While it is true that IP rights are not absolute rights like tangible property, and are invariably laced with limitations and exceptions, the choice of making economic exploitation, or not, is particularly relevant from the rightsholder's perspective. On the three-step test, the first factor is going against the proposed model, as it fails to make a special case due to its expansive breadth that covers all lawfully accessed works for AI training. The case of blanket license covering all the available work is, arguably, a general derogation of copyright, rather than a special one. Therefore, the first factor of the three-step test will disfavor the proposed model. One way to remedy this situation could be to add a "conditional opt-out" mechanism, wherein, rightsholder can withdraw their work, and thereby, preventing the licensing regime becoming an absolute general rule. Permitting authors to opt out in case of probable injury to reputation can be one of them. Similarly, in case of commercial training, if the rightsholders can present an alternate feasible licensing mechanism, they can be allowed to withdraw from the mandatory regime. However, such a system could also complicate the regime, and therefore, should be approached with caution.

As far as the second factor in terms of the conflict with the normal exploitation is concerned, the situation is fast evolving. The swift growth and expansion of the AI training data market is going to change the dynamics of judging this factor, for data licensing can become the new normal, with umpteen number of publishing companies already signing deals with AI entities to permit their data for AI training. Another bone of contention in this factor is the difficulty in reconciling with the one nation one license in a government decided rate, effectively nationalizing the private market, and thereby stripping the rightsholders their power of negotiation in a free market. Additionally, owing to the uniformity of this licensing regime, few authors will feel undercompensated, asserting that their work could have gotten a better deal, while other may feel overcompensated for their work. In a state regulated regime, there will surely be a difference between the market price of the data and the statutory price, hurting the market sentiment, and thereby, making it economically unviable in the long run. Thus, one nation one license regime will only impede the evolving of a licensing market, which could, otherwise, have become the new normal way of exploitation, given the demand of curated and organized AI trainable data.[19] In this scenario, the second factor in the three-step doctrine too shall go against the proposed hybrid

[18] Louis Kaplow & Steven Shavell, *Property Rules versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713, 757 (1996).
[19] David W. Opderbeck, *Copyright in AI Training Data: A Human-Centered Approach*, 76 OKLA. L. REV. 951 (2023).

model, given how the model may, in effect, prematurely meddle with the normal exploitation of the work.

On the final factor of weighing in the legitimate interests of the author, the acts of appropriating of the author's data without consent, although statutorily backed in this case, may unreasonably prejudice their short term and long-term interests of the rightsholders.[20] Not only that the exception to the author's rights be clearly defined as per the first factor, the economic impact of AI training must also be judged carefully to arrive at any conclusion on the Berne second and third factor.[21] Interests of authors go beyond immediate monetary compensation and includes the moral rights associated with the works. Though it is not clear whether there is indeed any violation of moral rights, the AI training process can certainly impinge upon moral rights at various stages of AI development, due to erasure of information on attribution, apart from fragmenting the integrity of the work.[22] Moreover, another significant erosion of legitimate interest will happen in the long run, in terms of the loss of control that is tied to the right to remuneration regime. Oftentimes, technology commercially replaces authors and creators over a period of time, and in this case, the AI training that occurs with their own works will eventually replace them, and they shall have no control over the same.[23] It is true that the market AIs are replacing the coders whose code have been used to training the same market Ais.[24] At least it shall obliterate most of the low skill jobs in the coding domain, as predicted by many experts.[25] Similarly, it will also be a reality that many of the creative professions will have their replacements in AI, as AI becomes more creative with incessant training on the foundation of plethora of similar works. In this context, the proposed model can become highly prejudicial to the interests of the authors. Therefore, after considering all the three factors, it would be safe to assume that the proposed DPIIT model will certainly go against the letter and spirit of the Berne three-step test, and will remain as an outlier, unless few balancing acts are carried out to empower the rightsholders.

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[20] *Supra* note 18.
[21] Larissa Bersh, *An Exceptional Formality Under Berne: Evasion Of Copyright Protection Via The Eu's Text And Data Mining Exception*, 38 HARV. J. L. TECH. 337, 345 (2024).
[22] Rita Matulionyte, *Can AI Infringe Moral Rights of Authors and Should We Do Anything about It? An Australian Perspective*, 15 L. INNOV. TECH. 124, 5 (2023).
[23] Ben Zhao, *Replacement of Human Artists by AI Systems in Creative Industries*, UN TRADE & DEVELOPMENT (Mar. 28, 2024), https://unctad.org/news/replacement-human-artists-ai-systems-creative-industries.
[24] Casey Moffitt, *Is AI a Coder's Friend or Foe?*, ILLINOIS INSTITUTE OF TECHNOLOGY BLOG, https://www.iit.edu/blog/ai-and-coding-future.
[25] Mini Tejaswi, *AI Will Gobble up Most Low-Hanging Jobs of Coders,* THE HINDU (July 26, 2025), https://www.thehindu.com/business/ai-will-gobble-up-most-low-hanging-jobs-of-coders/article69859151.ece.

C. Unstable Theoretical and Jurisprudential Basis

The current legislative proposal has made few assumptions while laying the foundation for the mandatory licensing framework. While it may be true that the process of AI training violates copyright law, with a series of infringements over the training life cycle, the courts have delivered differing opinions in the same and the judicial decision making is still unsettled on this point in many jurisdictions.[26] In India too, the case of ANI has been pending for disposal, and therefore, the case of infringement has not been conclusively made out by any judicial decision with respect to the Indian copyright regime. In this situation, it may be argued that, the DPIIT incurred the risk of proposing a model prematurely, as, from a jurisprudential standpoint, suggesting a remedy before a wrong has been concretely established seems logically inverted. Moreover, the intention to tinker the copyright law in order to facilitate the availability of diverse datasets for AI training (and AI growth) may be undesirable. It talks about an easy and fair access to critical data for effective AI development and the role mandatory copyright licensing can play in facilitating the same. However, the intention of copyright law is not to remove roadblocks for the growth of technologies, much less for the data-driven and copy-reliant technologies like,[27] AI that will significantly exploit the underlying copyrighted work; rather the objective of copyright law is to encourage creativity and incentivize the authors.[28] On the contrary, the growth of an industry is the primary objective of an industrial policy, not IP policy; though their paths, sometimes, cross each other. Therefore, bending the copyright law to suit an industry seems rather unwarranted at this stage, when the market forces are actively trying to rejig the rules of the game, through negotiation and private legislation, and creating binding contracts between players to ensure predictability in the domain.[29]

Further, the objective to mitigate the risk of bias in AI and avoid hallucinations by ensuring the availability of training data seems like a misplaced priority from the perspective of the copyright

[26] (In the US, the case of *Thomson Reuters v. Ross Intelligence* (694 F. Supp. 3d 467 (D. Del. 2023), aff'd in part, summary judgment granted Feb. 11, 2025) was decided against Ross on the finding that the use of Westlaw's copyrighted headnotes in the process of AI training was not fair use. However, in *Bartz v. Anthropic* (PBC, No. 3:24-cv-05417, (N.D. Cal. June 23, 2025)), the AI developer was favoured on the ground that the copyrighted books used to train the LLMs was a "transformative" fair use. Similarly, in the case of *Kadrey v. Meta* (No. 3:23-cv-03417-VC, (N.D. Cal. June 25, 2025)), the act of copying books by Meta was held to be fair use, as it would not result in the dilution of the market. Therefore, owing to diverging opinions, the position in the U.S. is not settled. Other countries too have not reached a conclusion on the issue of fair use and the jury is still out on this point).

[27] (The term copy-reliant technology refers to the ones which copy massive amount of copyrighted work for various purposes. Examples include search engines, data mining tools, AI models, plagiarism detectors, software reverse engineering tools etc. This set of technology falls in fuzzy areas under copyright law, though few of them are accepted as necessary evil. More information *available at* https://lawecommons.luc.edu/facpubs/69/).

[28] Simone Schroff, *The Purpose of Copyright – Moving beyond the Theory*, 16 J. INTELL. PROP. L. PRAC. 1262, 1266 (2021).

[29] *AI and Content Licensing*, CREATIVE LICENSING INTERNATIONAL, https://creativelicensinginternational.com/licensing-brief/ai-and-content-licensing/.

law. IP law is founded on the principle of balance, which is sought between the society and the private individual or entity who hold the exclusive right to gain from such IP protection. Accordingly, the net gain to the society is the touchstone through which an IP policy gets tested. The bestowal of IP plays an important role in expanding the creative works available to the public and sustains their supply. Such a balance is missing from the proposed DPIIT framework. It assumes that the creative potential of AI, after training with a vast amount of copyrighted work, will be enjoyed by society as an equivalent to human creativity. However, AI as a creative force has not been promising, as yet, and it has been noticed that the AI creativity remains low quality and quite generic, incomparable to human ingenuity.[30] One more interesting aspect of IP policy is to ensure that copycat versions do not flood the market, and if they are detected, the law must punish them though infringement cases and other compensation mechanisms. However, when AI is trained through datasets comprising various copyrighted works, it is inevitable that the AI output will have some resemblance to the training works and will look like copies.[31] Therefore, the entire purpose of removing copycats from the market is defeated, and this may bring various undesirable consequences. Hence, more discussions on the theoretical aspects of the proposed framework must be carried out in order to identify the exact problem the policy wants to solve and map it with possible solutions to distinguish the best possible alternative.

D. Pricing Issues and Probable Market Distortion

The economic analysis of the proposed DPIIT framework, which has located pricing at the core of the suggestions, will play an influential role in determining the acceptability of the same. It is proposed that the royalty rate will be finalised by a central government committee, to be known as the rate-setting committee, consisting of government officers, and other experts from legal, financial and technical domains. To make it fair, the proposal envisages court intervention and judicial review of the rates. The report acknowledges the complexity of AI rate setting, owing to the black box nature of neural networks,[32] and therefore, shies away from suggesting any standard formulae of value assessment. Instead, it suggests a flat rate, as a percentage of the gross global revenue of the AI developer from the commercialisation of the AI that has been trained on such content. It avers that it is a better system than other available options, as there would be no need

[30] (Many technologists believe that the current wave of AI has not been exceptionally creative. Rather they call it "*AI slop*," which refers to flooding of low-quality, repetitive and nonsensical content generated by AI, only to clog and degrade the information world. More information *available at* https://theconversation.com/what-is-ai-slop-a-technologist-explains-this-new-and-largely-unwelcome-form-of-online-content-256554).

[31] Hiroaki Chiba-Okabe & Weijie J. Su, *Tackling Copyright Issues in AI Image Generation through Originality Estimation and Genericization*, 15 SCI. REP. 10621, 5 (2025).

[32] Davide Castelvecchi, *Can We Open the Black Box of AI?*, 538 NAT. NEWS 20 (2016).

for any upfront payment during training, and liability to pay will only accrue after the generation of revenue, something, it contends, will help the start-ups more than the large players in the AI developing market. Though it is not the primary objective of copyright law to remove barriers of technology, the report nonetheless asserts that the proposed model of waiving upfront payment will create a supportive environment of AI development, and benefit the public eventually, through the aftereffects of AI progress. While these suggestions may look good on paper, a deeper analysis of the individual components unsettles the domain from many angles.

The first issue comes at the introduction of global revenue into the rate-setting mapping. It is unclear as to why India would need to look for the global revenue of AI companies, as it would be punishing for AI companies that are looking for scale and multinational presence. Global revenue may look difficult to reconcile for those companies that are either not residents in India or do not have their place of effective management in India, though they may still do some business in India. The second issue revolves around a flat rate for all kinds of AI training data, without any hierarchy of the data, juxtaposed with a centralised process of decision-making that diminishes the market forces. Along with the progress of AI technology, a separate training data market is emerging, and in the absence of government intervention, the market will settle as per the demand and supply.[33] Many publishers have negotiated with AI developers to allow their data to be used in AI training,[34] and their agreements will be impacted by the proposed changes to copyright law, which would act as an overriding public policy. Moreover, future negotiations will be thwarted, and the market price of the data will not be factored in. Though the DPIIT report mentions considering market price, a government-decided rate will differ from the market price, and therefore, it may distort the AI training data sector. Further, a countrywide single and uniform rate for all types of data will be unable to factor in the variations in the quality of data, leading to the creation of a market in which specially curated data will get the same value vis-à-vis low quality or ordinarily curated data. This would certainly disincentivise the market forces and negatively impact the availability of quality data. As a corollary, it can be asserted that the model may bring unnecessary bureaucracy and inefficiency in the royalty setting domain, and instead of helping the AI sector, it may discourage the development of AI models in India, provided the aforesaid imperfections are not mitigated.

[33] Harriet Aryee, *Licensing AI Training Data: Legal Considerations and Key Contractual Clauses*, SSRN (Jan. 8, 2026), https://papers.ssrn.com/abstract=6045594.
[34] Bruce Barcott, *How the Emerging Market for AI Training Data Is Eroding Big Tech's 'Fair Use' Copyright Defense*, TECH POLICY PRESS (Mar. 4, 2025), https://techpolicy.press/how-the-emerging-market-for-ai-training-data-is-eroding-big-techs-fair-use-copyright-defense.

E. Operational Difficulties and A New Institution

In order to make the proposed framework a success, the question of attribution of a particular work and its AI revenue trail must be clearly ascertained. However, given the intricate nature of AI training, and the opaque nature of the learning process, it would, perhaps, pose the biggest problem in its implementation. The technology may itself fail to provide attribution with certainty if similar content is fed into the AI's training, and things will be particularly difficult for a certain type of unlearning model, which forgets the training data as a matter of policy, either to mitigate bias or to ensure regulatory compliance.[35] Further, lack of quality content for AI training often pushes the developers to rely on AI-generated data. However, "indiscriminate" use of such synthetic content for training causes incurable defects, resulting in the collapse of the model.[36] Nonetheless, even in these systems, the attribution would be difficult to be made out, due to loss of human content trail, and the resulting doubt on the provenance of content.[37] AI models work as probabilistic systems, predicting the best possible answer within a given context, such as filling in the blanks.[38] There are billions of parameters through which AI training happens, without specifically mapping the derived intelligence to the source data from which it is derived. Moreover, mention be made of the fact that, many times, the information about attribution is lost during the data pre-processing and data cleaning phases, which act as precursors to the training process. Therefore, on technical grounds, it seems impossible to accurately map the contribution of a single piece of copyrighted work in the AI system, and accordingly, it would be uncertain if a fair distribution of the revenue could possibly be made on this basis. Thus, the basis on which the payment of revenue is proposed is technically difficult to establish, at the very least, and it shall cause tremendous problems in real-time operation.

The second factor in this equation is identifying the beneficiaries who will receive the revenue. If a proper trail is maintained by the AI companies with respect to the work being fed into the AI training process, it would be easy to identify the eligible rightsholders. However, as of now, there is no legal obligation imposed on the AI developers to maintain such records, and in the absence of any obligations, there must be no such practice to maintain the records since the beginning of their AI training. Therefore, one positive suggestion that the DPIIT proposal has made is to make

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[35] Guangyao Dou et al., *Avoiding Copyright Infringement via Large Language Model Unlearning, in* FINDINGS OF THE ASSOCIATION FOR COMPUTATIONAL LINGUISTICS: NAACL 2025 5191 (Luis Chiruzzo, Alan Ritter, & Lu Wang eds.) (2025).

[36] Alice Gomstyn & Alexandra Jonker, *What Is Model Collapse?*, IBM (Oct. 14, 2024), https://www.ibm.com/think/topics/model-collapse.

[37] Ilia Shumailov et al., *AI Models Collapse When Trained on Recursively Generated Data*, 631 NATURE 755 (2024).

[38] Mitchell Hashimoto, *Vibing a Non-Trivial Ghostty Feature*, MITCHELL HASHIMOTO (Oct. 11, 2025), https://mitchellh.com/writing/non-trivial-vibing.

it mandatory to keep the record of training dataset, through an AI training data Disclosure Form. However, it may still be difficult to map all the rightsholders from the training data, due to errors and discrepancies, and it would have many imperfections. Nevertheless, DPIIT has proposed the setting up of a new institution, which will be charged with administering the royalty payment issues and implementing the hybrid model. The model has proposed the creation of an entity named and styled Copyright Royalties Collective for AI Training ["**CRCAT**"] and its associated bureaucracy, acting as a non-profit body. This institution is projected to act as a collective of collectives.

The centralised entity CRCAT will hold the responsibility of collecting the payments received by AI developers and ensuring the flow of royalties to the member organisations, who will, in turn, distribute the money to rightsholders. It is envisaged that only organisations can be members of CRCAT, and only one member will be allowed for a designated class of work. Members can either be copyright societies under Section 33 of the Copyright Act, 1957,[39] or be a collective management organization ["**CMO**"], set up by a class of rightsholders. The details of their eligibility and representation are proposed to be included as Copyright Rules. The establishment of all these structures will not only complicate the bureaucracy, but also bring a lot of government intervention, necessary or otherwise, to administer the royalty issues, ideally to be governed by market forces. They will bring compliance issues and create disputes on many occasions, such as, the cases when registration is cancelled or multiple organizations vie for being a member of CRCAT. Meanwhile, the governing board of CRCAT is designed to balance the representation, including the nominees from each member and also include representatives from sectors whose works are not covered by any organization. While this also may look good on paper, the history of the collective societies and their functioning casts doubt on the fairness in running of the institution.[40]

Another significant concern relates to the concept of lawful access to the data. It is not clear how lawful access is to be determined. Theoretically, how can the data be lawfully accessed if there is no permission or license to access the same? The DPIIT report mentions ensuring permission-free access to data for AI training, and in that case, it is appearing contradictory to think that

[39] (Section 33 of the Copyright Act of 1957 stipulates that only registered copyright societies in India will be able to carry on the business of issuing or granting licenses for copyrighted content, besides mentioning the process of registration. The section also allows the individual owners of copyrighted works to license their works, provided their obligations under the registered society are not in conflict with the same).

[40] Prashant Reddy T, *AI Copyright, Dead on Arrival?*, THE ECONOMIC TIMES, https://economictimes.indiatimes.com/opinion/et-commentary/ai-copyright-dead-on-arrival/articleshow/126082127.cms?from=mdr.

permission free access can be lawful access. Nonetheless, the report perhaps intends that lawful access will connote that there should not be any violation of technologically protection measures, such as, breaking of paywalls to access the data, or any other illegality in terms of piracy etc. It may also mean that the access to data must not violate the terms and conditions attached to copyrighted data, such as the terms of usage of a website (which may deny permission for AI training) or the terms associated with proprietary databases. However, which law will override the other in order to determine the legitimacy of access is unclear; the public law that allows AI training for all available data, or the private law created by contractual terms that may explicitly deny any such use.[41] If AI developers have already scooped the data, which was denied for ingestion to AI training in the first place before the implementation of the proposal, it is unclear if it can still be called lawful. From the compliance perspective, the model may force the developers to subscribe to paywalled content, instead of relying on pirated materials, increasing the cost of production (which the DPIIT proposal is chiefly intending to avoid in the initial phases for start-ups and small players). Additionally, policy maker may note that most of the data scraping that is will be considered lawful access, as envisioned by the DPIIT hybrid model, and only time will decide about it, when the model is implemented and subjected to judicial scrutiny. In any case, the policymakers should attempt to remove the ambiguity on the aspect of lawful access by defining and characterising the instances of both lawful and unlawful access, bearing in mind the development of data scraping technology and its current capabilities.

F. The Resurrection of Retroactive Application

The suggestion to implement the proposed framework retrospectively would perhaps, add another layer of controversy. The report notes that many AI developers would have already ingested copyrighted content for AI training, and therefore it is only fair to share the appropriate revenue post commercialisation with the rightsholders. It narrates how many AI companies are already successful and generating huge revenues. Therefore, on the grounds of fairness and accountability, AI developers may be expected to pay the prescribed royalties for prior usage, as a corrective measure. Such an application of law, the report suggests, will only create a level playing field for all the players, new and old. While all this may seem good on paper, there would be many difficulties in its implementation: *First*, models which have discarded the dataset after training will be at a loss of any trail. *Second*, the extent of past training will be very complex to calculate, besides

[41] (There may be occasions in which contractual terms of a scrapped website had restricted the scarping and despite of the same, the AI developer had obtained the data on the pretext of fair use – a claim not supported at a later stage. This may create issues of legitimacy of the data obtained. This is an unsettled issue in many jurisdictions. In this context, the public policy to allow data for training (with compensation, of course) will complicate the situation. If it will be considered lawful is an aspect that the policy makers must answer to bring clarity).

being objectionable from the perspective of developers, who have hitherto acted under the assumption of fair use, citing the absence of any Indian court rulings to the contrary. *Third*, it may be argued that retroactive application of the law would be arbitrary and burdensome for existing players. The argument of vested commercial expectations may be brought up, as it was not explicitly forbidden to use protected data for training.[42] Moreover, historically, the Indian judiciary, through its pronouncements, has not favoured the imposition of laws and policies for retrospective imposition of civil liabilities,[43] and therefore, the proposed model's retroactive application can be struck down on the grounds of being unreasonable and expropriating. Therefore, a careful reconsideration of bringing retrospective application of the payment should be made, in case the AI players are finding it enormously difficult to comply.

IV. CONCLUSION

Law cannot stop the development of technology; rather, it catches up with the technology and readjusts when needed. It is undeniable that generative AI and its applications are growing exponentially, regardless of the support it receives from domestic law and policy. While it is laudable that the DPIIT working paper seems to be committed to providing a conducive environment to adopt AI in India and benefit our society through its transforming potential, the means and methods of achieving the same must be critically examined in order to ensure that its theoretical foundations remain coherent and normatively sustainable. The hybrid model proposed by DPIIT has no precedent in any other jurisdiction and is perhaps very novel in its approach. However, it has picked up the discrete ingredients from the domain of Indian copyright law, like the role of copyright society (existing for a few decades), statutory licensing that exists in radio broadcasting, and rate-setting methods and has coalesced them to provide a unique model, with a new institution to support it. The stated goal of balancing AI innovation and copyright cannot be sustained on a weak doctrinal foundation. Therefore, it is imperative that all possible threats to such a model's theoretical basis must be carefully discussed before its implementation. Nonetheless, the proposal will give the necessary direction and momentum to bridge the regulatory gap that is created by the emergence of the generative AI technology and democratize the policy making in this domain.

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[42] *Retrospective Amendments and the Doctrine of Vested Rights: A Judicial Perspective*, TAXTMI (Aug. 13, 2024), https://www.taxtmi.com/tmi_notes?id=1284.

[43] S. Krishnan, *Retrospective Application of an Amendment*, TAXMANN, https://www.taxmann.com/research/income-tax/top-story/105010000000016563/retrospective-application-of-an-amendment-experts-opinion.

The most beneficial aspect of the DPIIT paper, and its proposed model is the explicit recognition of the rightsholder's interest in the AI ecosystem, which was hitherto neglected by the legislative attempts in the other jurisdiction. In the ever-expanding notion of fair use, a blanket TDM exception (like that of Japan) would have further curtailed the negotiating power of the rightsholders, giving a free ride to the technology companies over the use of the copyrighted data. Such a system is neither desirable nor sustainable in the case of copy-reliant technologies like TDM. The EU model of TDM, with an option to opt out, is also problematic, due to the advanced capabilities of modern TDM technologies that can easily manipulate the technical barriers and restrictions. Moreover, given the difficulties of compliance in the Indian scenario, enforcing opt-out may only remain on paper and will never be fully realised. Accordingly, it is a positive step that the content creators are being treated as a protagonist in the scheme of things and the AI companies are nudged to respect their data, and its associated IP rights, while developing products around them. Increased cost of compliance cannot be an excuse to violate IP rights, as, in any case, the cost would devolve to the end users of AI, and society at large, which may have the proclivity to absorb the cost. On the contrary, misappropriating the copyrighted content for training AI and selling the trained model would be akin to unjust enrichment,[44] as the content holders will be disincentivized with respect to their existing creations, apart from being discouraged to bring further creative expressions – something the society should never afford. While it is true that the AI and copyright saga will not necessarily create a zero-sum game (where one's loss gets exactly compensated by other's gain), a flawed system that encourages free-riding will also help no one; neither the interest of society, nor the sustainability of the AI systems in the long run. Therefore, perhaps diverging from the blanket TDM mechanism is the right choice for the Indian scenario at this point. Nonetheless, the proposed model may bring up many challenges as discussed, and therefore, some of its elements should be reconsidered before making the final blueprint of amending the copyright law.

Though international treaty compliance may not pose much of a problem for the proposed model, except as a potential ground of criticism, providing an adequate redressal mechanism to benefit rightsholders in case of disputes will correct the deviation from the Berne three-step philosophy and keep it sufficiently treaty-compliant. *First,* it should be ensured that the bargaining power of the rightsholders is never diminished amidst the influential AI developers and their business prerogatives. *Second*, the issues in pricing must be appropriately tackled, considering the market

[44] Yangzi Li & Jyh-An Lee, *Unjust Enrichment as a Remedy for AI's Unauthorised Use of Protected Data*, COMMON L. WORLD REV. 2 (2026).

price of AI training data and regularly factoring in their variations with time in determining the royalty rate. *Third*, the price fixing must be further democratised, ensuring adequate representation from all the stakeholders. Thirdly, the operational difficulties in the distribution of the revenue to the rightsholders must be progressively removed, though some hiccup will invariably occur at the beginning. *Finally*, the retroactive application of the payment mechanism can be reconsidered if the compliance burden becomes debilitating for a growing number of AI players. Only when these suggestions are embedded can the proposed mandatory licensing model become acceptable and successful, by protecting society's interests and reasonably settling the tussle between rightsholders and AI developers. Only then can the object of harnessing the transforming potential of the AI technology be truly realised.

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A TRIPS PLUS APPROACH TO ARTICLE 61 - ANALYSIS OF THE POSSIBILITY OF EXTENDING CRIMINALISATION TO PATENTS

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ABSTRACT

Article 61 of the TRIPS Agreement mandates criminal sanctions for willful trademark counterfeiting and copyright piracy on a commercial scale. While the Article permits extending such a sanction to patent infringement, the present paper argues against such a TRIPS Plus approach. It provides an overview of Article 61 and relevant WTO dispute panel decisions interpreting its provisions. The paper cites concerns regarding the overprotection of IP rights and the negative impacts it would have on developing countries and innovation. A comparative analysis of IP enforcement regimes in the US, UK, India, Japan, and Brazil shows a varied approach to Article 61, with most jurisdictions reluctant to criminalise patent infringements. The paper concludes that due to differing socio-economic factors across countries, universal acceptance of a TRIPS Plus model criminalising patent infringements is unlikely in the near future. It suggests balancing the interests of developed and developing countries in shaping international IP policy going forward.

I. INTRODUCTION

Intellectual Property ["**IP**"] is inherently different from other property since its use is non-exclusive and non-exhaustive.[1] The need to protect IP requires a balance between the rights of the owner *vis* the world at large. The Trade-Related Aspects of Intellectual Property Rights Agreement ["**TRIPS**"] forms a crucial part of the WTO.[2] It recognises the need to protect IP and provides a framework to be adopted by the member states. "IP" under TRIPS includes copyrights, patents, trademarks, geographical indications, undisclosed secrets, and industrial designs, amongst others.[3] The TRIPS Agreement incorporates the basic framework of National Treatment and Most Favoured Nation ("NT" and "MFN", respectively, of which NT requires each member to afford foreign IP holders protection no less favourable than that granted to its own nationals, while MFN mandates that any advantage given to one member's nationals must be extended equally to all

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1 Mikhalein Du Bois, *Justificatory Theories for Intellectual Property Viewed through the Constitutional Prism*, 21 POTCHEFSTROOM ELEC. L. J. 1 (2018).

2 *TRIPS — Trade-Related Aspects of Intellectual Property Rights*, WORLD TRADE ORGANIZATION, https://www.wto.org/english/tratop_e/trips_e/trips_e.htm - :~:text=TRIPS — Trade-Related Aspects of,on intellectual property (IP).

3 Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 1(2), Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299, (***hereinafter*** **referred to as "TRIPS"**).

members) under Articles 3[4] and 4.[5] The obligations set out in TRIPS provide for 'minimum standards' which do not prevent States from taking more extensive measures if they deem fit.[6] These are restricted by upper 'maximum standards', available for instance, in Article 9.2, which provides that ideas cannot be copyrighted. The 'minimum standard' floor ensures that all members provide at least the level of protection specified, such as the mandatory criminal sanctions for willful trademark counterfeiting and copyright piracy under Article 61, while the 'maximum standard' ceiling prevents standards from being pushed beyond limits that would contravene other TRIPS provisions, such as the rule that copyright protection may not extend to ideas themselves.[7]

As highlighted by India, greater levels of IP may lead to hindrance of trade, thereby requiring the 'ceilings' imposed by the TRIPS Agreement.[8] Article 41 provides that there must be enforcement procedures under law,[9] which must be 'fair and equitable'.[10] Other remedies under TRIPS include injunctions,[11] damages,[12] other civil remedies such as removal from channels of commerce,[13] the right to information,[14] and indemnification.[15]

In addition to the civil remedies, Section 5 of TRIPS deals with criminal procedures. Article 61 casts an obligation for the member states to provide criminal sanctions for '…at least…(for) wilful trademark counterfeiting or copyright piracy on a commercial scale'.[16] Here, the 'remedies' to be made available shall include imprisonment and/or monetary fine, along with additional deterrents such as seizure, forfeiture, as may be deemed fit.[17]

While the TRIPS has been widely adopted, it is important to note that it was reached only as a compromise between the Global North and the Global South (a geopolitical shorthand used throughout this paper interchangeably with "developed" and "developing" countries, though the

[4] TRIPS, Art. 3.
[5] TRIPS, Art. 4.
[6] TRIPS, Art. 1(1).
[7] TRIPS, Art. 9.2.
[8] Council for Trade-Related Aspects of Intellectual Property Rights, *Minutes of June 8–9, 2010 Meeting*, WTO DOC. IP/C/M/63 (Oct. 4, 2010), https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S009-DP.aspx?language=E&CatalogueIdList=87682&CurrentCatalogueIdIndex=0&FullTextHash=1&HasEnglishRecord=True&HasFrenchRecord=True&HasSpanishRecord=True.
[9] TRIPS, Art. 41.
[10] TRIPS, Art. 42.
[11] TRIPS, Art. 44.
[12] TRIPS, Art. 45.
[13] TRIPS, Art. 46.
[14] TRIPS, Art. 47.
[15] TRIPS, Art. 48.
[16] TRIPS, Art. 61.
[17] *Id.*

terms are not perfectly coextensive; the paper uses them to denote, broadly, capital-exporting IP-producing economies on the one hand and technology-importing, IP-consuming economies on the other). Prior to the TRIPS, IP was governed at a global level by the Paris Convention of 1883, which gave wide recognition to the diversity of nations and their respective socio-economic settings. [18] For example, under Article 4 *bis,* the patents recognised by the States were to be independent of each other.[19] This meant that the grant of a patent in one State does not oblige another State to grant such a patent.[20] This is in stark contrast to the TRIPS, which seeks universalisation of IP regimes across the world. There is ever-growing pressure for furthering such universalisation by the developed countries over the developing countries,[21] as the economic realities of the latter were seen as mere impediments to the project of economic liberalisation.[22] This can be reflected in the demand for the TRIPS Plus approach, which seeks to go beyond the 'minimum' requirements provided under the TRIPS Agreement. This is seen prominently at the bilateral level through FTAs entered into by US and EU.[23] The demands made by developed countries are often greater than what EU domestic legislation provides.[24] Such a high degree of patent enforcement reflects a clear bias towards the developed nations, and owing to the particular needs and situations of the Third World, such stringent regimes are not feasible.

An example of a TRIPS Plus approach can be seen through an analysis of Article 61, which provides that criminal sanctions may be extended to patents.[25] This raises the question over whether giving effect to the full text of Article 61 is possible or even desirable. We argue against the TRIPS Plus approach through the lenses of various stakeholders, as well as the Third World Approaches to International Law ["**TWAIL**"] philosophy, analysing the position taken by Brazil and South Africa. The position of US and UK is also examined. Special emphasis is laid over extending Article 61 to India for patents, weighing the pros and cons, and assessing the present jurisprudence. An argument is also made that IP infringements of patents must not attract criminal sanctions and should remain limited to civil remedies. This is followed by a conclusion and suggestions for an improved international IP regime.

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[18] Paris Convention for the Protection of Industrial Property, Mar. 20, 1883, 828 U.N.T.S. 305, (***hereinafter*** **referred to as "Paris Convention"**).
[19] Paris Convention, art. 4 *bis*.
[20] *Id.*
[21] Peter Drahos, *The Universality of Intellectual Property Rights: Origins and Development*, 9 WIPO J. (1998).
[22] Peter K Yu, *The Objectives and Principles of the TRIPS Agreement*, 46 HOUS. L. REV. 15 (2009).
[23] Carlos M. Correa, *Global Debate on the Enforcement of Intellectual Property Rights and Developing Countries, in* ICTSD PROGRAMME ON INTELLECTUAL PROPERTY RIGHTS AND SUSTAINABLE DEVELOPMENT 29 (Int'l Ctr. for Trade & Sustainable Dev., Issue Paper No. 22) (2009), https://www.files.ethz.ch/isn/102256/2009-03_fink-correa-web.pdf.
[24] Frederick M. Abbott, *Intellectual Property Provisions of Bilateral and Regional Trade Agreements in Light of U.S. Federal Law, Geneva*, (Int'l Ctr. for Trade & Sustainable Dev. & U.N. Conference on Trade & Dev., Issue Paper No. 12) (Feb. 2006).
[25] TRIPS, Art. 61.

II. CONCEPTUAL FRAMEWORK OF ARTICLE 61 OF TRIPS

Article 61 of TRIPS reads as -

Members shall provide for criminal procedures and penalties to be applied at least in cases of willful trademark counterfeiting or copyright piracy on a commercial scale. Remedies available shall include imprisonment and/or monetary fines sufficient to provide a deterrent, consistently with the level of penalties applied for crimes of a corresponding gravity. In appropriate cases, remedies available shall also include the seizure, forfeiture and destruction of the infringing goods and of any materials and implements the predominant use of which has been in the commission of the offence. Members may provide for criminal procedures and penalties to be applied in other cases of infringement of intellectual property rights, in particular where they are committed willfully and on a commercial scale.

The requirement of placing criminal sanctions under Article 61 requires four conditions to be met:

1. There must be trademark counterfeiting or copyright piracy.
2. Such counterfeiting or piracy must be at a commercial scale.
3. The counterfeiting or piracy must be willful.
4. The counterfeiting must relate to trademarks or copyrights.

'Trademark counterfeiting' and 'copyright piracy' are distinct from mere infringements. This can be evidenced from the draft text of TRIPS at the Uruguay Rounds, where the words 'infringements of trademark and copyright' were considered.[26] The term 'willful' is defined under Black's Law Dictionary as referring to an act done with greater intentionality.[27] This has been implemented in a variety of ways by the States. For instance, New Zealand requires the infringer to 'know' that he is committing an offence.[28] In the UK, there must either be knowledge, or some 'reason to believe' that the act constitutes infringement.[29] On the other hand, Hong Kong does not require 'willfulness' for an act to fall under the criminal sanctions, but having 'no reason to believe' provides a defence to the accused. Jurisdictions such as Austria,[30] Spain,[31] and Hungary[32] make counterfeiting an offence irrespective of 'willfulness'. In totality, the import of 'willful' functions as a limiter to denote the *mens rea* of the action, which is provided as the minimum requirement under Article 61.

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[26] Arthur Dunkel, *Status of Work in the Negotiating Group: Chairman's Report to the GNG*, WTO DOC. MTN.GNG/NG11/W/76 (July 23, 1990).
[27] *Wilful*, BLACK'S LAW DICTIONARY (10th ed. 2014).
[28] Copyright Act 1994, § 131 (N.Z.).
[29] Copyright, Designs and Patents Act 1988, c. 48, § 107 (Eng.).
[30] Markenschutzgesetz [Trademark Protection Act] 1970, § 60 (Austria).
[31] Código Penal [Spanish Criminal Code] art. 278 (Spain).
[32] Büntető Törvénykönyv [Hungarian Criminal Code] § 388 (Hung.).

Following this, the State shall impose sanctions that are sufficient for deterrence. These may take the form of imprisonment, fines, or both, and the remedies must include seizure and forfeiture where appropriate. The TRIPS Plus Model extends the application of Article 61 to other IPs, such as patents, as well, particularly when it is 'willful and on a commercial scale'.

A. China – IP Rights

The WTO Panel had the opportunity to interpret Article 61 in the case of China - Measures Affecting Protection and Enforcement of IP Rights.[33] Therein, the contention of the US was that Article 61 requires implementation of criminal sanctions, which China has failed to provide for under their laws. To test this contention, it was required to determine what constitutes 'commercial scale' and whether Chinese laws afford criminal sanctions to cases which meet the 'threshold' of a commercial case, and what category of cases fall under 'wilful'. Another issue raised was over the second sentence of Article 61, concerning what constitutes a sufficient deterrent.

1. Commercial scale under Article 61

On the aspect of commercial scale, US argued that a proper understanding of 'commercial scale' relates to counterfeiting or piracy that reaches a 'certain extent or magnitude' in any given marketplace.[34] The determination of 'scale' had a primary role in China's argument. To interpret Article 61, reference was made to the context of the treaty, as under Article 1.1 and 41.5. These provisions provide for a degree of flexibility to the member states to implement the obligation under the TRIPS agreement in their domestic framework.

A varied approach was taken by the third parties to the above issue. The position of flexibility vis-à-vis Art 1.1, as argued by China, was supported by Argentina,[35] as well as Thailand.[36] Brazil offered a 'two-pronged' test for commercial scale, which included the order of magnitude along with an intention of profit-seeking.[37] Further, Chinese Taipei submitted that the cultural background, standard of living etc. is to be taken into account.[38]

[33] Panel Report, China – Measures Affecting the Protection and Enforcement of Intellectual Property Rights, WTO Doc. WT/DS362/R (Jan. 26, 2009) (adopted Mar. 20, 2009), (***hereinafter*** **referred to as "China Panel"**).
[34] China Panel, ¶ 7.480.
[35] China Panel, ¶ 7.484.
[36] China Panel, ¶ 7.493.
[37] China Panel, ¶ 7.486.
[38] *Id.*

On the other hand, Australia posited that 'commercial scale' requirement can be met out even where there is no profit involved.[39] Similarly, Japan, Korea and Mexico highlighted other aspects of 'commercial scale' such as the meaningfulness of small-scale infringement, easy repetition, etc. Canada described the Chinese thresholds as high, inflexible and arbitrary, highlighting that it precludes the authority from enforcing sanctions, and that such preclusion is against Article 61.[40] European communities took the argument further, claiming that the obligation does not stop at mere criminalisation but requires active prosecution.[41]

2. Sufficiency of deterrence

The claim under the second sentence of Article 61 rests on whether China adheres to the first sentence. Australia argued that the parties must 'actively prosecute and punish' acts of infringement. Further, Canada argued that the 'administrative proceedings' provided by China preclude the application of the criminal sanctions, thereby removing all deterrence for the infringers. On the other hand, Brazil argued that the second sentence relates not just to imprisonment but also to monetary fines. Thus, if China provides administrative proceedings for low-level infringement which lead to monetary fines, then it is sufficient deterrence per the provision.

3. Conclusion of the Panel

The Panel ruled that, owing to the freedom given to members under Article 1.1 of TRIPS, the mere imposition of criminal sanctions for piracy and counterfeiting on a commercial scale by a State is sufficient for the fulfilment of its obligations.[42] An assumption to the contrary cannot be made unless evidence which proves otherwise is provided.[43] The claims of the US were rejected by the Panel since the information provided by them was 'too little' and 'too random' to determine what constitutes commercial scale for the Chinese market.[44]

With regard to the sufficiency of deterrence, the Panel exercised judicial economy,[45] as the dispute before it was limited to the specific allegations raised by the US against China.[46] However, the Panel recognised the sensitive nature of criminal enforcement vis-à-vis the principle of sovereignty,

[39] China Panel, ¶ 7.485.
[40] China Panel, ¶ 7.487.
[41] China Panel, ¶ 7.488.
[42] China Panel, ¶ 7.602.
[43] China Panel, ¶ 7.602.
[44] China Panel, ¶ 7.617.
[45] China Panel, ¶ 8.2.
[46] China Panel, ¶ 8.5.

highlighting that there may be important differences between States which become more prominent in the implementation of sanctions.[47]

B. Saudi Arabia – Intellectual Property

Another dispute relating to Article 61 was Saudi Arabia – Intellectual Property, in which the Panel interpreted the phrase '…shall provide for criminal procedures and penalties'.[48] There was unanimous agreement between the parties that the State cannot be obliged to prosecute all suspected cases falling under Article 61. However, there were divergent positions taken over the implications of such an agreement.

