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Patent Licensing around the World: A Comparative Legal Analysis

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ABSTRACT

Patent licensing is a key instrument in the global innovation ecosystem, facilitating the transfer and commercialization of technology. As intellectual property becomes central to economic competitiveness, the legal frameworks governing licensing shape access to innovation, particularly in vital sectors like health, communications, agriculture, and renewable energy. This article offers a comparative analysis of patent licensing regimes in the United States, European Union, India, China, Brazil, and Japan, covering both voluntary and compulsory licenses, their legal underpinnings, and interplay with competition law. It also examines the TRIPS Agreement and its flexibilities, such as those under Article 31 and the Doha Declaration. Emerging challenges—including standard-essential patents (SEPs), FRAND obligations, climate change technology, and equitable access to medicines—are assessed. The article concludes by calling for more balanced and globally coherent licensing policies that support innovation while addressing public interest needs.

Keywords: *Patent Licensing, Compulsory Licensing, TRIPS, Intellectual Property, Innovation, Technology Transfer, Competition Law, FRAND, Developing Countries.*

I. INTRODUCTION

Patent licensing plays a critical and multifaceted role in bridging the gap between innovation and commercialization in the global economy. At its core, patent licensing serves as a contractual mechanism through which patent holders (licensors) grant permission to third parties (licensees) to make, use, sell, or distribute patented inventions. This process enables the diffusion of proprietary technologies beyond the boundaries of a single firm or nation, fostering collaborative innovation, stimulating industrial development, and generating revenue streams for inventors and enterprises alike. The strategic use of licensing agreements has become increasingly vital in a knowledge-based economy, where intangible assets such as intellectual property (IP) often surpass physical assets in value. Through licensing, research institutions, universities, and private entities can capitalize on their inventions without the need to manufacture or market products themselves. At the same time, licensees gain access

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to cutting-edge technologies, often reducing the time, cost, and risk associated with independent innovation.

However, the practice and regulation of patent licensing are far from uniform across jurisdictions. Global disparities in legal doctrines, administrative procedures, and enforcement mechanisms introduce substantial complexity into international licensing arrangements. For instance, while some countries maintain liberal, contract-oriented licensing regimes, others impose stricter statutory requirements, compulsory registration, or even government oversight—particularly when public interest is at stake.

These divergences become especially pronounced in critical sectors such as pharmaceuticals, where access to life-saving medicines can be hindered by restrictive licensing practices; telecommunications, where standard-essential patents (SEPs) and FRAND (Fair, Reasonable, and Non-Discriminatory) licensing obligations are frequent sources of litigation; and green technologies, where licensing models can significantly influence global efforts to combat climate change and achieve sustainable development goals.

Moreover, the global framework established under the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) attempts to balance the proprietary rights of patent holders with the developmental needs of nations. Yet, debates persist over the fairness and effectiveness of international licensing norms, particularly concerning compulsory licenses, technology transfer obligations, and the flexibilities available to developing and least-developed countries.

This article explores these complex and evolving dynamics by conducting a comparative analysis of patent licensing regimes in key jurisdictions, including the United States, European Union, India, China, Brazil, and Japan. It evaluates both the voluntary and compulsory licensing frameworks, considers the intersection with competition and antitrust law, and discusses the broader implications of global IP governance on innovation equity. In doing so, the article aims to provide a nuanced understanding of how licensing functions not just as a private commercial tool, but also as a public policy instrument with significant economic, legal, and ethical dimensions.

II. CONCEPT AND TYPES OF PATENT LICENSING

Patent licensing is a legal and commercial mechanism through which the holder of a patent (the licensor) grants authorization to another party (the licensee) to exploit the patented invention under agreed-upon terms and conditions. This authorization can relate to making, using, selling, or importing the patented product or process. Licensing is often a strategic tool

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for companies and institutions to monetize intellectual property without directly entering the manufacturing or distribution market, while simultaneously allowing licensees to leverage proprietary technology to gain a competitive advantage or enter new markets.

The scope and structure of a patent license can vary significantly depending on the nature of the technology, the negotiating power of the parties, the commercial objectives, and the prevailing legal framework in a particular jurisdiction. Licensing agreements typically cover aspects such as royalty payments, exclusivity, territorial reach, field of use, duration, sublicensing rights, and dispute resolution mechanisms.

It may take various forms:

A. **Exclusive License** – grants rights solely to one licensee, even excluding the licensor.

B. **Non-Exclusive License** – allows multiple licensees to use the patent.

C. **Compulsory License** – mandated by governments in specific conditions, typically without the consent of the patent holder.

These licenses may be **territorial**, **time-bound**, or **technology-specific**, depending on the legal framework and contractual negotiation.

A. Exclusive License

An exclusive license transfers the rights to exploit the patent to a single licensee to the exclusion of all others, including the original patent holder. In such arrangements, the licensor agrees not to grant additional licenses to other parties and may also be restricted from using the patent themselves. Exclusive licenses are often used in high-value transactions or strategic partnerships, particularly where the licensee is investing heavily in development, commercialization, or regulatory approval processes. This type of license is particularly common in the pharmaceutical, biotechnology, and defence sectors, where exclusivity serves as an incentive for investment.

In many jurisdictions, including the United States, exclusive licensees may also have stood to sue for patent infringement in their own name if the license confers substantial rights akin to ownership.[3]

B. Non-Exclusive License

A non-exclusive license permits the licensee to use the patent but does not prevent the licensor from granting similar rights to other licensees or from using the patent themselves. This type

[3] *Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A.*, 944 F.2d 870 (Fed. Cir. 1991).

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of license is often used when the technology is to be widely disseminated, such as in standard-compliant technologies or where the licensor wants to maximize royalty revenue through volume rather than exclusivity.