It was reasoned that if there is no obligation on the part of States to prosecute all suspected cases, then in the absence of specific guidelines over which cases to prosecute, there is no duty placed on the part of the State.[49] Others suspected such logic and argued that a form of systemic non-enforcement would render the object and purpose of Article 61 void.[50]

This flows from the observation of the Panel that an enforcement system which lacks any real authority is redundant, and contrary to Article 61. While the term used in the first sentence is 'shall provide', a broader view can be imported from Article 1.1, under which a State is required to 'give effect' to the provisions of the TRIPS Agreement.

The Panel did not resolve the apparent conflict arising from the extent of enforcement required. A harmonious reading would provide that the State may actively prosecute to the extent that it is viable and feasible, which would require multiple factors to be taken into account. However, this does not mean that there is any obligation *per se* for the State to initiate prosecution, and it only has to provide conditions conducive for initiation of such proceedings by the private parties.

III. JUSTIFICATION FOR CRIMINAL SANCTIONS

The rights of an IP holder include the right of exclusive economic exploitation, and commercial scale infringement over this right undermines the very institution of IP by rendering the grant of copyright or trademark as meaningless. A State is obliged to provide criminal remedies to such a

[47] China Panel, ¶ 7.513.
[48] Panel Report, Saudi Arabia – Measures Concerning the Protection of Intellectual Property Rights, WTO DOC. WT/DS567/R, adopted on 16 June 2020, ¶ 7.206, *hereinafter* referred to as "Saudi Arabia".
[49] Saudi Arabia, ¶ 7.212.
[50] *Id.*

person if the conditions of Article 61 are fulfilled. This is distinct from the civil remedies offered under the TRIPS framework, under Section 2 of Part III.

In this regard, a criminal process is characterised by higher standards of proof, greater punishment, and significant social stigma.[51] A criminal offence is against the State, whereas a civil wrong is against a private individual. In cases falling under Article 61, the State is required to initiate proceedings against the infringer, because the qualifications provided therein raise the bar much higher than mere infringement, to wilful infringement on a commercial scale.[52] Counterfeiting and piracy account for over 2.5% of global trade, or $461 billion. It should be noted that this figure, drawn from an OECD/EUIPO study, has attracted methodological criticism, including concerns about the reliance on seizure data as a proxy for total trade in counterfeit goods and the difficulty of separating trademark counterfeiting from patent-related infringements in aggregate estimates. The figure is cited here as an illustration of the scale of the problem, not as a precise empirical benchmark.[53] This causes distortions in the market, which leads to a reduction of revenue, and poses safety and security concerns for the consumers.[54] For instance, counterfeiting medicines not only has an immediate impact on the health of the consumer but also poses a threat to the credibility of the healthcare system.[55] The seriousness of the offence and its impact on society and individuals justifies treating the violation as a crime against the State, since 'counterfeiting' falls under the class of fraud, whereas 'piracy' is a species of theft.[56]

A report by the Organisation of Economic Cooperation and Development (OECD) sought to explore the effects of an increased IP regime in developing nations.[57] This posits a justification for criminalising IP offences since it leads to a reduction of crimes in other spheres as well. For instance, a criminal group distributing copyrighted material on a commercial scale is likely to be

[51] Elena Maculan & Alicia Gil Gil, *The Rationale and Purposes of Criminal Law and Punishment in Transitional Contexts*, 40 J. LEGAL STUD. 132 (2020).
[52] Eurojust, *Counterfeiting of Goods – National legislation and Court Practice*, EU IPO (Dec. 2022), https://www.eurojust.europa.eu/sites/default/files/assets/counterfeiting-of-goods-national-legislation-and-court-practice.pdf.
[53] *Id.*
[54] *Intellectual Property Crime*, EUROPOL, https://www.europol.europa.eu/crime-areas/intellectual-property-crime/counterfeiting-and-product-piracy.
[55] *Combating Counterfeit Drugs: Building Effective International Collaboration*, WORLD HEALTH ORGANIZATION (Concept Paper, WHO Int'l Conf. on Combating Counterfeit Drugs, Rome) (Feb. 16, 2006).
[56] *Enforcement of Intellectual Property Rights by means of Criminal Sanctions: An Assessment*, WORLD INTELLECTUAL PROPERTY ORGANIZATION, WIPO DOC. WIPO/ACE/4/3 (Sept. 7, 2007).
[57] WG Park & Lippolt, *Technology Transfer and the Economic Implications of the Strengthening of Intellectual Property Rights in Developing Countries* (OECD Trade Policy Paper No. 62) (2008).

indulgent in other criminal activities such as drug trafficking.[58] Thus, by targeting the perpetrators under the IP regime, the spillover benefits leads to reduction of other indicators of crime.[59] There is also an argument for criminal sanctions and increased deterrence to be made, as highlighted by the EU Directive.[60] Thus, while a civil remedy is more appropriate as an IPR remedy in general, there are specific instances when a criminal remedy is needed. This is owing to the nature and gravity of the offence, which distinguishes it from a mere civil wrong.

As shown above, Article 61 permits States to extend the criminal sanction over to other IP such as patents. This forms part of the TRIPS Plus approach, which is discussed in the following section.

IV. A CRITIQUE OF THE TRIPS PLUS APPROACH TO ARTICLE 61

A twofold argument against the TRIPS Plus approach to Article 61 is to be made. *First*, there has been an expansive reading of IP as detrimental to the Third World as per the TWAIL approach. *Second*, criminalisation of patents leads to greater costs for the developing world, and has a net negative impact on the developing world. The call for enforcement has to be read conjunctively with the expanded area of what can be offered protection under patents.

A. Increased stringency in IP is detrimental to the developing countries as per the TWAIL Approach.

Before turning to the substantive critique, it is necessary to briefly situate the TWAIL framework deployed in this paper. TWAIL (Third World Approaches to International Law) is a critical scholarly tradition that interrogates how international law has historically served the interests of colonial and post-colonial powers at the expense of the Global South. Pioneered by scholars such as Antony Anghie and B.S. Chimni, TWAIL exposes the ways in which legal categories, including international IP norms, reproduce structural inequalities between states. Anghie, in particular, has argued that international law's universalist claims mask its origins in the project of empire, a critique that applies with full force to the TRIPS Agreement, which was negotiated at a moment of profound power asymmetry between developed and developing country delegations. Chimni's work on international institutions adds that multilateral forums systematically marginalise Third World interests through procedural and substantive biases. In the IP context specifically, P.N.

[58] *What is Counterfeiting*, INTERNATIONAL ANTI-COUNTERFEITING COALITION, https://www.iacc.org/resources/about/what-is-counterfeiting.
[59] *Id.*
[60] Corrigendum to Council Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the Enforcement of Intellectual Property Rights, 2004 O.J. (L 195) 16.

Upreti has examined how TRIPS-Plus obligations imposed through bilateral FTAs operate as a mechanism of neo-colonial extraction, compelling developing countries to adopt IP regimes calibrated to the economic interests of technology-exporting states. This paper draws on these insights to argue that the extension of criminal sanctions to patents under a TRIPS Plus model cannot be assessed in a politically neutral register: it is, in TWAIL terms, a disciplinary mechanism that widens the gap between countries that produce IP and those that consume it.

Increased stringency of the IP regime may lead to an undermining of the 'basic conditions of sustainable knowledge', as for instance, extension of patent protection to materials merely isolated from nature.[61] It has been an observed phenomenon that the IP regimes increase with the technological capabilities of the developed countries.[62] For instance, patent protection for pharmaceuticals was granted only when technologies in European countries became competitive.[63] This option is not available to developing countries, as they have to adapt to an IP regime which has already been established by the developed countries.[64] Additionally, innovation is much dearer than imitation owing to the transitional economic development of developing countries.[65] Increased IP may hinder infrastructural growth, cause inflationary pressures, and raise Balance of Payment concerns amongst others.[66] James Thuo Gaithii points to the comparative advantage US gained between 1947 and 1986, which then led them to fervently argue for greater IP rights protection.[67] This fuelled and guided the 'fair trade debate', wherein a perception was created that infringements by developing countries reduce 'standards of living' for the developed countries.[68] Pertinent to note is the role of private players and industrial lobbyists in framing these policies. For example, under President Carter's regime, a lead role was played by Edmund Pratt, the CEO of Pfizer, for shaping the foreign policy under the Advisory Committee on Trade and Policy Negotiations.[69]

[61] Carlos M Correa, *How intellectual property rights can obstruct progress*, SCIENCE AND DEVELOPMENT NETWORK (Apr. 4, 2005), https://www.scidev.net/global/opinions/how-intellectual-property-rights-can-obstruct-prog/.
[62] *Id.*
[63] *Id.*
[64] *Id.*
[65] David Gould and William Gruben, *The role of intellectual property rights in economic growth*, 48(2) J. DEV. ECON. 323 (1996).
[66] *Id.*
[67] James Thuo Gaithii, *Construing Intellectual Property Rights and Competition Policy Consistently with Facilitating Access to Affordable AIDS Drugs to Low-End Consumers*, 53 FLA. L. REV. 728 (2001).
[68] *Id.*
[69] *Id.*

Empirical research over this matter points both ways, subject to the factors and variables accounted for.[70] For instance, it has argued that patent projection of the antibiotic fluoroquinolone by US affected consumer welfare in India by over $ 250 million.[71] It has also been argued that the West in general, and United States in particular, advocate for global patent reform to increase their market access to the Global South as well as protect their existing IP.[72] On the other hand, a report by OECD claims a positive correlation between increased protection of patent by 1% leading to an increase in FDI by 2.8%. This finding, however, must be treated with caution: the underlying study relies on cross-country regression analysis using the Park IPR index as a proxy for patent strength, a methodology criticised for its insensitivity to variation in enforcement quality and for conflating formal legal protection with actual commercial effect. The FDI-patent correlation may also reflect reverse causality, as countries that already attract FDI tend to strengthen IP regimes in response to investor pressure rather than in anticipation of it.[73] The data remains inconclusive, as another report highlights how a single unit increase in the IPR Index leads to a fall in real GDP per capita growth by 0.73% for developing countries in the middle-income range.[74] In summation, it can be safely concluded that patents in general favor the West. Their impact over the developing countries varies on multiple factors, and solid examples which establish a negative impact can be observed.

B. Criminalization of patent would have a net negative impact for the developing countries.

The TRIPS Plus approach has to be analysed in light of the context provided above. There is a general consensus against invoking criminal law for patents. The emerging comparative literature on criminal IP enforcement reinforces this view. Liu and He, in their study of criminal IP enforcement in Asia, document how jurisdictions with formally robust criminal IP regimes often calibrate enforcement in practice to avoid deterring domestic innovation, and that criminal patent enforcement in particular tends to be deployed selectively and sparingly even where it exists on the statute books. Irina Manta's work on the puzzle of criminal sanctions for IP infringement further demonstrates that the moral intuitions that justify criminal punishment for trademark

[70] Sourav Chatterjee, *Worldwide: Intellectual Property Rights in Developing Nations*, MONDAQ (Mar. 4, 2008) https://www.mondaq.com/unitedstates/trademark/57856/intellectual-property-rights-in-developing-nations#:~:text=Intellectual%20property%20rights%20(IPR)%20are,IP)%20for%20a%20certain%20period.
[71] Shubham Chaudhari, *Estimating the Effects of Global Patent Protection in Pharmaceuticals: A Case Study of Quinolones in India*, 96 AM. ECON. REV. 1477 (2006).
[72] Walter G Park, *North-South models of intellectual property rights: an empirical critique*, 148 REV. WORLD ECON. 151 (2012).
[73] Ricardo Cavazos-Cepeda, Douglas Lippoldt & Jonathan Senft, *Policy Complements to the Strengthening of IPRS in Developing Countries* (OECD, Trade Policy Papers No. 104, 2010).
[74] Pervez Janjua & Ghulam Samad, *Intellectual Property Rights and Economic Growth: The Case of Middle Income Developing Countries*, 46(4) PAK. DEV. REV. 711 (2007).

counterfeiting and copyright piracy, deception and appropriation of expressive labour, respectively, do not translate cleanly to patent infringement, where the contested nature of patent scope and the legitimacy of competitive innovation make the criminality of the act far less self-evident. These contributions from the criminal IP scholarship should be read alongside the existing literature cited in this paper, including Gopalakrishnan's foundational comparative analysis, the South Africa constitutional patent decision, and Janjua and Samad's empirical critique of IPR maximalism, to form a coherent body of scholarship that counsels against the TRIPS Plus extension of criminal liability to patents.[75] This can be understood through the history of patents, which were granted protection to enhance the industrial development, and not to protect the proprietors.[76] Such position has been adopted across multiple jurisdictions.[77] For instance, in *Biswanath Pras*ad, the full bench of the Supreme Court of India held that the object of patent law is encouraging scientific research and stimulating inventions with a commercial utility.[78] The patent system functions as a tool for 'managing the national economy'.[79] The success of a patent regime is dependent not on how well it protects the interests of the inventor, but rather how well it suits the society.[80] A recent Constitutional Court decision of South Africa also noted the relationship between patents and the public interest, considering how they may lead to artificial monopolies.[81]

It has been contested that there is a moral and utilitarian distinction, as trademark and copyright infringement lead to greater harm and thus require higher punishments.[82] Criminalisation of patents may also significantly deter inventions, and hence would not be justified.[83] In determining whether an infringement of a patent has occurred, the scope of the patent, including the process and the product, is considered.[84] It is argued by the competitors that their conduct does not constitute infringement since it falls beyond the scope of the protection granted to the patent.[85] Thus, there exists this degree of uncertainty, wherein imposition of criminal sanctions would

[75] NS Gopalakrishnan, *Criminal Law and Intellectual Property: Current Practise*, 36 J. INDIAN L. INST. 64 (1994).
[76] *Id.*
[77] Winner Sitorus, *Public Interest in Patent Protection: The Need of a Criteria*, 45 J.L. Pol'y & Globalization 85 (2016); Kurt M. Saunders, *Patent Nonuse and the Role of Public Interest as a Deterrent to Technology Suppression*, 15 Harv. J.L. & Tech. 390 (2002).
[78] Biswanath Prasad Radhey Shyam v. Hindustan Metal Industry, (1979) 2 SCC 511 (India).
[79] Justice N. Rajagopala Ayyangar, *Report on the Revision of the Patents Law*, SCC ONLINE (1959), https://ipindia.gov.in/uploads/CGPDTM_Post_Generation__Justice_N_R_Ayyangar_committee_report_1959.pdf.
[80] *Id.*
[81] Ascendis Animal Health (Pty) Ltd. v. Merck Sharp & Dohme Corp. 2019 ZACC 41 (S. Afr.).
[82] Irina Manta, *The Puzzle of Criminal Sanctions for Intellectual Property Infringement*, 24(2) HARV. J.L. & TECH. 469 (2011).
[83] *Id.*
[84] *Preliminary Comments on the Proposed Directive on Criminal Measures Aimed at Ensuring the Enforcement of Intellectual Property Rights and the Council Framework Decision on Measures to Strengthen the Criminal Law Framework to Combat Intellectual Property Offences*, Chartered Inst. of Patent Agents (2007).
[85] *Id.*

hinder the competitors from even attempting innovation. Such sanctions would be detrimental to innovation, irrespective of which country they are applied to. It is pertinent to note that this would pose a greater risk to the developing world, since they are already lagging behind in the development of IPs. Therefore, criminalisation of patents would be against the interests of the developing world.

V. COMPARATIVE ANALYSIS

The implementation of TRIPS as a whole, as well as the TRIPS-Plus approach, has varied greatly between jurisdictions. For the purposes of this academic endeavour, we shall examine the implementation of criminal sanctions under TRIPS in the United States, the United Kingdom, India, Japan and Brazil. The first four are major hubs in the development of IP law around the world.[86] Brazil is also a growing contributor; the focus on developed countries or those with large populations has led to a dearth of research relating to these countries.

The selection of these five jurisdictions is intended to be illustrative rather than statistically representative. They have been chosen to capture variation across three dimensions relevant to the central argument: (i) legal tradition (the US, UK and India as common law systems; Japan and Brazil as civil law systems); (ii) economic and developmental status (the US, UK and Japan as high-income economies; Brazil as an upper-middle-income economy; and India as a lower-middle-income economy); and (iii) geopolitical positioning with respect to TRIPS Plus advocacy (the US and Japan as proponents; India and Brazil as consistent critics; the UK occupying a more ambiguous post-Brexit position). The paper acknowledges that this sample cannot support universal generalisations and accordingly qualifies its conclusions as indicative rather than definitive. South Africa, briefly discussed in Section IV in connection with constitutional patent jurisprudence, was not included as a full case study due to the more limited development of its criminal IP enforcement framework; its exclusion is acknowledged as a limitation of the comparative analysis.[87]

A. United States

The United States has adopted a stricter approach to dealing with violations relating to IP, in comparison with other countries. For instance, the Omnibus Trade and Tariff Act of 1988

[86] Peter K. Yu, *The Global Intellectual Property Order and Its Undetermined Future*, 1 WIPO J. 1 (2009).
[87] Vivian Barcelos, *The Use of Intellectual Property in Brazil, Vivian Barcelos* (World Intell. Prop. Org., Econ. Rsch. Working Paper No. 23, Dec. 2014).

established a watch-list of different nations that did not comply with the standards for IP protection established by the US, threatening them with trade sanctions.[88]

Copyright violations, either through "Circumvention of Copyright Protection Systems",[89] or violations of the "Integrity of Copyright Management Information",[90] warrant criminal penalties.[91] If a person were to willfully violate either of the two aforementioned provisions, they would be subject to a fine of up to $500,000, 5 years of imprisonment, or both, for their first offence. Both of these penalties are doubled for any subsequent offences.[92]

Trademarks are protected in a similar manner, with violations of the Lanham Act (their primary trademark statute), either by intentional use of a counterfeit trademark or by unauthorised use of a trademark, being penalised through up to 5 years of imprisonment, or a fine of $250,000 (and up to $1,000,000 for corporate entities).[93]

The United States does not currently impose criminal sanctions for patent violations, but the prevailing academic opinion appears to be shifting towards a more TRIPS-Plus aligned approach.[94] They have also attempted to extend the reach of harsher sanctions through bilateral Free Trade Agreements (FTAs) with various countries, such as the Jordan-USA FTA.[95] These are said to have arisen from the pharmaceutical industry's dissatisfaction towards the 10-year transition periods given prior to the introduction of patent protections in countries such as Brazil, India and Thailand.

While the United States does not expand criminal sanctions for patent violations, courts have utilised criminal jurisprudence to understand patent violations and determine the quantum of civil consequences.[96] Additionally, the US has achieved the TRIPS-Plus vision by affording greater legal protections for IP rights through its position as a global hegemon by leveraging FTAs for this purpose. Their criminal sanctions for copyright violations also reflect this: Article 61 merely

[88] Omnibus Trade and Tariff Act of 1988, Pub. L. No. 100-418, 102 Stat. 1107 (1988).
[89] 17 U.S.C. § 1201 (1976).
[90] 17 U.S.C. § 1202 (1976).
[91] 17 U.S.C. § 1204 (1976).
[92] *Id.*
[93] 18 U.S.C. § 2320 (1984).
[94] Jacob S Sherkow, *Patent Infringement as Criminal Conduct*, 19 MICH. TELECOMM. & TECH. L. REV. 1 (2012); Irina D Manta, *Explaining Criminal Sanctions in Intellectual Property Law*, J.L. & INNOVATION (2019); Noel Mendez, *Patent Infringers, Come Out with Your Hands Up!: Should the United States Criminalize Patent Infringement?*, 6 BUFF. INTELL. PROP. L.J. 34 (2008).
[95] *Supra* note 88.
[96] Global-Tech Appliances, Inc. v. SEB S.A., 563 U.S. 754 (2011).

requires criminalisation for copyright piracy on a commercial scale, whereas §1204 greatly expands the scope of criminalisation.

B. United Kingdom

This jurisdiction takes an enforcement-oriented stance on the TRIPS-Plus approach. The UK establishes its sanctions for copyrights through the Copyright, Designs and Patents Act, 1988, and punishes the various acts undertaken in relation to the copyright without the consent of the holder with summary imprisonment of up to 6 months, or 10 years of imprisonment on indictment alongside certain fines.[97]

Section 92 of the Trade Marks Act, 1994 criminalises various acts relating to the unauthorised use of trademarks, such as applying marks likely to be mistaken for a registered trademark to goods or their packaging, intending to gain from such a mark, without the consent of the proprietor of the mark.[98] This could either result in summary imprisonment of 6 months, or an imprisonment of up to 10 years on indictment. The grounds for such a violation are enumerated in far more detail than they have been in other jurisdictions. This considerably expands the scope of its application. Contrasting this against the USA, the possibilities for committing such a violation increase in the UK, but the latter does not separately consider violations by corporate entities as the former does. Similar to the US, the UK does not criminalise patent violations.[99] However, it does proactively protect the IP environment by criminalising the falsification of registrations through up to two years of imprisonment.[100]

The UK expands the scope of IP protection through the possibility of summary imprisonment, albeit with a reduced sentence, alongside broad definitions of IP violations. While it abstains from criminalising patent violations in order to foster innovation and development, it ensures that IP rights are vigorously and proactively protected by imposing harsh criminal sanctions with summary sentencing.

C. India

India has a relatively relaxed stance and does not gravitate towards the TRIPS-Plus approach. This may be due to the TWAIL-based concerns against such an approach, as explained in a previous

[97] Copyright, Designs and Patents Act 1988, c. 48, § 107 (Eng.).
[98] Trade Marks Act 1994, c. 26, § 92 (Eng.).
[99] Patents Act 1977, c. 37, § 110 (Eng.).
[100] Patents Act 1977, c. 37, § 109 (Eng.).

section. Section 63 of the Copyright Act, 1957 provides for a comparatively lenient maximum sentence of 3 years for committing or abetting copyright infringement.[101] Even the monetary penalty provided herein is lenient, a mere Rs. 200,000. Even accounting for purchasing power parity, the penalty imposed is far lower than what would be imposed in the UK or the US.

Trademark violations are penalised through Section 103 of the Trade Marks Act, 1999.[102] Here, the penalisation is for falsifying trademarks, falsely applying them to goods or services, and other such acts, with the punishment being the same as that of copyright violations. Once again, the penalties here are fairly lenient in comparison with India's counterparts.

Similar to the UK, India criminalises falsification of registration for patents,[103] while abstaining from doing so for an unauthorised claim of patents.[104] The reluctance towards establishing harsh criminal punishments could arise out of the aforementioned TWAIL criticisms. As the benefits of stricter enforcement flow towards the global north and developed countries, third-world nations may be reluctant to adopt a TRIPS-Plus approach.[105] This is also evidenced by India's reluctance to accept TRIPS-Plus provisions in the FTA between India and Japan, as well as the apprehensions expressed in relation to Japan and South Korea's promotion of the same.[106]

D. Japan

Japan leans heavily towards a TRIPS-Plus approach, with severe penalties for IP violations. For copyright violations other than private use, the punishment may extend to up to 10 years.[107] The monetary penalty is relatively lenient, at ¥10,000,000, or about $660,000, for a natural person and ¥300,000,000 or $2,000,000 for a legal person.[108] While these are hefty sums on their own, they are significantly lower than the penalties in the US and UK, while maintaining the severity of criminal penalties. Trademark violations are treated similarly, with the penalties being equivalent to those of copyright violations for a natural person.[109]

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[101] The Copyright Act, No. 14 of 1957, Acts of Parliament (Ind.), § 63.
[102] The Trade Marks Act, No. 47 of 1999, Acts of Parliament (Ind.), § 103.
[103] The Patents Act, No. 39 of 1970, Acts of Parliament (Ind.), § 119, *hereinafter* referred to as "Patents Act, 1970"
[104] Patents Act, 1970, § 120.
[105] Geethika G., *TRIPS to TRIPS-Plus: An Overview of the Indian Generic Drug Industry & Some Newfound Hurdles*, 8 INDIAN J. POL. & INT'L. RELS. 319 (2014).
[106] Teena Thacker, *New Delhi to Oppose Anti-generics Proposals at RCEP Meet*, LIVEMINT (Oct. 25, 2017), https://www.livemint.com/Industry/fkn3MeuV9youkAFyBK1CKM/New-Delhi-to-oppose-antigenerics-proposals-at-RCEP-meet.html.
[107] Chosakukenhō [Copyright Act], Law No. 48 of 1970, art. 119 (Japan).
[108] Chosakukenhō [Copyright Act], Law No. 48 of 1970, art. 124 (Japan).
[109] Shōhyōhō [Trademark Act], Law No. 127 of 1959, art. 78 (Japan).

The area in which Japan differs the most, which in turn makes it a strong proponent of the TRIPS-Plus Model, is the manner in which patent violations are dealt with. Patent violations are, contrary to the treatment in most countries, punishable with imprisonment alongside a monetary fine, with the maximum sentence going up to 10 years.[110] The monetary penalties are the same as those of copyright and trademark violations. Japan acts as an exception to the generally accepted principle of restricting patent violations to a civil offence.

Apart from this, Japan has also been pushing for TRIPS-Plus commitments through their regional FTAs.[111] These steps towards aggressive criminalisation of IP violations, alongside measures to influence their trading partners to take TRIPS-Plus compliant steps, make Japan one of the strongest proponents of the TRIPS-Plus Model.

E. Brazil

Brazil occupies an odd middle ground with respect to the TRIPS-Plus model. While it expands the scope of the criminalisation of IP violations, it also reduces the punishments for such violations. The criminal sanction for IP violations in Brazil is consolidated in Article 184 of the Brazilian Criminal Code, which lumps together all possible IP violations and makes them punishable with a punishment of up to 4 years, and an uncapped fine, depending on the severity of the conduct.[112] While the uncapped fine could result in substantial liabilities for potential violators, given the (comparatively) lenient attitude with regard to imprisonment, it is likely that the quantum of such punishment would not be too severe.

F. Analysis

Most countries, except Japan and Brazil, appear reluctant to adopt the TRIPS-Plus approach. Patent violations are rarely criminalised across the world, and even in jurisdictions where such acts are criminalised, there are notable caveats to their implementation. Brazil, for instance, balances out the criminalisation with lenient punishments. Japan, on the other hand, with a conviction rate of 99.8%,[113] leans towards the belief that strict enforcement acts as an effective deterrent to future

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110 Tokkyohō [Patent Act], Law No. 121 of 1959, art. 196 (Japan).
111 Anubha Sinha, *Japan Pushes for TRIPS-Plus Provisions in a Regional FTA: Médecins Sans Frontières Raises Alarm*, SPICY IP (Sept. 16, 2014), https://spicyip.com/2014/09/japan-pushes-for-trips-plus-provisions-in-a-regional-fta-medecins-sans-frontieres-raises-alarm.html.
112 Código Penal [Criminal Code], art. 184 (Braz.).
113 Takeshi Miyatuka, *Japan's 'Hostage Justice' System: Denial of Bail, Coerced Confessions, and Lack of Access to Lawyers*, HUMAN RIGHTS WATCH (May 25, 2023), https://www.hrw.org/report/2023/05/25/japans-hostage-justice-system/denial-bail-coerced-confessions-and-lack-access#:~:text=Japan%20has%20a%2099.8%20percent,or%20not%20has%20enormous%20significance.

violators. The world at large, however, does not have the same perspective on this issue. As a result, it is clear that the cultural *zeitgeist* opposes the criminalisation of patent violations. This observation, however, requires deeper analytical unpacking along the dimensions that the selection framework of this paper was designed to illuminate: legal tradition, development status, and TRIPS Plus posture.

First, legal tradition does not straightforwardly predict willingness to criminalise patent infringement. The common law jurisdictions surveyed, the US, UK, and India, all decline to extend criminal sanctions to patents, and in each case this reluctance is expressed through affirmative legislative choices rather than mere silence: the UK's Patents Act explicitly limits criminal liability to registration fraud; India's Patents Act similarly stops short of criminalising substantive infringement. This convergence across common law systems supports the view, articulated in the comparative patent scholarship by Liu and He in the context of Asian jurisdictions, that criminal enforcement of patents sits uneasily with the structural features of patent law, in particular, the uncertainty of scope and the competitive importance of designing around existing patents, regardless of the formal legal tradition in which the system is embedded. Japan's outlier status is therefore not a function of its civil law tradition but of specific policy choices reflecting its export-oriented high-technology economy and its historical use of IP enforcement as an industrial policy instrument.

Second, development status does correlate, though not perfectly, with enforcement intensity. India, the lowest-income jurisdiction surveyed, maintains the most lenient criminal IP regime overall and has been the most vocal in resisting TRIPS Plus commitments in bilateral FTA negotiations. Brazil occupies a middle position: its nominal criminalisation of patent-adjacent IP violations in the Criminal Code is offset by the lenient sentencing ranges that reflect a deliberate public interest calculation. The US and Japan, as high-income technology-exporting economies, anchor the enforcement-maximalist end of the spectrum. This pattern is consistent with the TWAIL analysis offered in Section IV: the push for TRIPS Plus criminalisation follows the contours of comparative advantage in IP production, and developing countries' resistance to it reflects a structurally rational response to rules that would lock in existing asymmetries of technological capability.

Third, the comparative data undermines the universalist premise underlying the TRIPS Plus agenda. Proponents of TRIPS Plus criminalisation frequently argue that strong and uniform enforcement norms reduce transaction costs for international IP holders and generate welfare

gains that, through FDI and technology transfer, eventually benefit developing countries as well. The evidence from this comparative analysis does not support that claim at the level of criminal patent enforcement. Even Japan, the only jurisdiction that criminalises patent infringement, has not been shown to derive its comparative advantage in technology from its criminal enforcement regime rather than from its research infrastructure, industrial policy, and institutional investment in R&D. The conclusion that flows from this analysis is that criminal patent enforcement is neither a necessary nor a sufficient condition for a well-functioning innovation ecosystem, and that the TRIPS Plus push for its universalisation reflects interest-group politics rather than evidence-based policy.

VI. CONCLUSION AND WAY FORWARD

Protection of IP rights forms a cornerstone in today's world. At the global level, this requires balancing the interests of the developing world against the developed world. This is reflected in Article 61 of the TRIPS, which provides a minimum standard while allowing States to extend criminal sanctions to other IP as well. The case of China – IP and Saudi – IP highlight the nuances of Article 61, particularly over the minimum thresholds and the obligation cast on the State. The justification for such criminalisation draws from the nature and gravity of the offence, which is of a criminal nature involving 'willful' conduct concerning 'commercial' scales.

This aspect of TRIPS Plus, which seeks to extend criminal sanctions to patents, raises an important jurisprudential and practical question. The merits of such criminalisation include the possibility of greater deterrence. On the other hand, critics highlight the lack of certainty owing to the nature of patents and point out their potential for stifling innovation. It is a matter of fact that stringent regimes favour developed countries, but the impact on developing countries is not always as positive.

A cross-jurisdictional analysis shows how different approaches have been adopted by countries. These are dependent on their socio-economic factors. This proves that despite the goal of universalisation sought by the developed countries under TRIPS, there is a long way to go before any sort of TRIPS Plus measures can derive general acceptance. On the basis of the foregoing analysis, this paper advances two concrete policy recommendations: ***First***, at the multilateral level, developing country WTO members should advocate for an explicit interpretive understanding, through a Ministerial Decision or a formal amendment to Article 61, clarifying that the permissive language of the final sentence of Article 61 ("Members may provide for criminal procedures and

penalties… in other cases of infringement") does not create any expectation, pressure, or implied standard that member states should extend criminal sanctions to patents. Such a declaration would serve as a counterweight to the normative creep through which TRIPS Plus norms, initially introduced bilaterally, gradually acquire the character of international soft law.

Second, at the bilateral and regional level, developing countries negotiating FTAs with partners that seek TRIPS Plus IP chapters should insist on explicit patent carve-outs from any criminal enforcement obligations, along with safeguard clauses that preserve domestic policy space to calibrate IP enforcement to national development priorities. The model of the India-EFTA Trade and Economic Partnership Agreement, which did not accede to TRIPS Plus criminal enforcement demands, provides a viable template.

The TWAIL critique elaborated in this paper provides the normative foundation for both recommendations: the universalisation of criminal patent enforcement is not a neutral efficiency gain but a structural redistribution of the gains from innovation from the Global South to the technology-producing North, and international IP law-making should be held accountable to that reality.

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LICENSING STANDARD ESSENTIAL PATENTS IN THE AUTOMOTIVE SECTOR: AN ANALYTICAL STUDY

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ABSTRACT

*Licensing Standard Essential Patents ["**SEPs**"] has gained significant momentum in the ICT sector, and there has been a series of patent wars over their licensing on Fair, Reasonable and Non-Discriminatory ["**FRAND**"] terms due to ambiguity around the FRAND term. On the same lines, as technological embedding in automotive devices has grown, the licensing issues associated with SEPs have also mushroomed in this sector. This issue arose in the case of Nokia v. Daimler, which raised many questions regarding the licensing of interoperability standards in the automotive sector. Thus, this paper will analyse the licensing of interoperability standards in the automotive sector and the challenges they face, using case studies. Along with that, the paper would also provide insight into the actions taken by the sector to tackle the situation and would also talk about the situation in brief regarding licensing SEPs in the Indian Automotive Sector. This paper will focus on the current state of SEP licensing in the automotive sector, with the aim of resolving problems and paving the way for the future of automobiles, which will rely heavily on interoperability, such as connected, automated, or driverless automobiles. Also, the author notes that the approach used to calculate royalties in the telecom sector cannot be applied to the automotive sector due to its fragmented supply chain and suggests that a more specific framework for SEP licensing in the automotive sector should be enacted.*

I. INTRODUCTION

The automotive sector across the globe is going through a transition phase, leading to a shift toward emerging technologies, including 5G, as various technologies are embedded in automotive devices. These technologies are standardised and are essentially used uniformly across the device for interoperability. SEPs are essential technologies used in automobiles, signifying a patent covering technologies that are required to be in compliance with the standards, and what comprises a standard is declared by Standard Setting Organisations ["**SSOs**"].[1] In other words, there is another mechanism for implementing the standard without infringing SEP rights. It is often seen that the term "standard essential patents" is used, but in essence, it is only specific or particular patent claims which are really necessary to a standard in the true sense. Patents often include a variety of claims, some of which could cover technology included in the standard and others might not. Here, the distinction plays a crucial role, as the licensing obligations and disclosure policies

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1 Digvijay Singh & Rajnish Kumar Singh, *Licensing of Standard Essential Patents on FRAND Terms in India*, 24 JIPR. (2019).

apply to the desired components of the claims in relation to the patent, but not to the claims that are not essential. Thus, the more suitable terminology could be 'standard essential claims of a patent' instead of 'standard essential patents'. But to avoid confusion and complexity, SEPs are used in the research.

There are many essential standards that are implemented by the automotive sector as well for the purposes of entertainment, navigation, connectivity, etc. These standards comprise Wireless technology (HaLow), Wireless Access in Vehicular Environment ["**WAVE**"] and Dedicated Short-Range Communications ["**DSRC**"].[2] For the inclusion of the SEP in a standard, many SSOs require SEP holders to make their patents available on FRAND terms to all implementers, so that the standard can be widely adopted and there are equivalent licensing terms for all willing licensees.[3] FRAND commitments are made by participants in SSOs to grant a license to standardised products under their SEPs on terms that are FRAND or royalty-free (RF). These commitments aim to reassure manufacturers that they can sell products covered by SEPs if they obtain a license to do so. FRAND Licensing is usually used to prevent royalty stacking and hold-up. But what these FRAND terms mean is still vague and ambiguous. And due to this vagueness regarding FRAND terms, there are numerous cases in the ICT sector, often referred to as patent wars in the smartphone industry. But despite the plethora of cases in the ICT sector regarding FRAND licensing, there is still no clarity on FRAND interpretation, and disputes are often settled by the companies outside court. However, it can also be said that, within the ICT sector, the issue of FRAND terms is improving and appears settled due to various guidelines issued by the EU and the US. But with the emergence of technology, the other sectors are also affected in the same way as the ICT sector, particularly the automotive sector. A classic example is the famous *Nokia v. Daimler* case, which raised numerous questions about licensing SEPs in the automotive sector. So, this paper would offer insights into the situation of licensing SEPs on FRAND terms in the automotive sector and how it is different from the ICT sector. In light of the Nokia v. Daimler case, this paper will analyse the problems faced by the automotive sector in this regard and the steps it takes to address them. Lastly, this paper would suggest ways to prevent a similar situation, such as *patent wars*, from arising in the automotive sector as it did in the ICT sector.

[2] *Id.*

[3] RAMAN MITTAL, LICENSING INTELLECTUAL PROPERTY: LAW & MANAGEMENT 171 (Satyam Law International, 1st ed. 2011).

II. STANDARD ESSENTIAL PATENTS IN THE AUTOMOTIVE SECTOR

The rapidly growing integration of ICT into vehicles is generating new challenges for patent licensing in general and for negotiating royalty payments for SEPs in particular. There is a drastic change in the automotive industry due to shifts in consumer preferences, emerging markets, new business models, and industry players.[4] This sector seems to be influenced by new environmental and sustainability policy changes, along with upcoming laws and regulations related to security issues. All these forces give rise to disruptive technology trends such as electrification, interconnectivity, and driverless vehicles.[5] It is predicted that the smart cars in the future would be at a stage where they would constantly exchange information with their environment. The Car-to-Car or Car-to-X communication system helps cars communicate with each other, with the infrastructure, or with the roadside. In the future, the automotive sector would heavily rely on the Internet of Things ["**IoT**"] technologies, which would be able to connect buildings, machines and other sensors or software.[6]

Multiple devices could be connected to each other, and their units rely on the technology standards specifications. By this, a common language is established for technologies which ensure cross-functionality and compatibility of varied technology systems. Standards often frame innovative technologies (for instance, LTE (Long Term Evolution), DVB (Digital Video Broadcasting), etc.). The integration of these standardised patent technologies creates economic risks for vehicle manufacturers.[7] In the case of cellular communication standards like LTE, GSM, and UMTS, royalty rates can reach up to $100 million per year.[8] These standards would be very useful in the near future, as vehicles communicate with each other and the environment. In the present times, the standards that perform interoperability functions, such as LTE and WiFi, don't significantly influence decisions when purchasing an automotive vehicle. But this would change in the future when there would be driverless vehicles, connectivity from vehicle to road, etc.

The blend of ICT and the automotive sector has led to the development of vehicular technologies such as shared mobility, automated driving, and electric vehicles. And to further facilitate or develop automobiles, the sector is increasingly equipped with devices; most cars are embedded with devices which allow them to communicate with the systems inside and outside the car. The

[4] Juan Martinez*, FRAND as Access to All versus License to All*, 14 J. INTELL. PROP. L. & PRAC. 642 (2019).
[5] *Id.*
[6] *Id.*
[7] Christopher S. Storm*, Standard Essential Patents Versus the World: How the Internet of Things Will Change Patent Licensing Forever*, 30 TEX. INTELL. PROP. L. J. 267 (2022).
[8] Juan, *supra* note 4.

automation, connectivity, and electrification of a particular vehicle rely heavily on different technology standards. The standards relating to technology include near-field communication (NFC), 4G/5G for wireless communication, Digital Video Broadcasting (DVB) for digital television, radio-frequency identification (RFID), Qi for wireless charging, and much more.[9]

This integration of information processing, communication, and control processing jointly provides us with an enjoyable and convenient transportation experience. And this increasing production of connected and automated vehicles is leading to an increase in litigation and licensing in relation to SEPs.[10]

With the rampant growth in the standardised technologies being incorporated into cars, SEPs are also now very commonly used in the automotive sector. Companies that participate in standard-setting are required to license their patents on FRAND terms. However, in fields like the automotive industry, where products comprise multiple patented components, a common tussle arises between "license to all" and "access to all". "License to all" means that the SEP holder must agree to license to any party who is willing to pay the licensing fee, irrespective of where in the supply chain that party is located. On the other hand, "access to all" licensing allows an SEP owner to decide where in the supply chain they will grant licenses, but permits the licensee to grant access to the suppliers. Due to multiple patented components in the automotive sector and a lack of awareness regarding SEP licensing, a license-to-all approach is preferred at the component level in the supply chain by the implementers.

III. ICT VERSUS THE AUTO INDUSTRY

In the auto industry, standard setting is linked with either setting the de facto standards that lie in the ambit of the lines of production for the manufacturers or with the ratification of the safety standards laid down by the legislation. In the ICT sector, when the standards are set, it passes the compatibility specification standards and could be said or described as a combined development of varied technologies.[11] Different companies gather and conduct meetings in the working groups relating to standard-setting and put forward their proposals for the innovative technology in order to get selected as a standard and for the incorporation of the same in complex or varied

[9] Shaobin Zhu & Bo Tang, *Road to the Future: Sep Licensing and Litigation in the Automotive Field*. THE PATENT LAWYER (August 2022), https://www.morganlewis.com/-/media/files/publication/outside-publication/article/2022/road-to-the-future-sep-licensing-and-litigation-in-the-automotive-field-the-patent-lawyer-magazine.pdf.
[10] *Id.*
[11] Tim Pohlmann, *Patents and standards in the Auto Industry*, IAM (March 31, 2017), https://www.iam-media.com/article/patents-and-standards-in-the-auto-industry.

standardised systems. In today's scenario, these technologies are widely used across devices like notebooks, smartphones, and tablets, but with the emergence of 5G technology, they could be integrated across verticals such as the infrastructure and automotive sectors.[12]

There is a differentiation not only in the development and use of standards between the ICT and Automotive Sector, but also in the mechanisms of patent licensing. Licensing of the patents is done across vertical levels in the automotive sector.[13] A Tier-1 manufacturer in this sector won't be requesting to license the fee from an original equipment manufacturer ["**OEM**"], but would be incorporating the prices into the component prices.[14] This act in the automotive sector gives liberty to the supplier, which will ensure that these components are free of the rights of third parties. In this sector, single-part improvement by an invention serves as the basis for royalty calculations in licensing negotiations. Hence, there is only a marginal influence of licensing costs on vehicle prices in this sector.[15] On the contrary, the patent licensing in the ICT Sector emphasises the device and targets the OEMs, wherein the basis of royalty is on the device's average selling price. As a result, royalties are higher than under cross licensing.[16] This has been a long-standing bone of contention. The holders of SEPs prefer to give a license to the manufacturer of the end-product based on the end product's value, but the end-product manufacturer may not agree with the royalty base by the SEP holder and the taking of a license. The SEP holder may argue that the correct person to charge the royalty base and serve as the licensee is the component supplier who supplies him with the SEP-integrated component, and that the suitable royalty base is the end product value itself.

On the other hand, the component suppliers who are located at different tiers of the chain may consider themselves as licensee, not for the sake of providing the 4G component for the end-product manufacture, but in fact to be able to develop and innovate freely and sell independently the same to other potential customers. The debate revolves around determining the reasonable royalty, and its determination requires identification of an accurate economic base on the basis of which the royalty base is applied. In essence, this dispute concerns two methods for determining royalty: the Smallest Saleable Patent-Practising Unit ["**SSPU**"] and the Entire Market Value Rule

[12] *Id.*
[13] Keith Mallinson, *Revenue boost for automotive industry from cellular connectivity outweighs SEP licensing costs,* R.C.R. WIRELESS NEWS (Aug. 1, 2022), https://www.rcrwireless.com/20220801/analyst-angle/revenue-boost-for-automotive-industry-from-cellular-connectivity-outweighs-sep-licensing-costs-analyst-angle.
[14] Tim Pohlmann, *The Role of Standard Essential Patents for the Auto Industry*, IPLYTICS (2021), https://www.lexisnexisip.com/wp-content/uploads/2023/07/IPlytics-2021_The-Role-of-Standard-Essential-Patents-for-the-Auto-Industry.pdf.
[15] *Id.*
[16] *Supra* note 13.

["**EMVR**"]. SSPU is an economic and legal construct that requires royalties to be based strictly on the smallest component price that practices the patent claims. The proponents of SSPU contend that modern technological developments, as seen in the automotive sector, should focus on component licensing and should not take into account the value determined from the unpatented features. Conversely, under the EMVR, a patentee may use the entire value of the multi-component product as the royalty base, provided that the patented feature is the primary driver of consumer demand for the whole product. The proponents of EMVR argue that this is the most suitable method for royalty determination, as it is less complex to apply than SSPU and, importantly, does not undercompensate the innovator for the functional value their technology adds to the end product.

For the determination of royalties, different jurisdictions have taken different stances, for instance, in the United States, the courts have aimed to ensure that the patent holders are compensated only for the incremental value of the invention, creating a framework of apportionment to avoid the excessive rewarding of SEPs that gain value via the inclusion in an industry standard. Also, the federal court in *Ericsson v. D-Link*[17] rejected the rigid "per se" SSPPU rule, clarifying that the SSPU is there to assist the juries for the apportionment of damages and for avoiding the bias of end-product revenue, it is not an inflexible economic concept that rational firms are required to follow necessarily in the real-world negotiations In *Cornell v. Hewlett*,[18] Cornell initially sought $900 million in damages, by applying EMVR taking into account the entire multi-billion -dollar revenue of HP servers and workstations as royalty base but the court dismantled the approach. The court stated that to rely on the entire market value of the product, the patentee must present suitable proof that the infringing components were the absolute basis for the demand of the consumers for the complete machine comprising all parts beyond the claimed invention. While US Courts have aimed at precise calculation of damages, the way of the apportionment, and avoiding the EMVR, the legal landscape in Europe, led by Germany, has focused on the negotiating parties' conduct and the property rights by leveraging by way of injunctive relief. The basic standard for availing an SEP injunction in Europe was established by the Court of Justice of the European Union ["**CJEU**"] in the 2015 *Huawei v. ZTE* decision,[19] which outlined a negotiation framework to strike a balance between patent rights and competition law.

[17] Ericsson, Inc. v. D-Link Sys., Inc., 13-1625, Fed. Cir. (2014).
[18] Cornell University v. Hewlett-Packard Co., 609, F. Supp. 2d 279, N.D.N.Y. (2009).
[19] Huawei Technologies Co. Ltd v. ZTE Corp., C-170/13, CJEU (2015).

The German Federal Court of Justice refined and, arguably, increased the burden on implementers in its landmark 2020 decision in *Sisvel v. Haier*.[20] The success of SEP holders in enforcing end-product licensing across European Courts has prompted significant criticism from implementers, particularly within the powerful European automotive and manufacturing lobbies. Directly to these concerns, the European Commission introduced highly debatable draft SEP regulation in 2023. This regulation aimed to overhaul the SEP scenario by introducing essentiality checks, establishing a public register of SEPs, and requiring the aggregate royalty determination method mandate before any patent infringement litigation can begin. This Regulation was well received by the automotive industry, but it drew criticism from global innovators and SEP holders. Critics believe this draft violated fundamental rights under the TRIPS agreement.

Thus, due to coordinated worldwide criticism, the regulation was abruptly withdrawn. In addition to this, many SSOs like the European Telecommunications Standards Institute's ["**ETSI**"] IP Policy do not explicitly state in the bylaws the process for the royalty calculation or determination of royalty of the SEPs. However, the ETSI do talk about availability of license on FRAND terms, according to clause 6.1 of the ETSI IPR Policy When an essential IPR relating to a particular standard or technical specification is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give, within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licenses on FRAND terms.[21] But the expectations of royalties of SEP holders on FRAND terms vary or differ from the ICT sector and the automotive sector. It is common to expect the royalties in the double digit in the ICT sector on the basis of the whole product market sales, as in the automotive sector, the marginal profits are comparably low.[22] If the calculations are based on the modules instead of whole products, it could lead to inordinate costs for the vehicle manufacturers, as vehicles integrate multiple modules, which could lead to multiple payments of royalties.[23] And it is contended that this licensing model would not be economically viable for car manufacturers.[24]

Many SEP Holders argue that the value of a standard should be determined on the basis of the use case of the particular product. In today's scenario, connectivity or interoperability is often used in exceptional cases like emergency calls, which are at times even enforced by regulatory actions,

[20] Sisvel v. Haier, KZR 35/17 & 36/17, BGH (2020).
[21] ETSI Directives, ETSI Intellectual Property Rights Policy, Annex 6 (2022).
[22] Jean-Sébastien Borghetti et al., *FRAND Licensing Levels under EU Law*, EUR. COMPETITION J. 220 (2021).
[23] *New Framework for Standard Essential Patents* – Have your say, AENEAS (April 21, 2024), https://aeneas-office.org/2022/04/11/new-framework-for-standard-essential-patents-have-your-say/.
[24] *Id.*

for instance, e-Call.[25] It is thus argued that royalty rates of licensing negotiations of SEPs should be done on the parameter of "**SSPPU**", which is commonly termed as the baseband chip.[26] But this practice ignores the incremental value of a device's interconnectivity. While this value is high in the smartphone industry, the situation in the automotive industry is not as clear as it should be. There are clear rules for SEP licensing and for the usage of injunctive relief, which are laid down by the European Court of Justice ["**ECJ**"] and the US Department of Justice ["**DoJ**"], but there are no clear-cut guidelines to calculate FRAND licensing terms.[27] The interpretation of the rules set by the courts differs across various jurisdictions, which means that while granting an injunction is out of question in some of the countries, there is a possibility in other countries, such as Germany, in which the infringing manufacturers are mostly under an obligation to give apt payments relating to security even before the commencement of the proceedings of the court. Consequently, this situation has led to unpredictable costs and legal uncertainty for many car manufacturers.[28]

IV. CURRENT STATE OF SEP LICENSING AND LITIGATION

As the automobile sector enters the realm of automated and connected vehicles, some holders of SEPs have started taking royalties from the car manufacturers. Among car manufacturers, some are not accustomed to the licensing paradigm for SEPs on FRAND terms; hence, they are slow to embrace this shift.[29] But in the automotive sector, as SEPs are increasingly licensed, SEP holders and suitable licensees have begun approaching the Courts in the United States and Europe to resolve issues. In the ICT sector, it is pertinent that SEP holders are granted licenses at the end product level, e.g., at the level of a smartphone. This practice acts like a precedent in the ICT sector because the reliance on smartphones is heavily dependent on the standard implementations, which are well covered by SEPs. But in the automotive sector, it is argued by some of the car manufacturers that licensing of the SEP should be done at the level of the component as compared to the end-product level, as connectivity for interoperability is an additional feature rather than a feature upon which the car places reliance for performing primary functions, i.e., the transportation of the passengers.[30] One of the most high-profile SEP licensing disputes in this regard is between Nokia and Daimler.

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[25] Keith, *supra* note 12.
[26] *Supra* note 13.
[27] Jorge L. Contreras, *A Brief History of FRAND: Analysing Current Debates in Standard Setting and Antitrust through a historical lens*, 80 ANTITRUST L. J. 39 (2015).
[28] *Id.*
[29] Neha Chaudhari, *Standard Essential Patents on Low-Cost Mobile Phones in India: A Case to Strengthen Competition Regulation?*, 11 SOC. LEGAL REV. 41 (2015).
[30] *Supra* note 13.

A. Nokia v. Daimler Case Study

In 2019, Nokia filed an infringement suit against Daimler in German Courts for infringement of several SEPs. The argument which was put forward by Daimler and its supplier was that the licensing activity is not FRAND as Nokia refused to license the patents to one of the suppliers of Daimler. In the late 2020, a couple of German Courts ruled in the favor of Nokia, stating that it was found out by the courts that Daimler infringed two of the Nokia SEPs and issued Germany-wide injunctions on Mercedes sales.[31] But these injunctions issued were never enforced. Further, a settlement was announced between Daimler and Nokia on June 1, 2021. This settlement comprises of Daimler taking a license to Nokia's portfolio of wireless communications SEPs. Prior to the settlement, a German Court referred to a series of questions to the CJEU, comprising of one of the questions as who in the supply chain is entitled to a FRAND license.[32] But under the settlement reached between Nokia and Daimler, the CJEU did not have the opportunity to rule on this issue.

On one hand, before the settlement, Daimler and Nokia were trying to resolve their disputes in German Courts; on the other hand, Continental took its aggrievance against AVANCI to US Courts, arguing that refusal of AVANCI to provide a license on FRAND terms to Continental as a component manufacturer is considered an anticompetitive act which is against the Sherman Antitrust Act.[33] On June 21, 2022, the US Court of Appeals for the Fifth Circuit affirmed the district court's dismissal of Continental's antitrust claims under state law.[34]

B. Continental Automotive Systems, Inc. v. Avanci Case Study

Continental's antitrust suit comprises a monopolisation claim under US law, contending that certain companies that were part of the AVANCI pool abused their monopoly power arising from the standard-setting process by excluding certain technology users and extracting high royalty rates.[35] The main issue in this case was whether the SEP holders could insist on OEMs' licensing or whether licenses could also be offered to component manufacturers in the supply chain.[36] But the US Court dismissed this suit on the ground that the conduct did not breach the antitrust laws,

[31] Clark Gordon, *Nokia and Daimler Settle Standard-Essential Patent Licensing Dispute, Potentially Impacting Auto-Industry FRAND Licensing*, AKIN GUMP STRAUSS HAUER & FELD LLP (June 08, 2021), https://www.jdsupra.com/legalnews/nokia-and-daimler-settle-standard-3453076/.
[32] Christof Koolen, *Connected Cars and FRAND Licensing Traffic Jams: The CJEU Referral in C182/21 Nokia v Daimler*, SSRN (2021).
[33] *Supra* note 9.
[34] *Id.*
[35] Continental Automotive Systems, Inc. v. Avanci, 20-11032, L.L.C. 5th Cir., (2022).
[36] *Id.*

and it should be dealt with contractually among the appropriate companies. As per the US judge, the conduct to violate FRAND obligations is not anticompetitive for a SEP holder, and to the extent the licensor refused to negotiate with car parts manufacturers or only in an agreement to do so at an equivalent price at which they license to car manufacturers, this alleges at a chance of concerted action and the best parallel conduct,[37] not violation of antitrust laws. The Continental alleged that SEP holders had their patents incorporated into industry standards by deceiving and making FRAND commitments they never intended to keep to the standard-setting organisations. In this suit by Continental, the judge further commented that Continental had not claimed that its inability to obtain FRAND licenses from AVANCI had prevented it from selling the components to OEMs that used Avanci standards.[38]

In the line of the level of licensing the value chain management, a policy debate emerged in regards that whether SEP holders are required to offer licenses to all the players in the value chain (termed as "license to all or LTA") or whether the SEP holders are free to decide as to where to license in the value chain as long as the other players are provided with access (termed as "access to all" or ATA).[39] A recent analysis of EU law was done, and it was found that "neither patent, competition laws nor general principles of EU law required an LTA approach from SEP holders.[40] Subsequently, the proponents of LTA expressed their views on this debate. But this endless legal battle over the difference between a license and access will never solve this debate, as the licensing level is a proxy war on a prima facie case for the main contention, price. As long as price is seen as a function of the licensing level, these never-ending legal battles of licensing would continue.

V. INDUSTRY RESPONSES TO CHALLENGES ARISING FROM SEP LICENSING

As a result of the litigation between the patent holders and the car manufacturers, the SEP owners and the car manufacturers have responded to patent owners for excessive royalties, particularly in terms of the following measures and initiatives:

A. Fair Standard Alliance

Fair Standard Alliance ["**FSA**"], based in Europe, was launched in November 2015, and it remains fully active to date. It seeks to promote the principle of licensing of SEPs on FRAND terms. This

[37] Andrew Moir et al., *Views on an evolving automotive Industry - Standards and Essential Patents,* LEXOLOGY (Jan. 13, 2021), https://www.lexology.com/library/detail.aspx?g=dd70eb28-27fd-407a-bf98-2361a94b6142.
[38] *Id.*
[39] Bowman Heiden, Jorge Padilla & Ruud Peters, *The Value of Standards Essential Patent and the Level of Licensing*, 4 IP COUNCIL (2021).
[40] *Id.*

Alliance claims that by asserting excessive, unfair, and unreasonable SEP licensing practices, innovative industries are threatened, new market entrants are blocked, and, as a consequence, potential economic growth across sectors is affected. The alliance comprises Sierra Wireless, HP, Air Ties, u-blox, Micromax, Telit, Juniper Networks, Volkswagen, Google, Peiker Acustic, BMW, and Daimler as members.[41]

FSA has attained influence via advocacy rather than direct legislation, shaping the FRAND policies through submissions and endorsements. Recently, FSA celebrated the European Parliament's November 2025 vote supporting the legal action against the withdrawal of the EU Commission's SEP regulation, which was proposed for transparency. FSA also endorsed the DOJ's reversal of the SEP guidance of 2013 and Biden's 2021 Executive Order promoting competition in standards without the risk of hold-up, and currently supports fair FRAND implementation of Japan's METI Guidelines.

B. Car 2 Car Communication Consortium

This is another initiative which is Europe-based. The main objective of this consortium is for the harmonised or well-structured implementation and deployment of a cooperative intelligent transport system ["**ITS**"] in Europe. This consortium was able to achieve a royalty-free frequency band in the range of 5.9 gigahertz in order to align safety -related services with a similar spectrum of allocation in Australia, the United States, Mexico and Canada.[42] It promotes harmonised cooperation among telecom operators, manufacturers, and infrastructure providers. The composition of this consortium comprises, *first*, car manufacturers as members, namely Renault, BMW, Toyota, Volkswagen, Audi and Daimler; *second*, the consortium comprises automotive suppliers as members namely Kapsch and Bosch, Delphi, Valeo, Denso and Continental; *third*, the suppliers from the telecommunication sector were also a part of this consortium, namely Huawei, Qualcomm and LG.[43]

C. MirrorLink

Another Car Connectivity consortium is MirrorLink, which is developing an open standard for smartphone-centric car connectivity. The composition of this consortium comprises car manufacturers and cellular communication manufacturers as members. Car manufacturers:

[41] *Supra* note 9.
[42] *Id.*
[43] Karan Dhoble et al., *Car to Car Communications using IOT,* 6 IRJET 6 (2019).

Toyota, Chevrolet, Honda, and Volkswagen; cellular communication manufacturers: HTC, Samsung, and Sony.[44]

D. Avanci

Another initiative is to form AVANCI to combat this tussle between car manufacturers and SEP Holders. Avanci is a new patent pool formed by the joint licensing initiative to attract large SEP Holders from the cellular communications industry. And it has already attracted a large number of SEP Holders, including ZTE, Qualcomm, Sony, Interdigital, and Ericsson.[45] This patent pool aims to create a single agreement between the licensees and the licensors. As a result, manufacturers would soon be able to rely on a single marketplace for licensing SEPs, rather than approaching individual technology owners to request, negotiate, and pay for licenses.[46] However, Avanci's single-marketplace model does not cover all SEPs, and its long-term effectiveness will become clearer over time.

Nevertheless, this patent pool could increase transparency regarding ownership distributions, while the unit prices of this pool could serve as a point of reference in SEP negotiations. This Avanci patent pool solves the problem of double marginalisation, thereby reducing overall SEP royalty rates. This multiple marginalisation refers to a situation in which there is no transparency into patent ownership, and licensors may overestimate the value and share of their SEP portfolio.[47] A cumulative license from multiple SEP holders would exceed economic feasibility in the market. This patent pool covers 60% of all LTE SEPs and sets unit prices, providing transparency in that regard, even though SEPs outside the pool may be licensed at a comparatively higher price.[48]

VI. SEP LICENSING ON SUPPLY CHAIN MANAGEMENT

The dispute over the licensing of SEPs on FRAND terms dominates standard-essential industries like the telecommunications sector. But this trend of domination has rapidly spread from the telecommunications sector to the automotive sector; its traces can be seen in Europe and the United States. A trend notably seen in the automotive sector is that SEP holders are not licensing

[44] Juraj Micek & Jan Kapitulik, *Car-to-Car Communication System*, PROCEEDINGS OF THE INTERNATIONAL MULTICONFERENCE ON COMPUTER SCIENCE AND INFORMATION TECHNOLOGY, 627 (2023).
[45] Matthew Bultman, *Avanci Is Turning Automakers' Patent Licensing on Its Head,* BLOOMBERG LAW (July 5, 2024) https://news.bloomberglaw.com/ip-law/avanci-is-turning-automakers-patent-licensing-on-its-head.
[46] ETAuto, *Ford signs Patent License Agreement with Avanci*, ECONOMIC TIMES (June 2, 2022), https://auto.economictimes.indiatimes.com/news/auto-technology/ford-signs-patent-license-agreement-with-avanci/91956022.
[47] *Id.*
[48] Mathhew, s*upra* note 39.

their SEPs to rival component suppliers, but are licensing them to product manufacturers to maximise their interests.[49] This tussle in the Supply Chain Management is leading to increased rift between the SEP holders and the car manufacturers.

The concept of supply chain refers to the alignment of firms that bring products or services to market.[50] The supply chain comprises manufacturers, suppliers, transporters, warehouses, wholesalers, retailers, other intermediaries, and even customers themselves. Any product in the consumer market, from its evolution as a raw material to finished products, undergoes a series of transactions in the business market.[51] The main issues which are prevalent in the SEPs licensing in the supply chains are (a) whether the SEP holder has any freedom to give a license to any of the standard implementers in the supply chain; (b) what is the basis for deciding the royalty band of licensing SEPs on FRAND terms.[52]

To address these issues, it is important to recognise that FRAND commitments do not restrict SEP holders in selecting a licensee in the supply chain. The SEP holders are required to provide a license on FRAND terms if the rival component suppliers apply for it.[53] This statement was made by the Ninth Circuit of the United States in *FTC v. Qualcomm*,[54] but this statement or opinion of the Ninth Circuit could lead to increased royalty stacking and patent hold-up, which in turn would lead to a disruptive impact on future SEP licensing.[55] As previously discussed, FRAND is an abbreviation for fair, reasonable and non-discriminatory licensing terms. This is the patent policy of the Standard-setting organisations (SSOs) to regulate patent holders who direct the use of their patented technology for its incorporation into industrial standards. Under this licensing scheme, patent holders commit to license their SEPs to all standard implementers on fair, reasonable, and non-discriminatory terms. And the SEP holders have no right to refuse to license their SEPs to any of the standard implementers in the supply chain management.

[49] Huang-Chih Sung, *Impacts of FRAND Licensing of standard essential patents on the supply chain management of standard-implementing industries,* MAASTRICHT UNIVERSITY (May 20, 2022), https://www.maastrichtuniversity.nl/blog/2022/05/impacts-frand-licensing-standard-essential-patents-supply-chain-management-standard.
[50] Mihai Felea & Irina Albăstroiu, *Defining the Concept of Supply Chain Management and Its Relevance to Romanian Academics and Practitioners,* 15 (33) AMFITEATRU ECON. 74 (2013).
[51] *Supra* note 40.
[52] *Id.*
[53] Mihai, *supra* note 44.
[54] Federal Trade Commission v. Qualcomm Inc., 969 F.3d 974, 9th Cir. (2020).
[55] *Id.*

At the same time, when the automotive industry is evolving, with interoperability increasing in automobiles, telecommunication giants such as Nokia are also moving from licensing SEPs in the telecommunication sector to licensing in the automotive sector. To maximise its income from patent royalties, Nokia chose to opt for patent licensing from the car manufacturers instead of a communication components supplier.[56] But some car manufacturers refused to take the patent license by putting forward an argument that Nokia should have entered into negotiating the patent license with the component suppliers. Then, Nokia further initiated ten patent infringement lawsuits in Germany, putting forward an argument they have right to seek for the license from any of the standard implementer from the supply chain management. Under the patent exhaustion doctrine, patentees are authorised to collect royalties from one of the manufacturers in the supply chain. It is reasonable for the patent holders to opt for end-product manufacturers, as SEP licensing aims to maximise royalty collection. For the remaining manufacturers, the SEP holder chooses to grant a covenant-not-to-sue ["**CNS**"] rather than provide a patent license in the supply chain.[57] CNS is a negative contractual promise by the patentee to forgo litigation against a particular party for specified acts, without granting rights, and only granting immunity from the suit by that patentee. This negative contractual promise fails the ETSI policy of "license to all willing implementers" and leads to injunctions and royalty stacking, consequently burdening downstream with the cost of compliance and advocating upstream licensing for efficiency.

VII. INDUSTRY DYNAMICS IN THE INDIAN AUTOMOTIVE SECTOR

In India, cases in the automotive sector related to SEP licensing are not prominent, as connected, automated, or driverless cars are still in development. However, the situation regarding SEP licensing should be clear in India, as Indian automotive manufacturers are proactively shifting from legacy mechanical architectures to software-defined solutions, driving a surge in domestic intellectual property generation. This has led to a surge in patent filings by automakers and the expansion of their IP portfolios. In addition to this, the vehicular safety tools like Anti-lock Brake Systems and vehicular norms are becoming compulsory for the developing countries, including India.[58] Despite this progression, vulnerability in IP still subsists. OEMs in India have strong IP portfolios, but they remain dependent on standardised cellular technologies developed by telecommunication companies abroad, which results in many SEPs in vehicles. This asymmetry, wherein OEMs in India must secure SEPs, exposes them to global SEP licensing campaigns. The

[56] *Supra* note 40.
[57] *Id.*
[58] S.P. Patra, & K.D. Raju, *Standardization and Standard Essential Patents for Public Good: Application in Automotive Industry,* 27(1) SASI (2021).

automotive sector's supply chains operate across multiple tiers (discussed earlier), and the OEMs advocate licensing at the component level, which is strongly opposed by the SEP holders under the doctrine of patent exhaustion. Capitalising on the value chain stalemate, AVANCI has emerged as a dominant aggregator of SEPs in the automotive sector. For the automotive sector in India, the economic implications of AVANCI are severe, as the flat-rate royalty structure is very regressive. The Indian automotive sector cannot operate in isolation due to its reliance on foreign telecom companies, but the question that is often debated is whether issues related to SEP licensing can be adjudicated in India. The judicial precedents have, to a certain extent, answered it by delving into the issue of Pro-Tem security deposit in *Dolby International AB v. Lava International Limited*,[59] where the court held that Dolby had established a prima facie case of essentiality, infringement, and validity. In the case of *Telefonaktiebolaget LM Ericsson v. Lava International Ltd.*,[60] the court relied on and rather scrutinised the conduct of the implementer during negotiations, found purposeful delays by LAVA, and subsequently declared it a willing licensee. In addition to this, in *CCI v. Ericsson,*[61] the court stated regarding the CCI's jurisdiction that it is to be "kept open to be agitated in some other appropriate case".

Considering that the Indian automotive sector is largely implementer-driven, these judicial precedents and the regulatory void between the CCI and the High Courts are highly significant. In the United States, the approach for licensing SEPs is considered institutionally fragmented, relying on judicial innovation and focusing on the security-driven supply chain exclusion. On the other hand, the European Union has long been the preferred jurisdiction for settling disputes due to the mechanics of FRAND adjudication. Currently, it is surrounded by speculation following its withdrawal from the SEP regulation, but companies still prefer the EU for its fragmented approach to FRAND adjudication.

The European Union has already established safety tools like Combined Brake Systems ["**CBS**"] and ABS as a mandate since 2012. In the automotive sector, the majority of patents relating to vehicular safety are owned by organisations such as Nissin, Honda, Bosch, etc. and as a consequence of the same, these standards are monopolised by market players like them, which ultimately slows down the technology absorption at the grassroots levels of large markets in India.[62] To address this problem, there is a need for a dedicated authority in India that could be involved

[59] Dolby International AB v. Lava International Ltd., 2025 SCC OnLine Del 4881.
[60] Telefonaktiebolaget LM Ericsson v. Lava International Ltd., 2016 SCC OnLine Del 4581.
[61] Telefonaktiebolaget LM Ericsson (PUBL) v. Competition Commission of India, 2016 SCC OnLine Del 1951.
[62] *Id.*

in the current government's policy-making and the determination of essential patents in value chain licensing.[63] This would ensure that with the advent of automated and driverless vehicles, India does not face the same SEP licensing challenges that have emerged in the ICT sector.

However, automated and driverless vehicles will increasingly rely on interoperability standards in the near future, but the vehicular safety standards, which are mandatory in India, are facing issues in relation to the licensing of SEPs because there are different bodies that are involved in framing standards for vehicular safety in India, but there is no coherence between them. For instance, in India, the transport sector is managed by the Ministry of Road Transport and Highways ["**MoRTH**"] for road safety, under which the field of associated IP regulations and patents is governed by the Ministry of Commerce and Industry ["**MCI**"].[64] However, there exists no formal charter between these agencies, namely the Indian Patent Office ["**IPO**"], governed by the Indian Patent Act, 1970, and the AISC under the Motor Vehicles Act, 1988, and the Central Motor Vehicles Rules (CMVR), 1989.

The AISC develops technical standards, which are formalised as Indian Standards by the Bureau of Indian Standards ["**BIS**"]. As mentioned, there is no charter or collaborative mechanism between BIS or AISC and the IPO for the development of automotive safety standards, as the concerned authorities operate under different ministries of the Indian Government.[65]

As a result of this lack of a coherent system across the agencies, the detrimental effect is the failure to provide a cost-effective solution to the existing safety issues.[66] This issue must be addressed effectively, along with the establishment of a dedicated regulatory framework, in order to ensure that standard-setting can be carried out efficiently in the automotive sector, which would fulfil current vehicular requirements as well as the evolving demand for standards governing connected, automated, and driverless vehicles. As AI-driven technologies increasingly shape the future of the automotive industry, it is imperative to address vehicular safety standards and establish a coherent regulatory framework to facilitate the effective implementation of connectivity standards.

[63] Souresh Bhattacharya, *Supply Chain Management in Indian Automotive Industry: Complexities, Challenges and Way Ahead*, 5 IJMVSC (2014).
[64] Patra*, supra* note 52.
[65] *Id.*
[66] *Id.*

VIII. CONCLUSION

There is a transitional change which could be observed across different verticals of the economy, from drastic development from feature phones to smartphones, and the new business models, market participants, and platforms changed the manner in which profit distribution among companies was made.[67] Licensing of SEPs in the automotive sector is also bearing the brunt of technological integration. The two issues that arise in relation to licensing SEPs in the automotive sector are: *First*, the method for calculating the royalty; *Second*, the level of the value chain at which the license could be granted. In order to address these concerns, it is necessary to understand the functioning of the automotive sector, which differs from the telecommunications sector. For instance, in the ICT sector, patented components are embedded in end products and sold to the market as a single functioning device.[68] A user can't buy a Smartphone without modem chips.[69]

Hence, it is appropriate in the Smartphone industry to apply the "entire market value" rule to set the entire Smartphone as the royalty base for chip-level patents.[70] Although in the automotive sector the patented chips are embedded in cars and sold as connected vehicles, they may not constitute a single functioning unit, as the chip is for connectivity while the car is primarily used for driving. In addition, connectivity or interoperability is only a car's add-on feature and does not primarily form the basis for a customer's choice of a car. Hence, it is questionable to apply the EMVR to connected vehicles.

With the emergence of 5G technology, the automotive sector would move towards automated, driverless cars and more connected cars. There would also be shifts in the distribution of profits in the automotive industry, as the need for connectivity increases. This connectivity in cars has the potential to transform the automotive industry's value chain. This potential change would pose many challenges, and to address them, vehicle manufacturers need to navigate the complex licensing landscape of the ICT industry and ensure they have the right IP strategy. For this, they must have a clear understanding of standardisation activities in the automotive industry. These standards, properly set today, will become the fundamentals of the technology platform for future automotive technologies and applications.

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[67] *Supra* note 10.
[68] ASHISH BHARADWAJ, EVOLVING JURISPRUDENCE IN STANDARD ESSENTIAL PATENTS, MULTI-DIMENSIONAL APPROACHES TOWARDS NEW TECHNOLOGY, (119-183 1st ed. Springer Publications,) (2017) (ebook).
[69] *Id* at p. 155.
[70] *Supra* note 40.

Further, the telecommunications industry must recognise that royalty-calculation practices followed in the telecommunications sector cannot be directly imposed on the automotive industry, as the two sectors operate differently. So, they are required to understand the car manufacturers' value chain. All stakeholders in both markets are required to establish economically viable mechanisms that create more incentives for innovation and ensure a level playing field, thereby permitting new business models to enter the market.[71] In the Indian Automotive sector in this technology era, Indian OEMs must adopt a proper corporate strategy and avoid delaying licensing negotiations, given India's judicial precedents. In addition, the supply chain may be restructured; i.e., Indian OEMs operating in export markets must audit their telematics supply chains with immediate effect. Further, to strengthen the automotive sector in India, there is a need for a comprehensive national policy and a co-regulatory framework governing SEP licensing in the automotive sector.

[71] *Id.*

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DIGITAL SEQUENCE INFORMATION PATENTABILITY: WHEN GENOMIC DATA BECOMES PRIOR ART

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ABSTRACT

The fast development of genomics, bioinformatics, and digital sequencing technologies has led to the transformation of biological material into digitised genetic sequences, which have been termed Digital Sequence Information (DSI). This has resulted in a major shift in the architecture of biotech innovation since there has been a shift from the physical biological material used for innovations to digital genetic information. This paper explores the emerging legal and policy challenges associated with the patentability of inventions based on DSI and the growing recognition of genome databases as previous art. The author argues that the publicly accessible and technically feasible DSI ought to be considered as legally recognised previous art, particularly where the genetic sequences can be found in publicly available databases before applying for the patent. It has been stated that too stringent an approach towards previous art will undermine innovations in drugs, diagnostics, synthetic biology, and agricultural biotech.

This paper investigates the link between DSI and the three essential aspects of patenting, which are novelty, inventiveness, and disclosure. It takes note of the emerging clash between open science doctrines and the closed, proprietary patent system. This paper compares the U.S., the European Union, the United Kingdom, and India in respect to recognising DSI as an emerging trend in law. Notable are the differences between the jurisdictions regarding enabling claims, enablement, and contribution by technology. The major focus of the paper will be laid upon the biotechnology patenting system in India as provided for under Sections 3(c), 3(j), and 10(4) of the Patents Act 1970, together with its broader implications from Novartis AG vs. Union of India. The latest developments concerning the CBD and the WIPO treaty negotiations will also be evaluated, with particular regard to the fact that governance of DSI calls for an international regulatory regime.

I. INTRODUCTION

Recent advances in genomics, next-generation sequencing, and bioinformatics have transformed biological material into digitally accessible genetic information. Large-scale sequencing technologies and global data infrastructures now permit the rapid conversion, storage, and sharing of genetic sequence data in machine-readable forms. This transformation has shifted contemporary biotechnology innovation from dependence on physical biological material toward

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the increasing use of Digital Sequence Information ["**DSI**"].[1] DSI generally refers to digitised nucleotide and amino acid sequence data, together with associated structural, functional, or annotation-related information derived from biological resources..[2] Despite its growing importance in genomics, synthetic biology, vaccine development, and precision medicine, there remains no universally accepted legal definition of DSI in international law. Significantly, two important documents in international biodiversity governance, namely, the Convention on Biological Diversity and the Nagoya Protocol, do not contain a clear-cut definition of what DSI is.[3] The said documents were elaborated in a context where access to genetic resources was essentially about access to physical biological material.[4] The dematerialisation of genetic information has illustrated a conceptual and legal gap between the present international rules and advances in scientific technology.[5]

A major scientific significance of DSI is that it can be easily used, developed, and accessed. This is mainly due to the availability of sequencing projects that are government-funded. This ensures that the regulation concerning open access is standardised.[6] This model has substantially accelerated collaborative scientific research and innovation, particularly during the COVID-19 pandemic, when the rapid public release of the SARS-CoV-2 genome sequence enabled unprecedented speed in the development of vaccines and diagnostic technologies.[7]

At the same time, the openness of DSI has generated serious legal and distributive concerns. Biodiversity-rich nations have increasingly argued that unrestricted digital access to genetic information may permit the circumvention of existing access and benefit-sharing ["**ABS**"] frameworks established under the CBD and the Nagoya Protocol.[8] The ability to utilize genomic information without obtaining physical biological material has intensified concerns regarding bioprospecting, inequitable exploitation of genetic resources, and the erosion of sovereign control over biodiversity-derived innovation.[9]

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[1] SHEILA JASANOFF, THE ETHICS OF INVENTION: TECH. AND THE HUMAN FUTURE 87-90 (2016).
[2] *Convention on Biological Diversity*, Decision XV/9, Digital Sequence Information on Genetic Resources (2022).
[3] *Convention on Biological Diversity,* art. 2, June 5, 1992, 1760 U.N.T.S. 79.
[4] Frank Irikefe Akpoviri et al., *Digital Sequence Information and the Access and Benefit-Sharing Obligation of the Convention on Biological Diversity*, 17 NANOETHICS 1 (2023).
[5] Elisa Morgera, *Fair and Equitable Benefit-Sharing at the Crossroads of the Human Right to Science and International Biodiversity Law,* 4 LAWS 803, 810-12 (2015).
[6] Y. Nakamura et al., *The International Nucleotide Sequence Database Collaboration*, 30 NUCLEIC ACIDS RES. D21 (2012).
[7] Maria Deloria Knoll & Chizoba Wonodi, *Oxford-AstraZeneca COVID-19 Vaccine Efficacy*, 384 N. ENGL. J. MED. 1885 (2021).
[8] VANDANA SHIVA, BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE 49-52 (1997).
[9] Ruth L. Okediji, *Traditional Knowledge and the Public Domain*, 5 INDIAN J.L. & TECH. 1, 23-25 (2009).

Intellectual property law in general and patent law specifically have thus emerged as a significant area of contention in this scenario. Patent systems foster innovation by providing individuals with exclusive rights to new and non-obvious inventions, which are measured relative to pre-existing works. Conventionally, prior art consisted of patents, academic writings, and uses which provided others with access to technological information.[10] The advent of DSI complicates this scenario to some extent. Open-access genomic databases contain much sequence information developed before filings for patents.[11]

This is not only a technical problem but one that has great ramifications for distribution and policy. If DSI is considered prior art, then it can be used as a defence to circumscribe the authority of patent monopolies over genetic sequences or their derivatives. Simultaneously, patent examiners and applicants are in a quandary because neither party knows whether sequence data is evidential or enabling. Raw sequencing data may not indicate its utility or industrial applicability, but with the addition of standard bioinformatics tools, it may suggest future claims.[12] Thus, the question of when genetic data becomes legally useful information lies at the juncture of patent law, scientific epistemology, and digital infrastructure.

This article argues that DSI should be recognised as prior art where it is publicly accessible and technically enabling, but that such recognition must be applied carefully to avoid undermining legitimate biotechnology innovation. The article examines the scientific and legal ambiguities surrounding DSI, analyzes its implications for novelty, inventive step, and disclosure requirements, and evaluates comparative and international approaches toward the treatment of genomic information within patent law

II. SCIENTIFIC AND LEGAL AMBIGUITIES OF DSI

DSI occupies an uncertain position at the intersection of molecular biology, data science, and intellectual property law.[13] Scientifically, DSI refers to digitised nucleotide and amino acid sequence data together with associated annotations relating to biological structure or function. Such information forms the basis of contemporary genomics, synthetic biology, and computational biotechnology.

[10] 35 U.S.C. § 102 (2018).
[11] Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1042-44 (1989).
[12] Dan L. Burk & Mark A. Lemley, *Biotechnology's Uncertainty Principle*, 54 UCLA L. REV. 691, 723-26 (2007).
[13] WORLD HEALTH ORGANIZATION, GENOMIC SEQUENCING OF SARS-COV-2: A GUIDE TO IMPLEMENTATION 4-6 (2021).

In scientific terms, the production of DSI is related to advances in the field of sequencing tools and techniques. The advent of high-throughput sequencing platforms has led to easier and faster deciphering of genomes, and currently, a massive amount of sequence information can be created at an unprecedented scale.[14] The sequences obtained are then organised and standardised, and they are stored either in the public domain or semi-public repositories. They are accompanied by details that make them more interpretable and reusable with greater ease. Digital sequencing technologies enable researchers to search a sequence database with algorithms, manipulate the sequences with computers, and prepare them as a template for other applications, such as gene manipulation and protein manipulation, or metabolic pathway development.[15]

The scientific worth of DSI is raised as it is able to interface with other systems effectively. Global database collaborations, for example, the International Nucleotide Sequence Database Collaboration, ensure that when sequence information is dispatched from a given location, it is swiftly replicated and made accessible to everyone globally.[16] Such a system has developed standards for open-access databases in genomics, and this reflects a basic scientific tenet that considers genetic sequence information as basic knowledge, and not intellectual property. The guiding ethical principle for this activity is that access improves cumulative innovation and prevents redundancy of efforts within scientific circles.[17] Nevertheless, the open science notion poses a challenge to patent law, which traditionally presupposes exclusivity and protection of intellectual property.