Non-exclusive licenses are commonly used in software, electronics, academic technology transfer, and standardized industries, where interoperability and widespread adoption are priorities. These licenses are generally more flexible, less expensive, and easier to negotiate, but they may offer the licensee less competitive protection in the market.

C. Sole License

A sole license is a hybrid model in which the licensee is granted exclusive rights to the patent, but the licensor retains the right to use the patent themselves. However, the licensor may not grant any further licenses to third parties. This model balances exclusivity with the licensor's continued involvement and is often found in research collaborations or joint ventures.

D. Compulsory License

A compulsory license is a non-voluntary authorization granted by a government or public authority that allows a third party to use a patented invention without the consent of the patent owner. Compulsory licenses are typically issued under specific conditions, such as national emergencies, public health crises, or when the patented invention is not being adequately worked or made available at reasonable prices within the territory.

These licenses are explicitly permitted under Article 31 of the TRIPS Agreement, and their use has been most prominent in the pharmaceutical sector—especially in developing countries—where they serve as instruments to enhance access to essential medicines. While controversial from the perspective of patent holders, compulsory licensing is viewed by many as a legitimate policy tool to address market failures and promote the public interest.[4]

E. Cross-Licensing and Patent Pools

Modern patent licensing also involves cross-licensing agreements, where two or more parties license patents to each other, often to settle infringement disputes or to ensure freedom to operate in overlapping technological domains. These agreements are common in industries with dense patent landscapes, such as consumer electronics and telecommunications.

Additionally, patent pools—consortia of companies that aggregate and license patents related to a particular technology—have become increasingly important in areas involving complex standards (e.g., 5G, MPEG, Wi-Fi). Pools help reduce transaction costs, prevent litigation, and

[4] Agreement on Trade-Related Aspects of Intellectual Property Rights art. 31, Apr. 15, 1994, 1869 U.N.T.S. 299

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enable faster market adoption by offering "one-stop" access to multiple patent rights.

F. Territorial and Field-of-use Restrictions

Licensing agreements may be limited by territory, meaning that the rights granted are confined to specific geographic regions. Alternatively, licenses may be restricted by field of use, which defines the industries or applications in which the licensee is permitted to use the patent (e.g., a drug formulation licensed for human treatment but not for veterinary use). These restrictions enable licensors to segment markets, control distribution channels, and extract greater value from their IP assets.

G. Term and Renewal

Patent licenses can be time-bound, typically aligning with the remaining term of the patent (20 years from the filing date), or they may include provisions for early termination, renewal, or renegotiation. Parties must also ensure that license terms comply with national patent laws and international obligations, including anti-trust and competition law provisions.

III. JURISDICTIONAL APPROACHES TO PATENT LICENSING

- **United States**

The United States adopts a highly market-driven and contract-based approach to patent licensing, underpinned by the Patent Act of 1952, codified in Title 35 of the United States Code (U.S.C.). While the Act governs the substantive rights conferred by patents, the actual licensing of patents is governed primarily by state contract law, offering significant commercial flexibility to parties in structuring their agreements. This dual legal regime enables licensors and licensees to negotiate terms such as exclusivity, royalties, sublicensing, field-of-use restrictions, and dispute resolution with a high degree of autonomy, subject to public policy and federal oversight in certain cases.

Nature and Enforcement of Licenses

Patent licenses in the U.S. can be either exclusive or non-exclusive and may be recorded with the U.S. Patent and Trademark Office (USPTO) under 35 U.S.C. § 261, although such recordation is not mandatory for validity between the contracting parties. However, failure to record a license may affect enforceability against third parties. U.S. courts recognize both bare licenses (granting permission to use without transferring an interest in the patent) and assignments, where substantial rights in the patent are transferred. An exclusive license that conveys "all substantial rights" may give the licensee standing to sue for infringement in their

own name.[5]

Antitrust Oversight and Competition Law

While the U.S. legal system generally supports robust enforcement of patent rights, it places significant checks on anti-competitive conduct through federal antitrust laws, primarily the Sherman Act (15 U.S.C. §§ 1–7) and the Clayton Act (15 U.S.C. §§ 12–27). These laws prohibit licensing practices that may restrain trade, create monopolies, or result in unreasonable market foreclosure.

Commonly scrutinized practices include:

- **Tying arrangements**, where a licensor requires licensees to buy unrelated products or services;
- **Exclusive dealing**, where access to a patent is conditioned on refusal to deal with competitors;
- **Refusals to license**, especially in the context of standard-essential patents (SEPs);
- **Patent pooling** or cross-licensing arrangements that limit competition among participants.

A notable case exemplifying the intersection of patent law and antitrust policy is **FTC v. Qualcomm Inc.**, where the Federal Trade Commission alleged that Qualcomm's licensing practices involving SEPs constituted anticompetitive behavior. Specifically, Qualcomm was accused of refusing to license SEPs to competitors and charging excessive royalties, thereby violating its FRAND (Fair, Reasonable, and Non-Discriminatory) obligations. Although the district court ruled in favour of the FTC, the Ninth Circuit reversed the decision in 2020, finding that Qualcomm's practices, while aggressive, did not constitute antitrust violations under the Sherman Act.[6]The case underscores the U.S. courts' tendency to distinguish between aggressive IP licensing and conduct that crosses into anticompetitive territory.

SEP Licensing and FRAND Commitments

Standard-essential patents (SEPs) are patents that are indispensable to implementing a technical standard—such as 4G LTE or Wi-Fi. U.S. courts have increasingly addressed issues concerning SEP licensing and the enforceability of FRAND commitments made to standard-setting organizations (SSOs). While there are no federal statutes codifying FRAND obligations, courts interpret them through the lens of contract law and antitrust principles.

[5] *Vaupel Textilmaschinen KG v. Meccanica Euro Italia S.P.A.*, 944 F.2d 870 (Fed. Cir. 1991).
[6] *FTC v. Qualcomm Inc.*, 969 F.3d 974 (9th Cir. 2020).

In **Microsoft Corp. v. Motorola, Inc.**, the court held that a breach of FRAND commitments constituted a breach of contract, providing remedies to licensees beyond the scope of traditional patent law.[7]The decision emphasized the importance of good faith negotiations and proportionality in royalty demands, especially where public reliance on open standards is high.

Government Use and Compulsory Licensing

While the United States does not have a general statutory regime for compulsory licensing in the same way as some other countries, 35 U.S.C. § 1498 effectively acts as a limited form of compulsory license. Under this provision, the federal government or its contractors may use patented inventions without the consent of the patent holder, provided that "reasonable and entire compensation" is paid. This clause is particularly relevant in national security and public health contexts, such as procurement of pharmaceuticals or military technologies during emergencies.[8]

Moreover, proposals to expand the use of § 1498 in public health crises—such as during the COVID-19 pandemic—have generated renewed interest in this mechanism as a tool to balance innovation incentives with access to essential technologies.

- **EUROPEAN UNION**

The European Union (EU) offers a hybrid legal framework for patent licensing, integrating national patent systems with harmonized regulations and competition law at the supranational level. While patents are granted and enforced primarily under the laws of individual Member States or through the European Patent Convention (EPC) via the European Patent Office (EPO), EU institutions influence licensing practices through competition policy, internal market principles, and judicial rulings from the Court of Justice of the European Union (CJEU). The creation of the Unified Patent Court (UPC) and the unitary patent system further enhances legal consistency across participating Member States.

Legal Basis and Licensing Flexibility

Patent licensing in the EU is generally treated as a private contractual matter. Under Article 31 of the TRIPS Agreement, to which the EU and all its Member States are parties, licensing—whether voluntary or compulsory—must respect certain international legal standards. Licensing terms can include exclusivity, territory, field of use, and royalty arrangements, and

[7] *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015).
[8] *Leesona Corp. v. United States*, 599 F.2d 958 (Ct. Cl. 1979) (discussing the scope of § 1498 as a form of governmental compulsory licensing).

most national laws reflect the freedom of contract principle.

Licensing of patents granted by the EPO under the EPC is governed by Article 73 EPC, which permits license agreements but leaves the regulation of such agreements to national laws unless otherwise specified. The unitary patent, introduced by Regulation (EU) No 1257/2012, also allows licensing, with Article 8 providing that the unitary effect of a European patent does not preclude the possibility of licensing on a territory-by-territory basis.

Compulsory Licensing in the EU

Although the EU as a whole does not have a centralized compulsory licensing regime, individual Member States retain the power to issue compulsory licenses under their national patent laws, particularly for reasons of public health, national security, or non-use of the patent. For example:

- In Germany, compulsory licenses may be granted under Section 24 of the Patentgesetz (Patent Act);
- In France, Articles L613-16 to L613-20 of the Code de la Propriété Intellectuelle allow compulsory licenses for public interest and lack of work;
- In Belgium, a license may be issued under similar terms, including government use and refusal to license on reasonable terms.

These national provisions must conform to TRIPS standards and Directive 2004/48/EC on the enforcement of intellectual property rights.

A key case on this topic is the **Merck v. Primecrown** litigation, which underscored that compulsory licenses granted by one Member State do not automatically extend to the territory of another, reinforcing the territoriality of patent rights within the EU.[9]

EU Competition Law and Patent Licensing

The EU takes a more proactive approach than the U.S. in policing the interface between patent licensing and competition law. Articles 101 and 102 of the Treaty on the Functioning of the European Union (TFEU) prohibit anti-competitive agreements and abuse of dominant position, respectively.

- **Article 101 TFEU** is relevant where licensing agreements include clauses that restrict competition (e.g., price fixing, market partitioning, or output restrictions).

[9] *Merck & Co. Inc. v. Primecrown Ltd.*, C-267/95, [1996] E.C.R. I-6285 (CJEU).

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- **Article 102 TFEU** is invoked when a dominant firm uses its IP rights to exclude competitors or exploit consumers unfairly.

To guide lawful licensing practices, the European Commission adopted the Technology Transfer Block Exemption Regulation (TTBER) (Regulation (EU) No 316/2014) and its accompanying Guidelines, which create a "safe harbor" for certain licensing agreements. The TTBER provides that licensing agreements that meet specific criteria—such as not exceeding certain market share thresholds—are presumed compatible with Article 101 TFEU.[10]

A pivotal competition case in this context is **Huawei Technologies Co. Ltd. v. ZTE Corp.**, where the CJEU ruled that the holder of a standard-essential patent (SEP) subject to a FRAND obligation must, before seeking an injunction, make a specific and concrete licensing offer.[11] This decision introduced a structured framework for SEP negotiations, aiming to balance the enforcement of IP rights with fair access to standardized technologies.

SEP Licensing and Unitary Patent

The role of standard-essential patents and FRAND licensing has become increasingly important in the EU, particularly in sectors like telecommunications, the Internet of Things (IoT), and automotive technologies. The EU SEP Licensing Framework, proposed by the European Commission, aims to create more transparency in FRAND terms, improve access to essential technologies, and reduce litigation.[12]

The advent of the unitary patent and Unified Patent Court is expected to enhance cross-border enforcement of licensing agreements and allow patentees to license and enforce their rights across participating Member States through a single instrument. However, the new system still preserves the freedom to grant licenses that are territorially limited within the EU.