However, the status of DSI remains unclear in law. International law regarding biodiversity does not define DSI specifically, nor does it clearly define whether the digital form of genetic information falls under the term "genetic resources." The Convention on Biological Diversity defines "genetic resources" as "genetic material of actual or potential value." Genetic material is "any material of plant, animal, microbial, or other origin containing functional units of heredity."[18] Presently, no internationally accepted legal definition of DSI exists, which has led to much confusion regarding its legal standing and regulation. The concept applies the assumption of materiality, which can hardly be taken for granted under the circumstances, given the fact that

[14] Eric S. Lander et al., *Initial Sequencing and Analysis of the Human Genome*, 409 NATURE 860 (2001).
[15] Drew Endy, *Foundations for Engineering Biology*, 438 NATURE 449, 450-52 (2005).
[16] *Supra* note 6, at 2.
[17] Robert Cook-Deegan & Stephen Heinemann, *The Public Domain of DNA*, 1 GENOME RES. 247, 249-51 (2000).
[18] *Convention on Biological Diversity*, art. 2, June 5, 1992, 1760 U.N.T.S. 79.

genetic information is severed from its material basis and begins flowing around digitally. The Nagoya Protocol does not cover the management of such genetic information either.[19]

This ambiguity in the definition has severe implications for regulation. For example, if DSI is considered genetic material, there would automatically be obligations regarding access and benefit-sharing in biodiversity conventions. However, if DSI is regarded as information or data, there would be no bindings in biodiversity conventions and would fall under open science and data regulation or intellectual property law. Since there is no consensus on the definition, various countries interpret and regulate DSI in their own manner. Some countries regulate DSI in their legislation in a manner that does not place any burden of access regulation on DSI, while others favour regulatory inclusion in the form of interpretation.[20]

The ambiguity concerning DSI is further complicated by the fact that it is a derivative of the original object. DSI comes from the process of extracting, sequencing, and analysing the biological material and thus leads to questions regarding whether it should be considered as a genetic resource or just knowledge derived from these resources.[21] According to the Nagoya Protocol, a "derivative" refers to a biochemical substance that occurs naturally and is produced as a consequence of the genetic expression or metabolism of biological resources. However, DSI cannot fit into this definition as it is mostly a collection of informational material and not a physical substance. This creates a great deal of ambiguity in the legal sense, particularly because the existing biodiversity regime was primarily developed for dealing with biological materials, whereas DSI represents intangible digital genetic information that can be reproduced infinitely.[22]

This ambiguity is most apparent in patent law and the realm of intellectual property in particular. The workings of patent law depend on being able to distinguish between discoveries that cannot be patented and discoveries that can be patented. Natural genetic sequences, if they exist in nature, have slowly been removed from patentability if they are only isolated, particularly with modifications to the law that emphasise the impossibility of patenting natural things.[23] However, digital forms of genetic sequences lie in the twilight zone as far as patentability is concerned. These

[19] *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization,* art. 2, Oct. 29, 2010, 3008 U.N.T.S. 3.
[20] Elisa Morgera et al., *Study on Domestic Measures on Access and Benefit-Sharing* 45-47 (CBD Secretariat 2014).
[21] CARLOS M. CORREA, INTELLECTUAL PROPERTY RIGHTS, THE WTO AND DEVELOPING COUNTRIES 192-94 (2000).
[22] *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization to the Convention on Biological Diversity,* art. 2(e), Oct. 29, 2010, 3008 U.N.T.S. 1
[23] *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 590-94 (2013).

are neither physical nor non-physical entities, but the encoded use of information in technical applications, and if it is only the revelation of natural occurrences, then it only assists in the input of technology in innovative activity, in which the debate goes on and on.

The lack of stability in the concepts used by DSI also introduces evidentiary and interpretive difficulties. The nature of the sequence data differs from that in conventional scientific literature in that sometimes it lacks a story or deliberate functional explanation. It lacks an easy, written explanation in that the explanation emerges only through computational processing.[24] This contradicts legal constructs that rely on understandings based on disclosures that can be grasped by humans to assess how well information disseminates and can be anticipated. oath, DSI introduces a computationally generated scientific information into a legal milieu that previously depended on language-based argumentation.

Further clarification on the regulatory uncertainties related to digital genomic information can be drawn from ongoing global discourses about DSI. Current negotiations within the Convention on Biological Diversity demonstrate the understanding that the previous systems of governance were intended to govern tangible genetic resources, but not the circulating globally digital sequence data.[25] As a result, the states have been divided on the issue of whether DSI falls under the category of access and benefit-sharing obligations or whether free scientific access should regulate such data. The unresolved inconsistencies highlight the core problem of applying territorial laws to digital genomic information that may be copied, circulated, and used irrespective of the movement of biological samples.

The clarification of the scientific and legal nature of DSI is important with respect to the practical application of patent law because the way DSI is defined will affect the assessment of novelty, inventive step, and the scope of the biotechnology patent protection

III. DSI AND PATENTABILITY STANDARDS: NOVELTY, INVENTIVE STEP, AND DISCLOSURE

It is during the examination of the feasibility of patentability that the interplay between DSI and patents is most visible. In fact, and in general, any modern patenting regime has three core substantive criteria that must be satisfied before granting exclusive monopoly rights: novelty/originality, the presence of an innovative or non-obvious feature, and sufficiency of

[24] *Supra* note 12, at 3.
[25] CBD Conference of the Parties, *Decision 15/9, Digital Sequence Information on Genetic Resources* (2022).

disclosure. It has long been challenging for the biotech industry in particular to adhere to these standards since lineages dividing discovery and invention are difficult to distinguish. Digital genomic information further obscures these standards since publicly available genomic information challenges established boundaries between prior art and the obviousness of knowledge for a person skilled in the area.

A. Novelty and DSI

Novelty can be considered as one of the oldest links between DSI and patent law. Under most patent statutes, an invention would lack novelty if it could be foreseen in antecedent work publicly available before the priority date of a patent application.[26] The existence of current accessible genomic databases with billions of nucleotide sequences would be impossible if a significant number of these sequences were not known before patent filings in the areas of pharmaceuticals, diagnostics, agriculture, or biotech. The defining question concerns whether anticipatory availability based on mere electronic accessibility to a DNA sequence meets the threshold of anticipatory disclosure. Deposited sequences have increasingly been treated as prior art if they disclose the same sequence that appears in a patent application, even if specified as having a certain industrial purpose in a database entry.[27] The Indian Patents Act of 1970, too, incorporates a broad definition of prior art in recognition of prior publication and public knowledge to disclaim any claim to innovation.[28]

This approach appears to represent a shift in doctrine from viewing sequence information abstractly, as mere knowledge, to viewing it more like a technical disclosure that could potentially bar novelty. A patent claim seeking to protect a specific nucleotide or amino acid sequence will be rendered not new if, in fact, a sequence appearing in a publicly available database is identical or highly similar.[29] The mere digital nature of this disclosure has no bearing on its legal status, but rather on how accessible it is for duplication. But this becomes complex in claims in which an assertion is made not only in terms of sequence information, but relative to specific functional uses that stem from those sequences. It appears novelty assessment would be required to ascertain if this useful information existed within the prior disclosure or if more creativity is required.[30]

[26] 35 U.S.C. § 102 (2018); *European Patent Convention* art. 54.
[27] EUROPEAN PATENT OFFICE, *Guidelines for Examination* pt. G-IV, 7 (2023).
[28] *Patents Act*, 1970, §§ 13, 29 (India).
[29] Christopher M. Holman, *Patent Eligibility of Isolated DNA Sequences*, 23 BERKELEY TECH. L.J. 1191, 1203-05 (2008).
[30] *In re Gleave*, 560 F.3d 1331, 1337-38 (Fed. Cir. 2009).

B. Inventive Step and DSI

The requirement of inventive step adds to the complexity in the legal assessment of DSI. An invention lacks inventive step if, in view of prior art, it would have been adjudged obvious to a person skilled in that art as of the date of filing. In biotech, it's generally assumed that the skilled person would have normal access to genome databases as well as to common bioinformatic tools.[31] Thus, publicly available DSI tends to be incorporated into common knowledge to decide obviousness. The question is no longer whether a skilled person would have access to sequence information. The question becomes whether experimental or algorithmic analysis would have required anything out of the ordinary to get from that information to a claimed invention.

Traditionally, biotech patents were known to exploit the fact that determining and naming genetic sequences was riddled with scientific uncertainty.[32] However, with advances in sequence detection methods and computational biology, much of this has been overcome. Henceforth, biotech innovations which only rely on identifying existing genetic sequences will become clearer unless there is a demonstration of genuine technical advancement or novel use. India's patent law has been conservative in the matter of patents based on naturally occurring biological discoveries through the exception provided under Sections 3(c) and 3(j) of the Patents Act, 1970.[33]

C. Disclosure Requirements and DSI

The requirement of disclosure of information is the third key manner in which DSI alters the perception of patentability. For a patent to be granted, the applicant must present their invention in a manner that would be easily understandable and detailed enough so that a person knowledgeable in that particular area would be able to reproduce the invention. In biotechnology, this would normally include sequence listing, biological materials deposited, or full experimental directions. It raises a question about whether relying on publicly accessible sequence databases meets or violates this requirement due to the presence of DSI. Some inventors would argue that since existing sequences are used, there is no need to provide much information. The patent authorities have been making it clear that biotechnology patents have to show significant technological advancement instead of mere identification of natural genetic sequences. Indeed, Indian patent law, in Section 10(4) of the Patents Act, 1970, states that "*the complete specification shall*

[31] Dan L. Burk & Mark A. Lemley, *Biotechnology's Uncertainty Principle*, 54 UCLA L. REV. 691, 718-20 (2007).
[32] Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1044-46 (1989).
[33] *Patents Act*, 1970, § 3(c), 3(j) (India).

fully and particularly describe the invention and its operation or use."[34] Similarly, European patent law requires adequate disclosure enabling a person of skill in the art to recreate the invention without unduly burdening him or her.[35]

The relationship between disclosure and DSI also poses broader questions about justice and transparency. In the context of patent applicants employing DSI in regions with much biodiversity, the question arises whether the quality of disclosure ought to concern itself not only with technical merit but also the origin of the genetic material or, alternatively, the origin of the genetic data. The traditional patent regime had held that access and benefit-sharing considerations ought not to be included in the rules for patentability, although current international circumstances signal impending shifts in these assumptions.[36] Regulations regarding the genetic resources, particularly digital forms, aim to enhance transparency and compliance without affecting the patentability's relationship to the agreements on benefit-sharing.

From an evidentiary basis, the integration of DSI in patent examination can be problematic in practical terms. This is because the patent office requires improvements in its technical expertise to be able to screen and analyse massive genomic information, assess similarity in DNA sequences, and determine their relevance to the matter at hand. There is increased reliance on computerised similarity analysis and prior art searches using algorithms, but these can be problematic in terms of their reliability and consistency.[37] The increased role of computer tools in patent examination refers to an evolving nature of patent examination in the digital era and the need to adapt to this reality by institutions.

It appears from the interaction between the parameters of DSI and patentability that biotechnology patents are gradually evolving. The novelty screening criterion comes to acknowledge digital sequences within prior anticipatory prior art; novelty screening takes into account routine access to genomic information within the skill level of a person; and disclosure restrictions call for a meaningful technical contribution rather than any kind of data appropriators. The development illustrates how a DSI actually serves both functions of limiting overly broad patents and increasingly higher standards for novelty in genome-wide innovation.

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[34] *Patents Act*, 1970, § 10(4) (India).
[35] EUROPEAN PATENT OFFICE, *Guidelines for Examination* pt. F-III, 1 (2023).
[36] WIPO, *Intellectual Property, Genetic Resources and Associated Traditional Knowledge* 41-44 (2020).
[37] CARLOS M. CORREA, TRADE RELATED ASPECTS OF INTELLECTUAL PROPERTY RIGHTS: A COMMENTARY ON THE TRIPS AGREEMENT 195-97 (2d ed. 2020).

IV. DSI AS PRIOR ART IN COMPARATIVE JURISPRUDENCE

The approach to DSI as prior art shows significant contrast between different countries, revealing a wide variety of national IP regimes, their capabilities, and agendas as well. Though national IP regimes agree on novelty and inventive step requirements set through patent law, there's considerable divergence on what "publicly available" means, as well as on how digital genetic data should be treated, from jurisdiction to jurisdiction. The branches of comparative jurisdiction demonstrate convergence/divergence on how national patent offices have handled DSI as a key ingredient in determining what to consider as "prior art."

A. United States

In the USA, patent regulation is increasingly addressing the issue of whether published digital works, such as data relating to genetics, may be regarded as prior art in the development of innovative technology. The framework used in patent regulation under the America Invents Act accepts a broad meaning of prior art, which incorporates "otherwise accessible to the public."[38] In US patent trials, such wording has been interpreted to extend to online data resources, subject to those resources having been sufficiently accessible. In biotech infringement claims, data stored in a public database relating to sequences has been accepted as "anticipatory prior art" when that data reveals an identical structure which is claimed in a patent application.[39]

Federal circuit decisions emphasise the point that the absence of a proof of usefulness or function of a single piece of the information contained within a database will not be seen to deny functionality if the invention is structurally comparable to disclosed information.[40] This type of distinction shows a fundamental understanding of the construct of anticipation and is quite prominent when concerns of molecular biology are discussed. However, there are limitations that the courts recognise when the claim is expressed under functional or methodology-type language. This is the case whether the information had been disclosed digitally.[41]

B. Europe and United Kingdom

European patent practices recognise DSI as "prior art," albeit focusing primarily on the question of enablement or technical contribution. The European Patent Convention recognizes any piece of information that has been made available to public knowledge through written or oral

[38] 35 U.S.C. § 102(a)(1) (2018).
[39] In re Gleave, 560 F.3d 1331, 1337-38 (Fed. Cir. 2009).
[40] Id.
[41] Schering Corp. v. Geneva Pharm., Inc., 339 F.3d 1373, 1379-81 (Fed. Cir. 2003).

descriptions, use, or other means as "prior art."[42] The European Patent Office has traditionally interpreted sequence data available in public databases as "written descriptions," while the jurisprudence of European courts underlines the significance of the "undue difficulty" criterion.[43]

It must be mentioned that there is a distinction in European law between sequence information being disclosed and a specific technical teaching being revealed. While the publication of sequence information will result in lack of novelty regarding claims to such sequences, novel technical uses and innovations may still satisfy the requirements of patentability as long as such functionality cannot be inferred from the prior disclosure.[44] The UK courts too, recognize the significance of online disclosures in databases, in situations where an expert can understand the information presented there.[45]

Finally, jurisprudence from the United Kingdom, although in full agreement with the patent legislation in Europe, may be of additional help in understanding the reasoning applied in digital previous art problems. "In an analysis of the impact of the accessibility of internet databases on state of the art, UK courts seem to agree that their content is included in the state of the art if a human skilled in the art could be reasonably expected to search for, understand, and thus use such information." In patent infringement suits in biotechnology, courts also measure whether a human skilled in the art would be inclined to use specific genetic databases included in the state of the art, in addition to whether he/she would have perceived the information included to be pertinent to the patent in question.[46]

C. India

India is only recently taking into account the concept of prior art through DSI, since patent cases arising out of disputes in relation to genomic databases are rare in India. However, the Patent Act of 1970 recognises prior publications and public knowledge as grounds for rejecting the novelty of the invention.[47] In the event of publicly available genetic databases, prior art relevance may be assumed before the filing date of the patent.

[42] European Patent Convention art. 54.
[43] European Patent Office, *Guidelines for Examination* pt. G-IV, 7 (2023).
[44] T 154/04, Estimating Sales Activity/Duns Licensing Assocs. (EPO Bd. App. 2006).
[45] Generics (UK) Ltd v. H. Lundbeck A/S [2009] UKHL 12, [2009] 2 All ER 652.
[46] Id.
[47] Patents Act, 1970, §§ 13, 29 (India).

The Indian patent law demonstrates caution in relation to patentability of naturally occurring biological material by means of Section 3(c) and 3(j) of the Patents Act, 1970.[48] While Section 3(c) excludes patenting of the mere discovery of any new property of known substance, Section 3(j) makes plants and animals or essentially biological processes of production ineligible. It can be concluded that claims referring to naturally occurring DNA sequences without any changes will most likely be refused due to a lack of novelty or statutory exclusions..

Further judicial developments within Indian patent law show that there is an evident trend for patent law in India to impose stricter conditions for patentability in areas like pharmaceutics and biotechnological inventions. The case of Novartis AG v. UOI proved that a patent should only cover the improvement which shows an increase in real efficacy, although not directly linked with DSI. This judicial decision reflects judicial reluctance to grant patents covering the entire field in the area of scientific development.[49]

Finally, the patent application examination procedure within India also implies detailed disclosure in biotechnology patent applications. According to the Guidelines for the Examination of Biotechnology Patent Applications, applicants should provide complete sequence listings and functional descriptions required to reproduce the claimed invention.[50]

Jurisprudential comparison reveals an emerging trend towards the legal relevance of publicly available DSI as prior art in leading patent regimes. At the same time, there remain differences in regard to the approach taken towards functional claiming, technological contributions, and enablement standards. More developed patent regimes have developed better approaches to the examination of genomic prior art, while less developed patent systems face certain challenges in integrating sophisticated digital biological information into the process of patent analysis. These differences reveal the continuing need for doctrinal refinement and worldwide harmonisation in regulating DSI under biotech patents legislation.

V. POLICY IMPLICATIONS: INNOVATION, EQUITY, AND GLOBAL GOVERNANCE OF DSI

The management of Digital Sequence Prior art information does not exist in a policy or management vacuum, and it has significant policy implications for innovation, distributive justice,

[48] *Supra* note 35, at 11.
[49] Novartis AG v. Union of India, (2013) 6 SCC 1.
[50] Office of the Controller General of Patents, Designs & Trade Marks, Guidelines for Examination of Biotechnology Applications for Patent (2013).

and global governance. As genomic information becomes crucial to biotechnology research and innovation, determinative legal status has implications for innovation drivers and the capacity to distribute or use the innovations arising from biological resources. The policy question lies in the balance to be struck on innovation drivers through property rights, on the one hand, and the quest to ensure distributive justice in the management of biodiversity, on the other.

The acceptability of DSI as prior art also provides a critical gatekeeping function from the perspective of the innovator. Taking into account accessible sequence information as prior art denies overly general patents that extend to protect fundamental facts about biology, as seen in the example above.[51] The security granted to the prior art state pertains to a critically important knowledge base for genomics-based innovations as a result of its preventative effect on the monopolisation of information that is openly accessible.[52]

At the same time, apprehension is felt that heavy reliance on DSI as prior art may create an unintended negative influence on incentives for investments in research-based industries of biotechnology. Industries such as drug development, agricultural technology, or synthetic biology often rely on research-based activities to discover novel functions or applications of available sequences. Since DSI will indicate how such functions or applications are obvious, innovators could be confronted with an increased level of unclearness pertaining to patents.[53] The standards for patentability must be adjusted in such situations to ensure that contributions of substance, such as unforeseen therapeutic applications, novel vehicles of delivery, or novel approaches to gene editing, remain viable despite access to underlying sequences of DNA.

With regard to issues of equity, these present an additional level of complexity to this policy analysis. For countries that boast rich biodiversity, these nations have always argued that digitalisation can lead to the exploitation of biological resources without mutual benefit-sharing,[54] especially when DSI is at arm's length and later employed when patenting occurs, with DSI being employed as prior art to inform patenting decisions. Currently, if DSI is made available at arm's length and subsequently utilised, nations providing such information may suffer an additional layer of disadvantage. This disadvantage arises from the loss of control over resources originating within

[51] Rebecca S. Eisenberg, Patents and the Progress of Science: Exclusive Rights and Experimental Use, 56 U. CHI. L. REV. 1017, 1046-49 (1989).
[52] Michael Heller & Rebecca S. Eisenberg, Can Patents Deter Innovation? The Anticommons in Biomedical Research, 280 *Science* 698, 699-701 (1998).
[53] Dan L. Burk, *Patent Law and the Genome*, 1 J. MARSHALL REV. INTELL. PROP. *L.* 1, 18-21 (2001).
[54] Ruth L. Okediji, Traditional Knowledge and the Public Domain, 5 *Indian J.L. & Tech.* 1, 26-30 (2009).

their borders. It is further compounded by impediments to patenting that could otherwise have stimulated economic growth within these nations. These concerns consequently necessitate the implementation of access and benefit-sharing mechanisms. They also represent broader critiques of bioprospecting and "bio-colonialism" within biodiversity governance regimes.[55]

These issues have gradually come to be accepted and appreciated under various global biodiversity conventions. The recent decisions made under the Convention on Biological Diversity have legitimised the design of global benefit-sharing for the use of digital sequence information, highlighting the political acknowledgement of the insufficiencies in access to and sharing of contemporary dematerialised genetic data.[56] Proposals presently under consideration range across global policies with financing mechanisms such as user contributions, subscription methods, and the use of benefit-sharing commitments related to the commercialisation rather than access to the genetic data.

Patent regulation is very intricately linked with these issues. Accommodating DSI as prior art is based on open scientific principles and helps to delimit exclusivity. Conversely, patent regimes are among a handful of regimes that have the potency to access information on the business exploitation of genetic information. This resulted in calls for a greater obligation to disclose information on DSI within patent specifications. This approach is justified in terms of transparency and the facilitation of broader benefit-sharing. However, such disclosure obligations raise concerns regarding the complexities and legal ambiguity they may introduce. This is particularly the case if these obligations are framed as foundational to patent validity, as they could dissuade innovation.

Secondly, the administration of DSI at the global level also faces some difficulties in terms of scientific capacity. The technologically advanced countries with adequate infrastructure in gene sequencing and knowledge of bioinformatics tend to use open-access genetic information appropriately. On the contrary, there are many technologically backward countries in the world that are not equipped appropriately to transform DSI into economically viable products.[57] Hence, it is seen that despite DSI being open-access and unpatentable, its effective utilisation is likely to

[55] Vandana Shiva, Biopiracy: The Plunder of Nature and Knowledge 49-52 (1997).
[56] Convention on Biological Diversity, Decision 15/9, Digital Sequence Information on Genetic Resources (2022).
[57] Carlos M. Correa, *Access to Genetic Resources and Benefit-Sharing: Challenges for Developing Countries*, 21 J. WORLD INTELL. PROP. *1*, 9-12 (2018).

remain in technologically advanced countries. The status of DSI as prior art ensures its public domain nature, but not its utilisation without any restriction.

These factors illustrate the limitations inherent in using the patent system to attain distributive justice. While the restrictions on prior art block the monopolisation that might otherwise take place, they do not do so sufficiently to remedy underlying inequalities in innovation capacity. Therefore, additional strategies need to be devised that go beyond the patentability requirements and include aspects of technology transfer and international scientific cooperation.[58] These strategies go hand-in-hand with the requirements of the CBD and might help to alleviate the presumptions that open DSI frameworks inevitably cater unfairly to privileged parties.

Speaking of multilateral fragments, it remains a major problem as well. Discussions pertaining to biodiversity, intellectual property, and data policy are conducted through separate international institutions, each with its specific mandate and normative agendas. The CBD focuses heavily on equity and sovereign rights, the WIPO concentrates on intellectual property harmonisation, and leading scientific institutions.[59] Lack of coordination between these systems runs the danger of inducing as well as enforcing inconsistent or even contrary policy measures regarding DSI. They might view DSI as publicly accessible prior art, but simultaneously emphasise the implementation of a sharing obligation. There have been some improvements in the WIPO regime, which could point to an attempt at reconciliation between patent law and stewardship of biodiversity. For example, WIPO's 2024 Draft Treaty on Intellectual Property, Genetic Resources, and Associated Traditional Knowledge proposes obligations for disclosure regarding the use of genetic resources and associated traditional knowledge in patent applications.[60] The convention, although not explicitly addressing DSI, reflects increasing international recognition that patenting and biodiversity governance can no longer exist separately.

VI. CONCLUSION: RECONCILING PATENT DOCTRINE WITH THE DIGITAL GENOMICS ERA

The emergence of DSI has brought into sharp view a profound tension between classic patent and the modern facts of genomic science. Patents had been devised in an era in which novelty was associated with a unique real-world artefact, an individual invention, and with knowledge flow

[58] United Nations Conference on Trade and Development, *The Role of Science, Technology and Innovation in Sustainable Development* 33-36 (2018).
[59] WIPO, Draft Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, WIPO/GRTKF/IC/47/4 (2024).
[60] WIPO, Draft Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge, WIPO/GRTKF/IC/47/4 (2024).

within a place-bound context. DSI, in turn, epitomises a form of dematerialised, globally circulating biological information that challenges the fundamental assumptions underlying originality, inventiveness, disclosure, and ownership. Since genomic information is at the same time the source, determining whether DSI is prior art has proved a salient doctrinal and policy choice with far-reaching ramifications.

This article has argued that a recognition of DSI as legally cognizable prior art should be entertained on the conditions of being made public and being technically enabling. This proposition is entirely in keeping with all of the fundamental purposes of patent law, which include averting the recapture of pre-established information, safeguarding the public domain, and ensuring that exclusive rights are properly awarded solely within the realm of legitimate technical improvements. A critical defensive function is played in limiting broadly expansible patents, which might monopolise existing information resources developed through the publicised efforts of science.[61] This particular study has also demonstrated that such a recognition is subject to nuanced qualification, particularly in the articulation of patents along application-oriented criteria.

Nevertheless, refinement within doctrinal law by itself cannot help solve the overarching issues of governance in DSI. The discussion in this essay on how policy addresses genomic data in intellectual property rights and its intersection with global inequalities and sustainable and distributive justice has not been without countries that are rich in genetic diversity and in resources expressing genuine and valid anxieties over how genetic data would generate economic rewards without sharing its benefits.[62] The recognition of DSI as prior work has not only been important to guard against any unjust monopoly but may exacerbate exclusionist perceptions in nations without technological capabilities to realise data with commercialisation.

This tension underscores the constraints of patent law as a mechanism for distribution. The patent theory is inadequate for addressing structural inequalities in scientific capability or historical trends of resource utilisation. Thus, attempts to incorporate equitable factors into patentability criteria may excessively strain the system and compromise legal certainty.

Global trends in this approach suggest that measured progress is being made. The establishment of the multilateral benefit-sharing framework concerning information in digital sequences under the Convention on Biological Diversity seeks to break the nexus between the territorial basis of

[61] Michael A. Carrier, *Unraveling the Patent-Antitrust Paradox*, 150-53 (2012).
[62] Carlos M. Correa, *Innovation and Access to Medicines: Intersections with Patent Law* 87-90 (2016).

benefit-sharing practices and their link with the movements of digital data flows. Another development is the establishment of a standard of procedure concerning disclosure in patent regulation under discussion within the WIPO, aiming to improve transparency without transforming patent agencies into biodiversity law enforcement agencies. These efforts, in their own way imperfect, suggest that there is now a heightened recognition that the control of DSI requires coordination between legal systems rather than theological isolation

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THE PRICE OF SECRECY: A DOCTRINAL AND POLICY ANALYSIS OF COMPULSORY LICENSING OF TRADE SECRETS IN INDIA

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ABSTRACT

Trade secrets (TS) are emerging as major drivers of innovation. They shield internal know how, confidential business information, and other information not protected by patents. In the Indian context, there is no specific legislation related to TS. Due to this, they remain vulnerable to misappropriation. TS simultaneously restrict public access to information, even during dire need in times of emergencies. This article contributes to the discourse on compulsory licensing (CL) as a balancing mechanism between private secrecy and public needs, extending beyond traditional patent-centric models. It examines the present legal and policy landscape in light of the Protection of Trade Secrets Bill, 2024, which proposes narrowly tailored mechanisms for government-authorised use of TS during declared emergencies, while also embedding appropriate checks and balances, including limited scope, confidentiality obligations, and proportionate remuneration. Traditional IP frameworks alone cannot ensure equitable access to critical knowledge in complex industries, where TS monopolise proprietary processes and tacit knowledge as primary barriers to public-interest objectives. Neither TRIPS nor global mechanisms preclude well-designed CL for TS during emergencies. This article examines the doctrinal and policy effects of CL and highlights its structural lacunae in India's proposed domestic legislation. Subsequently, it proposes calibrated domestic reforms alongside international adjustments to FTAs and the WHO Pandemic Agreement. The analysis advances operational models like emergency-exclusive licensing, limited disclosure, and independent oversight, alongside enhancements for 'show-how' facilitation, tiered royalties, and post-transfer compensation to balance secrecy with access in pharmaceuticals and agritech. These reforms offer a framework for a future-ready TS regime in India while also meeting the minimum intellectual property protection mandate, thus resolving public-interest access challenges in both domestic and global contexts.

I. INTRODUCTION

"*Knowledge is power. Information is power. The secreting or hoarding of knowledge or information may be an act of tyranny camouflaged as humility.*"

\- Robin Morgan[1]

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[1] R. Morgan, *Knowledge is power. Information is power. The secreting or hoarding of knowledge or information may be an act of tyranny camouflaged as humility*, BRAINY QUOTE (Jan. 21, 2026, 3:15 PM), https://www.brainyquote.com/quotes/robin_morgan_271953.

Trade secrets [*hereinafter* "**TS**"] underpin India's innovation-driven economy, particularly in sectors where patent disclosure is commercially unviable or strategically risky.[2] Empirical research highlights their macroeconomic importance. Studies by the Indian School of Empirical Studies and OECD analyses indicate that stronger trade secret protection is positively associated with innovation outcomes, including higher levels of patenting activity and research and development ["**R&D**"] investment.[3] Misappropriation of TS is estimated to cost certain advanced economies 1-3% of their Gross Domestic Product (GDP) annually, reflecting both the value and vulnerability of TS.[4]

In India, this vulnerability is magnified by the absence of a dedicated statutory framework. India's Trade Secrets Protection Index score of 2.92 trails that of comparable economies.[5] This gap is estimated to cause nearly INR 20 billion in annual TS leakage and deters Foreign Direct Investment (FDI) in technology-intensive sectors.[6] Moreover, over 0.15 million Department for Promotion of Industry and Internal Trade (DPIIT)-recognised startups, contributing around 3.5% of the GDP, relies largely on confidential algorithms, business models, and proprietary processes.[7] Weak protection, therefore, directly threatens domestic innovation and may cause corporations to outsource their R&D activities to countries with more explicit protection regimes. This threatens an economy's global competitiveness as well, thus producing a regulatory race to the bottom.

At the same time, absolute secrecy *ipso facto* creates systemic risks. Especially in the pharmaceutical and agritech sectors, both of which will be examined in detail later in this article, confidential know-how accounts for nearly 40% of such firms' competitive advantage.[8] Secrecy of

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[2] Mahalakshmi S & Madhangi N, *Trade secrets in the Modern Economy: An analysis of the proposed Bill's ability to protect intellectual property and foster innovation*, 11 TIJER – INT'L RES. J. 5, 5–14 (Nov. 2024), https://tijer.org/tijer/papers/TIJER2411121.pdf.

[3] Douglas C. Lippoldt & Mark F. Schultz, *Uncovering Trade Secrets: An Empirical Assessment of Economic Implications of Protection for Undisclosed Data*, OECD Trade Pol'y Papers No. 167, at 1 (2014), https://doi.org/10.1787/5jxzl5w3j3s6-en; World Intellectual Property Organization (WIPO), *WIPO Guide to Trade Secrets and Innovation*, pt. II, https://www.wipo.int/web-publications/wipo-guide-to-trade-secrets-and-innovation/en/part-ii-strategic-roles-of-trade-secrets-in-the-innovation-ecosystem.html.

[4] Center for Responsible Enterprise And Trade & PricewaterhouseCoopers LLP, *Economic Impact of Trade Secret Theft: A Framework for Companies to Safeguard Trade Secrets and Mitigate Potential Threats*, CREATe.org-PWC REPORT (Feb. 2014, 12:00 AM), https://www.innovation-asset.com/hubfs/blog-files/CREATe.org-PwC-Trade-Secret-Theft-FINAL-Feb-2014_01.pdf.

[5] M. Schultz, *supra* note 3 at 2.

[6] Nimitt Dixit, *IPIC Series: Can India Plug Its INR 2,000 Crore IP Leak?*, ETLEGALWORLD (Nov. 5, 2025, 04:40 PM), https://legal.economictimes.indiatimes.com/news/law-policy/ipic-series-can-india-plug-its-inr-2000-crore-ip-leak/125107368.

[7] Govt. of India, Ministry of Commerce & Industry, Department for Promotion of Industry and Internal Trade, *Annual Report 2024-25*, DPIIT ANNUAL REPORT (June 2025, 12:00 AM), https://www.dpiit.gov.in/static/uploads/2025/06/3d9c9c2daeefb97bb9ce964370938b71.pdf.

[8] European Commission, Directorate-General for Internal Market and Services, *Study on Trade Secrets and Confidential Business Information in the Internal Market*, EU DOCSROOM STUDY (2013, 12:00 AM), https://ec.europa.eu/docsroom/documents/27703/attachments/1/translations/en/renditions/native

manufacturing processes, seed technologies, and data-driven formulations of essential medicines, seeds, and other technologies can undermine public health and food security. Such concerns are already acute in developing economies such as India. In the pharmaceutical industry, for one, TS protections over manufacturing processes and clinical data have delayed biosimilar approvals by years.[9] This has kept treatments for rheumatoid arthritis, anemia, multiple sclerosis, and cancer unaffordable for millions in developing countries.[10] In these countries, the cost of biologics can exceed annual incomes.[11] Moreover, even after patents expire, secrecy over cell lines and purification methods forces redundant testing, inflating generic prices and reducing access.[12] This is especially concerning for India, where medicines account for nearly 69% of household out-of-pocket healthcare expenditure.[13]

Similarly, in agritech, proprietary seed technologies are often shrouded as TS. BT cotton is a prime example. Its escalating costs after its introduction in 2002 have driven India's cottonseed market into illegal channels.[14] Unregulated sales in these channels command premium prices and thus increase farmer indebtedness.[15] It has also contributed to over 2,70,000 suicide cases recorded among farmers since 1995, especially in cotton belt regions.[16] Moreover, this perpetuates the risks of malnutrition by monopolising high-yielding technologies.[17] As per the annual report by the Food and Agriculture Organisation (FAO), 2024, India had 194 million people who were undernourished, the highest globally.[18]

Thus, the dual challenge of preventing misappropriation while avoiding overarching monopolisation of TS demands a carefully calibrated legal framework. In this setting, whether and to what extent TS should be subject to compulsory licensing [hereinafter referred to as "**CL**"] is a central issue in India's innovation and public-interest policy. In light of this, the article pursues three objectives. *First,* it examines India's existing TS framework in light of innovation and competition policy. *Second*, it analyses CL under Indian IP law. It assesses whether and to what extent TS falls within its scope. *Third*, it evaluates the Protection of Trade Secrets Bill, 2024 ["**the**

[9] T. Gebrye et al., *Economic Burden of Rheumatoid Arthritis in Low-, and Middle-Income Countries* (2025) 77 ARTHRITIS CARE & RES. (HOBOKEN) 1 (2025), https://pubmed.ncbi.nlm.nih.gov/40827016/.
[10] *Id.*, at 3.
[11] T. Gebrye, *supra* note 9 at 3.
[12] Professor T. Aplin & Dr. J. Liddicoat, *Discussion Paper on the Interplay between Patents and Trade Secrets in Medical Technologies*, WIPO DISC. PAP. ON IP & MED. TECH. 1, 55 (2023).
[13] Shreya Tayal & Sanjay K. Mohanty, *Why Medicines Are Unaffordable: An Investigation into the Role of Medicine Consumption, Pricing and Public Procurement in India*, 22 *BMC Health Servs. Res.* 649 (2022), https://link.springer.com/article/10.1186/s12913-022-08022-1.
[14] B. Ramaswami et al., *Spread of Illegal Transgenic Cotton Varieties in India*, 40 WORLD DEV. 177, 177–188 (2012).
[15] *Id* at 3.
[16] I. Plewis, *GM Cotton and Suicide Rates for Indian Farmers*, CCSR WORKING PAPER No. 4, 1–30 (2014).
[17] B. Harriss, *Innovation Adoption in Indian Agriculture*, 6 MOD. ASIAN STUD. 71, 71–98 (1972).
[18] M. Wiemers et al., *Global Hunger Index 2024*, 1–80.

TS Bill, 2024"].[19] The TS Bill was recommended by the 22nd Law Commission of India in March 2024 in its 289th Report titled "Trade Secrets and Economic Espionage" to identify structural, enforcement, and conceptual gaps.[20] On this basis, it proposes targeted reforms to balance confidentiality with legitimate access needs and support a globally sound, forward-looking TS regime for India.

Part II of this article will address the definition and legal nature of TS, as well as the law governing them. Part III will analyse CL, its rationale under the existing regime, and the limits of a patent-only approach in addressing TS. Part IV will set out possible legal bases for extending CL to TS. Part V will examine the domestic policy case for such a regime. Part VI will consider international policy dimensions, with a focus on strengthening cooperation for technology transfer during global emergencies. The article will conclude in Part VII.

II. TRADE SECRETS: MEANING, DEFINITION, AND LEGAL NATURE

A. Definition and Nature of Trade Secrets

TS are any confidential business information that confers a competitive advantage and is protected through secrecy rather than registration.[21] Legally, they must meet three conditions: (i) the information must be secret; (ii) be subject to reasonable protection measures such as NDAs, access controls, and security protocols; and (iii) it must have commercial value because it is confidential.[22]

TS also differ from other forms of intellectual property [hereinafter referred to as "**IP**"]. Know-how refers to practical, experience-based expertise that may or may not be secret but is essential for operational efficiency.[23] Regulatory data consists of safety and efficacy information submitted to drug regulators and is protected against unfair commercial use but not against disclosure, unlike TS.[24] Patents, by contrast, grant exclusive rights in exchange for public disclosure of the invention, protecting the "what," while TS typically protects the "how."[25]

Industry Case 1 (Agritech Sector): In the agricultural biotechnology sector, TS plays a central role because patent protection for plants and seeds is excluded under Section 3(j) of the Patents Act, 1970.[26] Proprietary hybrid seed lines and breeding data are protected through confidential parental lines, non-disclosure agreements, and restricted licensing grants with seed companies. One relevant

[19] Trade Secrets Bill, 2024, Bills of Parliament, 2024 (India).
[20] Law Commission of India, *Trade Secrets and Economic Espionage: 289th Report* (Report No. 289) 1 (Mar. 17, 2024), https://lawcommissionofindia.nic.in/report_twentysecond/.
[21] Mahalakshmi, *supra* note 3 at 2.
[22] *Id.*
[23] K. Linton, *The Importance of Trade Secrets*, J. Int'l Com. & Econ., Sept. 2016, at 1-17, 2.
[24] *Id* at 5.
[25] K., *supra* note 23 at 5.
[26] Patents Act, 1970, § 3(j), No. 39, Acts of Parliament, 1970 (India).

instance is of *Emergent Genetics India Pvt. Ltd. v. Shailendra Shivam* (2011), where the plaintiff alleged misappropriation of its TS after DNA fingerprinting showed genotypic identity between its hybrids and those sold by the defendants.[27] The court examined claims of breach of confidentiality and unauthorised reproduction of genetic sequencing formulae to successfully enforce secrecy obligations even in the absence of statutory plant variety rights for the breed concerned.

Industry Case 2 (Pharmaceutical Sector): The pharmaceutical sector provides an even clearer illustration of the centrality of TS, which became especially evident during the COVID-19 pandemic. In biologics and vaccines, production relies on particular, proprietary processes. Elements such as proprietary cell lines, fermentation conditions, purification methods, and analytical assays are closely guarded.[28] Much of this knowledge is tacit, and manufacturing depends on such subtle variables of temperature ranges, feed profiles, contamination control, and scale-up behaviour, all of which are typically kept as TS. These aspects cannot be fully captured in patent documents.[29] Without access to these confidential elements, even a manufacturer holding a CL for a patent cannot reliably produce a safe, effective, and regulator-compliant product.[30] Therefore, TS forms the backbone of pharmaceutical innovation and production. Patent licensing does not enable genuine technology transfer in itself.