- **INDIA**

India represents a compelling jurisdiction in the global patent licensing discourse due to its unique position as a developing country with a large pharmaceutical manufacturing base, a strong public health orientation, and increasing engagement with international IP standards. The Indian legal framework for patent licensing is codified primarily under the Patents Act, 1970, as amended by the Patents (Amendment) Act, 2005, which brought the country into full compliance with the TRIPS Agreement.

[10] Commission Regulation (EU) No 316/2014 of 21 March 2014 on the application of Article 101(3) of the Treaty on the Functioning of the European Union to categories of technology transfer agreements, 2014 O.J. (L 93) 17.
[11] *Huawei Technologies Co. Ltd. v. ZTE Corp.*, Case C-170/13, ECLI:EU:C:2015:477.
[12] European Commission, "Proposal for a Regulation of the European Parliament and of the Council on Standard Essential Patents," COM (2023) 232 final (27 April 2023).

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Legal Framework for Patent Licensing

The Patents Act enables both voluntary and compulsory licensing of patents. Voluntary licenses are governed by contract law principles and must be executed in writing. The Act does not impose rigid formalities for voluntary licensing, but to be enforceable against third parties or for official recognition, such agreements must be registered under Section 68 of the Patents Act with the Controller General of Patents, Designs & Trademarks.

Licensees may be granted:

- **Exclusive or non-exclusive rights**;
- **Territorial rights** (limited to Indian jurisdiction or a part thereof);
- **Field-of-use restrictions** (e.g., for research, public sector distribution, etc.).

In practice, voluntary licensing in India is increasingly used by multinational pharmaceutical companies to distribute medicines via Indian generic manufacturers under tiered pricing models.

Compulsory Licensing Regime

India is one of the few countries that have actively implemented compulsory licensing as a tool to ensure affordable access to medicines. The legal foundation for this mechanism lies in Sections 84–92A of the Patents Act.

Under Section 84, any person may apply for a compulsory license after three years from the date of the grant of a patent, on the following grounds:

- That the reasonable requirements of the public have not been satisfied;
- That the patented invention is not available at a reasonably affordable price;
- That the invention is not worked in the territory of India.

In 2012, India issued its first compulsory license in the landmark case of **Natco Pharma Ltd. v. Bayer Corp.**, involving Bayer's patented anti-cancer drug *Nexavar (sorafenib tosylate)*. The Controller General of Patents granted Natco a license to manufacture and sell the drug at a fraction of Bayer's price, citing all three grounds under Section 84.[13] The Intellectual Property Appellate Board (IPAB) and subsequently the Bombay High Court upheld the license, emphasizing the patent system's obligation to balance private rights with public

[13] *Natco Pharma Ltd. v. Bayer Corp.*, Compulsory License Application No. 1 of 2011, Order dated March 9, 2012, Controller General of Patents, Mumbai.

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interest.[14]

India also permits compulsory licenses for export purposes under Section 92A, in compliance with the WTO's Doha Declaration on TRIPS and Public Health, allowing production and export of patented pharmaceuticals to countries lacking manufacturing capacity.

Competition Law Interface

India's Competition Act, 2002 empowers the Competition Commission of India (CCI) to examine abuse of dominance under Section 4, including the abuse of IP rights. In **F. Hoffmann-La Roche Ltd. v. CCI**, the Delhi High Court held that the exercise of patent rights may be reviewed by the CCI if it amounts to anti-competitive behavior.[15] The Commission has also investigated the licensing practices of Ericsson and Monsanto for their alleged discriminatory royalty schemes and unfair refusal to license patents essential to mobile and agricultural technologies.

The CCI's activism signals a broader commitment to preventing patent-based market foreclosure, especially in sectors like pharmaceuticals, Agri-biotech, and telecommunications.

Public Policy and Access Considerations

Indian courts and regulatory bodies have consistently stressed the public interest dimension of patent law. In **Novartis AG v. Union of India**, the Supreme Court of India rejected Novartis' patent application for the cancer drug *Glivec* on grounds of lack of enhanced efficacy under Section 3(d), reinforcing the patentability bar for evergreening and trivial modifications.[16] While not directly a licensing case, this judgment reinforced India's pro-access stance in IP jurisprudence.

The Indian patent regime reflects a calibrated approach that:

- Upholds the principle of working the patent in India;
- Encourages technology transfer and local production;
- Leverages TRIPS flexibilities to balance innovation with societal needs.

This framework has made India a focal point for international debates on patent reform, access to medicines, and equitable licensing.

- **CHINA**

China has emerged as a global leader in patent filings and technology commercialization,

[14] *Bayer Corp. v. Union of India*, 2014 SCC Online Bom 56 (Bombay High Court).
[15] *F. Hoffmann-La Roche Ltd. v. CCI*, 2014 SCC Online Del 6754.
[16] *Novartis AG v. Union of India*, (2013) 6 SCC 1.

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underpinned by a strategic national policy to become an innovation-driven economy. The country's legal regime for patent licensing is governed primarily by the Patent Law of the People's Republic of China (as amended in 2020) and is implemented by the China National Intellectual Property Administration (CNIPA). Licensing practices in China are influenced by strong state oversight, evolving judicial practice, and a growing alignment with international norms, particularly under the TRIPS Agreement.

Legal Framework for Patent Licensing

Patent licensing in China is classified into contractual (voluntary) licensing and statutory (compulsory) licensing. Under Articles 65–69 of the Patent Law (2020 amendment), a patent holder may license their patent to another party through a written agreement that must be recorded with the CNIPA to be legally effective against third parties.[17] Chinese law recognizes:

- **Exclusive licenses**, which transfer rights solely to one licensee;
- **Sole licenses**, where both the licensor and licensee can exploit the patent;
- **Non-exclusive licenses**, which allow multiple licensees;
- **Open licenses**, which enable any party to use the patent upon registration of intent and payment of royalty.

Open licensing was formally introduced in the 2020 amendment, allowing patent holders to declare willingness to license their inventions to the public on fair terms—a measure aimed at encouraging widespread dissemination of innovation.[18]

In practice, Chinese licensing contracts must comply with the Contract Law of the PRC (now subsumed under the Civil Code) and may also be subject to sectoral regulation, particularly in defence, information technology, and pharmaceuticals.

Compulsory Licensing Regime

China allows for compulsory licensing of patents under limited circumstances. As per Articles 48–50 of the Patent Law, compulsory licenses may be granted if:

- The patent holder fails to exploit the patent within three years of grant or four years of filing (non-working);

[17] Patent Law of the People's Republic of China (2020), Arts. 65–69
[18] Art. 50 (Open Licensing Declaration)

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- Public interest, including public health emergencies, demands the supply of the patented product;
- Export is necessary for meeting the public health needs of other countries (in compliance with TRIPS Article 31bis).

While China has never issued a compulsory license, it has preserved the regime as a tool of last resort. The inclusion of public health as a ground for compulsory licensing in the 2008 amendment was largely in response to international concerns and aligned with the Doha Declaration on TRIPS and Public Health.[19]

Recent regulations—like the 2021 Administrative Measures for Drug Patent Compulsory Licensing—have signaled readiness to invoke compulsory licensing in response to future health emergencies, as seen during the COVID-19 pandemic.[20]

Standard-Essential Patents (SEPS) and FRAND Licensing

China is one of the most active jurisdictions in standard-essential patent (SEP) litigation, particularly involving global telecom companies. Chinese courts have increasingly asserted global jurisdiction over FRAND (Fair, Reasonable, and Non-Discriminatory) royalty determinations, a move that has drawn international attention.

A landmark case was **Huawei v. Interdigital**, where the Shenzhen Intermediate People's Court ruled that Interdigital SEP licensing offer violated FRAND obligations by demanding excessively high royalties and coercive terms.[21] The court granted Huawei damages and ordered the renegotiation of the license on FRAND terms.

In **Huawei v. Conversant** and **Xiaomi v. Sisvel**, Chinese courts have taken a global royalty-setting approach, prompting jurisdictional clashes with courts in the UK, Germany, and India.[22] The Supreme People's Court (SPC) has reinforced this position, establishing the Chinese judiciary as a venue of growing importance in global SEP licensing disputes.

To guide SEP licensing, the State Administration for Market Regulation (SAMR) issued Antitrust Guidelines for the Platform Economy and IP Guidelines (2020), recognizing that SEP holders must license on FRAND terms and may face abuse-of-dominance claims under the Anti-Monopoly Law (AML).

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[19] WTO, Ministerial Declaration on the TRIPS Agreement and Public Health, WT/MIN (01)/DEC/2 (Nov. 14, 2001).
[20] CNIPA, "Administrative Measures for Drug Patent Compulsory Licensing" (2021), available at: http://www.cnipa.gov.cn
[21] *Huawei Technologies Co. Ltd. v. Interdigital Inc.*, Shenzhen Intermediate People's Court, Civil Judgment (2013).
[22] *Huawei v. Conversant*, Supreme People's Court, 2020 SPC Civil Final Judgment No. 732.

Competition Law and Abuse of Patent Rights

China's Anti-Monopoly Law, enforced by SAMR, applies to the exercise of IP rights. The AML recognizes that IP rights do not exempt undertakings from anti-monopoly scrutiny. Abuse may occur through:

- Unreasonable refusals to license;
- Tying or bundling of non-essential patents;
- Imposing discriminatory or exploitative royalty terms.

In Qualcomm (NDRC Decision, 2015), the National Development and Reform Commission fined Qualcomm ¥6.1 billion (~USD 975 million) for abusing its dominant position by charging unreasonably high royalties and bundling licenses.[23] This case remains the largest antitrust penalty in Chinese history and illustrates the close monitoring of licensing practices.

Policy Trends and Strategic Use

China's Made in China 2025 strategy and 14th Five-Year Plan place a premium on domestic innovation and self-reliance in high-tech sectors. As such, patent licensing—particularly technology transfer from foreign entities—is a strategic area of regulation. Technology import contracts must not contain restrictive clauses (e.g., prohibitions on reverse engineering), as per the now-revised Technology Import and Export Regulations (TIER).

These policy shifts, along with improvements in judicial enforcement (e.g., IP courts in Beijing, Shanghai, and Guangzhou, and the SPC IP Tribunal), have made China more predictable, although still interventionist in favour of domestic priorities.

- **BRAZIL**

Brazil represents a significant case study in patent licensing due to its dual commitment to public health and innovation, its dynamic pharmaceutical sector, and its constitutional emphasis on the social function of intellectual property. Governed primarily by the Industrial Property Law (Law No. 9.279/1996), Brazil's patent licensing regime incorporates both voluntary and compulsory elements, with strong regulatory oversight and judicial intervention shaped by constitutional values.