B. Current Legal Framework Governing Trade Secrets in India

India's TS protection has developed without a dedicated statute. The Indian Contract Act, 1872, provides the legal basis for non-disclosure agreements (NDAs) and confidentiality clauses.[31] Common law equity, crystallised in cases such as *John Richard Brady v. Chemical Process Equipments* (1987), recognises breach of confidence as a protectable wrong.[32] The erstwhile Indian Penal Code, 1860, and the now Bharatiya Nyaya Sanhita, 2023, penalise theft, misappropriation, and criminal breach of trust involving confidential business material.[33] This framework was reinforced by India's accession to the TRIPS Agreement in 1995. TRIPS, under Article 39, requires the protection of undisclosed information.[34] The Information Technology Act, 2000, was enacted to penalise

[27] Emergent Genetics India Pvt. Ltd v. Shailendra Shivam, 2011 (125) DRJ 173.
[28] Cheryl L. Rowe-Rendleman, *Regulatory Requirements of Biosimilars: Drug Development in Ophthalmology, Part 1*, 40 *J. Ocular Pharmacology & Therapeutics* 487 (2024), https://doi.org/10.1089/jop.2024.0151.
[29] K. Hickey & E. Ward, *Role of Patents and Regulatory Exclusivities in Drug Pricing*, CRS REPORT R46679 1, 1–61 (Jan. 30, 2024), https://www.congress.gov/crs-product/R46679.
[30] Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HJLT 545, 545–601 (2012), https://jolt.law.harvard.edu/articles/pdf/v25/25HarvJLTech545.pdf.
[31] Indian Contract Act, 1872, §§ 10, 27, 73–74, No. 9, Acts of Parliament, 1872 (India).
[32] John Richard Brady v. Chemical Process Equipments Private Limited, AIR 1987 Delhi 372.
[33] Indian Penal Code, 1860, §§ 378, 403, 405, No. 45, Acts of Parliament, 1860 (India); Bharatiya Nyaya Sanhita, 2023, §§ 303, 314, 316, No. 45 of 2023, Acts of Parliament, 2023 (India).
[34] Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 39, Apr. 15, 1994.

offences concerning unauthorised access and breach of confidentiality.[35] Judicial development has further shaped the regime through High Court decisions that have applied the four-fold test for confidentiality. The test is that the information (i) is not public knowledge; (ii) has commercial value because it is secret; (iii) was disclosed or accessed in circumstances importing an obligation of confidence; and (iv) has been subject to reasonable steps to keep it secret.[36]

Assessments at a policy level, such as through the WIPO Country Report on India's trade secrets, consistently note the absence of a unified statute.[37] It notes India's reliance on a composite mix of contract, tort, criminal law, and international obligations. As the next section shows, CL in India has evolved only within patent law. There exist no corresponding authority empowering courts to compel disclosure of TS or technical know-how. This remains the case even in public or national emergencies.

III. COMPULSORY LICENSING: CONCEPT AND CONVENTIONAL APPLICATIONS

A. Rationale and Legal Framework for Compulsory Licensing

CL has its roots in public interest rationales of IP law. It seeks to strike an appropriate balance between private rights of exclusion and public interests.[38] It has been primarily justified based on public interests related to access to necessary technologies, which patents deny due to low affordability or poor availability.[39] In cases of emergency, say a pandemic, epidemic, or outbreak of disease, requiring immediate life-saving treatments, voluntary licences and market negotiations often fail due to delay, unaffordability, or refusal by rights holders.[40] CL offers a lawful mechanism to override patent exclusivity by authorising third-party production without the patent holder's consent. Even in the absence of emergencies, CL can serve as a means to solve the problem of access in low- and middle-income countries.[41] They limit the anti-competitive practices, protect against the abuse of monopoly power through the IP rights, and serve as an antidote to prevent violations of the right to health through IP.

[35] Information Technology Act, 2000, §§ 43, 66, 72, No. 21, Acts of Parliament, 2000 (India).
[36] Bombay Dyeing & Manufacturing v. Mehar Karan Singh, 2010 (112) Bom LR 375; Zee Telefilms v. Sundial Communications, 2003 (3) Mah LJ 695.
[37] WIPO, *Overview of National and Regional Trade Secret Systems: India* (2024).
[38] K. Vincent, *The Use of Compulsory Licenses*, WIPO REGIONAL SEMINAR ON PATENT-RELATED FLEXIBILITIES 1, 1–5 (2013).
[39] *Id* at 7.
[40] K. Vincent, *supra* note 37 at 7.
[41] H. Mowafi et al., *Emergency Care Surveillance and Emergency Care Registries in Low-Income and Middle-Income Countries*, 4 BMJ GLOB. HEALTH (SUPP. 6) e001442, 1–9 (2019).

At the international level, CL of patents is governed primarily by Articles 30 and 31 of the TRIPS Agreement.[42] Article 30 allows limited exceptions to exclusive patent rights.[43] Article 31 provides for the usage of a patented invention without authorisation in certain circumstances, including national emergency, public non-commercial use, or extreme urgency under certain conditions, including prior negotiation, adequate remuneration, and predominantly domestic use.[44] Most of these principles have been incorporated into the domestic law of India, Brazil, Thailand, and Germany, among others, in furtherance of the TRIPS Agreement.[45]

B. Compulsory Licensing of Trade Secrets: Gaps and Absence of Explicit Mechanisms

Unlike patents, for which Article 31 TRIPS sets out a detailed CL framework, TRIPS contains neither an explicit mechanism nor an express prohibition on CL of TS. This creates a regulatory silence regarding compulsory TS transfer. Article 39 protects undisclosed information only against unfair acquisition, use, or disclosure.[46] Many scholars read this formulation as leaving room for a CL regime.[47]

WTO jurisprudence on TRIPS flexibilities confirms this position. *Canada-Patent protection of pharmaceutical products* (WT/DS114) iterates that Members may regulate IP rights in the public interest.[48] The case acknowledges that since Articles 30 and 31 operate within the patents chapter, they cannot be directly extended as exceptions to Article 39. At the same time, it provides that member states are constrained only by an express TRIPS prohibition, and since no such prohibition exists for TS, CL remains legally conceivable. It only remains institutionally and procedurally constrained.

C. Limitations of Restricting Compulsory Licensing to Patents

CL of patents addresses only the formal, codified layer of innovation. It does not extend to the TS, tacit know-how, process optimisations, and operational protocols that make a technology commercially workable. In most sectors, these critical elements are protected as TS.[49] They are

[42] Agreement, *supra* note 32 at 6, arts 30, 31.
[43] Agreement, *supra* note 32 at 6, art 30.
[44] Agreement, *supra* note 32 at 6, art 31.
[45] R. D. Anderson et al., *Competition Policy and Intellectual Property in Today's Global Economy* (part 1 chp 3), 62 CUP 62, 62–98 (2021).
[46] Agreement, *supra* note 32 at 6, art 39.
[47] O. Gurgula & J. Hull, *Compulsory licensing of trade secrets*, 16 JIPLP. 1242, 1242–1261 (2021).
[48] *Canada-Patent Protection of Pharmaceutical Products*, WT/DS114/R (Mar. 17, 2000).
[49] K. Linton, *supra* note 23 at 5.

neither disclosed in patents nor transferable under a patent licence. As a result, patent-only CL leaves licensees legally authorised but remains technically unable to use the technology in practice.[50]

Industry Case 1 (Agritech Industry): The agricultural sector offers a clear illustration. In *Monsanto Technology LLC v. Nuziveedu Seeds Ltd* (2018) in India, Monsanto and its joint venture Mahyco Monsanto Biotech exercised tight control over Bt cotton trait technology imbuing TS, and continued to exploit Indian farmers even after court holdings against their practice of demanding excessively high trait fees.[51] There were related CCI proceedings (2020) as well, which triggered challenges under both patent law and competition law.[52]

In *Bowman v. Monsanto Co.* (2013), before the United States Supreme Court, Monsanto used its patents. Monsanto also used its confidential control.[53] The control was over Roundup Ready soybean technology. This was used to prevent farmers from replanting harvested seeds. This reinforced a model in which self-replicating technologies and critical agronomic information remained proprietarily controlled. Similar patterns also appear in disputes involving Pioneer Hi-Bred and other seed multinationals, where proprietary parent lines and breeding data were held as TS, which limited follow-on breeding and constrained competition.[54]

Moreover, in both India and Argentina, Monsanto's TS associated with Bt traits outlived the patent and even substituted for a patent by allowing a similar manner of commercial exclusivity. In India, Mahyco Monsanto Biotech embedded high trait value royalties in seed prices and resisted state and central attempts to cap them even while the patent status of Bollgard I and II was contested, prompting scrutiny for abuse of dominance.[55] In Argentina, where Monsanto could not secure patents on first generation Roundup Ready soybeans, it relied on contracts and technology fees backed by private grain testing to extract royalties on later varieties such as Intacta RR2 Pro despite the absence or expiry of patents, demonstrating how a non-disclosed technological package protected through contracts and TS can sustain a *de facto* monopoly long after formal patent rights weaken.[56]

Industry Case 2 (Pharmaceutical Industry): The CL of patents provides only one layer of pharmaceutical protection. For modern medicines, particularly biologics, vaccines, and advanced therapies, patents rarely provide sufficient information. Critical inputs such as cell lines,

[50] *Id* at 9.
[51] Monsanto Technology LLC v. Nuziveedu Seeds, (2019) 3 SCC 381.
[52] Nuziveedu Seeds Ltd. v. Mahyco Monsanto Biotech, (2020) SCC OnLine Del 598.
[53] Bowman v. Monsanto Co., 569 U.S. 278 (2013).
[54] Competition Commission of South Africa v Pioneer Hi-Bred International, CCT 58/13), (2013).
[55] Monsanto, *supra* note 50 at 9.
[56] M. Municoy, *Judicial Decision in Argentina Tackles the Interplay between Enforcing Patent Rights and Antitrust Law*, GLOBAL COMP. POL'Y (Release One), June 2009, 1.

purification methods, stability conditions, and analytical assays are protected as TS rather than patents.[57] This information is needed to enable replication.

One instance of rigid monopolisation was observed during COVID-19. Leading vaccine developers declined to share critical manufacturing TS with capable producers, especially in low- and middle-income countries. For instance, Pfizer BioNTech and Moderna refused to transfer mRNA technology initiatives, such as the WHO mRNA hub in South Africa, to other manufacturers.[58] This withholding of TS occurred despite substantial public funding for the underlying research, which was widely seen as having entrenched global vaccine inequity.

Furthermore, a related but distinct problem concerns proprietary quality-control data, validation methods, and process-consistency information. The first issue relates to TS sharing under CL, while the second concerns data exclusivity. This article confines itself to the former.

IV. LEGAL FOUNDATIONS FOR EXTENDING COMPULSORY LICENSING TO TRADE SECRETS

A. An Equity and Human Rights-based Justification for Compulsory Licensing

CL of TS lies at the intersection of two powerful ethical claims. One claim is the right of innovators to protect legitimately acquired commercial advantages. The other claim is the right of populations to access essential innovations in emergencies.

The UN Sub-Commission on the Promotion and Protection of Human Rights (2000) established "*the primacy of human rights obligations over economic policies and agreements,*" including those on IP.[59] Similarly, UN Special Rapporteur on Cultural Rights Farida Shaheed (2015) affirmed: "*Where patent rights and human rights are in conflict, human rights must prevail.*"[60] This occurs due to human rights' superior status under international law. Human rights are also fundamentally imbued in national constitutions and predate economic treaties like TRIPS. Hence, most TS should fall under the ambit of these obligations.

Industry Case 1 (Agritech Industry): The agricultural sector illustrates this tension sharply. The right to food security is protected under Article 11 of the International Covenant on Economic, Social, and Cultural Rights (ICESCR) and Article 25 of the Universal Declaration of Human Rights

[57] Robin Feldman, *Trade Secrets in Biologic Medicine: The Boundary with Patents*, 24 CSTLR 1, 1–36 (2022).
[58] Andreas Panagopoulos & Katerina Sideri, *From Lab to Mass Production*, 11 FRONT. PUB. HEALTH 1151713, 1–10 (2023).
[59] Sub-Commission on the Promotion and Protection of Human Rights, *Intellectual Property Rights and Human Rights*, U.N. Doc. E/CN.4/SUB.2/RES/2000/7 (2000).
[60] UNGA, *Report of the Special Rapporteur in the Field of Cultural Rights on Patent Policy and the Right to Science and Culture*, U.N. Doc. A/70/279 (2015).

(UDHR).[61] International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA)'s Article 9 and the Convention on Biological Diversity (CBD) similarly require IP regimes to be balanced against farmers' rights to genetic resources, implying that TS barriers in seeds and agritech must give way when they undermine access to food.[62]

For this purpose, Article 19 of the United Nations (UN) Declaration on the Rights of Peasants (2018) protects peasants' rights to "*save, use, exchange and sell farm-saved seed or other propagating material*" and access to quality seeds.[63] UN Special Rapporteur on the Right to Food Olivier De Schutter (2009) warned that "*stringent plant variety protection based on UPOV 1991 restricts small-scale farmers' access to seeds and puts their Right to Food at risk.*"[64] This occurs as it limits seed saving and exchange practices. These practices are essential for food sovereignty.

In the Indian context, research asserts "*trade secret cannot have priority over right to safe and nutritious food*," as citizens' right to information under Article 19(1)(a) and life under Article 21 prevail over proprietary secrecy in food items, implying that withholding agricultural TS could undermine public access to vital technologies.[65]

Industry Case 2 (Pharmaceutical Industry): The pharmaceutical sector raises comparable concerns. The right to health was first recognised as a fundamental human right in 1946 in the World Health Organisation (WHO) Constitution, which declared that "*the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being.*"[66] It was later affirmed in the UDHR, 1948, and the ICESCR, 1966.[67] This creates a strong ethical claim in favour of sharing life-saving technologies when they conflict with proprietary control. The case for sharing is reinforced by the scale of public funding behind many pharmaceutical innovations. Moderna, for example, received nearly $1 billion from the United States (US) government for COVID-19 vaccine development, raising serious questions about its obligations to the public good.[68] Where taxpayer money has materially contributed to innovation, there is a compelling moral and ethical case for sharing TS

[61] International Covenant on Economic, Social and Cultural Rights, art. 11, Dec. 16, 1966, 993 U.N.T.S. 3; Universal Declaration of Human Rights, art. 25, G.A. Res. 217 (III) A, U.N. Doc. A/810 (Dec. 10, 1948).
[62] International Treaty on Plant Genetic Resources for Food and Agriculture, art. 9, Nov. 3, 2001, 2400 U.N.T.S. 303; Convention on Biological Diversity, June 5, 1992, 1760 U.N.T.S. 79.
[63] United Nations Declaration on the Rights of Peasants and Other People Working in Rural Areas, art. 19(d), G.A. Res. 73/165 (Dec. 17, 2018).
[64] Olivier De Schutter, *Report of the Special Rapporteur on the Right to Food: Crisis into Opportunity: Reinforcing Multilateralism*, U.N. HUM. RTS. COUNCIL REP. A/HRC/12/31 (July 21, 2009).
[65] Dr. R.R. Mishra & M. Chakrabarty, *Right to Safe Food: Constitutional Perspectives*, LAW MANTRA QUARTERLY ONLINE J. 1 (2016).
[66] Constitution of the World Health Organization, July 22, 1946, 14 U.N.T.S. 185.
[67] Universal Declaration of Human Rights, art. 25, G.A. Res. 217 (III) A (Dec. 10, 1948); International Covenant on Economic, Social and Cultural Rights, art. 12, Dec. 16, 1966, 993 U.N.T.S. 3.
[68] B. A. Dahl et al, *Global VAX: A U.S. Contribution to Global COVID-19 Vaccination Efforts, 2021–2023*, 42 VACCINE (SUPP. 3) 125827, 125827–125827 (2024).

during a global health crisis, not merely as corporate social responsibility but as an obligation arising from public investment.

At the same time, ethicists caution against regimes that normalise mandated disclosure. Any compulsory access should be confined to clearly defined emergencies, accompanied by fair remuneration, and embedded in governance structures that prevent opportunistic use for purely economic gain. Under the UN Guiding Principles on Business and Human Rights, corporations have human rights responsibilities, but states remain the primary duty bearers under international law, and corporate responsibility cannot become a pretext for state inaction.[69] The architect of this framework, John Ruggie, notes that companies engaged in public functions, such as healthcare, may bear heightened responsibilities, but it is ultimately for states to protect human rights through the provision and regulation of public services.[70]

B. The Protection of Trade Secrets Bill, 2024: Key Provisions and Implications

The TS Bill, 2024, directly acknowledges this lacuna by proposing a domestic mechanism for government-authorised use of TS in situations of national emergency or public interest, illustrating how Member States can legislate where TRIPS provides no mandatory model.[71] While TRIPS protects undisclosed information, it leaves mechanisms for compulsory access undefined. Building on this space, the TS Bill introduces a narrowly tailored government-use CL framework with four core safeguards: activation only on government notification of a "*circumstances of national emergency or extreme urgency involving substantial public interest, including situations of public health emergency, national security etc.*" under clause 6(1); government determined compensation reflecting the value and development costs of the TS under clause 6(2); identifying the rights holder backed by strict confidentiality peri and post transfer and termination under clause 6(3); and automatic termination once the emergency ends under clause 6(4).[72] The silence of the TRIPS on CL of TS specifically creates doctrinal space for such measures while remaining consistent with TRIPS, since these mechanisms operate within its flexible, minimum-standards structure.

C. Aligning Trade Secret Licensing with TRIPS Obligations

Extending compulsory access to TS is reconcilable with the existing TRIPS framework. *Firstly*, Article 1(1) of the TRIPS grants Members the freedom to choose the "appropriate method" of

[69] United Nations Guiding Principles on Business and Human Rights, U.N. Doc. A/HRC/17/31 (Mar. 21, 2011).
[70] Conectas Human Rights, *The Ruggie Framework*, SUR.CONECTAS.ORG, https://sur.conectas.org/en/the-ruggie-framework/.
[71] *Supra* note 17 at 4, cl 6.
[72] *Id.*

implementing their obligations, allowing States to adopt domestic laws that permit government-mandated access to TS, so long as minimum standards of protection are preserved.[73] This flexibility underpins national emergency regimes, such as India's TS Bill, 2024.

Secondly, Article 39 reinforces this space.[74] Article 39.2 protects undisclosed information only against "unfair" use. Article 39.3 expressly permits disclosure of regulatory data. This is permitted when necessary to protect the public. This signals that controlled, non-public disclosure in exceptional circumstances is not *per se* incompatible with TRIPS. WTO practice treats Article 39 as a negative right. It is a right against unfair conduct and is not treated as an absolute property right.[75] This leaves Member States free to mandate access.

Thirdly, as discussed before, Articles 30 and 31 apply solely to patents.[76] However, the Doha Declaration on TRIPS and Public Health (2001) has affirmed that no TRIPS Article prevents Members from protecting public health.[77] It affirmed that each State may determine what constitutes a national emergency. Under Article 31 of the Vienna Convention on the Law of Treaties (VCLT), these provisions should be read in light of TRIPS Articles 7 and 8.[78] These Articles place technology transfer and public health at the centre of the TRIPS. For instance, if pharmaceuticals are considered, Article 8(1) authorises measures "*necessary to protect public health and nutrition*" if consistent with TRIPS, allowing States to justify CL for vaccine processes, biologics manufacturing steps, or diagnostic protocols during crises, provided the measures are proportionate and confidentiality-preserving.[79] Conversely, post-COVID scholarship by Gurgula and Levine (2025) argues that Article 8 operates as an interpretive principle rather than an independent exception, meaning that any compulsory access to TS must be narrowly tailored, proportionate, and confidentiality preserving, in the same way that patent CL is accepted when read with Articles 7, 8, and 31.[80]

Lastly, domestic emergency powers supply the legal machinery for such access. Many constitutional and statutory systems contain expropriation, government use, or national security powers that allow States to compel access to proprietary TS subject to compensation and procedural safeguards

[73] Agreement, *supra* note 32 at 6, art 1(1).
[74] Agreement, *supra* note 32 at 6, art 39.
[75] Rajat Kathuria & Julien Corcelle, *TRIPS, Pharmaceutical Patents and Access to Medicines: India's Options Under International Law*, IIFT-WTO CENTRE WORKING PAPER No. 1, 1–42 (2012), https://wtocentre.iift.ac.in/Papers/1.pdf.
[76] Agreement, *supra* note 32 at 6, arts 30, 31.
[77] Declaration on the TRIPS Agreement and Public Health, WTO Doc. WT/MIN(01)/DEC/2 (2001).
[78] Agreement, *supra* note 32 at 6, arts 7, 8; Vienna Convention on the Law of Treaties, 1969, 1155 U.N.T.S. 331. art 31.
[79] Agreement, *supra* note 32 at 6, art 8(1).
[80] O. Gurgula, *supra* note 46 at 9.

to preserve confidentiality, such as India's TS Bill, 2024.[81] Other jurisdictions rely on similar tools. Israel's Defence Regulations Order No. 3737 of 2020 authorised government use of patents and TS for COVID-19 technologies.[82] New Zealand's COVID-19 Public Health Response Act 2020 empowered the Prime Minister to use CL and to issue government use orders for patents and TS relating to vaccines.[83] In Brazil, the Industrial Property Law, Law No. 9.279 of 1996, provides for the CL of patents in national emergencies but not for the TS.[84] Subsequently, Law No. 14.200 of 2021 proposed extending this to include know-how, but key provisions were vetoed, leaving emergency decrees as the remaining route for compelled disclosure.[85] In the European Union, a 2023 proposal for an EU-wide CL regime includes supplementary protection that could extend to TS for crisis-relevant technologies, although it remains under negotiation.[86] Comparable authority also exists under the United States Defence Production Act,[87] EU crisis-response regulations,[88] and China's national-emergency IP requisition powers.[89] Together, these frameworks show that compulsory access to TS, while exceptional, is legally anchored in sovereign emergency powers and remains compatible with TRIPS' flexible, minimum standards architecture.

V. DECODING POLICY CONSIDERATIONS FOR A COMPULSORY LICENSING REGIME OF TRADE SECRETS: A DOMESTIC PERSPECTIVE

A. Selecting an Appropriate Model for India's Trade Secret Licensing Framework

The design of CL regimes for TS must balance effective technology transfer with robust confidentiality preservation, fair remuneration, and enforcement mechanisms. Cross-jurisdictional analysis shows that there are five major operational models that can emerge as viable frameworks for implementing CL for TS.

1. Public-Repository Compulsory Licensing Model

Under this model, a national or multilateral technology-transfer authority acts as an intermediary between originators and licensees. CL requires right-holders to deposit specified TS in a secure public repository, which grants time-bound, non-exclusive access to pre-approved manufacturers on harmonised terms. Platforms such as the WHO mRNA Technology Transfer Hub and

[81] Trade, *supra* note 17 at 4, cl 6.
[82] Defence Regulations (Authorisation of Government Use of Patents and Trade Secrets for COVID-19), Order No. 3737, Defence Regulations, 2020 (Israel).
[83] COVID-19 Public Health Response Act, No. 12 of 2020, Public Acts, 2020 (N.Z.).
[84] Industrial Property Law, Law No. 9,279, arts. 68–71, Diário Oficial da União, 1996 (Brazil).
[85] Law Amending the Industrial Property Law, Law No. 14,200, Diário Oficial da União, 2021 (Brazil).
[86] Proposal for a Regulation of the European Parliament and of the Council on Compulsory Licensing for Crisis Management, COM (2023) 224 (European Union).
[87] Defense Production Act of 1950, 50 U.S.C. §§ 4501–4568 (United States).
[88] Regulation on Serious Cross-Border Threats to Health, Regulation (EU) 2022/2371, O.J. (L 314) (European Union).
[89] Patent Law of the People's Republic of China, arts. 49–50, Order No. 11 of the President, 2020 (China).

COVID-19 Technology Access Pool (C-TAP) demonstrate how a centralised system could be used for the aggregation of standardised technology packages, the approval of manufacturers, and the enforcement of harmonised clauses on confidentiality agreements and quality controls.[90] Recognising that complex technologies cannot be transferred through manuals alone, they also provide structured training, troubleshooting, and technical assistance, typically through Technical Assistance Agreements that combine a licence with hands-on instruction.[91]

Yet the model's limitations are stark. Although the WHO mRNA Hub in South Africa reverse-engineered Moderna's vaccine at laboratory scale, it could not obtain Moderna's full manufacturing dossier, including key TS, despite the company's public pledge not to enforce its COVID-19 vaccine patents.[92] This shows that even institutionally strong pooling mechanisms cannot overcome TS hold-outs, making them an unreliable foundation for a permanent Indian TS CL framework.

2. Emergency-Exclusive Compulsory Licensing Model

This approach limits the CL of TS to tightly defined emergencies. These are limited through statutory triggers and sunset clauses. The clauses parallel, but remain distinct from, Article 31 TRIPS for patents. Both India's TS Bill and the ongoing European Union (EU) crisis-time CL proposals show how legislation can authorise government-mandated access only for national security threats, public health emergencies, or circumstances of extreme urgency.[93] Tying access to formal declarations, such as WHO Public Health Emergencies of International Concern (PHEIC) or domestic emergency decrees, curbs mission creep and gives legal certainty to innovators and states.[94]

France's emergency law n° 2020-290 of March 23, 2020, illustrates this model. It authorises the Prime Minister to requisition all goods and services necessary to combat the health crisis.[95] Core design features include prior efforts at voluntary cooperation, non-exclusive and non-assignable licences, and strict purpose limitations, such as the manufacture of specified products for domestic use. They include automatic termination upon the end of the emergency.

The U.S. Defence Production Act ["**DPA**"] provides a parallel emergency framework, empowering the President to prioritise contracts and allocate knowledge and processes needed for

[90] T.A. Adekola & B. Mercurio, *mRNA Technology Transfer Hub and Intellectual Property*, 24 WTR 1, 1–19 (2025).
[91] T.A. Adekola, *supra* note 90 at 15.
[92] R. D. Anderson, *supra* note 45 at 7.
[93] Trade, *supra* note 17 at 4, cl 6; Regulation, *supra* note 86 at 16.
[94] Law No. 2020-290, *Law on Emergency to Address the COVID-19 Epidemic*, Mar. 23, 2020 (Fr.).
[95] French Health Emergency Act, Law No. 2020-290, Mar. 23, 2020 (Fr.).

the production of a certain IP during "*natural or man-caused disasters*."[96] The DPA also allows confidential information to be "*published or disclosed*" when "*the President determines that the withholding thereof is contrary to the interest of the national defence.*"[97] India's TS Bill already manifests this model, evident in clause 6(1) of the TS Bill, 2024.[98]

3. Limited-Disclosure Compulsory Licensing Model

Under a limited-disclosure model, authorities compel only the minimum subset of "essential" TS necessary to achieve the public-interest objective, rather than full access to the owner's entire platform. This requires granular scoping of elements, with the grant clause strictly defining what the licensee may manufacture, store, sell, and distribute, and treating any use outside that scope as both infringing and a contractual breach. Courts and regulators in competition disputes have long used such tailored access orders, offering a template for narrowly circumscribed, purpose-specific disclosure.[99]

The model is reinforced by layered confidentiality protections. These include field-of-use restrictions, prohibitions on reverse engineering beyond the licensed product, and continuing secrecy obligations after expiry, supported by physical security, secure IT systems, need-to-know disclosure, and employee confidentiality clauses.[100] CL must also deal with ownership of the improvements, which will revert to the licensor, subject to competition law, and a licence term that is limited to the emergency period, with its post-termination secrecy agreements intact.

This targeted approach becomes imperative since unrestricted access will undermine the TS itself and will disincentivise R&D. United Kingdom Intellectual Property Office ["**UKIPO**"] research (2021) warns that while stronger TS protection encourages R&D, overly broad access reduces knowledge spillovers and future innovation.[101] Olga Gurgula (2025) stresses that any CL regime must include strict confidentiality, non-exclusivity, prior negotiations, and adequate compensation to remain consistent with Article 39 of the TRIPS.[102] The COVID-19 experience illustrated that unprotected disclosure will result in industrial unwillingness; hence, limited and protected access becomes the only workable model, and India's TS Bill imbibes that.[103] For India, however, defining

[96] Defense, *supra* note 85 at 16, § 4502(1).
[97] Defense, *supra* note 85 at 16, § 4512.
[98] Trade, *supra* note 17 at 4, cl 6(1).
[99] Federal Trade Commission v. Mallinckrodt ARD Inc. & Mallinckrodt plc, Case No. 1:17-cv-00120 (D.D.C. Jan. 30, 2017).
[100] *Id* at 18.
[101] O. Gurgula, *supra* note 46 at 9.
[102] Agreement, *supra* note 32 at 6, art 39.
[103] Trade, *supra* note 17 at 4, cl 6.

"essential" remains the central challenge. Although Section 2(f) of the TS Bill, 2024, defines "trade secrets," it does not clearly specify the extent of disclosure required under CL.[104]

Comparative practice offers guidance. The US,[105] EU,[106] European Medicines Agency (EMA),[107] France,[108] and China[109] allow public interest access to TS through regulatory and inspection powers. Germany's Trade Secrets Act (GeschGehG) permits mandatory inventory disclosure.[110] It also permits expert verification and statutory inspection once a licensee is designated. In cases such as the US Federal Trade Commission's (FTC) *Mallinckrodt/Questcor* consent order (2017) involving ACTH and the FTC consent order in Hospira and Mayne Pharma (2007), firms were compelled to provide detailed documentation.[111] They were also required to provide facility access, staff support, and operational guidance. COVID-19 transfers further show the need for structured, supervised disclosure. Relevant examples also include Oxford University to the Serum Institute of India,[112] Corbevax's open licensing,[113] and the NIH's support to Afrigen.[114]

A workable Indian CL regime must precisely define (i) the scope of transfer, (ii) confidentiality protections, (iii) limits on future use, (iv) compensation, and (v) enforcement and remedies. The scope must cover not only patents but also TS, manufacturing know-how, technical documents, and relevant samples. These must be identified against standards of suitability for production and good faith.

1. Hybrid Compulsory Licensing Model

In practice, effective technology transfer requires more than a patent licence or a TS licence in isolation. Hybrid mechanisms, therefore, bundle compulsory patent licences with obligations to share essential manufacturing know-how and, where necessary, targeted waivers or exceptions to

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104 Trade, *supra* note 17 at 4, cl 2(f).
105 Federal Food, Drug, and Cosmetic Act, 21 U.S.C. § 374(a), Pub. L. No. 75-717, 52 Stat. 1040 (1938) (U.S.); Defense Production Act, § 101, Pub. L. No. 81-774, 64 Stat. 798 (1950) (U.S.); Freedom of Information Act, 5 U.S.C. § 552(b)(4).
106 Regulation (EC) No. 726/2004, art. 57, 2004 O.J. (L 136) 1 (EU); Regulation (EU) 2019/933, art. 3, 2019 O.J. (L 153) 1 (EU); Directive (EU) 2016/943, art. 1(2), 2016 O.J. (L 157) 1 (EU).
107 European Medicines Agency Policy 0043, *Access to Clinical-Trial Data*, EMA/240810/2013 (EU).
108 Public Health Code (Code de la santé publique), art. L.5121-8, L.5311-1 (Fr.); Law No. 2020-290, *Law on Emergency to Address the COVID-19 Epidemic*, Mar. 23, 2020 (Fr.).
109 Patent Law of the People's Republic of China (2020 Amendment), art. 53 (China); Drug Administration Law of the People's Republic of China, art. 72, 2019 (China); Anti-Unfair Competition Law of the People's Republic of China, art. 9 (China).
110 Act on the Protection of Trade Secrets (Gesetz zum Schutz von Geschäftsgeheimnissen- GeschGehG), § 5, BGBl. I at 466 (2019) (Ger.).
111 Federal, *supra* note 97, at 18.
112 Serum Institute of India & University of Oxford, *Landmark Licensing Agreement for a Protein-Based Vaccine*, (Apr. 16, 2024), SERUMINSTITUTE.COM, https://www.seruminstitute.com/press_release_sii_160424.php.
113 F. M. Abbott, *Intellectual Property and Technology Transfer for COVID-19 Vaccines*, WIPO, at 1–117 (Nov.2023).
114 O. Kolawole et al., *Open Science, Intellectual Property and the South African mRNA Vaccine Hub*, OPEN AIR BRIEFING PAPER, Apr. 2024, 1.

regulatory data and market exclusivity. International COVID-19 policy work recommends a single administrative decision or judicial order that covers the complete package of relevant patents, TS elements, access to regulatory dossiers, and cooperation duties, such as training and troubleshooting, supported by a unified remuneration framework.[115]

The EU illustrates this approach. While EU pharmaceutical law provides 8 years of data exclusivity plus 2 years of market exclusivity,[116] the European Commission's recent pharmaceutical package permits the suspension of regulatory data protection (RDP) for products made under a CL, thereby enabling licensees to rely on the originator's clinical trial data for marketing approval.[117] This reflects a broader reading of "unfair commercial use" under TRIPS Article 39.3, as was also mentioned in paragraph 4 of the TRIPS Ministerial Decision (2022).[118] In parallel, the EMA grants third-party access to clinical trial data under Regulation 1049/2001/EC and Policy 0070, subject to an overriding public interest,[119] and the Court of Justice of the European Union has held there is no general presumption of confidentiality for clinical and toxicological study reports.[120]

This integrated approach avoids gaps between patents, TS, and regulatory submissions, which together constitute the practical "recipe" for complex technologies. India does not follow a data exclusivity regime.[121] However, it still requires interoperability between patent and TS compulsory licences, as pursuing separate compulsory licenses across multiple IP layers is time-consuming, costly, and impractical in emergencies.

2. Independent Monitor Compulsory Licensing Model

This is the approach India should embed in its domestic regime. The public-repository model is attractive in theory, but it depends too heavily on cooperation that may not materialise, as the WHO mRNA Hub experience showed when full manufacturing know-how was not shared. The emergency-exclusive model is useful as a trigger mechanism, but it does not solve the harder problem of how confidential know-how is actually transferred. The limited-disclosure and hybrid models improve on that, yet they still leave the state without a strong institutional mechanism to

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[115] C.M. Correa & R.M. Hilty (eds.), *Access to Medicines and Vaccines* 1, 1–369 SPRINGER NATURE 2022, https://www.hepcoalition.org/IMG/pdf/2022_book_accesstomedicinesandvaccines.pdf.
[116] Directive 2001/83/EC (EU), art. 8(3); Regulation (EC) No. 726/2004 (EU), art. 14(11).
[117] Council of the European Union, *Note from the Presidency to Steering the Policy Debate on the Pharmaceutical Package*, (May 31, 2024),ST 10034/24 INIT, https://data.consilium.europa.eu/doc/document/ST-10034-2024-INIT/en/pdf.
[118] Agreement, *supra* note 32, at 6, art 39; Ministerial Conference, Twelfth Session, *Ministerial Decision on the TRIPS Agreement*, WT/MIN(22)/W/15/Rev.2 (June 17, 2022).
[119] Regulation (EC) No. 1049/2001 (EU), art. 4(2); European Medicines Agency Policy 0070, *Publication of Clinical Data for Medicinal Products for Human Use*, EMA/240810/2013 (EU).
[120] Opinion of Advocate General Hogan, *MSD Animal Health Innovation GmbH & Intervet International BV v. EMA*, Case C-178/18 P (Sept. 11, 2019).
[121] Prashant R. T., *The Data Exclusivity Debate in India*, 10 IJLT 1 (2014), https://repository.nls.ac.in/cgi/viewcontent.cgi?article=1073&context=ijlt.

police what is disclosed, how it is used, and whether the transfer remains confidential. By contrast, the independent monitor model is superior because it combines emergency access with structured supervision: it limits disclosure to what is necessary, preserves secrecy through monitored transfer, and provides a neutral actor to oversee training, site access, documentation, and compliance. For that reason, it is the only model that turns CL from a formal entitlement into an operationally workable transfer system while still protecting innovation incentives and post-transfer confidentiality.

US FTC's *Mallinckrodt/Questcor* consent order (2017) provides a concrete model for supervised compulsory access to both patents and TS.[122] The company had to supply the licensee not only with IP rights but also with manufacturing documentation. It also had to supply process know how, facility access, and technical support. All of this was under an independent monitor appointed by the competition authority.[123]

The monitor was tasked with ensuring that all required information was delivered in an organised and usable format, supervising site visits and staff training, resolving disputes and preventing over-disclosure. The order required a "*complete copy of all tangible documentation and records embodying the Licensed IP and Manufacturing Technology.*"[124] These had to be provided "*in good faith, promptly, and in an organised and comprehensive manner.*"[125] The order also mandated access to manufacturing sites and required reasonable access to personnel for instruction and problem-solving.[126]

This model illustrates that the CL of TS must be paired with institutionalised oversight. Oversight may be through a regulator, a specialised agency, or a court-appointed expert. The presence of a trusted independent monitor can integrate technological transfer with the preservation of secrecy. The monitor can also help manage cross-border enforcement challenges in an enforced licensing relationship.

B. Facilitating Technical Knowledge Transfer through 'Show-How' Facilitation

Written documentation is inadequate for complex technologies. Effective transfer depends on tacit knowledge, experienced personnel, and on-site coaching. This raises the question of whether CL can operate as a mandatory injunction to compel the licensor's staff to travel, supervise plant setup, guide operations, and train personnel. It also raises the question of how such duties can be enforced across borders. If country A issues a CL against a technology owner in country B and

[122] Federal, *supra* note,97 at 18.
[123] Federal, *supra* note 97, at 18, 18-21.
[124] Federal, *supra* note 97, at 18, 11.
[125] Federal, *supra* note 97, at 18, 11.
[126] Federal, *supra* note 97, at 18, 13.

the licensor refuses in-person training, enforcement depends on cross-border recognition of orders. Many jurisdictions do not grant such recognition. The *Moderna/BioNTech* case hints that even when patent rights are overridden, production can still take years without the guided transfer of TS.[127] Although clause 6 allows governments to override secrecy claims and compel access to TS for life-saving drugs or vaccines, it does not address the operational reality of transferring process-embedded expertise. Thus, CL risks becoming a paper entitlement.

A workable statutory design would require reasonable technical assistance proportionate to complexity. It would mandate site visits and personnel access, set time-bound training milestones and empower an independent monitor to assess compliance. This mirrors the US FTC's antitrust consent orders. Scholars O. Gurgula and L. McDonagh (2025) define training obligations.[128] They acknowledge that on-site support is often essential and specify where and how instruction is delivered. This is supported by specific performance, strong confidentiality duties, government guarantees of secrecy, and remuneration reflecting both the value of technology and the assistance burdens. Remote training is treated only as a partial substitute.

The UN mRNA Technology Transfer Hub at Afrigen demonstrates that supervised training with milestone-based handholding converts legal rights into real capacity.[129] This is a structure that India currently lacks. Singapore's biologics licensing framework further mandates sequential validation milestones before scale-up.[130] It requires that each phase of knowledge transfer be demonstrated in practice. Applied to India, this staged validation model would ensure that CL deliver actual production capability.

C. Maintaining Peri-Transfer Confidentiality to Avoid Secrets' Leakage

CL of TS raises acute enforcement challenges because it involves not only documents but also tacit, experiential know-how transmitted through people, site visits, training, and technical support. Even with a carefully drafted order, there is a persistent risk of over-disclosure, onward leakage to affiliates or regulators, and of learning-by-doing that cannot be contained once engineers internalise the knowledge. Since TS must remain confidential to retain value, any compulsory transfer to a single manufacturer risks wider circulation, while the licensor must rely on the government's best efforts and limited indemnities rather than selecting a trusted partner. Employee

[127] BioNTech Manufacturing GmbH v. ModernaTX, UKSC/2025/0160 (U.K. Sup. Ct.).
[128] O. Gurgula, *supra* note 46, at 9.
[129] O. Kolawole, *supra* note 114, at 19.
[130] S. Yang et al., *Aspects and Implementation of Pharmaceutical Quality by Design from Conceptual Frameworks to Industrial Applications*, 17 MDPI 623 (2025).

mobility is the greatest leakage risk, especially where courts struggle to distinguish TS from general skill and experience.

Comparative regimes show how deterrence can be strengthened. The EU Trade Secrets Directive (EU TSD) provides injunctions, damages, and confidentiality protections in litigation.[131] The US, under the Uniform Trade Secrets Act (UTSA),[132] the Defend Trade Secrets Act (DTSA), 2016,[133] and the Economic Espionage Act (EEA), 1996,[134] provides civil and criminal remedies of seizure and recovery of unjust enrichment. For India, the TS Bill, 2024 must therefore be backed by Rules that clearly specify the extent, scope, and responsibilities of non-disclosure for both the compulsory licensee and the government.

D. Post-Transfer Monetary Obligations of the Government for Compromised Trade Secrets

Clause 6(3) of the TS Bill requires peri- and post-transfer measures.[135] For putting the clause in force, this requires the TS Bill to also define both the parties and the scope of CL through a three-party order naming the TS holder, the qualified licensee, and the Government, and limits the authorisation to a non-exclusive, non-assignable, and non-sublicensable licence confined to the specified product, field of use, and territory. Confidentiality is preserved through statutory non-disclosure duties, government vetting of licensees, independent monitoring with audit rights, site access and reporting obligations, and penalties for leakage. Government-compelled disclosure may either make a TS public or permit limited third-party use under secrecy conditions. In either case, compensation for loss of value addresses concerns of regulatory expropriation, but this requires clear national legal authority to compel and supervise sharing.