Legal Framework for Patent Licensing

Patent licensing in Brazil is regulated by the National Institute of Industrial Property (INPI) under Articles 61–69 of the Industrial Property Law (IPL). The law permits:

[23] NDRC Decision on Qualcomm, Case No. 2013-118 (Feb. 2015), available at: http://www.ndrc.gov.cn

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- **Voluntary (contractual) licensing**, which must be registered with the INPI to be enforceable against third parties and for tax deductibility;
- **Exclusive and non-exclusive licenses**, defined by contract;
- **Franchise and technology transfer agreements**, which often accompany patent licenses in the biotechnology and agribusiness sectors.[24]

The INPI plays a supervisory role in licensing agreements, particularly regarding transfer pricing, remittance of royalties abroad, and local working of patents. Unlike some common law jurisdictions, registration is mandatory in Brazil for any legal effect vis-à-vis third parties or tax authorities.[25]

Compulsory Licensing Regime

Brazil's compulsory licensing provisions are found in Articles 68–74 of the IPL, with implementation power vested in the Ministry of Health, Ministry of Economy, and INPI. A compulsory license may be granted if:

- The patented invention is not worked in the Brazilian territory (non-working);
- Commercial exploitation does not meet local demand;
- There is an abuse of patent rights or economic power;
- There is a national emergency or public interest, as declared by the federal government.[26]

The most notable exercise of this mechanism occurred in 2007, when Brazil issued a compulsory license for efavirenz, an antiretroviral medication patented by Merck & Co. The government invoked Article 71 on public interest grounds after price negotiations failed.[27] The license was issued to a state-owned generic manufacturer, marking Brazil's assertion of TRIPS flexibilities in the face of public health crises.

This move followed Brazil's longstanding use of price pressure strategies—threatening compulsory licenses to obtain discounts—leading to considerable cost savings for the public health system. While controversial internationally, this practice has been lauded for improving access to HIV/AIDS treatment and strengthening domestic pharmaceutical capacity.[28]

[24] Lei da Propriedade Industrial (Law No. 9.279/1996), Arts. 61–69
[25] INPI, Resolution No. 199/2017 (on Technology Transfer Agreements).
[26] Arts. 68–74.
[27] Ministério da Saúde, Portaria No. 886/GM, 04 de maio de 2007 (Efavirenz Compulsory License Declaration)
[28] Carlos Correa, *Public Health and Patent Policies in Brazil*, WHO/UNCTAD Working Paper, 2010.

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Judicial Enforcement and Constitutional Context

Brazil's Federal Constitution embeds the principle of the social function of property under Article 5, XXIII, which courts have interpreted to include patents.[29]As such, patent rights are not absolute and must align with collective welfare. In ADPF 567/DF, the Supreme Federal Court (STF) emphasized this balance by upholding public interest limitations on IP.

Moreover, the Supreme Court, in ADI 5529/DF (2021), declared unconstitutional a key provision (sole paragraph of Article 40 of the IPL) that had extended patent terms beyond the standard 20 years when INPI delayed examination.[30] The decision prioritized public interest and legal certainty over extended monopoly periods, with implications for licensing timelines and negotiation leverage.

Antitrust and Regulatory Oversight

Brazil's Administrative Council for Economic Defence (CADE) enforces competition law under Law No. 12.529/2011 and has investigated abusive licensing practices. In the Eli Lilly case, CADE examined whether licensing restrictions imposed by the patent holder constituted exclusionary behaviour under Article 10 of the Competition Law.[31]

CADE also reviews mergers and acquisitions that involve technology transfer or IP licensing, particularly in sectors such as agrochemicals, telecommunications, and health.

The interface between competition law and IP is guided by CADE's IP Guidelines (2016), which emphasize that exclusive licensing, territorial restrictions, or field-of-use limitations may raise concerns if they unduly restrict market access or innovation.

Policy and Global Influence

Brazil's stance on patent licensing is also visible in international fora. It has been a vocal proponent of TRIPS flexibilities, public health safeguards, and technology transfer mechanisms. During the COVID-19 pandemic, Brazil supported the TRIPS waiver proposal at the WTO and debated domestic compulsory licensing options for vaccine technologies.

Legislative proposals such as PL 12/2021 aimed to simplify and expand compulsory licensing during health emergencies, signalling a long-term policy shift toward more proactive IP governance.

[29] Constituição Federal do Brasil (1988), Art. 5, XXIII.
[30] STF, Ação Direta de Inconstitucionalidade (ADI) No. 5529/DF, Judgment of May 2021.
[31] CADE, Processo Administrativo No. 08012.010483/2007-90 (Eli Lilly), available at: http://www.cade.gov.br

- **JAPAN**

Japan's patent licensing system is characterized by a well-developed legal framework, a strong judicial tradition, and an emphasis on promoting both innovation and industrial competitiveness. The country's approach blends contractual freedom with regulatory oversight, reflecting its status as a global technology leader with a complex industrial ecosystem.

Legal Framework for Patent Licensing

The principal statute governing patents and licensing in Japan is the Patent Act (Act No. 121 of 1959, as amended). Licensing is treated primarily as a contract regulated under the Civil Code and the Patent Act's provisions on patent exploitation rights. Patent licensing agreements are generally voluntary and must be in writing to be enforceable.

Japan recognizes multiple types of licenses:

- **Exclusive licenses**, granting the licensee exclusive exploitation rights;
- **Non-exclusive licenses**, allowing multiple licensees;
- **Sublicenses**, which can be granted subject to the licensor's consent.

Under Article 85 of the Patent Act, license agreements can be registered with the Japan Patent Office (JPO). Registration provides public notice and protection against third-party interference but is not mandatory for contractual validity.[32]

Compulsory Licensing and Government Intervention

Japan's compulsory licensing provisions, found in Articles 93–94 of the Patent Act, allow for government intervention in limited cases such as:

- Non-working of patents within Japan for three years post-grant;
- National emergencies or public interest;
- Public health crises.

Historically, Japan has been cautious in exercising compulsory licensing, favouring negotiated solutions over coercive measures. During the 1990s, compulsory licenses were rarely granted, but recent legislative amendments, including the 2019 revision of the Patent Act, have slightly expanded the scope of public interest grounds.[33]

[32] Patent Act of Japan, Arts. 85–86
[33] Ministry of Economy, Trade and Industry (METI), *Report on the Revision of the Patent Act* (2019).