Since TS loses all value once it is publicly disclosed, and since neither secrecy nor confidentiality can be maintained if a TS is breached, it is essential that the TS Bill, 2024, include appropriate provisions for security, accountability, and management. A workable model is under the US Defense Production Act,[136] which provides that: (i) The government indemnifies or compensates the right owner for loss or assumed risk for compelled access; (ii) Such compelled information shall be treated only within federally managed environments with appropriate government-set standards for security, which places the responsibility for that security on the State;[137] (iii) There

[131] Directive 2016/943 of the European Parliament and of the Council, arts. 9–15, 2016 O.J. (L 157) 1 (EU).
[132] Uniform Trade Secrets Act (UTSA) §§ 2–4.
[133] Defend Trade Secrets Act of 2016, 18 U.S.C. § 1836, Pub. L. No. 114-153, 130 Stat. 376 (2016).
[134] Economic Espionage Act of 1996, 18 U.S.C. §§ 1831–1832, Pub. L. No. 104-294, 110 Stat. 3488 (1996).
[135] Trade, *supra* note 17, at 4, cl 6(3).
[136] Defense, *supra* note 84, at 16.
[137] Defense Federal Acquisition Regulation Supplement (DFARS), 48 C.F.R. pts. 200–299 (U.S.); National Institute of Standards and Technology, *NIST Special Publication 800-171* (rev. 2, 2020) (U.S.).

shall be independent federal bodies that impose penalties for non-compliance; and (iv) all compelled information is protected similar to as under Exemption 4, Freedom of Information Act (FOIA), which protects "*trade secrets and commercial or financial information obtained from a person [that is] privileged or confidential.*"[138] Any unauthorised disclosure thus attracts a penalty under 18 US Code Section 1905.[139] India should strengthen the Office of the Controller General of Patents, Designs & Trade Marks (CGPDTM) to perform these four functions and reinforce penal codes to ensure equivalent protection of secrecy.

E. Expressly Iterating the Article 31bis TRIPS Clarification for Trade Secrets

Article 31(f) of the TRIPS Agreement on territorial restrictions and Article 31(h) on adequate remuneration protect other markets from low-cost CL-enabled products while ensuring fair returns and sustaining innovation.[140] Since Article 31 applies only to patents, Article 31(h) on adequate remuneration doesn't extend to TS in principle; however, the TS Bill, 2024, has voluntarily adopted it.[141] Similarly, domestic-market supply rules under Article 31(f) do not automatically extend to TS. For patents, Article 31bis of the TRIPS Agreement was brought in to address the limitation Article 31(f) creates, and Section 107A of the Patent Act, 1970, incorporates the principle domestically for patented products.[142] TRIPS imposes no such limits on TS, but the domestic regime should consider clarifying it regardless to avoid any ambiguity. Clause 6 of the TS Bill should explicitly acknowledge this flexibility and adopt a framework that avoids the procedural and export complications associated with Article 31bis, ensuring smoother transfers of products involving the use of compulsory licensed TS to nations facing an emergency but either lacking or only having insufficient manufacturing facilities.[143]

F. Addressing Compensation Uncertainty

There is a clear policy tension in setting remuneration. Rates that are too low appear expropriatory and weaken incentives to innovate, while overly generous payments make licences economically unworkable for public manufacturers in low- and middle-income countries.[144] TRIPS requires adequate remuneration based on the economic value of the authorisation and permits adjustment for emergency conditions, rather than relying on ordinary market pricing. Clause 6(2) of the proposed TS Bill follows this approach by requiring the government to promptly set remuneration

[138] Freedom, *supra* note 105, at 19.
[139] 18 U.S.C. § 1905 (U.S.).
[140] Agreement, *supra* note 32, at 6, arts 31(f), 31(h).
[141] Trade, *supra* note 17, at 4, cl 6(2).
[142] Agreement, *supra* note 32, at 6, arts 31bis; Patents Act, 1970, § 107A, No. 39, Acts of Parliament, 1970.
[143] Agreement, *supra* note 32, at 6, art 31bis.
[144] K. Outterson, *Pharmaceutical Arbitrage*, 5 YJHPLE 193, 193–291 (2005).

that reflects the nature, value, and development and maintenance costs of the TS.[145] Because CL overrides consent, royalties must balance public health with fair compensation. Article 31(h) TRIPS offers no formula.[146] It provides no guidance for TS, leaving wide national discretion and creating uncertainty and retaliation risks, such as Abbott's withdrawal from Thailand after a human immunodeficiency virus (HIV) licence, and heavy reliance on domestic capacity to manage Article 39 secrecy.[147] Broad waivers may also weaken R&D incentives if firms anticipate losing control over their TS.[148]

In practice, CL royalties vary widely, ranging from 4% in Malaysia to 2% in Mozambique, 2.5% in Zambia, and 0.5% in Indonesia, in the context of HIV drugs.[149] On the contrary, private pharma licences for such HIV drugs clustered around 4-5%, among the highest across industries.[150] To avoid such disparity, scholars propose mixed valuation methods, including benchmarking against comparable patent royalties, discounted cash flow of profits attributable to the secret, and avoided R&D and scale-up costs for the licensee.[151] Royalty setting weighs value, affordability, public and private R&D costs, urgency, market returns, and competitive conduct, but TS are harder to price because R&D inputs, the profit contribution of know-how, and the value of secrecy are opaque.[152] The United Nations Development Programme (UNDP) Guidelines 2001 propose a 4% baseline for the generic price, adjustable by ±2 %.[153] The Japanese Patent Office Guidelines 1998 set a 2-4% adjustable range of 0-6% with a utilisation ratio for multiple inventions.[154] Canada's 2005 export rules use a sliding scale from 0.02% to 4% based on the Human Development Index (HDI).[155] The Tiered Royalty Method links rates to high-income prices, adjusted for income or disease burden, and is supported by the UNDP and the WHO.[156] The Medical Innovation Prize Fund replaces royalties with national prize payments based on health impact.[157]

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145 Trade, *supra* note 17, at 4, cl 6(2).
146 Agreement, *supra* note 32, at 6, art 31(h).
147 *Abbott withdraws HIV drugs from Thailand after patent row*,(Mar. 21, 2007), PHARMAFILE.COM, https://pharmafile.com/news/abbott-withdraws-hiv-drugs-thailand-after-patent-row/.
148 *Id* at 26.
149 *Intellectual Property and Access to Medicines: Papers and Perspectives*, (2013), SOUTH CENTRE, https://www.southcentre.int/wp-content/uploads/2016/05/Bk_2013_IP-and-Access-to-Medicines_EN.pdf.
150 *Id* at 26.
151 J. Baron et al., *Contribution to the Debate on SEPs*, EUROPEAN COMMISSION (2021).
152 *Remuneration Guidelines for Non-Voluntary Use of a Patent on Medical Technologies* (WHO Technical Cooperation for Essential Drugs and Traditional Medicine Series No. 18, 2005).
153 *Id* at 26.
154 I. Nakayama, *Patent Ownership and Rewards for Inventions in Japanese Public Research Organizations*, 7(2) INNOV. JOUR., art. 4 (2002).
155 Export Controls Division, *Export Controls Handbook*, (May 2009), FOREIGN AFFAIRS AND INTERNATIONAL TRADE CANADA, https://publications.gc.ca/collections/collection_2010/maeci-dfait/FR2-9-2009-eng.pdf.
156 WHO, *Assessment of Medicine Pricing and Reimbursement Systems in Health Insurance Schemes*, WHO REGIONAL OFFICE FOR AFRICA, (2016), https://iris.who.int/bitstream/handle/10665/246416/9789290233145-eng.pdf?sequence=1.
157 *Medical Innovation Prize Fund (MIPF)*, IMED PROJECT- INNOVATING MEDICINES ENTREPRENEURSHIP AND DELIVERY, https://imedproject.org/proposals-database/mipf/.

It is suggested that it is most practical to adopt a statutory structure with patent-style royalty bands, for example, 2-4% in health emergencies, adjusted for R&D, public funding, and secrecy costs, for India. The law should permit interim royalties upon issuance, with a true-up after independent valuation, secured through escrow and with fixed timelines, and compensation should cover both access to the TS and the licensor's technical assistance costs.

G. Innovation Disincentives and Their Implications for Private R&D and Investment

Concerned about patent CL, firms may lean even more on TS, which some authors describe as "*among the most powerful legal weapons against the public.*"[158] Because TS can, in principle, last indefinitely, firms invest heavily in process optimisation, scale-up expertise, and platform technologies on the assumption that these TS will not be forcibly shared.[159] A poorly defined, overly broad, or readily triggerable CL regime can threaten to chill investment in complex technologies that rely on TS.[160] In the TS Bill, the only recognised exceptions are reverse engineering or independent creation.

Scholars have long treated reverse engineering as a lawful means of learning from protected know-how. The Defend Trade Secrets Act expressly excludes reverse engineering and independent derivation from "improper means,"[161] and Pamela Samuelson and Suzanne Scotchmer explain that reverse engineering can support follow-on innovation and interoperability when the later entrant can prove acquisition through proper means rather than through tainted disclosure.[162]

However, CL for TS also creates a paradox. Once licensees access confidential know-how, they become "contaminated" and can no longer rely on the two exceptions to recreate the TS. If all major competitors eventually become compulsory licensees, these exceptions may be substantially undermined in practice as this would lead to a *de facto* elimination of these exceptions to a large extent, as no firm within the industry could rely on them, and actors outside the industry would lack sufficient incentive to do so. Subsequent innovation pathways would be tainted by prior access to compelled disclosures. This creates what may be termed a 'universal-licensee' paradox: trade secret law still recognizes acquisition through reverse engineering and independent development, but that balance depends on the absence of tainted access. Once the same confidential know-how is disclosed to multiple competitors through compulsory licensing, the statutory defenses lose

[158] Li Liu, *Patent Quality*, 55 IIC IRIPCL. 499, 499–529 (2024), https://doi.org/10.1007/s40319-024-01444-w.
[159] European Commission, *Study on Trade Secrets and Confidential Business Information in the Internal Market- Final Study* (Apr. 2013).
[160] *Id* at 27.
[161] Defend Trade Secrets Act of 2016, 18 U.S.C. § 1839(5)-(6) (2018).
[162] Pamela Samuelson & Suzanne Scotchmer, *The Law & Economics of Reverse Engineering* (Dec. 3, 2001), https://people.ischool.berkeley.edu/~pam/papers/l%26e%20reveng5.pdf.

much of their practical force, because later replication must be shown to rest on a genuinely untainted development path rather than on licensed access to the secret.[163]

India should therefore preserve reverse engineering and independent creation as default defences, while restricting their use by compulsory licensees. Non-licensee competitors must retain these defences to prevent a perpetual monopoly. A workable solution is a statutory clean room pathway in which licensees cease using or disclosing compelled secrets after termination, but may pursue independent R&D through documented clean room procedures that demonstrate non-reliance on the compelled information. Under such a model, one team reduces the licensed technology to high-level specifications, a separate team with no exposure to the secret performs the actual development, and a coordination layer screens inputs and documents the separation. Properly implemented, that process does not eliminate the reverse-engineering or independent-development defences; it helps preserve them by creating evidence that the resulting product was independently generated without improper means.[164]

Samuelson and Scotchmer explain that one proposed way to permit decompilation or disassembly is to separate the team that studies the product from the team that uses the resulting specifications to build the new one, so that lawful reverse engineering remains possible without allowing tainted copying.[165] Elkins's article on *NEC v. Intel* makes the same point by presenting the case as a guide to using clean-room procedures as evidence,[166] while the Federal Judicial Centers' Trade Secret Case Management Judicial Guide describes clean-room protocols as isolated research teams, documented independent work, and a coordination layer that screens information entering and leaving the room.[167] Pooley likewise describes the clean room as the "gold standard" for proving independent development, but cautions that a hermetically sealed room is not always necessary or practical; what matters is the evidentiary record showing non-reliance on the secret.[168] In effect, any post-CL restrictions should remain limited and proportionate and not become absolute perpetual bans.

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[163] 18 U.S.C. § 1839(6)(B) (2022); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974); *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 155 (1989); Jerome H. Reichman, *How Trade Secrecy Law Generates a Natural Semicommons of Innovative Know-How*, in *The Law and Theory of Trade Secrecy: A Handbook of Contemporary Research* 185, 189–90 (Rochelle C. Dreyfuss & Katherine J. Strandburg eds., 2011).

[164] Randall E. Kahnke & Kerry L. Bundy, *Clean Rooms Are Not Just for Kids: How to Demonstrate Independent Development to Avoid a Trade Secret Claim*, *Faegre & Benson Trends*, Mar./Apr. 2008, at 1, 3–4.

[165] Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 Yale L.J. 1575, 1652–53 (2002).

[166] David S. Elkins, *NEC v. Intel: A Guide to Using "Clean Room" Procedures as Evidence*, 10 Computer L.J. 453 (1990).

[167] *Trade Secret Case Management Judicial Guide* 2-26 to 2-27 (Fed. Jud. Ctr. 2023).

[168] James Pooley, *Planning for Independent Development* (May 1, 2023), https://pooley.com/planning-for-independent-development/.

H. Empowering Private Parties to Pursue Compulsory Licensing of Trade Secrets

The current framework does not allow private parties to apply for CL. In the patent system, the only effective CL ever granted was *Bayer v. Natco* (2016).[169] By contrast, Section 100 government use powers have never been exercised, and the absence of any CL during COVID-19, despite full statutory authority, reflects a broader reluctance to deploy CL in ways that could unsettle multinational innovators and place India on the United States Special 301 report.[170]

In matters of overriding public interest, most jurisdictions' grounds for patent CL are in line with Article 31 of the TRIPS. In India, it is Section 84 of the Patents Act, 1970.[171] A mechanism parallel to Section 84, which permits private applications, is what the CL regime needs to greatly increase the likelihood that CL for TS is actually used.

If private applications are permitted, additional safeguards must also be implemented. The applicant should demonstrate suitability and good faith through GMP-ready facilities. They should have qualified personnel. They should have established Quality Assurance and Quality Control. They should have robust confidentiality policies. They should have strong TS controls since designating an unfit licensee increases the risk of production failure and increases the risk of TS leakage.

I. Ambiguities in Review Duration, Wind-Down, and License Termination

Clause 6(4) of the TS Bill addresses automatic termination upon expiry of an emergency, and it should be linked to post-termination obligations, including maintaining confidentiality, imposing use limitations, deleting and returning material through escrow, and demounting facilities to prevent leakage.[172] A more specific sunset clause, based on Sections 84 and 100 of the Patents Act of 1970, would be required in this TS Bill. It would include an annual review to assess the continued necessity for a CL. It would permit use only for essential purposes. It would provide automatic termination when there is no longer a public exigency. These sections already have a well-established precedent in periodic review, proportionality, and automatic termination of CL. The TS Bill should adopt a similar statutory framework. This would ensure licences remain narrowly tailored, essential, and time-bound.

[169] Bayer Corporation v. Natco Pharma Limited, 2014(60) PTC 277 (BOM).
[170] Patents Act, 1970, § 100, No. 39, Acts of Parliament, 1970.
[171] Patents Act, 1970, § 84, No. 39, Acts of Parliament, 1970,
[172] Trade, *supra* note 17 at 4, cl 6(4).

VI. FOSTERING INTERNATIONAL COLLABORATION FOR TECHNOLOGY TRANSFER DURING GLOBAL CRISES: A GLOBAL PERSPECTIVE

India cannot ensure equitable access to IP-protected innovations through domestic CL alone. This is particularly true when foreign entities outside its jurisdiction hold critical manufacturing TS. Existing international mechanisms need to be ramped up to better meet these needs.

A. Addressing Structural Gaps in Patent-Centric IP Frameworks

IP waiver and access frameworks have mostly come around the pharmaceutical sector, especially during the COVID-19 pandemic. The WHO's C-TAP, despite its solidarity-driven mandate, received no TS contributions throughout the pandemic.[173] The Medicines Patent Pool (MPP) was successful in HIV and hepatitis C therapies.[174] It was extended to COVID-19 antivirals.[175] However, it remained largely limited to patents.[176] It offered minimal TS transfer. Similarly, while the COVAX Manufacturing Task Force mapped global production capacity, it lacked the authority to compel TS disclosure.[177] Moreover, TRIPS Article 31bis facilitated export-oriented CL of patents. It did not cover TS and was never applied to biologics.[178] These gaps expose a systemic inability of existing global mechanisms to enforce technology transfer for sophisticated technologies. Reform must address the shortcomings of the above measures to ensure access to critical technologies during global emergencies.

B. Building Trade-Secret-Sensitive Future Free Trade Agreements (FTAs)

Article 39.3 of TRIPS and its FTA counterparts usually protect undisclosed information against unfair commercial use. However, they rarely provide explicit exceptions for domestic emergencies or public crises.[179] This blocks emergency access to TS, which complements the CL-enabled patent, even when lives are at risk. A review of the IP provisions in major FTAs reflects such dynamics,

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[173] Ellen F.M. 't Hoen, *Private Patents and Public Health: Changing Intellectual Property Rules for Access to Medicines* 87–91 (2016).

[174] Medicines Patent Pool, *Pfizer and The Medicines Patent Pool (MPP) Sign Licensing Agreement for COVID-19 Oral Antiviral Treatment Candidate to Expand Access in Low- and Middle-Income Countries* (Nov. 2021), https://www.pfizer.com/news/press-release/press-release-detail/pfizer-and-medicines-patent-pool-mpp-sign-licensing.

[175] *Id.*; see also Frederick M. Abbott & Jerome H. Reichman, *The Doha Round's Public Health Legacy: Strategies for the Production and Diffusion of Patented Medicines Under the Amended TRIPS Provisions*, 10 J. Int'l Econ. L. 921, 950–52 (2007).

[176] Agreement on Trade-Related Aspects of Intellectual Property Rights art. 31bis, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 U.N.T.S. 299; Frederick M. Abbott, *The WTO Medicines Decision: World Pharmaceutical Trade and the Protection of Public Health*, 99 Am. J. Int'l L. 317, 339–41 (2005).

[177] F. Luna & F. Holzer, *What Vaccine Inequity Has Taught Us*, 36 GLOB BIOETHICS 2497602 (2025).

[178] M. Schutz, *supra* note 176 at 31.

[179] Agreement, *supra* note 32 at 6, art 39(3).

such as the Trade and Economic Partnership Agreement (TEPA), and the Comprehensive Economic and Trade Agreement (CETA), among others.[180]

One workable model would be to negotiate exceptions for declared public emergencies in future FTAs. This must be coupled with a revision of existing agreements. This can be done by exchanging side letters or protocols. These would establish legal authority to access TS alongside patents in such emergencies. For example, a model clause could read:

"*Notwithstanding any other provision of this Chapter, in circumstances of national emergency or other extreme public health urgency declared by the World Health Organization or a Party, a Party may authorise the use or disclosure of undisclosed information or trade secrets protected under this Article without the consent of the right holder, provided that: (i) the use is strictly limited to addressing the emergency; (ii) the right holder is notified promptly; (iii) the authorisation is non-exclusive, non-assignable, and non-sublicensable; (iv) adequate remuneration is paid; and (v) the authorisation terminates once the emergency subsides.*"

C. Harnessing Article 11 of the Pandemic Accord for Technology Transfer

The framework in Article 11 of the WHO Pandemic Agreement represents an improvement in equitable transfers, but it remains inadequate, particularly in addressing CL for TS, as evidenced by the COVID-19 pandemic.[181] Though it facilitates "mutually agreed" transfers through paragraphs 1(a) and (e), "reasonable royalties" in paragraph 1(d), and information exchange in emergencies in paragraph 1(f), it adopts soft obligations in "encourage," "promote," and "as appropriate" objectives, which provide no "fallback position" in cases where property owners in civil law systems are unwilling to cooperate.[182] Moreover, references to capacity-building under paragraph 2, international cooperation under paragraph 3, and mechanism development under paragraph 5 are aspirational. They do not guarantee mandatory sharing.[183] This risks inequitable access where commercial priorities outweigh global health needs.

To address these gaps, the Pandemic Agreement must be amended. Future epidemic-triggered waiver frameworks under the WHO and related multilateral processes should be designed to learn from the loopholes in the present Agreement. The Pandemic Agreement should reflect that in the event of any future public emergency, such waivers should automatically trigger mechanisms to escrow relevant TS at a WHO-coordinated or multilateral hub upon a declaration of a PHEIC.

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[180] Trade and Economic Partnership Agreement (TEPA), India–EFTA, Mar. 10, 2024; Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), Mar. 8, 2018; United States–Mexico–Canada Agreement (USMCA), Nov. 30, 2018; Comprehensive Economic and Trade Agreement (CETA), Can.–E.U., Oct. 30, 2016.

[181] World Health Organization, *WHO Pandemic Agreement (Draft)*, art. 11 (2024).

[182] World Health Organization, *WHO Pandemic Agreement (Draft)*, art. 11 ¶¶ 1(a), 1(d), 1(e) & 1(f) (2024).

[183] World Health Organization, *WHO Pandemic Agreement (Draft)*, art. 11 ¶¶ 2, 3 & 5 (2024).

Where voluntary arrangements are not concluded within a defined period, this escrow should enable non-exclusive, time-limited CL to qualified manufacturers in developing countries.

VII. CONCLUSION

This article has argued that the debate on CL must move beyond its conventional patent-centric orientation and confront the realities of contemporary innovation systems, where commercially valuable knowledge is frequently embedded not in patents, but in TS. In doing so, the article advances a central doctrinal contribution: while the TRIPS Agreement expressly regulates compulsory patent licensing under Article 31, its silence on compulsory access to TS under Article 39 does not amount to prohibition. Rather, when read together with Articles 7 and 8 of TRIPS, the Doha Declaration on Public Health, and States' sovereign emergency powers, international IP law leaves sufficient normative and interpretive space for narrowly tailored, confidentiality-preserving compulsory licensing regimes for TS during public emergencies. The article further demonstrates that patent-only CL is structurally incomplete in knowledge-intensive sectors such as biologics, vaccines, and agritech, where the practical ability to replicate technology depends upon access to tacit manufacturing knowledge and operational know-how that patents alone do not disclose. In this respect, the analysis extends and operationalises the scholarship of Olga Gurgula and John Hull by moving beyond the theoretical legality of compulsory TS licensing toward an institutional design framework grounded in comparative regulatory practice, antitrust consent decrees, and emergency governance models.

The article's second contribution lies in identifying the institutional paradoxes generated by compulsory TS transfer. Unlike patents, TS derive their value from continued secrecy; compelled disclosure therefore risks both destroying the protected asset and contaminating future independent innovation pathways. The article conceptualises this tension through the "universal-licensee paradox," in which widespread compulsory access may erode the practical availability of reverse-engineering and independent development defences across an industry. To address this, the article proposes a calibrated Indian framework centred on emergency-exclusive licensing, limited-disclosure obligations, hybrid patent–TS bundling, supervised "show-how" transfer, independent monitoring, confidentiality-preserving disclosure protocols, and post-transfer compensation mechanisms modelled in part on the United States Defence Production Act. These proposals seek not to weaken innovation incentives, but to preserve the long-term legitimacy of TS protection by ensuring that secrecy cannot serve as an absolute barrier to essential medicines, vaccines, food security technologies, and other public-interest goods during crises.

At the international level, the article has also argued that current global mechanisms remain structurally inadequate. Instruments such as the Medicines Patent Pool, Article 31bis of TRIPS, and the WHO's pandemic technology-transfer initiatives continue to focus predominantly on patents and voluntary cooperation, leaving the institutional framework for compulsory transfer of manufacturing know-how underdeveloped. Future reforms must therefore move toward explicit treaty-based public-interest exceptions permitting confidentiality-preserved TS disclosure during declared emergencies, particularly within future free trade agreements and the WHO Pandemic Agreement framework. Yet several unresolved questions remain. Future research must examine the long-term innovation effects of compulsory TS access, the feasibility of cross-border enforcement of technical-assistance obligations, valuation methodologies for secrecy-loss compensation, and the interaction between TS licensing and competition law in digital and AI-driven industries. Equally important is the need to study whether international institutions can develop neutral supervisory bodies capable of administering confidential technology transfers without undermining commercial trust. Ultimately, the future of intellectual property law will depend not merely on protecting innovation, but on designing legal architectures capable of reconciling innovation incentives with equitable access to indispensable knowledge in moments of collective vulnerability

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TOO MUCH SCENT, TOO LITTLE MARK: INCENSE SMOKE, AFTER-USE SIGNS, AND THE COLLAPSE OF DISTINCTIVENESS

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ABSTRACT

Indian trade mark law's treatment of olfactory signs took a turn after the Trade Marks Registry's 21 November 2025 order accepting, and directing advertisement of, an olfactory mark described as a floral fragrance reminiscent of roses as applied to tyres. That administrative move makes smell marks institutionally workable by treating representation as a register-notice device and by asking whether the filing yields clear and precise subject matter that others can read, oppose, and later have adjudicated. The inquiry tests how far that logic can travel when the claimed sign is "incense smoke"; an after-use, combustion-produced scent that comes into existence only through ordinary consumption and varies across burn-time and surroundings. This article asks whether, once representation is reconceived as register-notice under section 2(1)(zb), an after-use, combustion-produced scent can ever satisfy the Act's demand for clear, stable, and opposable subject matter. A two-axis containment is developed to discipline the problem: the temporality of encounter (pre-sale, point-of-sale, after-use) and the role of the scent in relation to the goods (ancillary add-on versus essential characteristic). Using this taxonomy, the debate is shifted from whether smells can be represented at all to which smells can function as marks within the Trade Marks Act, 1999 once the Register's notice function is taken seriously. The analysis concludes that after-use essential-characteristic scents collapse distinctiveness internally and cannot be stably contained within register notice: the claimed subject matter becomes boundary-indeterminate, while consumer recognition tracks product identity and performance rather than separable trade origin, so the statutory requirements cannot be coherently satisfied. Existing writing tends to treat olfactory marks as one class; a differentiated doctrinal framework is derived from within the Act to preserve space for ancillary scents and controlled ambient scents, while preventing registration from operating as an indirect monopoly over product-defining sensory features.

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"*The map is not the territory.*"

-Alfred Korzybski.[1]

I. INTRODUCTION

On 21 November 2025, the Trade Marks Registry accepted and directed advertisement of an application framed as an olfactory trade mark for a floral fragrance or smell reminiscent of roses as applied to tyres.[2] The moment matters because it makes smell marks institutionally thinkable: the Registry treated a scientific representation as capable of fixing the sign for the Register, instead of treating smell as a category destined to collapse into vagueness. Practice materials had long absorbed the Sieckmann insistence that representation must be clear and precise, self-contained, durable and objective, so that the protected sign has a stable boundary that others can read.[3] What changes in November 2025 is not the ambition of those criteria, but the institutional willingness to treat a scientific description as something that can satisfy them.

That insistence is not ornamental. The Register is an information system organised around publication and contestability.[4] Once an application is accepted, the Registrar must advertise it, and the advertisement exists so that the public can oppose within a window.[5] This matters more for non-visual signs because the entry has to tell competitors what to avoid, and has to tell potential opponents what to contest.[6] If the entry is vague, the statutory promise of opposition remains on paper while the practical burden shifts back into private uncertainty and selective enforcement.[7]

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[1] ALFRED KORZYBSKI, SCIENCE AND SANITY: AN INTRODUCTION TOO NON-ARISTOTELIAN SYSTEMS AND GENERAL SEMANTICS 58 (1st ed. 1933).

[2] CONTROLLER GENERAL OF PATENTS, DESIGNS AND TRADE MARKS, *Order in Trade Mark Application No. 5860303, Class 12*, NO. TMR/DEL/SCH/2025/16 (Issued on Nov. 21, 2025) (India), https://images.assettype.com/theleaflet/2025-11-27/g2hg4aog/Order_21_11_2025.pdf; Ayushi Shukla, *India's Trademark Registry Accepts Its First Smell Trademark For Japanese Company's Rose-Scented Tyres*, LIVE LAW (Nov. 21, 2025), https://www.livelaw.in/ipr/india-first-smell-trademark-sumitomo-rubber-rose-fragrance-tyres-310803; Tanishka Goswami, *The Scent of the Sumitomo Trademark: What is the Celebration About?*, SPICYIP (Nov. 26, 2025), https://spicyip.com/2025/11/the-scent-of-the-sumitomo-trademark-what-is-the-celebration-about.html.

[3] Sieckmann v. Deutsches Patent- und Markenamt*, 2002 E.C.R. I-11737;* World Intellectual Property Organization (WIPO), Standing Comm. on the L. of Trademarks, Indus. Designs & Geographical Indications, *Methods of Representation and Description of Marks*, WIPO DOC. SCT/17/2 (Mar. 29, 2007), https://www.wipo.int/edocs/mdocs/sct/en/sct_17/sct_17_2.pdf*; IP and Legal Filings,* Saurav, *The Scent of Progress: India's Olfactory Trademark Breakthrough*, IP AND LEGAL FILINGS (Jan. 2, 2026), https://www.ipandlegalfilings.com/the-scent-of-progress-indias-olfactory-trademark-breakthrough-and-its-ripple-effect-on-non-conventional-marks/.

[4] Robert Burrell & Michael Handler, *Who Reads the Trade Marks Register?* (Oxford Univ. Rsch. Archive, Working Paper, 2025), https://ora.ox.ac.uk/objects/uuid:de92a1a2-41e0-4f0c-b2d0-37e2c7d9bb01; Dev Gangjee, *Non-conventional Trade Marks in India: An Empirical Study*, 3(1) NUJS L. REV. 203 (2010).

[5] Shailendra Bhandare et al., *Trade Marks Laws and Regulations: India*, *in* INT'L COMPL. L. GUIDE (2026; WIPO, *supra* note 3.

[6] Gangjee, *supra* note 4; WIPO, *supra* note 3.

[7] Burrell & Handler, *supra* note 4; M.P. Ram Mohan & Pratishtha Agarwal, *The Proustian Predicament in Trademark Law* (IIMA Working Paper No. 2025-08-01, 2025), https://www.iima.ac.in/sites/default/files/2025-08/WP%20No.2025-08-01.pdf.

The November 2025 acceptance does more than admit "smell" as a category. It treats the Register's definitional task as satisfiable through representational technology, and it ties that technology to Section 2(1)(zb). This makes the representability and distinguishing capability cumulative.[8] The author puts forth and points out that the Registry initially objected to the application under Section 9(1)(a) and Section 2(1)(zb), and that the applicant responded by offering a "7D scent vector", with the Registry ultimately treating that response as adequate to proceed.[9] The structural point is that the Register's notice function is being made to run on a scientific proxy for the sign, and that proxy is being treated as a boundary-marker that can ground both examination and third-party contest.[10]

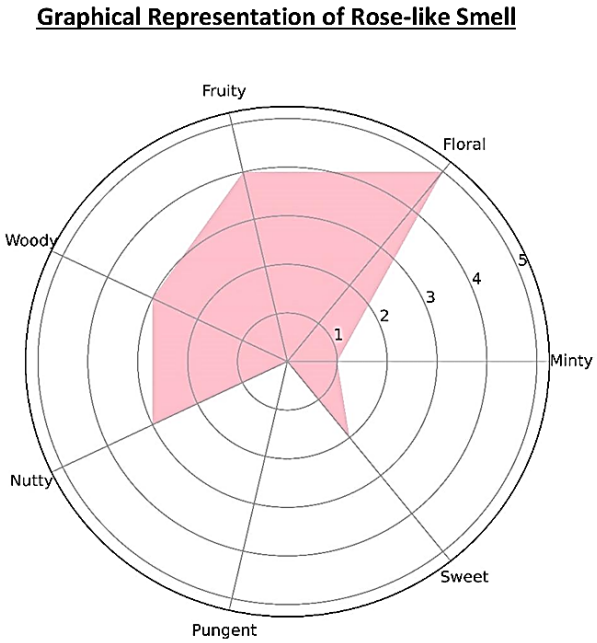

Figure 1: Seven-dimensional olfactory vector accepted by the Trade Marks Registry (21 November 2025) as the graphical representation of a "rose-like" scent. Source: Trade Marks Registry, Order dated 21 November 2025 in TM Application No. 5860303 (Floral Fragrance/ Smell Reminiscent of Roses as Applied to Tyres)

Incense signature smoke does not sit comfortably within that structure, even if it is also experienced after purchase.[11] It is a combustion-produced after-use sign.[12] It is not a scent applied

[8] Controller General, *supra* note 2; Harsh Gour, *Decoding India's first accepted Smell Trademark: "Rose-fragranced tyres"*, THE LEAFLET (Nov. 27, 2025), https://theleaflet.in/digital-rights/law-and-technology/decoding-indias-first-accepted-smell-trademark-rose-fragranced-tyres.

[9] Controller General, supra note 2; Har, supra note 8; Jaya Bhatnagar, *India's first smell (olfactory) trade mark gets the green light!, FICPI* (Dec. 11, 2025), https://ficpi.org/ip-news/indias-first-smell-olfactory-trade-mark-gets-green-light.

[10] Harsh Gour, supra note 8; Arul George Scaria, *Sorry, Not All Roses Smell The Same: A Critical Look At The Decision In Sumitomo's Smell Mark Application*, LIVE LAW (Nov. 23, 2025), https://www.livelaw.in/articles/sorry-not-all-roses-smell-the-same-a-critical-look-at-the-decision-in-sumitomos-smell-mark-application-310913.

[11] *Supra* note 7; WIPO, *supra* note 3.

[12] T.C. Lin et al., *Incense smoke: clinical, structural and molecular effects on airway disease*, 6 CLINICAL & MOLECULAR ALLERGY 1 (2008), https://pmc.ncbi.nlm.nih.gov/articles/PMC2377255/; V.K. Yadav et al., *Health and Environmental Risks of Incense Smoke*, 15 J. INFLAMMATION RSCH. 1201 (2022), https://www.tandfonline.com/doi/full/10.2147/JIR.S347489.

to a product as sold, but a sensory trace produced only when the goods are consumed normally.[13] It emerges after ignition, shifts as the stick burns, and then lingers as residue in the air and on surfaces, often unevenly across settings. The content of the trace is shaped by burn-time, ventilation, humidity, and proximity, so the "same" incense can yield different impressions without anyone changing the goods.[14] The legal object being claimed is not "incense" as a category and not "a pleasant smell" in the abstract, but the after-use signature the claimant seeks to have recorded on the Trade Marks Register to be recognised as the mark.

Once the object is stated that way, the paper's core puzzle becomes narrow and concrete, and it can be contained on two axes: temporality and essential-characteristic status.[15] A representation can support notice only if it fixes the sign as the same sign across encounters.[16] For incense smoke, temporality is not merely the circumstance of perception; it is part of the sign's identity.[17] A capture at one moment risks either over-including: by claiming an entire family of smoke impressions as the mark, or under-including: by freezing one phase of a changing trace and treating it as the whole.[18] The second axis is essential-characteristic status, an internal analogue of Section 9(3), even though the text speaks to shape.[19] Incense is sold to be burnt, and smoke and smell are outputs of that combustion. If the sign tracks that output too closely, distinctiveness begins doing the work of boundary-setting, and the mark starts to resemble a claim over the goods themselves.[20]

The statutory hinges follow from these pressures and remain narrow. Section 2(1)(zb) forces the question of representation for a sign that is time-extended. Section 9 forces the question of whether the proposed sign is more than an inevitable after-use trace of the goods.[21] Section 29 sits downstream because infringement analysis presupposes a stable mark-object that can be compared to the defendant's use, and "use" itself looks different when the alleged sign arises only through the consumer's act of burning.[22] The discussion first fixes "incense signature smoke" as a legal object, then maps where the clarity commitment of the Register begins to strain when the sign is

[13] Lin et al., *supra* note 12; Yadav et al., *supra* note 12.
[14] A. Goel et al., *Characteristics of Exposure to Particles due to Incense Burning inside Temples in Kanpur, India*, 17 AEROSOL & AIR QUALITY RSCH. 608 (2017), https://aaqr.org/articles/aaqr-16-04-2015aac-0146.pdf; T.T. Yang et al., *Effect of Relative Humidity on Polycyclic Aromatic Hydrocarbons and Particulate Matter Emissions from Incense Burning*, 13 AEROSOL & AIR QUALITY RSCH. 1195 (2013), https://aaqr.org/articles/aaqr-12-07-oa-0182.pdf.
[15] Harsh Gour, *supra* note 8; Ram Mohan & Agarwal, *supra* note 7.
[16] Sieckmann, *supra* note 3; WIPO, *supra* note 3.
[17] WIPO, *supra* note 3; Ram Mohan & Agarwal, *supra* note 7.
[18] WIPO, *supra* note 3; Scaria, *supra* note 10.
[19] Gangjee, *supra* note 4; Ram Mohan & Agarwal, *supra* note 7.
[20] Gangjee, *supra* note 4; Scaria, *supra* note 10.
[21] Scaria, *supra* note 10; WIPO, *supra* note 3.
[22] Gangjee, *supra* note 4; Burrell & Handler, *supra* note 4.

an after-use trace, then returns to a contained reading of distinctiveness and infringement that keeps the registerable object narrow. The point is to keep the question precise: how far the November 2025 move can be carried when the sign is generated by consumption, and when the boundary between sign and goods is easiest to lose, in practice and in pleading.

II. THE OBJECT AND ITS TAXONOMY

A. Incense smoke as an after-use sign

On 21 November 2025, the Trade Marks Registry accepted a rose-fragrance mark for tyres, and the institutional signal was straightforward: smell can sit on the Register, but only if the Register can state, with precision, what the claimed subject matter is.[23] That starting point makes the present object visible. A tyre scent is a smell carried by a durable thing; it can be sampled from the product itself, and the product remains the same object over time. Incense smoke is also experienced after purchase, yet it comes into existence only by use, as a by-product of combustion.[24] The incense stick can be bought, stored, transported, and displayed without producing the sign that is being claimed, because the claimed sign begins only when burning begins, and it is not present as the consumer-facing sign at the point of sale.[25]

The goods are not the puzzle. An incense stick or cone, its ingredients, its packaging, and the marks printed on the pack are ordinary trade mark goods and ordinary trade mark signs.[26] The claimed sign, however, the author argues, is separate. "Incense signature smoke" refers to the combustion-produced smell emitted during burning, in the air, in the space where burning happens. It is not the unburnt stick's base aroma inside a sealed pack. It is not the smell of a raw ingredient. It is the smoke smell as encountered after ignition, and as it develops over the burn cycle. This definition matters because it fixes what is being claimed as a sign, and it stops the argument from sliding back into the easier object, the physical product.

Calling this an "after-use" sign is therefore not a casual timeline label. It places the sign at a particular point in the consumer's lifecycle with the goods, and that placement affects what can be treated as a stable sign. Trade mark law turns on use in relation to goods and on how the market

[23] Controller General, *supra* note 2; The European Parliament and the Council, Council Directive 2015/2436 (Issued on Dec. 16, 2015).
[24] Chiang-Wen Lee et al., *The Adverse Impact of Incense Smoke on Human Health: From Mechanisms to Implications*, 14 J. INFLAMMATION RSCH. 5451 (2021).
[25] H.C. Chuang et al., *The Contribution of Burning Incense on Indoor Air Pollution Levels and on the Exposure of the Public to Airborne Particles*, 46 ATMOSPHERIC ENV'T 213 (2012).
[26] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 2(1)(m), 2(1)(zb) (India).

meets the sign.[27] Pre-sale scents are met before any purchase commitment, for example, as ambient cues in service environments.[28] Point-of-sale scents are met at or around the transaction, when packaging is opened, or the product is first handled. An after-use scent is met only once the consumer has already committed to the purchase and begins consuming the good.[29] With incense, the claimed sign is therefore displaced from the goods-as-sold to the goods-as-burnt, and from trader-controlled presentation to consumer-controlled conditions.

Once the sign is placed there, its identity becomes contingent in a way specific to combustion outputs.[30] Incense smoke is produced under variable conditions external to formulation. Airflow changes dispersion and perceived intensity.[31] Humidity affects how smoke and aromatic compounds travel and settle.[32] Burn rate affects concentration and duration. Room volume changes density, so the same stick in a small room can present as sharp and heavy, while in a large room it can present as light and diffuse. This variability is not being offered as a laboratory claim. It matters because the sign's perceptual identity is being claimed as a boundary, and boundaries require a stable referent. If the sign's identity drifts within ordinary conditions of use, the drift becomes a notice problem: even a careful reader of the Register cannot confidently tell where the claim begins and ends, because what is being claimed is a range of encounters rather than a single object.