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Competition Law and Patent Licensing

Japan's Antimonopoly Act (AMA), enforced by the Japan Fair Trade Commission (JFTC), plays a significant role in regulating patent licensing, particularly with regard to anti-competitive practices.

The JFTC has issued detailed Guidelines on the Handling of Intellectual Property under the AMA, which caution against:

- Excessive royalty demands;
- Tying and bundling clauses;
- Refusal to license essential patents;
- Exclusive dealing that limits market competition.

Notably, in the Microsoft licensing case (2005), the JFTC investigated Microsoft for alleged abuse of dominant position through restrictive licensing practices that impeded interoperability and competition.[34] The case resulted in commitments to modify licensing terms, reflecting JFTC's active role in maintaining competitive patent licensing markets.

Judicial Enforcement and Case Law

Japan's judiciary has contributed to clarifying licensing disputes, particularly in patent infringement and contractual enforcement. The courts generally uphold freedom of contract but will scrutinize licenses that conflict with public policy or antitrust law.

In **Canon Kabushiki Kaisha v. Shinko Seiki Co., Ltd. (2000)**, the Tokyo District Court ruled against an exclusive license clause that effectively suppressed competition, underscoring judicial willingness to balance patent rights and market fairness.[35]

The Intellectual Property High Court, established in 2005, has enhanced expertise in patent licensing disputes, providing specialized rulings that promote legal certainty and harmonization with international norms.

Industry Practices and Technology Transfer

Japan's robust technology transfer system, supported by university-industry collaboration and government programs such as the Japan Science and Technology Agency (JST), relies heavily on patent licensing.

Sector-specific licensing is prevalent in the automotive, electronics, and pharmaceuticals

[34] Japan Fair Trade Commission, *Microsoft Licensing Case*, Case No. 2005 (Kyoto), 2005.
[35] *Canon Kabushiki Kaisha v. Shinko Seiki Co., Ltd.*, Tokyo District Court, Judgment (2000).

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industries, where cross-licensing and patent pools facilitate innovation and reduce litigation risks. For instance, the Automotive Standard-Setting Initiative promotes FRAND licensing for SEPs in vehicle telematics and autonomous driving technologies.

Japanese corporations often adopt balanced royalty schemes and technology sharing agreements, reflecting a collaborative culture supported by government incentives.[36]

IV. THE TRIPS FRAMEWORK AND GLOBAL STANDARDS

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), administered by the World Trade Organization (WTO), establishes a comprehensive global framework that harmonizes intellectual property protection standards, including patents and their licensing, across member states. Since its enforcement in 1995, TRIPS has aimed to balance the interests of patent holders with broader public policy objectives, fostering innovation while ensuring access to technology and essential medicines.

At the core of TRIPS' patent provisions is Article 31, which governs the use of patented inventions without the consent of the patent holder, commonly referred to as compulsory licensing. This article allows WTO members to authorize third parties to exploit a patented invention under specific conditions designed to protect the legitimate interests of patent owners while enabling states to address pressing public needs. These conditions include prior efforts to obtain voluntary licenses on reasonable terms, except in cases of national emergency or other circumstances of extreme urgency. Moreover, any compulsory license must provide the patent holder with adequate remuneration, taking into account the economic value of the authorization.[37]

The flexibility afforded by Article 31 is fundamental for countries facing public health challenges or technological dependence. However, its application is constrained by requirements such as limiting the scope and duration of the license to the purpose for which it was authorized, and predominantly authorizing use for the domestic market, which raised concerns for countries with limited manufacturing capacities.

Recognizing these challenges, the WTO adopted the Doha Declaration on the TRIPS Agreement and Public Health in 2001. This pivotal declaration reaffirmed that the TRIPS Agreement should be interpreted and implemented in a manner supportive of members' right to protect public health and promote access to medicines for all. The Doha Declaration

[36] Japan Science and Technology Agency (JST), *Annual Report on Technology Transfer* (2021).
[37] Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, arts. 31, 33 I.L.M. 1197 (1994).

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explicitly acknowledged the right of WTO members to issue compulsory licenses and determine the grounds upon which such licenses are granted, including in circumstances of national emergencies or other public interest situations.[38]

Furthermore, the Doha Declaration encouraged WTO members to adopt measures facilitating access to affordable medicines, especially in developing and least-developed countries. This led to the subsequent adoption of the TRIPS Waiver Decision (2003), allowing countries with insufficient or no manufacturing capacity to import generic medicines produced under compulsory licensing elsewhere, effectively easing the "predominantly domestic use" restriction of Article 31(f). This amendment, embodied in Article 31bis, represents a landmark development in the global IP regime, enhancing the capacity of poorer countries to respond to health crises.[39]

Beyond public health, TRIPS sets baseline standards for patent licensing practices globally. It requires transparency in licensing agreements and prohibits discriminatory treatment among licensees, laying the groundwork for fair and non-arbitrary licensing terms. However, the Agreement leaves substantial discretion to individual countries to tailor their patent licensing rules in alignment with national policies and development goals.

In recent years, debates around the adequacy of the TRIPS framework have intensified, particularly concerning access to COVID-19 vaccines and digital technologies. Proposals for temporary TRIPS waivers during the pandemic illustrate ongoing tensions between protecting patent rights and addressing urgent global needs. These discussions highlight the evolving nature of international patent licensing standards and the need for continuous dialogue balancing innovation incentives and equitable technology dissemination.

V. CONTEMPORARY CHALLENGES AND EMERGING ISSUES IN PATENT LICENSING

Patent licensing, while a powerful tool for fostering innovation and technology dissemination, faces several contemporary challenges that complicate its effectiveness across jurisdictions. These challenges span legal, economic, and technological dimensions and are particularly acute in sectors such as pharmaceuticals, digital technology, and climate change mitigation.