Representational formats do not fully close the gap. Indian law still insists on graphical representation as part of the trademark form, and the Rules govern filing, advertisement, and opposition.[33] The European representation criteria, formulated in Sieckmann, demanded a sign that is clear, precise, self-contained, easily accessible, intelligible, durable, and objective.[34] Those criteria were devised to make registers workable as public notice instruments, and later European

[27] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 2(2)(b), 29(6) (India); DAVID KEELING et al., KERLY'S LAW OF TRADE MARKS AND TRADE NAMES (16th ed. 2018).
[28] Eric R. Spangenberg et al., *Improving the Store Environment: Do Olfactory Cues Affect Evaluations and Behaviors?*, 60 J. MKTG. 67 (1996).
[29] Niklas Oberwegner et al., *Unpacking Olfactory Marketing: Initial Evidence for the Positive Effects of Scented Parcels on Post-Order Consumer Responses in E-Commerce*, 36(4) MKTG. LETTERS 903 (2025).
[30] Tzu-Ting Yang et al., *Effect of Airflow Rate and Humidity on Concentrations of Gaseous Pollutants in the Smoke from Smoldering Incense*, 7 AEROSOL & AIR QUALITY RSCH. 405 (2007).
[31] Bo Chen et al., *Olfactory Perception Depends on Airflow: A Study on the Effect of Nasal Resistance*, 58 RHINOLOGY 155 (2020); Yang et al., supra note 30.
[32] WILLIAM C. HINDS, AEROSOL TECHNOLOGY: PROPERTIES, BEHAVIOR, AND MEASUREMENT OF AIRBORNE PARTICLES (2nd ed. 1999); Yang et al., *supra* note 30.
[33] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India); Trade Marks Rules, 2017 (India); Ram Mohan & Agarwal, *supra* note 7.
[34] *Sieckmann*, *supra* note 3; Simon Geiregat, *Trade Mark Protection for Smells, Tastes and Feels – Critical Analysis of Three Non-Visual Signs in the EU*, 2(53) INTL. R. OF INTELLECTUAL PROPERTY AND COMPETITION L. (2022).

reforms relaxed "graphical" form while retaining the core demand of clarity and precision.[35] Identity drift matters because it blurs the register notice boundary. A combustion-produced smoke smell sits awkwardly in that framework because its identity is inseparable from conditions that are not part of the filed specimen, and because those conditions are not a side detail but part of what produces the sign.[36]

Incense signature smoke should therefore be treated as a defined object with tight edges: a combustion-produced olfactory output that arises after sale, in consumer-controlled conditions, and whose perceived identity is inseparable from the conditions of its production. Treating it as such prevents a silent slide from the goods to the sign, and it prevents the opposite slide where "smell of incense" is treated as an abstract category rather than a claimed sign.

B. Two-axis containment: time and role

With the object fixed, the classification that follows is meant to avoid the common mistake of treating all scent marks as one problem. The first axis is *time*: when the scent is encountered in the commercial lifecycle. The second axis is *role*: what the scent is doing in relation to the goods.

Axis A divides encounter into pre-sale, point-of-sale, and after-use. Pre-sale and point-of-sale encounters are where many non-visual signs do their work because the consumer meets the sign before or during the decision to buy. After-use encounters are different because the consumer meets the sign only once the transaction is complete, and the sign's communicative function is filtered through consumption conditions.[37] This is not a legal conclusion about validity. It is a categorical boundary that prevents later analysis from treating "experienced post-sale" as a single, uniform feature across scent marks, when the mode of encounter can be materially different.

Axis B divides scents into ancillary cues and essential characteristics. An ancillary scent is an added feature that can function as a brand cue without being what the product is bought for. A scent infused into a durable good can sit here because the goods remain intelligible without the scent, and the scent can operate as an added association while still being carried by a stable object.[38] An

[35] Council Directive 2015/2436, *supra* note 23, art. 3; The European Parliament and the Council, Regulation (EU) 2017/1001 (Issued on 14 June 2017). ; Barbara Pietrzyk-Tobiasz, *Olfactory Marks Before and After Directive 2015/2436*, 28 STUDIA IURIDICA LUBLINENSIA 137 (2019).
[36] Yang et al., *supra* note 30; Ram Mohan & Agarwal, *supra* note 7.
[37] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 29(6) (India); Katherine N. Lemon & Peter C. Verhoef, *Understanding Customer Experience Throughout the Customer Journey*, 80 J. MKTG. 69 (2016).
[38] Controller General, *supra* note 2; In re Clarke, 17 U.S.P.Q.2d (BNA) 1238 (T.T.A.B. 1990).

essential characteristic scent is different: the goods are bought for that smell, and the smell is part of the goods' commercial identity.[39] Incense is a simple illustration. The market's primary differentiation is often the smell category itself, and the after-use smell is the product's point, not an added flourish.

Placing the two axes together yields three categories that the paper can apply repeatedly without redefinition. First, ambient or service scents: scents encountered pre-sale or at point-of-sale in service settings, typically ancillary to the service. Secondly, applied ancillary scents on durable goods: scents infused into or applied on goods where the scent is an added cue rather than the product's essence, the November 2025 tyre acceptance being the institutional reference point.[40] Third, after-use essential-characteristic scents: scents encountered only through consumption, where the scent is not an accessory but the product's defining competitive attribute, incense smoke being the central instance.

	Pre-sale	**Point-of-sale**	**After-use**
Ancillary / Arbitrary	N: High / D: High	N: High / D: Medium-High	N: Medium / D: Medium
Essential characteristic	N: Medium / D: Low	N: Low / D: Low	**N: Low / D: Very Low** *(Incense)*

Figure 2: Two-axis containment as a registrability-risk map: notice stability (N) and distinctiveness plausibility (D) shift sharply when after-use combines with essential-characteristic status.

Locking these categories has a limited purpose. It prevents the paper from collapsing into the crude claim that "after-use scents can never be marks", and it also prevents a false equivalence between a durable infused scent and a combustion-produced smoke output. The latter analysis can test legal standards against a stable object and a stable set of categories, instead of trying to settle the object mid-argument, and it can do so without treating the Register as hostile to scent marks as a class.[41]

III. THEORETICAL FRAMEWORKS

This paper deploys two external theoretical lenses to discipline the doctrinal analysis. *The first*, from Peircean semiotics, distinguishes indexical recognition of kind or quality from symbolic recognition of source. Together, they make visible the recognition-structure and boundary-

[39] Geiregat, *supra* note 34; *Smell, Sound and Taste – Getting a Sense of Non-Traditional Marks*, WIPO MAG. (Feb. 25, 2009), https://www.wipo.int/en/web/wipo-magazine/articles/smell-sound-and-taste-getting-a-sense-of-non-traditional-marks-36622.
[40] Controller General, *supra* note 2; Ram Mohan & Agarwal, *supra* note 7; Geiregat, *supra* note 34; In re Clarke, 17 U.S.P.Q.2d (BNA) 1238.
[41] Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159 (1995).

structure that the Trade Marks Act, 1999 tests through "capable of distinguishing," representation, and the Register's public-facing role.

A. Index and symbol

Peirce's split between index and symbol gives a clean way to talk about what "recognition" is actually doing when a smell is put forward as a trademark.[42] An index points by a real connection: it is read as a trace, effect, or aftermath of something in the world.[43] A symbol points by learned convention: it works because a community has learned to treat it as meaning something, even when the sensory event itself does not contain that meaning.[44] The legal stakes are straightforward. A person can recognise what kind of thing is present, and a person can recognise who it comes from. Those recognitions can feel equally certain to the consumer, but they are not the same operation.

Incense-smell recognition tends to sit on the index side. The smell arrives as the after-effect of burning and as a cue about ingredients, strength, and quality. The ordinary interpretation is causal: something has been combusted, and this smell is what that combustion produces. Peirce's shorthand example is smoke because it directs attention to a cause without needing to describe it.[45] If someone says "incense is being lit here", the recognition is anchored in that causal chain: burning-resins-smoke-smell. Even when the person can go further and say "that smells like sandalwood," the recognition still often stays attached to kind and composition, and thus, it is product-identity work.

Trademark law, by contrast, needs recognition that can attach to the trade origin.[46] "Capable of distinguishing" assumes that the sign can operate as a differentiator between traders, not merely as a reliable product cue.[47] Distinctiveness under Section 9 also assumes a public that treats the sign as pointing outward to a source, rather than inward to the nature of the goods.[48] Semiotics

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[42] 2 CHARLES SANDERS PEIRCE, COLLECTED PAPERS OF CHARLES SANDERS PEIRCE (Charles Hartshorne & Paul Weiss eds., 1932); Barton Beebe, *The Semiotic Analysis of Trademark Law*, 51 UCLA L. REV. 621 (2004).

[43] Peirce, *supra* note 42; Arthur W. Burks, *Icon, Index, and Symbol*, 20(4) PHIL. & PHENOMENOLOGICAL RSCH. 673 (1949).

[44] Peirce, *supra* note 42; Albert Atkin, *Peirce's Theory of Signs*, STAN. ENCYCLOPEDIA OF PHILOSOPHY (Oct. 13, 2006), https://plato.stanford.edu/entries/peirce-semiotics/.

[45] Albert Atkin, *Peirce on the Index and Indexical Reference*, 41 TRANSACTIONS CHARLES S. PEIRCE SOC'Y 161 (2005); Peirce, *supra* note 42.

[46] Po Jen Yap, *Essential Function of a Trade Mark: From BMW to O2*, 31(2) EUR. INTELL. PROP. REV. 81 (2009).

[47] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India); Windsurfing Chiemsee Produktions- und Vertriebs GmbH v. Boots- und Segelzubehör Walter Huber, 1999 E.C.R. I-2779, ¶¶ 25–27; Mark A. Lemley & Mark P. McKenna, *Trademark Spaces and Trademark Law's Secret Step Zero*, 75 STAN. L. REV. 1 (2023).

[48] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1)(a) (India); *Windsurfing Chiemsee*, *supra* note 47, ¶ 25; Godfrey Phillips India Ltd. v. Girnar Food & Beverages (P) Ltd., (2004) 5 S.C.C. 257 (India).

helps because it makes visible how a sign can be stable and memorable and yet still pull recognition toward product identity. The consumer can genuinely "identify" the smell, but what is being identified may be the goods as goods, not the goods as coming from one undertaking.

A scent can behave symbolically when it is experienced as a detachable badge. The 2025 tyre order matters because the smell is engineered into a durable good that does not need it to be itself.[49] In that setting, the scent can operate as an arbitrary overlay, learnable as a brand cue. Recognition can then shift into the symbolic mode: the smell means this trader, not this kind of object. Even if post-sale, it is experienced as a chosen signal, not as the product's own performance.

Incense smoke resists this move for structural reasons. The product as used is the burning event, and the smell is that event's defining output. It is experienced as what the thing is for, not as an added layer. Recognition therefore, remains indexical: the smell points to composition and occurrence, not to source. This is not about consumer sophistication, but about the kind of link the sign structurally invites.

This supplies the footing for the two-axis containment. After-use cues tend to be read as traces, and traces are index-like. The closer a scent is to an essential product characteristic, the more recognition is pulled toward product identity rather than source. Semiotics keeps these pressures visible while the doctrine does its work.

B. Boundary objects and register notice

Boundary objects are coordination devices: things that let different groups work together even when they do not share a single full understanding of what the thing is.[50] Star and Griesemer describe them as plastic enough to meet local needs, yet robust enough to maintain identity across sites.[51] The key point is that some representations are designed to travel. They allow shared reference across different practices, even if each practice reads the object differently. Later reflections make the caution clearer too; boundary objects can stabilise cooperation without making the object sharp-edged for every institutional purpose.[52]

[49] Controller General, supra note 2; Harsh Gour supra note 8; FICPI, supra note 9.
[50] Susan Leigh Star & James R. Griesemer, *Institutional Ecology, "Translations" and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology*, 1907–39, 19(3) SOC. STUD. SCI. 387 (1989); Susan Leigh Star, *This is Not a Boundary Object: Reflections on the Origin of a Concept*, 35(5) SCI. TECH. & HUM. VALUES 601 (2010).
[51] Star & Griesemer, *supra* note 49; GEOFFREY C. BOWKER & SUSAN LEIGH STAR, SORTING THINGS OUT: CLASSIFICATION AND ITS CONSEQUENCES (1999).
[52] Star, *supra* note 50.

The 2025 Registry order's use of a "vector representation" can be read in exactly this way.[53] It supplies a format that can travel across laboratories, examiners, applicants, and competitors, and it allows each of them to treat the representation as "the smell" while still doing different work with it: A scientist can treat it as measurement output, an examiner can treat it as a way of representing the mark as a definable subject matter, and a lawyer can treat it as setting the perimeter of what is claimed. The representation succeeds institutionally if it allows these actors to coordinate around a shared referent without constant renegotiation of description.

The register notice asks for more than a shared reference.[54] A register entry is supposed to draw boundaries that competitors can understand and that an adjudicator can police. European law framed this as a representational demand in *Sieckmann*: the representation must be clear, precise, self-contained, easily accessible, intelligible, durable, and objective.[55] That list is often repeated as a formula, but its practical core is contestability.[56] Others must be able to see what is fenced off, to stay outside it, and to challenge it if needed.

Combustion-variable scents expose the gap between a boundary object and a notice object.[57] Incense smoke varies with ordinary conditions of use. The question is not whether science can describe a sample, but whether any representation can yield a legally stable object when the product's normal performance generates normal variation. If a vector is "good enough" only for coordination, it still fails as notice, because the monopoly's edges drift with use.[58] That is the institutional translation problem the later sections will have to confront, and why the question here is representation-as-notice, not representation-as-technology.

IV. THE DEFINITION GATE: SECTION 2(1)(ZB)

Section 2(1)(zb) of the Trade Marks Act 1999 defines a "trade mark" through two linked capabilities: the sign must be capable of being represented graphically and it must be capable of distinguishing the goods or services of one person from those of others.[59] The November 2025 Registry order matters because it turns that definition into a workable gate for olfactory marks

[53] Controller General, supra note 2; Harsh Gour, supra note 8.
[54] Robert Burrell & Michael Handler, *Who Reads the Trade Marks Register?*, 45(2) OXFORD J. LEGAL STUD. 272 (2025); EUIPO, *9.1 Representation – EUIPO Guidelines*, https://guidelines.euipo.europa.eu/1803468/1788866/trade-mark-guidelines/9-1-representation.
[55] Sieckmann, supra note 3, ¶ 55; EUIPO, supra note 54.
[56] Dev S. Gangjee, *Paying the Price for Admission: Non-Traditional Marks across Registration and Enforcement*, in THE PROTECTION OF NON-TRADITIONAL TRADEMARKS: CRITICAL PERSPECTIVES 59 (Irene Calboli & Martin Senftleben eds., 2018); Burrell & Handler, *supra* note 54.
[57] Gangjee, *supra* note 56; Geiregat, *supra* note 34; Ram Mohan & Agarwal, *supra* note 7.
[58] EUIPO, *supra* note 54; Gangjee, *supra* note 56; Burrell & Handler, *supra* note 54.
[59] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India).

without pretending that smell marks sit outside the statutory text. It treats "graphical representation" as a notice device for the Register, and it treats "capable of distinguishing" as a requirement that cannot be assessed in the abstract once the claimed subject matter is unclear.[60] The order's deeper commitment is that the Register must communicate a clear and precise subject matter, and that commitment ends up restructuring how the definition is applied.[61]

That shift is easiest to see against the pre-2025 architecture. Rule 2(1)(k) of the Trade Marks Rules 2017 defines "graphical representation" as representation in paper form, including representation in digitised form.[62] The Rules then specify submission formats for some non-visual marks, most clearly sound marks under Rule 26(5), which require both an MP3 file and a graphic notation.[63] There is no comparable provision for smells. The gap does not formally declare olfactory marks impossible, but it encourages a low-level, medium-based objection: a smell cannot be "drawn," so it cannot be represented.[64] The order resolves that practical deadlock by reordering what counts as "graphical."[65] It draws from the Sieckmann line of reasoning and treats the core test as whether the representation yields a clear, precise, self-contained, accessible, intelligible, durable, and objective subject matter for registration.[66]

The seven-dimensional olfactory vector is accepted because it converts a scent into a quantified profile, visualised through a radar or polygon plot, and supported by a brief verbal anchor.[67] In other words, the register is not asked to store a smell as an impression, it is asked to store a stable description that third parties can consult and contest.[68] That is why the order's practical centre of gravity is no longer "can a smell be represented at all," but "does representation produce something the Register can publish and police as a bounded monopoly." Once representation is understood this way, the two limbs of Section 2(1)(zb) stop looking like separable compliance

[60] Controller General, *supra* note 2; Goswami, *supra* note 2.
[61] Ram Mohan & Agarwal, *supra* note 7; Maheshwari & Co., *Branding by Scent - Landmark Registration of India's First Smell Mark*, LEXOLOGY (Nov. 28, 2025), https://www.lexology.com/library/detail.aspx?g=e4f4e2a1-3b7c-4d5e-8f9a-1b2c3d4e5f6g.
[62] Trade Marks Rules, 2017, Rule 2(1)(k) (India).
[63] Trade Marks Rules, 2017, Rule 26(5) (India).
[64] Brian Moeran, *Marketing Scents and the Anthropology of Smell*, 15(2) SOC. ANTHROPOLOGY 153 (2007); IMARC GROUP, *India Incense Sticks (Agarbatti & Dhoop) Market Overview*, https://www.imarcgroup.com/india-incense-sticks-agarbatti-dhoop-market.
[65] Mark P. McKenna, *Trademark Use and the Problem of Source*, 2009 UNIV. ILL. L. REV. 773; Graeme B. Dinwoodie, *The Death of Ontology: A Teleological Approach to Trademark Law*, 84 IOWA L. REV. 611 (1999).
[66] *Sieckmann*, *supra* note 3, ¶¶ 46–55.
[67] Controller General, supra note 2; Moeran, supra note 64; Aradhna Krishna, *An Integrative Review of Sensory Marketing: Engaging the Senses to Affect Perception, Judgment and Behavior*, 22 J. CONSUMER PSYCHOL. 332 (2012).
[68] Robert G. Bone, *Trademark Functionality Revisited*, 7 HARV. L. & POL'Y REV. 1 (2015); Ram Mohan & Agarwal, *supra* note 7.

boxes. The grammar is cumulative, but the institutional function is integrated. A representation that fails to fix the subject matter makes it impossible to ask whether the sign is capable of distinguishing, because distinctiveness analysis presupposes an identifiable sign with boundaries that persist across use.[69] At the same time, if a sign can only be "distinguished" through expert reconstruction that does not translate into what the public can understand from the register, then the claimed capability becomes fragile in the exact place where registration is meant to supply stability.[70]

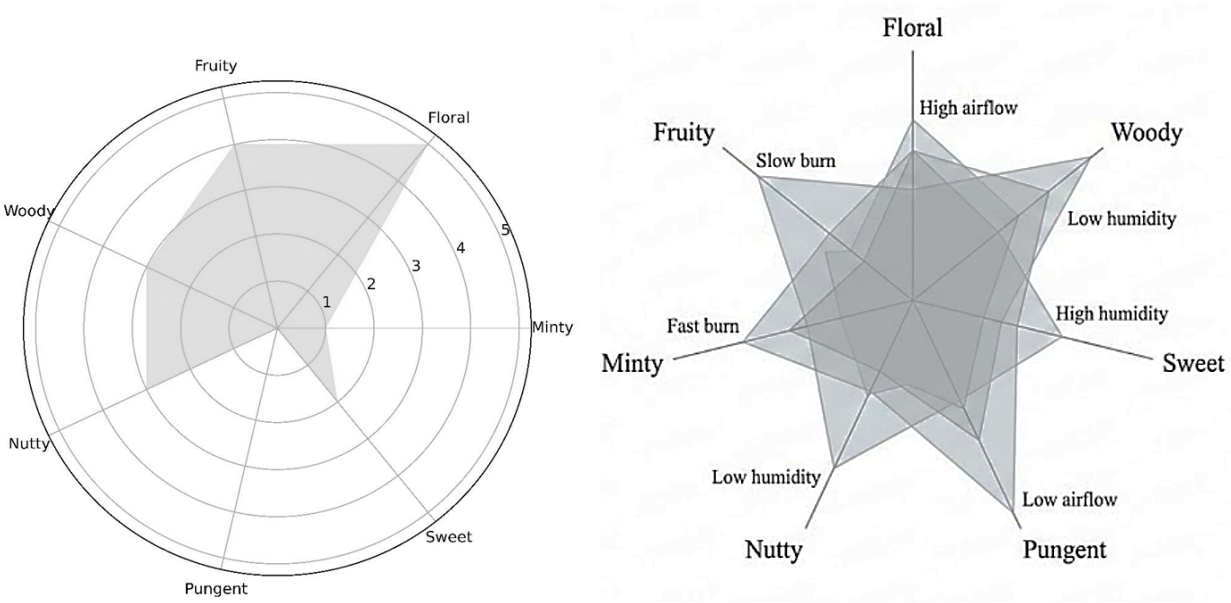

Figure 3:Olfactory Vector Stability vs Performance Drift. Source (Left Panel): Trade Marks Registry, Order dated 21 November 2025 in TM Application No. 5860303 (Floral Fragrance/Smell Reminiscent of Roses as Applied to Tyres). Source (Right Panel): author's self made schematic illustrating performance-contingent drift for combustion-produced incense smoke across ordinary use conditions.

Figure 3 shows that even with a seven-dimensional vector, ancillary scents yield a single bounded profile, while combustion-produced scents drift across ordinary use. The failure is not scientific description, but legal boundary stability.

The order itself reflects this integration. The vector is treated not as a filing formality but as the perimeter of protection.[71] It is supposed to be something a competitor can consult in the Trade Marks Journal and use to decide whether to oppose, design around, or risk infringement.[72] The

[69] Sieckmann, supra note 3, ¶¶ 50–55; Dev S. Gangjee, *Non Conventional Trade Marks in* India, 22(1) NAT'L L. SCH. INDIA REV. 67 (2010).
[70] *India Incense Sticks Market Assessment, By Category*, MARKETS AND DATA, https://www.marketsandata.com/industry-reports/india-incense-sticks-market; IMARC Group, *supra* note 64.
[71] Andreas Hörberg, Maria Larsson & Jonas K. Olofsson, *Semantic Organization of English Odor Vocabulary*, COGN. SCI. 46(11) (2022); Moeran, *supra* note 64.
[72] Ministry of Consumer Affairs, Food & Public Distribution, *Union Minister Shri Pralhad Joshi Releases New BIS Standard for Incense Sticks to Enhance Consumer Safety and Product Quality*, PRESS INFORMATION BUREAU (Dec. 26, 2025), https://www.pib.gov.in/PressReleasePage.aspx?PRID=2208829; IMARC Group, *supra* note 64.

same material exposes a stress point: the vector's precision lacks any margin of error or similarity threshold, leaving third parties unable to tell when a profile is "the same" sign or safely outside it.[73] Notice depends not just on having a format, but on whether it can stabilise boundaries across real-world variation.[74]

Incense smoke makes this fragility structural. The claimed sign is not the stick or the packaging as sold. It is the smoke-smell produced only after the consumer uses the good, through combustion, in a particular space. The experienced sign is therefore contingent on outside the proprietor's control at the point of encounter: airflow, humidity, burn rate, temperature, room volume, and ambient odours.[75] This variability matters here as a register-notice problem. If the sign's perceptual identity drifts with conditions of use, then a single published representation risks becoming either under-inclusive (covering only a lab-burn snapshot) or over-inclusive (functioning as shorthand for a shifting family of outputs).[76] The Register is then asked to grant an exclusive right where the boundary question has been displaced from registration to later dispute, and the definition gate is exactly where that displacement becomes visible.

The tyre scent can plausibly be treated as a controlled additive. The order accepts that the fragrance is added to the goods in a controlled manner and operates as an extraneous identifier, rather than as part of what makes the product work.[77] That framing makes representation tractable. A lab can analyse the goods, generate the corresponding profile, and reproduce it without needing to simulate diverse consumer environments. With incense smoke, the sign is generated by consuming the good. Combustion changes the chemical profile over time and across conditions, and those conditions are part of what the consumer experiences as the "same" incense in ordinary life. If the applicant supplies a single vector derived from controlled testing, that representation fixes only one slice of the after-use experience. Competitors are then left with an indeterminacy: does the monopoly cover only the lab-burn profile, or does it cover the range of smells that arise when the same stick is burned in ordinary environments. If the applicant supplies multiple vectors to capture variability, the object becomes a range or family. A range-claim may be scientifically honest, but it

[73] Krishna, *supra* note 67; Moeran, *supra* note 64.
[74] Bone, *supra* note 68; Margaret Churovich, *Scents, Sense, and Scent Marks: Something Stinks in the Lanham Act*, 20 ST. LOUIS U. PUB. L. REV. 293 (2001).
[75] Goel et al., *supra* note 14; S. Pervez et al., *Indoor VOCs from Religious and Ritual Burning Practices in India*, 14 AEROSOL & AIR QUALITY RSCH. 1418 (2014).
[76] McKenna, *supra* note 65; Dinwoodie, *supra* note 65.
[77] Controller General, *supra* note 2.

weakens the register's basic promise that the monopoly has contestable boundaries that can be understood without reconstructing the entire world of use.[78]

That gap cannot be treated as a merely evidentiary inconvenience, because it interacts with how publication and opposition are designed. Under Section 20–21 and the Rules governing advertisement and opposition, the scheme assumes that publication makes the mark intelligible enough for "any person" to oppose within the fixed window, and that the grounds of opposition can be pleaded on a stable record.[79] When the representation is a family of possible after-use outputs, oppositions become less about whether the sign should be monopolised and more about how the monopoly should be parameterised. That is a different kind of contest, and the statute does not provide the Register with a comfortable mechanism to grant monopolies whose content depends on later administrative calibration of error bands, similarity thresholds, or permissible ranges.[80]

Furthermore, the Act does not insist that a sign be affixed on the goods. Section 2(2)(b) extends "use" of a mark in relation to goods to use upon, or in any physical or other relation whatsoever to, the goods.[81] The Supreme Court has read this relation language broadly, treating "in relation to" as a wide connective rather than a narrow attachment requirement.[82] Section 29(6) similarly treats use on packaging, labels, business papers, and in advertising as use.[83] Taken together, these provisions allow a scent encountered only in use to count as a mark in principle, but they increase the dependence on the Register to publish boundaries that outsiders can consult. Where the claimed sign is combustion-produced smoke smell, that openness does not help unless representation can specify what counts as the same sign across burns in advance of dispute.

The second limb of Section 2(1)(zb) pulls the same way. The definition requires capability of distinguishing the goods of one person from those of others. Distinguishing capability is meaningful only when the sign can be treated as a stable badge across encounters. Distinctiveness

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[78] European Innovation Council and SMEs Executive Agency, *The Legal Challenges of Protecting Olfactory Trademarks in the European Union before going to India*, EUR. IP HELPDESK (Dec. 22, 2025), https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/legal-challenges-protecting-olfactory-trademarks-european-union-going-india-2025-12-22_en; Ram Mohan & Agarwal, *supra* note 7.

[79] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 20–21 (India); Trade Marks Rules, 2017, Rules 38–45 (India).

[80] Vishakha Sharma & Zachary J. Estes, *Seeing is Smelling: Pictures Improve Product Evaluations by Evoking Olfactory Imagery* (International Journal of Research in Marketing Volume 41, Issue 2, Working Paper, 2024), https://ssrn.com/abstract=4567890; Consumer Protection (E-Commerce) Rules, 2020 (India).

[81] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(2)(b) (India).

[82] Hardie Trading Ltd. v. Addisons Paint & Chemicals Ltd., (2003) 11 S.C.C. 92 (India).

[83] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 29(6) (India).

under trademark law, whether framed as inherent distinctiveness or acquired distinctiveness, is built around that stability assumption.[84] For incense smoke, the consumer's recognition is typically directed to product identity and performance, because the smell is the product's defining output. Even if a consumer can recognise "this is sandalwood incense" or "this is temple incense," the sign being recognised is anchored to kind and quality, while the register requires a sign whose boundaries are sufficiently stable that it can operate as an indicator of origin and be policed as such. Under the post-2025 register-notice premise, representation and distinguishing capability are therefore mutually dependent for incense smoke in a way that they were not for the tyre scent. Representation is asked to deliver a clear perimeter in circumstances where the sign's identity is contingent on use, while the capability of distinguishing is asked to be assessed even though the sign, as published, cannot tell third parties what counts as the "same" smell across ordinary burns. The 2025 order makes smell marks possible by insisting on clear and precise subject matter, but it also makes the definition gate the place where, after use, combustion-variable scent objects begin to fail as registrable signs.

V. DISTINCTIVENESS COLLAPSE: SECTION 9 AND TRADE-TIME USE

A. Variety-recognition and Section 9(1)

Once a scent is treated as a possible mark, the next question is whether it can do the job the Act assigns to marks in the first place. Under Section 9(1), that job is a competence test: can this sign distinguish one trader's goods from another's, in the way trademarks are expected to work?[85] The 21 November 2025 order made one scent object institutionally legible by treating it as an added feature applied to a durable good, and by stating that consumers can associate that feature with a single source.[86] That is the sort of case where "distinctive character" can be narrated as an association between an extra-sensory element and a trader, rather than as the market's normal way of describing the product itself.[87]

Incense makes that separability hard to sustain. The relevant sensory event is not the dry stick, or the packet, or a pre-burn fragrance. The claimed sign is the smell of smoke produced by

[84] Krishna, *supra* note 67; Sharma & Estes, *supra* note 80.
[85] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1) (India).
[86] Controller General of Patents, Designs and Trade Marks, Order in Trade Mark Application No. 5860303, Class 12 (Issued on Nov. 21, 2025) (India); Tanishka Goswami, *The Scent of the Sumitomo Trademark: What is the Celebration About?*, SPICYIP (Nov. 26, 2025), https://spicyip.com/2025/11/the-scent-of-the-sumitomo-trademark-what-is-the-celebration-about.html.
[87] Anannya Mohan, *The Proustian Predicament: Protecting Olfactory Trademarks in India's Contemporary Trade Mark Jurisprudence* (IIMA Working Paper No. 2025-08-01, 2025); Maheshwari & Co., *Branding by Scent - Landmark Registration of India's First Smell Mark*, LEXOLOGY (Nov. 28, 2025).

combustion in a room. That after-use moment is not an incidental stage of the goods, it is the stage for which the goods are bought. So when a consumer recognises an incense smell, recognition ordinarily tracks type and expected performance: sandal versus rose, sharp versus mild, clean burn versus smoky, long lasting versus short.[88] The recognition is accurate, sometimes refined, and yet it is aimed at what the product is doing, not who put it into circulation.[89]

That mismatch matters under Section 9(1)(a) because "distinctive character" is not satisfied by any form of discrimination.[90] Incense-smell recognition separates products in the market, but it does so on axes that are product-facing.[91] A consumer can correctly identify that a room has been scented by rose incense and still have no reason, in that act of identification, to infer the trader. The distinction the Act requires is of one person from others, and that is a different mental task.[92] If the scent is experienced as the performance of the goods, then recognition can be intense and still remain non-original.

The same pressure appears more explicitly once Section 9(1)(b) and (c) are kept in view. Section 9(1)(b) refuses signs that may serve in trade to designate kind, quality, intended purpose, or other characteristics.[93] For incense, smoke-smell is not a marginal characteristic.[94] It is the characteristic around which buying and substitution are organised, and it is the characteristic that is repeatedly named and compared in trade.[95] A claim to an "incense signature smoke" therefore drifts, very quickly, toward a claim over a characteristic used to describe what the buyer is selecting. Section 9(1)(c) adds the related constraint where a sign becomes customary in the current language or in bona fide and established practices of the trade.[96] In an incense market structured around scent categories, the descriptive vocabulary does not sit outside the goods, it is the ordinary grammar of choosing them.

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[88] Brian Moeran, *Marketing Scents and the Anthropology of Smell*, 15(2) SOC. ANTHROPOLOGY 153 (2007); IMARC Group, *India Incense Sticks (Agarbatti & Dhoop) Market Overview*, https://www.imarcgroup.com/india-incense-sticks-agarbatti-dhoop-market.

[89] Mark P. McKenna, *Trademark Use and the Problem of* Source, 2009 UNIV. ILL. L. REV. 773; Graeme B. Dinwoodie, *The Death of Ontology: A Teleological Approach to Trademark Law*, 84 IOWA L. REV. 611 (1999).

[90] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1)(a) (India).

[91] Moeran, supra note 88; Aradhna Krishna, *An Integrative Review of Sensory Marketing: Engaging the Senses to Affect Perception, Judgment and Behavior*, 22 J. CONSUMER PSYCHOL. 332 (2012).

[92] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1) (India); Kaviraj Pandit Durga Dutt Sharma v. Navaratna Pharm. Labs., A.I.R. 1965 SC 980 (India).

[93] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1)(b) (India).

[94] Ministry of Consumer Affairs, Food & Public Distribution, *Union Minister Shri Pralhad Joshi Releases New BIS Standard for Incense Sticks to Enhance Consumer Safety and Product Quality*, PRESS INFORMATION BUREAU (Dec. 26, 2025), https://www.pib.gov.in/PressReleasePage.aspx?PRID=2208829; IMARC Group, *supra* note 88.

[95] *India Incense Sticks Market Assessment, By Category*, MARKET XCEL, https://www.marketresearch.com/Market-Xcel-v4077/India-Incense-Sticks-Assessment-Category-32456789/; IMARC Group, *supra* note 88.

[96] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1)(c) (India).

Indian distinctiveness law keeps returning to this market-reading point. Courts ask whether the sign is perceived as indicating origin, and not merely as conveying a message about the goods.[97] Where a sign begins life with descriptive or customary meaning, the question becomes whether that earlier meaning has been displaced by a new association tied to one trader.[98] In *Godfrey Phillips v Girnar Food*, the Supreme Court treated acquired distinctiveness as a heavy factual burden, especially where the sign naturally describes the goods.[99] The problem for incense is that the "natural" meaning is strong because it is anchored in sensory experience, and sensory experience is what the goods are sold for. In that setting, the sign does not behave like a detachable badge; it behaves like the product identity itself, translated into smell.

This also explains why timing by itself does not decide the outcome. Post-sale experience can support source association in some settings, and the 2025 order is an institutional example since it treats smell perception after the tyres are in use as compatible with trade mark work.[100] The incense case is different because the after-use moment is the main moment in which the goods exist to the consumer. Recognition at that moment is still recognition of the goods. Distinctiveness collapses because the trade mark function cannot be detached from the product function without altering how the smell is ordinarily understood.

The proviso to Section 9(1) allows registration if distinctiveness is acquired through use, but that assumes use teaches the public to treat the sign as origin.[101] For incense, repetition entrenches the product reading: the consumer learns one trader's rose as *stronger*, not rose smoke as a detachable badge. Where ordinary meaning persists even after long use, courts remain sceptical of distinctiveness.[102]

B. Visualised use and descriptive mediation

The Act's treatment of "use" adds a second pressure. Trade mark function is assessed through how the sign is put into the market, and how that market exposure creates a commercial connection.[103] For ordinary word and device marks the route is straightforward: the sign is printed

[97] Durga Dutt Sharma, A.I.R. 1965 SC 980; N.R. Dongre v. Whirlpool Corp., (1996) 5 S.C.C. 714 (India).
[98] Godfrey Phillips India Ltd. v. Girnar Food & Beverages (P) Ltd., (2004) 5 S.C.C. 627 (India).
[99] Id.
[100] Controller General, *supra* note 2.
[101] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1) (India).
[102] ITC Ltd. v. Nestle India Ltd., 2020 SCC OnLine Mad 6652 (India); Red Bull AG v. Pepsico India Holdings (P) Ltd., 2023 SCC OnLine Del 761 (India).
[103] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 2(2)(b), 2(2)(c) (India).

on the packet, displayed at the shop, repeated in advertising, and carried into listings and invoices. The statute then describes use upon the goods, in relation to the goods, and in advertising.[104]

For scent marks, that produces a mediation problem. A smell cannot operate in trade without some visible surrogate. Even where the sensory experience happens later, trade-time "use" is routed through packaging claims, product descriptions, point-of-sale displays, and advertising copy. That is how a consumer is invited to treat the scent as part of the offering, and that is how a trader tries to build association over time. Section 29(6) makes this explicit by treating use in advertising and use in business papers as use of the mark.[105]

Incense sits at the sharp edge of that structure because the only practical way to communicate an after-use smell in trade is to name it. Buying normally precedes burning, so the trader cannot depend on consumers encountering the smoke first and then discovering source later. The scent is therefore described on the packet and in listings with scent vocabulary, often with added cues about intensity and "long lasting" performance. Those cues are not decorative. They are the mechanism by which the product is made legible at the moment of purchase.

That necessary mediation tightens the statutory trap. The more the scent must be communicated in visible language to operate in trade, the more it begins to function as an indication of kind or quality rather than as an origin sign.[106] The same logic is visible in disputes over descriptive terms and promotional phrases, where courts have treated trade-facing language as closer to description than to badge.[107] Once communication is routed through descriptive language, disputes about "use" and similarity will often be disputes about the permissible use of scent descriptors, and the scent claim becomes difficult to separate from the vocabulary of the trade.

Packaging regulation reinforces the legal visualisation of use. Labelling law is structured around visible disclosure and policing of misleading statements about quality and composition.[108] For incense, the attribute most likely to be disclosed and traded upon is the scent category itself, since it is the primary basis of consumer choice at the point of purchase. So even if a proprietor insists

[104] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 29(6), 29(8) (India).
[105] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 29(6) (India).
[106] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1)(b) (India).
[107] ITC Ltd., 2020 SCC OnLine Mad 6652; Red Bull AG, 2023 SCC OnLine Del 761.
[108] Legal Metrology (Packaged Commodities) Rules, 2011, Rules 6–7 (India); The Consumer Protection Act, 2019, § 2(47) (India).

that the protected sign is the smell itself, competitors will encounter the claimed monopoly through the visible descriptors by which the smell is sold.

This is also why the problem cannot be solved by saying the smell is "used" through the goods alone. The Act's idea of use is wide, but it is organised around communicative acts that are visible and contestable.[109] Scent cannot be affixed like a label, so trade-time use relies on trade descriptions and packaging claims. The statute defines trade description broadly, including indications as to the material of which goods are composed.[110] Packaging and consumer-protection law already police scent claims at the point of sale. The doctrinal point, thus becomes, narrower: where an after-use scent is the product's essential performance and can exist in trade only through descriptive mediation, the Act's own structure pushes the claim away from distinctiveness before enforcement is even reached.

VI. FEATURE MONOPOLY LIMITS: SECTION 9(3) AND SECTION 29

A. S.9(3) as the Act's "essential feature" alarm bell

Section 9(3) is the Act's clearest signal that registration is not meant to become a backdoor way of owning product-defining features.[111] It is placed within the absolute grounds and drafted as a hard exclusion: "shall not be registered".[112] It is also written without the usual escape hatch of acquired distinctiveness. That contrast is deliberate. Elsewhere, the Act accepts that trade-time learning can convert a weak sign into a trade mark; the proviso to Section 9(1) is built on that possibility.[113] Section 9(3) does not let the applicant run that route. The register is not meant to become a perpetual exclusivity instrument for attributes that the goods, in substance, must carry.[114]

The three limbs express the same posture through three routes. Section 9(3)(a) targets features that "result from the nature of the goods", meaning the attribute that follows from what the goods are, rather than from who made them.[115] Section 9(3)(b) blocks features "necessary to obtain a technical result", because registration is not meant to operate like an indefinite control right over

[109] The Trade Marks Act, 1999, § 29(6) (India).
[110] The Trade Marks Act, 1999, § 2(1)(za) (India).
[111] Controller General of Patents, Designs and Trade Marks, Draft Manual of Trade Marks Practice and Procedure, ¶ 4.127 (2015) (India); Dev Gangjee, *Non Conventional Trade Marks in India*, 22(1) NAT'L L. SCH. INDIA REV. 67 (2010).
[112] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(3) (India).
[113] The Trade Marks Act, 1999, § 9(1) (India).
[114] Glynn S. Lunney Jr., *Trademark Monopolies*, 48 EMORY L.J. 367 (1999); Mark A. Lemley & Mark P. McKenna, *Owning Mark(et)s*, 109 MICH. L. REV. 137 (2010).
[115] The Trade Marks Act, 1999, § 9(3)(a) (India).

performance-critical design.[116] Section 9(3)(c) bars features that "give substantial value to the goods", capturing the case where the claimed feature is a primary driver of purchase and not a badge of trade origin.[117] Across these limbs, the common idea is simple: even if consumers recognise a feature, that recognition does not automatically justify converting the feature into exclusive territory through the register.[118]

Registry materials frame Section 9(3) in those terms.[119] The Draft Manual of Trade Marks Practice and Procedure treats an objection under Section 9(3) as not curable by acquired distinctiveness and links it to preventing monopolisation of intrinsic product features.[120] Courts, when policing the border between protectable non-traditional signs and ordinary product characteristics, have also insisted that claims must be delimited with care, because broad claims risk converting features of the goods into control rights that competitors cannot practically avoid.[121] In *Knitpro*, while dealing with a colour-combination claim, the Delhi High Court emphasised the need for clarity and specificity in what is being claimed, and warned against abstract, shifting formulations that would let the claimant occupy more than what trade mark law can legitimately give.[122] That posture matters here not because Section 9(3) "applies" to smells, but because it reveals an internal design choice: the statute is hostile to feature monopolies, and it expresses that hostility inside its own registration architecture.[123]

B. Translating the anti-feature posture to scents without importing "functionality"

The same constraint can be reached for scents without treating Section 9(3) as directly applicable to smells, and without importing foreign functionality doctrine. The route is internal and it runs through the definition and distinctiveness structure already doing work for non-traditional marks. Section 2(1)(zb) requires a "mark" that is capable of distinguishing, and that is meant to indicate a trade connection between goods and the proprietor.[124] Section 9(1) then refuses registration where

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116 The Trade Marks Act, 1999, § 9(3)(b) (India).
117 The Trade Marks Act, 1999, § 9(3)(c) (India).
118 Philips Elecs. NV v. Remington Consumer Prods. Ltd., 2002 E.C.R. I-05475; Lego Juris A/S v. OHIM, 2010 E.C.R. I-08403.
119 Trade Marks Registry, Manual of Procedure for Examination of Trade Mark Applications, § 5.2.5.1 (Draft, Jan. 23, 2009) (India); Controller General, *supra* note 111.
120 Office of the Controller General of Patents, Designs & Trade Marks, Draft Manual of Trade Marks Practice and Procedure (2009) (India).
121 Sieckmann v. Deutsches Patent- und Markenamt, 2002 E.C.R. I-11737; Société des Produits Nestlé SA v. Cadbury UK Ltd., (2014) EWCA (Civ) 16 (Eng.).
122 Knitpro Int'l v. Examiner of Trade Marks, (July 13, 2022) (Delhi HC) (India).
123 Hauck GmbH & Co. KG v. Stokke A/S, ECLI:EU:C:2014:2233; THE PROTECTION OF NON-TRADITIONAL TRADEMARKS: CRITICAL PERSPECTIVES (Irene Calboli & Martin Senftleben eds., 2018).
124 The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India).

the mark lacks distinctive character, and where it consists exclusively of indications that may serve in trade to designate kind, quality, or other characteristics of the goods.[125] Read together, these provisions assume a separable sign: something that can attach to goods and point to origin, without collapsing into the goods' own identity.[126]

That assumption is easy to satisfy where the scent is an added layer. The Trade Marks Registry's November order accepting Sumitomo's "floral fragrance / smell reminiscent of roses as applied to tyres" proceeded on the premise that the fragrance was arbitrary for tyres and was introduced as a branding choice rather than as the tyre's defining attribute.[127] Tyres do not exist to smell like roses! On that framing, the scent can be understood as an overlay, capable in principle of doing origin-work even if consumers encounter it after purchase. The sign remains conceptually detachable: the goods can be described, compared, and purchased without needing the scent as part of their essential character.[128]

The difficulty begins in the after-use essential-characteristic class. For incense sticks, the smell is not an overlay applied to the goods as a distinct branding device. It is the combustion-produced output that comes into existence only through use, and it is the primary sensory reason the goods are bought. In that setting, consumer recognition tends to track variety, intensity, and burn performance, because those are the properties by which incense is chosen and compared. Even if that recognition is stable, it is recognition of product character and performance, not of a separable sign hovering above the goods.[129]

The internal constraint becomes visible when "use in trade" is kept in view, not as an infringement question, but as part of what "capable of distinguishing" presupposes. A scent cannot function as an origin-indicator unless it can be communicated in the market in a way that distinguishes one trader's goods from another's. For after-use incense smells, the shelf encounter is not with the combustion smell itself in a stable, comparable form. The trade-time encounter is mediated through visible surrogates: labels, names, packaging claims, and descriptive vocabulary.[130] And the

[125] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 9(1)(a)–(b) (India).
[126] LIONEL BENTLY & BRAD SHERMAN, INTELLECTUAL PROPERTY LAW (5th ed. 2018); Arsenal Football Club plc v. Reed, 2002 E.C.R. I-10273.
[127] Controller General, *supra* note 2.
[128] G.E. Brill, *Make Some Sense of Scent Trademarks: The United States Needs a More Coherent Approach*, 56 U. RICH. L. REV. 807 (2022); WIPO, Standing Comm. on the L. of Trademarks, Indus. Designs & Geographical Indications, *New Types of Marks*, ¶¶ 46–52, WIPO Doc. SCT/16/2 (Issued on Sept. 1, 2006).
[129] Douglas D Churovich, *Scents, Sense, and Scent Marks: Something Stinks in the Lanham Act*, 20 ST. LOUIS U. PUB. L. REV. 293 (2001); Brill, *supra* note 128.
[130] Lee B. Burgunder, *Trademark Protection of Smells: Sense or Nonsense*, 29(3) AM. BUS. L.J. 459 (1991); WIPO, *supra* note 128.

vocabulary that incense markets use is, structurally, characteristic-language: sandalwood, jasmine, rose, "temple", "*dhoop*", "strong", "mild", "long-lasting", "premium", "soothing".[131] That communicative routing pushes the claimed scent straight into the space Section 9(1) treats with suspicion, because it is exactly the language by which the trade designates kind and quality.[132]

So, the constraint is reachable without a foreign "functionality" filter. If the claimed smell is inseparable from what the goods are for, then Section 2(1)(zb)'s capability requirement is strained because the sign is not conceptually detachable from the goods' identity and performance. And if the only realistic way to make the smell operate "in trade" is through characteristic descriptions, Section 9(1) blocks the claim because the sign is not operating as a badge of origin but as an indicator of product kind and quality. The statute's own architecture does the work: it resists the conversion of essential product features into exclusive marks, even when those features are sensory.[133]

This is where the two-axis taxonomy does its work. After-use alone is not fatal, because an ancillary scent can still function as branding. The trigger is an essential characteristic status, which collapses the sign and goods into one object.[134] At that point, Section 2(1)(zb) and Section 9(1) perform the same anti-monopoly function that Section 9(3) performs for shapes: they block exclusive control over features that define the goods themselves.

C. S.29 used only as a temporal discipline device

Section 29 matters here only to keep the analysis anchored to market-facing use. Infringement depends on "use in the course of trade", and Section 29(6) lists the familiar modalities: affixing the mark to goods or packaging, offering or exposing goods for sale under the mark, importing under the mark, and use in advertising or business papers.[135] The common feature is temporal and practical. The sign must be deployed during the transactional window in a way that the market can encounter as a sign.

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[131] Cycle Care, *Ultimate Guide to Agarbatti and Incense Sticks in India*, CYCLE.IN (Nov. 5, 2025), https://cycle.in/blogs/all/ultimate-guide-agarbatti-incense-sticks-india; *India Incense Sticks Market Size, Share & Forecast to 2031*, RSCH. & MKTS. (Dec. 5, 2025).

[132] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 9(1)(a)–(b) (India); Windsurfing Chiemsee Produktions- und Vertriebs GmbH v. Boots- und Segelzubehör Walter Huber, 1999 E.C.R. I-2779; OHIM v. Wm. Wrigley Jr. Co., 2003 E.C.R. I-12447.

[133] *Hauck*, ECLI:EU:C:2014:2233; WIPO, Standing Comm. on the L. of Trademarks, Indus. Designs & Geographical Indications, *Issues Concerning Non-Visible Marks*, WIPO DOC. SCT/17/3 (Mar. 30, 2007).

[134] *Lego Juris*, 2010 E.C.R. I-08403; *Hauck*, ECLI:EU:C:2014:2233.

[135] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 29(1)–(2), 29(6) (India).

After-use essential-characteristic scents do not fit that temporal structure cleanly.[136] The smell emerges after consumption begins, and the market-facing communication of it is ordinarily indirect, through labels and descriptive claims rather than through the sensory event itself at the point of sale. That temporal gap does not decide infringement questions on its own, and it does not turn Section 29 into a new filter. It simply reinforces, at the level of "use", why these objects struggle to operate as marks in the statutory sense: the sign-function is hard to perform when the alleged mark exists mainly post-consumption and is traded as description, not as a market-facing identifier.[137]

VII. THE 2025 ORDER AS OPENING AND LIMIT

A. What does the tyre order actually hold?

The 2025 November order matters, the author has established, because it makes smell marks institutionally thinkable without treating them as a category outside the Trade Marks Act. It begins from the Act's open-ended idea of a "mark" and then narrows the inquiry to the Register's task: recording a sign in a way that communicates a clear and precise subject-matter to everyone who consults the Register.[138] Representability is therefore handled as notice, not as an aesthetic demand that the sign must be drawable.[139]

The order stabilises the novelty by positioning the tyre scent as ancillary and arbitrary. The goods remain tyres; the claimed sign is a rose-like fragrance applied to the tyres.[140] The fragrance is not framed as the goods' sensory identity or as an output the product is meant to generate. It is presented as an added attribute that can sit alongside the goods' commercial identity and still operate as a separable badge. That framing matters because after-use exposure, by itself, is not conceptually fatal so long as the sign is separable from the goods and can be fixed for notice.[141]

The representation move follows the same internal logic. The order treats "graphical representation" as the route through which the Register defines what is claimed.[142] It accepts a

[136] WIPO, *supra* note 128; M.P. Ram Mohan & Pratishtha Agarwal, *The Proustian Predicament in Trademark Law* (IIMA Working Paper No. 2025-08-01, 2025).
[137] Ram Mohan & Agarwal, *supra* note 137; *Toward a Scented Jurisprudence*, ILL. L. REV. ONLINE (Sept. 18, 2025), https://illinoislawreview.org/online/toward-a-scented-jurisprudence/.
[138] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India); Sieckmann, *supra* note 3.
[139] Sieckmann, *supra* note 3, ¶ 55; EUIPO, Guidelines for Examination of European Union Trade Marks, Part B: Examination, Section 2: Formalities (Oct. 1, 2017).
[140] Controller General, *supra* note 86.
[141] WIPO, Standing Comm. on the L. of Trademarks, Indus. Designs & Geographical Indications, *New Types of Marks*, WIPO DOC. SCT/22/2 (Oct. 9, 2009); Erin M. Reimer, *A Semiotic Analysis: Developing a New Standard for Scent Marks*, 14 VAND. J. ENT. & TECH. L. 693 (2012).
[142] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India); Trade Marks Rules, 2017, Rules 23, 26 (India).

"vector representation" prepared with technical assistance, plotting the scent across multiple olfactory axes.[143] The point of accepting that proxy is not a promise of scientific perfection.[144] It is the institutional claim that a stable proxy can anchor the Register's notice function, so competitors can see what is taken off the market and decide what to oppose.[145]

Distinctiveness is accepted on a plausibility footing rather than on completed market proof. The application is recorded as "proposed to be used", yet the order proceeds on the view that an arbitrary fragrance on tyres can, in principle, be capable of distinguishing because it is not naturally connected to tyres and is not presented as necessary for tyre performance.[146] The procedural posture reflects that limited confidence. The mark is accepted for advertisement under section 20, leaving the opposition stage and later use evidence to test it.[147]

B. The order's internal limits: notice precision and boundary-policing

Read as a notice decision, the order carries internal limits. A Register entry is not merely a record for the applicant.[148] It is a communication to competitors about what is taken out of circulation, and a reference point for tribunals when similarity, confusion, and scope are later contested.[149] That architecture assumes boundaries that can be stated at registration and then policed.[150] The order's reliance on a published proxy is best understood as an attempt to meet that demand for contestable boundaries. That is why the order's emphasis on publication matters; the proxy must be something rivals can challenge early, and police.

The tyre scent fits that demand because it is framed as an applied, manufactured feature that can be engineered to a stable profile at the point of production.[151] Variation can be treated as quality

[143] Controller General, *supra* note 86; Shield Mark BV v. Joost Kist, 2003 E.C.R. I-14313.
[144] Danny Friedmann, *EU Opens Door for Sound Marks: Will Scent Marks Follow?*, 10(12) J. INTELL. PROP. L. & PRAC. 931 (2015); WIPO, *supra* note 134.
[145] EUIPO, Trade Mark Guidelines, § 1.3; Rebecca Tushnet, *Registering Disagreement: Registration in Modern American Trademark Law*, 130 HARV. L. REV. 867 (2017).
[146] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1)(a) (India); Gangjee, *supra* note 110.
[147] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 18(1), 20, 21 (India).
[148] Tushnet, supra note 146; Annette Kur, *Convergence After All? A Comparative View on the U.S. and EU Trade Mark Reform*, 13 J. INTELL. PROP. L. 353 (2012).
[149] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 20, 21, 28 (India); Trade Marks Registry, *supra* note 110; Stacey L. Dogan & Mark A. Lemley, *A Search-Costs Theory of Limiting Doctrines in Trademark Law*, 97 TRADEMARK REP. 1223 (2007); Tushnet, *supra* note 146.
[150] Max Planck Institute for Intellectual Property and Competition Law, *Study on the Overall Functioning of the European Trade Mark System* (Feb. 15, 2011); EUIPO, *supra* note 146.
[151] Controller General, *supra* note 86; *India's First Smell Mark: "Rose Scent" for Tyres*, THE LEAFLET (Nov. 2025).

drift around a target, rather than as a constitutive feature of the sign.[152] If a rival uses a fragrance that maps closely onto the registered profile, the proxy supplies a contestable object for comparison. The comparison may be difficult, but the Register can still point to an object that purports to be fixed.

A combustion-produced incense smoke claim changes the object that the Register is asked to hold still.[153] The goods may be a stick and its packaging, but the claimed sign is the smell produced by burning, and it emerges only after the sale is complete.[154] More importantly, its perceptual identity is contingent on conditions that sit outside the applicant's control in ordinary use: airflow, humidity, burn rate, room size, and duration of burning. That contingency means that what counts as "the same smell" drifts across contexts even when the same stick is burned, and the claimed sign starts to behave like a moving boundary.[155]

That boundary drift matters because the order's opening premise is that the Register must publish clear and precise subject-matter. If the claimed smell cannot be bounded in a way that competitors can understand, the monopoly becomes hard to contest ex ante and hard to police ex post, and the Register starts to function as fog rather than as notice.[156] The problem is therefore juridical rather than technical, it concerns notice and contestability, not whether chemistry can describe smell.[157]

This is where the order supplies its limit. After-use alone survived in the tyre context because the scent's role is ancillary and arbitrary. Incense smoke combines after-use with an essential-characteristic role: it is experienced as the product's defining output, and recognition ordinarily tracks kind, strength, and expected performance rather than source.[158] When that combination is

[152] Raman Mittal, *Analysis of the Mysterious Element of Quality Control in Trademark Licensing*, 15 J. INTELL. PROP. RTS. 101 (2010); Anand and Anand, *India Grants its First Smell Mark: A Comprehensive Analysis of the Rose Scented Tyre Trademark*, CHAMBERS (Nov. 30, 2025).
[153] Ta-Chang Lin, Guha Krishnaswamy & David S. Chi, *Incense Smoke: Clinical, Structural and Molecular Effects on Airway Disease*, 6 CLINICAL & MOLECULAR ALLERGY 3 (2008); James J. Jetter et al., *Characterization of Emissions from Burning Incense*, 295 SCI. TOTAL ENV'T 51 (2002).
[154] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(2)(b) (India); Hardie Trading Ltd. v. Addisons Paint & Chemicals Ltd., A.I.R. 2003 SC 3377 (India).
[155] Tzu-Ting Yang et al., *Effect of Relative Humidity on Polycyclic Aromatic Hydrocarbon Emissions from Smoldering Incense*, 13 AEROSOL & AIR QUALITY RSCH. 662 (2013); Lin et al., supra note 154.
[156] Ram Mohan & Agarwal, *supra* note 137; Tushnet, *supra* note 146.
[157] WIPO, *supra* note 134; EUIPO, *supra* note 140.
[158] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 9(1)(a)–(c) (India); Qualitex Co. v. Jacobson Prods. Co., 514 U.S. 159 (1995).

present, boundary instability and distinctiveness pressure reinforce each other.[159] The more a scent must be communicated as the product itself, the more it becomes descriptive.

Read this way, the containment result does not repudiate the 2025 order. It continues the order's premise that the Register must communicate clear and precise subject-matter, and that separable signs are the ones that can plausibly function as marks in trade. Where the sign is a controlled add-on, the order's proxy logic can work.[160] Where the sign is an after-use performance output whose identity is combustion-contingent, the same logic supplies the limit.[161]

VIII. "PROPOSED TO BE USED" AS A STRESS POINT

The Trademark Act, 1999 allows an application for a mark that is "used or proposed to be used".[162] For ordinary word or device marks this phrase usually functions as a timing choice, because many marks can be examined for distinctiveness at filing. A coined word or an arbitrary logo is separable from the goods, and the Registry can treat distinctiveness as a quality of the sign as filed, not as a question of consumer training.[163]

Scent marks change that balance because their meaning in trade is rarely readable from the sign alone.[164] A scent becomes a trade mark only if consumers learn to treat it as pointing to one trader rather than as a product quality, a variety cue, or a performance promise.[165] Incense-class claims sit close to product identity.[166] The smell emerges when the goods are consumed, and buyers often recognise it as "that kind of incense" rather than as a badge of origin.[167] In that setting, inherent distinctiveness is structurally doubtful at filing, because the scent is still performing the goods rather than signalling a trader.[168]

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159 Reimer, *supra* note 142; Friedmann, *supra* note 145.
160 Anand and Anand, *supra* note 153; *India Grants its First Smell Mark: Rose-scented Tyres*, SPICY IP (Nov. 2025).
161 Ram Mohan & Agarwal, *supra* note 137; Yang et al., *supra* note 156.
162 The Trade Marks Act, 1999, India Code (2000), vol. 42, § 18(1) (India).
163 Godfrey Phillips India Ltd. v. Girnar Food & Beverages (P) Ltd., (2004) 5 S.C.C. 257 (India).
164 Jane C. Ginsburg, *"See Me, Feel Me, Touch Me, Hear Me" (and Maybe Smell and Taste Me, Too): I am a Trademark—A US Perspective*, in TRADE MARKS AND BRANDS: AN INTERDISCIPLINARY CRITIQUE (Lionel Bently, Jennifer Davis & Jane C. Ginsburg eds., 2008); Ram Mohan & Agarwal, *supra* note 137.
165 LIONEL BENTLY ET AL., INTELLECTUAL PROPERTY LAW (6th ed. 2025); Burgunder, *supra* note 131; Yafei Pan, *Research on the Distinctiveness Examination Criteria of Scent Trademarks*, 2 SCI. L.J. 48 (2023).
166 Apoorva B.N., *Legal Status of Olfactory Marks under the Trademark Law Regime*, 1(2) NLUA J. INTELL. PROP. RTS. 37; *Smell, Sound and Taste – Getting a Sense of Non-Traditional Marks*, WIPO MAG. (Feb. 25, 2009).
167 Cf. Cadila Healthcare Ltd. v. Cadila Pharm. Ltd., (2001) 5 S.C.C. 73 (India).
168 WIPO, *supra* note 128; Faye Hammersley, *The Smell of Success: Trade Dress Protection for Scent Marks*, 2 MARQ. INTELL. PROP. L. REV. 105 (1998).

Once inherent distinctiveness is doubtful, the statute pushes the applicant toward the proviso to Section 9(1), which saves marks that have acquired a distinctive character as a result of use, before the date of application.[169] The proviso is drafted as a proof hinge tied to time. If the applicant cannot show acquisition before filing, the proviso cannot do any work, and the application remains exposed to refusal under the main part of Section 9(1).

This is where "proposed to be used" becomes unstable. A proposed-use filing, by definition, does not assert pre-application use. The Rules and Registry practice makes that difference concrete, because a prior-use claim requires a stated date and supporting documents that can be examined and opposed, while a proposed-use claim does not generate an equivalent evidentiary trail at the threshold.[170] For marks whose distinctiveness depends on market conditioning, that absence is not an administrative inconvenience; it removes the statutory material that allows Section 9's proviso to be applied at all.[171]

Later-stage mechanisms do not solve that gap. Removal for non-use and Section 32 operate after registration and cannot substitute for the proviso's pre-application condition.[172]

The post-2025 opening intensifies the pressure. The November order makes scent marks institutionally thinkable, and it also normalises examination moves on a "proposed to be used" footing where the scent is treated as an arbitrary add-on and distinctiveness is accepted on plausibility.[173] That posture can make sense when the sign is conceptually separable from the goods at filing.[174] It becomes unstable when the sign is the goods' defining sensory performance, because the statute's own structure requires the applicant to rely on the proviso, and the proviso requires proof that proposed use cannot supply.[175]

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[169] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1) (India).
[170] Trade Marks Rules, 2017, Rule 27 (India); The Trade Marks Act, 1999, India Code (2000), vol. 42, § 18(1) (India).
[171] EUIPO, Guidelines for Examination of European Union Trade Marks, Part B: Examination, Section 4, Chapter 14: Article 7(3) EUTMR: Acquired Distinctiveness (Oct. 1, 2017); WIPO, Standing Comm. on the L. of Trademarks, Indus. Designs & Geographical Indications, *Relation of Established Trademark Principles to New Types of Marks*, WIPO DOC. SCT/17/3 (Mar. 30, 2007).
[172] The Trade Marks Act, 1999, India Code (2000), §§ 32, 47 (India).
[173] Trade Marks Registry (New Delhi), Order in TM Application No. 5860303, Class 12 (Nov. 21, 2025) (India); Swaraj Paul Barooah, *The Scent of the Sumitomo Trademark: What is the Celebration About?*, SPICY IP (Nov. 26, 2025); Ayushi Shukla, *India's Trademark Registry Accepts Its First Smell Trademark For Japanese Company's Rose-Scented Tyres*, LIVE LAW (Nov. 21, 2025).
[174] Gangjee, *supra* note 111; Justin Hughes, *Aesthetic Functionality*, *in* THE OXFORD HANDBOOK OF INTERNATIONAL TRADEMARK LAW 252 (Lisa P. Ramsey ed., 2018).
[175] EUIPO, supra note 172; *Order of the Rose: Sets Olfactory Trademark Standards*, BANANA IP (Nov. 27, 2025).

The problem is not that scent marks are difficult, and it is not that examiners should demand impossible precision. The problem is internal coherence. For incense-class scent claims the only plausible route is evidence-heavy and time-bound;[176] and treating "proposed to be used" as doing the same work here that it does for ordinary marks risks flattening the difference between inherent distinctiveness and the proviso's acquired distinctiveness route, which is where Section 9 does its sorting.[177]

IX. A CROSS-JURISDICTIONAL PERSPECTIVE

A. EU/UK: register-notice discipline for non-traditional marks

European trade mark law treats "representation" as a register-notice discipline.[178] The hinge is the decision of the European Court of Justice in *Case C-273/00, Sieckmann v. Deutsches Patent- und Markenamt*.. A smell can be described, sampled, or specified by chemical formula, and still fail because the register cannot tell third parties what monopoly boundary has been claimed. The Court required a representation that lets authorities and the public determine the subject matter of protection with clarity and precision, and it expressed this through the familiar attributes: clear, precise, self-contained, easily accessible, intelligible, durable and objective.[179] The emphasis is institutional: competitors clear the field off the register and disputes later rely on the same entry to anchor what was claimed, so any representation that leaves room for shifting perception defeats the register's function.[180]

Sieckmann's rejection of the offered formats tracks that notice logic.[181] A verbal description breaks at objectivity because different readers map words onto different experiences.[182] A chemical formula identifies a substance, not the odour as perceived, and it is not intelligible to the register's audience.[183] A deposit sample changes over time, so the register would store a moving reference.[184]

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176 *India's First Olfactory Trade Mark*, EU IP HELPDESK (Dec. 10, 2025), https://intellectual-property-helpdesk.ec.europa.eu/news-events/news/indias-first-olfactory-trade-mark-2025-12-10_en; *India's First Smell Mark: A Comprehensive Analysis of the Rose-Scented Tyre Trademark*, CHAMBERS (Nov. 30, 2025).

177 Barton Beebe, *Search and Persuasion in Trademark Law*, 103 MICH. L. REV. 2020 (2005); Wee Loon Ng-Loy, *Trade Marks, Language and Culture: The Concept of Distinctiveness and Publici Juris*, 2009 SING. J. LEGAL STUD. 509.

178 The European Parliament and the Council, Regulation (EU) 2017/1001 (Issued on Jun. 14, 2017); MARTIN SENFTLEBEN, *Signs Eligible for Trademark Protection in the European Union*, *in* THE CAMBRIDGE HANDBOOK OF INTERNATIONAL AND COMPARATIVE TRADEMARK LAW (Irene Calboli & Jane C. Ginsburg eds., 2020).

179 Sieckmann, *supra* note 3.

180 Robert Burrell, *Who Reads the Trade Marks Register?*, 45(2) OXFORD J. LEGAL STUD. 272 (2025); INT'L TRADEMARK ASS'N, MODEL TRADEMARK LAW GUIDELINES pt. 7 (Nov. 1, 2024).

181 Sieckmann, *supra* note 3; Simon Geiregat, *What We Don't Talk about When We Talk about "Clear and Precise": Si(e)ckmann Revisited*, 53(5) IIC – INT'L REV. INTELL. PROP. & COMPETITION L. 628 (2022).

182 Sieckmann, *supra* note 3.

183 Id.

184 Id.

The EU later removed "graphical" without abandoning the logic. The 2017 EU Trade Mark Regulation[185] allows any appropriate form using generally available technology, but keeps the requirement that the register must enable authorities and the public to determine the clear and precise subject matter of protection, carrying forward the *Sieckmann* criteria as the threshold.[186] That is why sound and motion marks benefit from standard file formats while European Union Intellectual Property Office (EUIPO) guidance still treats smell marks as failing clarity and precision.[187] UK law now uses the same formula in section 1 of the Trade Marks Act 1994 (as amended), and United Kingdom Intellectual Property Office (UKIPO) practice treats the *Sieckmann* discipline as controlling.[188]

This vocabulary clarifies what India's 2025 order is attempting when it frames representation as notice while still speaking in "graphical" terms.[189] The hard question is not whether science can map a smell.[190] It is whether the mapping yields a stable, contestable object that competitors can understand and that adjudicators can police.[191] That distinction helps explain why a tyre-applied scent can be fenced as an add-on, while combustion-variable smoke is harder to bound because the perceived sign shifts with burn conditions and space, so the register entry struggles to mark where the monopoly begins and ends.[192]

B. US: sensory feature-monopoly intuition

US trade mark law supplies a separate confirmation about feature monopolies.[193] The Supreme Court treats functionality as a structural safeguard against using trade mark law to control product features that competitors need in order to compete. *Qualitex* accepted that colour can serve as a mark, but insisted that functionality prevents trade mark law from inhibiting competition by allowing control over useful product features.[194] *TrafFix* sharpened the point: where a feature is

[185] Regulation 2017/1001, *supra* note 179..
[186] *Id*, art. 4; The European Parliament and the Council, Council Directive 2015/2436 (Issued on Dec. 16, 2015).
[187] Commission Implementing Regulation (EU) 2018/626, of 5 March 2018, 2018 O.J. (L 104) 37; EUIPO, Guidelines for Examination of European Union Trade Marks, Part B (Examination), Section 4 (Absolute Grounds) (2025); S. Geiregat, *supra* note 182.
[188] Trade Marks Act, 1994, India Code (2000), vol. 42, § 1 (U.K.); UKIPO, TRADE MARKS MANUAL.
[189] Registrar of Trade Marks (India), Order in TM Application No. 5860303, Class 12 (Issued on Nov. 21, 2025); Anand and Anand, *A Scent of Protection: Indian Registrar allows registration of smell mark*, LEXOLOGY (Nov. 27, 2025).
[190] Andreas Keller et al., *Predicting Human Olfactory Perception from Chemical Features of Odor Molecules*, 355(6327) SCIENCE 820 (2017); Risheng Zhong et al., *Bridging Odorants and Olfactory Perception through Machine Learning: A Review*, 153 TRENDS FOOD SCI. & TECH. 104700 (2024).
[191] Regulation (EU) 2017/1001, *supra* note 179, art. 4; WIPO, *supra* note 128.
[192] Registrar of Trade Marks, *supra* note 189; Ram Mohan & Agarwal, *supra* note 137; *Smoke Chemistry*, NCBI BOOKSHELF.
[193] Qualitex Co. v. Jacobson Products Co., 514 U.S. 159; Robert G. Bone, *Trademark Functionality Reexamined*, 7(1) J. LEGAL ANALYSIS 183 (2015).
[194] Qualitex Co v. Jacobson Products Co., 514 U.S. 159.

essential to use or purpose, secondary meaning does not rescue it, because trade mark protection cannot be used to recapture what the patent bargain must leave in the public domain.[195]

United States Patent and Trademark Office ["**USPTO**"] practice for scents tracks the same intuition.[196] Examination guidance treats scents as incapable of inherent distinctiveness, demands substantial proof that the scent is perceived as a source indicator rather than a product attribute, and excludes categories where scent is the product or serves a utilitarian role.[197]

The line, thus, the author argues, is conceptual: trademarks protect source signals, not product experience alone.[198] This does not need to be imported into Indian law as a test. It validates a narrower proposition already reachable internally: when an after-use scent is also an essential characteristic, recognition tends to attach to product identity and performance rather than trade origin, so the claim begins to look like exclusivity over the product's sensory identity.[199] That is the same kind of overreach US law is designed to block, and it supports reading the Indian scheme's "capable of distinguishing" requirement and distinctiveness bar as already carrying a limit against turning product-defining sensory features into marks, reinforced by the Act's own anti-feature posture elsewhere.[200]

X. THE RESULT OF DOCTRINAL CONTAINMENT

A. The rule-statement: the two-axis containment in statutory language

"Capable of distinguishing" in Section 2(1)(zb) assumes more than a sign that can be talked about or vaguely recognised. It assumes a sign that can be held apart from the goods so that origin can be read off it in trade, and so competitors can tell what must be avoided.[201] For after-use essential-characteristic scents, that separability fails at the level of the thing being claimed.[202] The scent is generated only on consumption, and its sensory identity is produced through combustion and

[195] TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23 (2001).
[196] USPTO, Trademark Manual Of Examining Procedure § 1202.13 (Oct. 2018); USPTO, *Non-Traditional Marks* (Dec. 16, 2025).
[197] USPTO, Trademark Manual Of Examining Procedure § 1202.13 (Scent and Fragrance Marks).
[198] William M. Landes & Richard A. Posner, *Trademark Law: An Economic Perspective*, 30(2) J.L. & ECON. 265 (1987); Barton Beebe, *The Semiotic Analysis of Trademark Law*, 51 UCLA L. REV. 621 (2004).
[199] Bethany M. Brill, *Scent Marks: The Next Frontier or a Bridge Too Far?*, 56(1) RICH. L. REV. 1 (2022); Rena L. Churovich, *The Scent of a Mark: Can Olfactory Trademarks Be Registered*, 19(1) CARDOZO ARTS & ENT. L.J. 1 (2001).
[200] TrafFix Devices, Inc. v. Marketing Displays, Inc., 532 U.S. 23; Sandra L. Rierson, *Toward a More Coherent Doctrine of Trademark Genericism and Functionality: Focusing on Fair Competition*, 27 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 691 (2017); Registrar of Trade Marks, *supra* note 189.
[201] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 2(1)(zb) (India); Beebe, *supra* note 198; McKenna, *supra* note 89.
[202] Sieckmann, *supra* note 3; Simon Geiregat, *Trade Mark Protection for Smells, Tastes and Feels*, 13(2) JIPITEC 1 (2022); M.P. Ram Mohan, *The Proustian Predicament in Trademark Law* (IIMA, Working Paper No. 2025-08-01, 2025).

residue rather than through a stable attribute that can be fixed to the goods at the moment of trade. Once the Register is treated as a notice instrument, the subject matter must be capable of being stated with contestable boundaries, because notice without boundary is not notice.[203]

Read with Section 9(1), the result is an internal failure of distinctiveness. Where the scent is experienced as the product's defining performance, consumer "identification" tends to track kind and expected sensory character, not a badge of trade origin.[204] The Act already signals hostility to feature monopolies through Section 9(3): although it is framed for shapes, its design choice is transparent.[205] Registration is not meant to become a backdoor right over what the product must be in order for others to compete.[206] Taken seriously, that posture means Section 2(1)(zb) and Section 9(1) cannot treat an after-use essential-characteristic scent as capable of distinguishing, because the claim collapses into control over product identity, not a separable mark. In the Act's own grammar: where a scent arises only after use and is inseparable from the goods' essential sensory character, it is incapable of distinguishing under Section 2(1)(zb) and must fail under Section 9(1).[207]

B. Residual space preserved and why it survives

This containment does not shut down olfactory marks. It preserves the space where a scent can plausibly operate as an arbitrary identifier because it is ancillary to the goods. The November 2025 tyre order survives on that footing: the scent is framed as a rose-like fragrance applied to a durable good whose ordinary sensory identity is rubber, and distinctiveness is treated as plausible on a "proposed to be used" posture rather than as an essential product attribute.[208]

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[203] *Sieckmann*, 2002 E.C.R. I-11737; David V. Roy & Mohamed Marsoof, *Trademarks, Free Speech, and Fair Competition in a World Without Borders*, 111 TRADEMARK REP. 943 (2021); Peter S. Menell & Michael J. Meurer, *Notice Failure and Notice Externalities*, 5 J. LEGAL ANALYSIS 1 (2013).

[204] Kaviraj Pandit Durga Dutt Sharma v. Navaratna Pharm. Lab'ys, A.I.R. 1965 SC 980 (India); Karima Errajaa et al., *Consumer Reactions to Olfactory Congruence with Brand Image*, 29 J. RETAILING & CONSUMER SERVS. 102 (2020); Marta Grybś-Kabocik, *The Scent Marketing: Consumers Perception*, 9(4) BUS. & MGMT. REV. 483 (2018).

[205] Dev Gangjee, *Non Conventional Trade Marks in India*, 22(1) NAT'L L. SCH. INDIA REV. 67 (2010); *The Shape of Shape Marks in India*, SPICY IP (Nov. 9, 2022); *The Case of Unconventional Trade Marks—Does the Trade Marks Act, 1999 Need Reform?*, SCC ONLINE BLOG (Mar. 18, 2023).

[206] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(3) (India); Robert G. Bone, *Trademark Functionality Reexamined*, 7 J. LEGAL ANALYSIS 183 (2015); C. Farmer, *The Case for Aesthetic Functionality*, 28 BERKELEY TECH. L.J. 777 (1996); Dennis D. Churovich, *Scents, Sense or Cents; Something Stinks in the Lanham Act*, 46 ST. LOUIS U. PUB. L. REV. 293 (2001).

[207] The Trade Marks Act, 1999, India Code (2000), vol. 42, §§ 9(1)(a)–(b) (India).

[208] Controller General, *supra* note 2.

Two categories remain intelligible.[209] Ambient or service scents can still function where the scent marks a service environment or retail experience and is presented in a controlled, repeatable way, so that the sign is not the product's defining performance. Ancillary scents applied to durable goods can also survive where the scent is positioned as added and arbitrary, and where the claim can be bounded with reasonable precision on the Register.[210] What is excluded is narrower: after-use essential-characteristic scents that, by their role and temporality together, slide into product identity and leave no workable boundary for notice or competition.[211]

C. Registration discipline: "proposed to be used" and proof architecture

For incense-class scent claims, inherent distinctiveness is structurally doubtful, so the only plausible route is acquired distinctiveness.[212] The proviso to Section 9 presupposes distinctive character acquired before the date of application as a result of use, so intention cannot do the work that evidence is meant to do.[213] Treating "proposed to be used" as equivalent here collapses Section 9's timing logic, and it quietly converts registration into a wager on future conditioning rather than a record of present distinguishability, which the Act does not contemplate.[214]

XI. CONCLUSION

Incense smoke sits at the hard edge of trade mark form. It arrives only after the sale, through burning, and it is experienced as the goods' performance rather than as a detachable signal. When a scent functions this way, recognition may be strong, yet it points inward to variety, intensity, and expected effect, not outward to trade origin.[215] The mismatch, therefore, we can conclude, is structural:[216] The Act protects signs that can stand apart from the goods, but an after-use essential characteristic pulls the sign back into product identity.

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[209] GEORGE E. BRILL, MAKE SOME SENSE OF SCENT TRADEMARKS: THE UNITED STATES NEEDS A MODERN STANDARD (2022) (unpublished manuscript); WIPO, *New Types of Marks*, SCT/16/2 (Sept. 1, 2006); *Making Scents of Olfactory Marks*, ASIA IP (Nov. 2017).
[210] Controller General, *supra* note 2; Sieckmann, *supra* note 3.
[211] *Sieckmann*, *supra* note 202; Mohan, *supra* note 202; Menell & Meurer, *supra* note 203.
[212] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 9(1), proviso to § 9 (India).
[213] The Trade Marks Act, 1999, India Code (2000), vol. 42, proviso to § 9 (India).
[214] The Trade Marks Act, 1999, India Code (2000), vol. 42, § 18(1) (India); *The Shape of Shape Marks in India*, SPICY IP (Nov. 9, 2022); Imperial Tobacco Co. of India Ltd. v. Registrar of Trade Marks, A.I.R. 1968 Cal 582 (India); *Trademarks: Distinctiveness is an Exception of Rule*, SCC ONLINE BLOG (Aug. 24, 2021); Stacey L. Dogan & Mark A. Lemley, *Grounding Trademark Law Through Trademark Use*, 92 IOWA L. REV. 1669 (2007).
[215] Ellen M. Reimer, A Semiotic Analysis: Developing a New Standard for Scent Marks, 14(3) VAND. J. ENT. & TECH. L. 693 (2012); G.E. Brill, Make Some Sense of Scent Trademarks, 56 U. RICH. L. REV. 19 (2022); Dev Gangjee, Non-Conventional Trade Marks in India, 5(2) NAT'L L. SCH. INDIA REV. 51 (2010).
[216] Mark P. McKenna, *(Dys)Functionality*, 48 HOUS. L. REV. 823 (2011); Justin Hughes, *Cognitive and Aesthetic Functionality in Trademark Law*, 36 CARDOZO L. REV. 1227 (2015); Michael Handler, *Disentangling Functionality, Distinctiveness and Use in Australian Trade Mark Law*, 42(1) MELB. U. L. REV. (advance copy) (2018).

The 21 November 2025 Registry acceptance made olfactory entries thinkable by treating representation as a notice device that must let others read what is claimed and contest it on the register.[217] That same commitment supplies the limit. A combustion-produced trace does not hold still across ordinary conditions of use, so the register entry cannot mark where exclusivity begins and ends, and opposition becomes guesswork rather than a contest over a bounded object.[218]

Space remains where scent is ancillary and can be stated with precision, including applied fragrances on durable goods and controlled ambient scents. But where after-use coincides with essential character, there is too much smell, not enough mark, and the statute's grammar refuses the monopoly.[219]

[217] OFFICE OF THE CONTROLLER GEN. OF PATENTS, DESIGNS AND TRADE MARKS, *Order in Application No. 5860303* (Issued on Nov. 21, 2025), http://images.assettype.com/theleaflet/2025-11-27/g2hg4aog/Order_21_11_2025.pdf; Ayushi Shukla, *India's Trademark Registry Accepts Its First Smell Trademark For Japanese Company's Rose-Scented Tyres*, LIVE LAW (Nov. 21, 2025); Tanishka Goswami, *The Scent of the Sumitomo Trademark: What is the Celebration About?*, SPICY IP (Nov. 26, 2025; *Sieckmann*, *supra* note 202.

[218] Kanako Sekimoto et al., *Fuel-Type Independent Parameterization of Volatile Organic Compound Emissions from Western US Wildfires*, 57(35) ENV'T SCI. & TECH. 13193 (2023); K.I. Fesomade & R.A. Walker, *Prescribed Fire Smoke: A Review of Composition, Measurement Methods, and Analysis*, 8 FIRE 241 (2025); Giulia Brattoli et al., *An Overview of Odour Detection Methods: Olfactometry and Sensor Arrays*, 11 SENSORS 5290 (2011); Simon Geiregat, *Scent Marks in the European Union: A Theory of Distinctiveness*, 53 I.I.C. 1233 (2022).

[219] Annette Kur, *Too Common, Too Splendid, or "Just Right"? Trade Mark Protection for Product Shapes in the Light of CJEU Case Law* (Max Planck Inst. for Innovation & Competition, Research Paper No. 14-17, Dec. 12, 2014); Justin Hughes, *Non-Traditional Trademarks and the Dilemma of Aesthetic Functionality*, in THE PROTECTION OF NON-TRADITIONAL TRADEMARKS: CRITICAL PERSPECTIVES (Irene Calboli & Martin Senftleben eds., 2018); Tim W. Dornis, Colour Marks (Mar. 17, 2021) (unpublished manuscript); Lego Juris A/S v. OHIM, Case C-48/09 P, ECLI:EU:C:2010:516.