- **Access To Medicines and Public Health Concerns**

Despite the flexibilities offered under the TRIPS Agreement, many developing countries continue to struggle with balancing patent protection and affordable access to essential

[38] WTO, Ministerial Declaration on the TRIPS Agreement and Public Health, WT/MIN (01)/DEC/2 (Nov. 14, 2001).
[39] WTO, Amendment of the TRIPS Agreement, Decision of 6 December 2005, WT/L/641.

medicines. The cost of patented pharmaceuticals often places them beyond the reach of vulnerable populations, leading to debates over the use of compulsory licensing and parallel importation.[40]The COVID-19 pandemic further exposed limitations in the global patent licensing regime, with vaccine nationalism and restricted technology transfer hindering equitable distribution.

The ongoing discussion around a temporary TRIPS waiver for COVID-19 vaccines illustrates the tension between incentivizing innovation and safeguarding public health.[41]

Standard-Essential Patents and FRAND Licensing

In the digital era, standard-essential patents (SEPs) have become critical in telecommunications, software, and consumer electronics. Licensing SEPs on Fair, Reasonable, and Non-Discriminatory (FRAND) terms is meant to ensure broad access to standardized technologies while respecting patent holders' rights. However, disputes over what constitutes "fair" and "reasonable" have led to high-profile litigation globally, including in the United States, Europe, and Asia.[42] Regulatory bodies are increasingly scrutinizing SEP licensing practices to prevent anti-competitive behaviour, refusal to license, or "patent hold-up." This area remains a dynamic intersection of patent and competition law.

Technological Complexity and Cross-Licensing

Modern innovations frequently involve multiple overlapping patents held by various entities, complicating licensing negotiations. Cross-licensing agreements and patent pools have emerged as mechanisms to manage such complexity by facilitating access to bundled technologies and reducing litigation risks. However, these arrangements can raise competition concerns if they limit market entry or create barriers for new entrants. Balancing collaboration and competition in multi-patent ecosystems are a persistent policy challenge.[43]

Climate Change and Green Technologies

The urgency of addressing climate change has intensified interest in the licensing of green technologies, such as renewable energy, energy efficiency solutions, and carbon capture. Patent licensing plays a pivotal role in transferring environmentally sustainable innovations to developing countries. Nonetheless, high licensing fees, restrictive terms, and limited transparency hinder widespread adoption. Efforts to promote voluntary licensing pools and

[40] World Health Organization, *Improving Access to Medicines*, WHO Press, 2017.
[41] WTO, *Waiver from Certain Provisions of the TRIPS Agreement for the Prevention, Containment and Treatment of COVID-19*, WT/GC/231 (2020).
[42] European Commission, *Communication on Licensing of Standard Essential Patents under Competition Rules*, COM (2017) 712 final.
[43] OECD, *Patent Pools: Innovation and Competition Issues*, OECD Publishing, 2016.

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global initiatives like the Patent Pool for COVID-19 Technologies (C-TAP) provide models for cooperative licensing, but broader frameworks and incentives are needed to accelerate clean technology diffusion.[44]

Digital Transformation and Data-Driven Innovations

The rise of artificial intelligence, big data, and digital platforms challenges traditional patent licensing frameworks. Questions arise about patent eligibility, scope, and the integration of licensing with data rights and trade secrets. Additionally, digital goods and services often involve multi-jurisdictional licensing with complex royalty structures. Adapting patent licensing rules to digital innovations requires harmonization of IP laws and consideration of new business models.[45]

Enforcement and Litigation Costs

The high cost and complexity of patent litigation often encourage out-of-court settlements, but they can also deter smaller entities from participating fully in licensing markets. Differences in enforcement efficiency, judicial expertise, and procedural rules across jurisdictions create uncertainty and raise transaction costs. Promoting accessible, transparent, and harmonized dispute resolution mechanisms is crucial for enhancing the predictability of patent licensing.[46]

VI. Conclusion

Patent licensing remains a vital mechanism in the global innovation ecosystem, enabling the transfer and commercialization of technology across borders. The interplay of national laws, international treaties like the TRIPS Agreement, and sector-specific policies shape how licensing functions in practice. While jurisdictions such as the United States, the European Union, Japan, India, China, and Brazil have developed distinct regulatory and enforcement frameworks, they all face common challenges in balancing patent protection with public interest.

The TRIPS framework and its subsequent clarifications, including the Doha Declaration, provide essential flexibilities but also reveal the limits of a one-size-fits-all approach, especially for developing countries grappling with public health crises and technology access. Meanwhile, emerging issues such as standard-essential patents, climate change technologies, and digital innovation expose the evolving complexities of patent licensing.

Addressing these challenges requires multi-layered strategies: harmonizing legal standards to

[44] Medicines Patent Pool, *The COVID-19 Technology Access Pool (C-TAP)*, 2021 Report.
[45] WIPO, *Intellectual Property and Artificial Intelligence*, WIPO Publication No. 1059E, 2019.
[46] International Chamber of Commerce, *Patent Litigation and Dispute Resolution*, ICC Publishing, 2020.

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reduce transaction costs; fostering transparent and fair licensing practices; enhancing competition law oversight to prevent abuses; and encouraging collaborative mechanisms like patent pools and voluntary licensing agreements. Crucially, international cooperation and policy dialogue must continue to adapt patent licensing frameworks to the demands of a rapidly changing technological and social landscape.

In sum, patent licensing not only incentivizes innovation but also holds the key to equitable technology diffusion and sustainable development. As global challenges intensify, the legal and policy frameworks governing patent licensing must evolve to ensure that innovation benefits all sectors of society and supports inclusive economic growth.

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