



Intellectual Property at the Science And Technology Frontier: AI, Biotechnology, and Quantum Computing

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Emerging technologies and the international intellectual property system

- IP law is principally a matter of national domestic law and implementation.
- Basic principles established by international agreement: (1) national treatment principle; (2) principle of independence, and; (3) priority for patent and trademark.
- On patentable innovation, neither the Paris Convention for the Protection of Industrial Property nor the WTO TRIPS Agreement addresses matters at a high level of detail, leaving substantial discretion in the hands of individual WTO members to decide how the rules should be interpreted and applied.
- Certain uniformity introduced by the Patent Cooperation Treaty or PCT which largely relies on a standard template for the filing of patent applications and review, and provides for International Search and International Preliminary Examination Reports. In addition, a number of countries are parties to agreements establishing a Patent Prosecution Highway (PPH) that facilitates the sharing of information among patent offices.

Emerging technologies and the international intellectual property system

- Business enterprises with major investments typically seek to patent their inventions in all or most all commercially relevant markets, a certain uniformity is by definition introduced into the system as the sequential filings following an initial priority application largely requires that information remain consistent.
- Looked at broadly, while international rules do not prescribe a uniform way of treating patent applications, the reality of global markets and multiple filings pushes towards uniform approaches. The European Patent Office is pursuing the idea of a confirmation patent system under which patents granted by the EPO would be accepted in partnering countries. Pushing towards uniformity.

Emerging technologies and the international intellectual property system

- Recognizing backdrop of fractured international political environment, there is implication that countries pursuing emerging technologies discussed in these lectures will move along similar lines in terms of addressing issues, such as requirements of disclosure and enablement, treatment of prior art, and assessment of inventive step.
- But national legal systems, including court decisions, have historically diverged on issues of patentability and technical aspects of how patent systems operate, and they will continue to do so. It seems profoundly unlikely that there will be some type of near-term agreement on treatment of emerging technologies within patent systems. National legislatures will decide what is best from the standpoint of domestic industrial development. Patent offices and courts will address challenges in their own ways.

International Competition for Investment

- One potential implication of the races in emerging technologies is temptation among countries to relax standards to attract investment. A country may, for example, want to be perceived as “friendly” to AI developers in the sense of willingness to patent developments. But such a policy would entail risks because granting patents also creates obstacles to research. And, because ultimately innovators seek to exploit their inventions in the major markets, it is not necessarily helpful to have a patent granted in an “outlier” country system, if the same innovation cannot be patented in important markets.
- If history is guidepost, countries will pursue the IP policy that they consider to be in their best national interest, commonly viewed through the lens of encouraging industrial and/or military development.
- China, Europe and the United States are not the only driving forces behind emerging technologies. There is a wider group of countries with strong footholds in AI, biotechnology and quantum computing, including India, Israel, Japan, South Korea, Russia, and the Ukraine, each with specialized expertise, and each the potential source of breakthroughs.

China and the United States

- China and the United States have been involved in a conflict over development of and access to technology virtually since the opening up of trade relations in the 1980s. See Frederick M. Abbott, Technology Governance in a Devolved Global Legal Order: Lessons from the China-USA Strategic Conflict in A New Global Economic Order, pgs. 197-226, Chia-Jui Cheng ed. (Brill/Nijhoff) (2022), <https://frederickabbott.com/content/technology-governance-devolved-global-legal-order-lessons-china-usa-strategic-conflict>. The paper takes note of China's announced ambitions to take a leadership role in a number of core technologies, including AI and biotechnology.
- China and the United States have endeavored to resolve their differences over IP standards and protection through bilateral negotiations, culminating more recently in the Economic and Trade Agreement of January 15, 2020. Principal features included a commitment by China not to impose technology transfer requirements as a condition of foreign direct investment, and mutual commitment to protect trade secrets, including protections against cyber intrusion.

China's Emergence in Patents

- Chinese innovators have actively pursued patent protection in the United States, including through the PCT route. Of equal interest is that Chinese firms have become much more active in the US patent litigation sphere, including making increasing use of USPTO PGR and IPR proceedings to challenge the validity of patents previously granted in the United States. This demonstrates growing level of sophistication in patent enforcement and patent defense by Chinese firms, and it is somewhat reminiscent of the trend in the 1970s for Japanese technology firms to initiate Section 337 proceedings in the United States.
- Difficult to disentangle emerging Chinese technological presence within the United States from ongoing tensions regarding trade in high-technology products such as GPUs used for AI processing. The United States government has made a political decision to limit China's access to materials and information it considers may be instrumental in assisting China to compete with United States in certain high-technology sectors.
- Not a decision about intellectual property or intellectual property law as such. The intellectual property system is designed to be "country neutral".

FRAND and Anti-suit Injunction

- When technical standards are agreed by international and national standards setting bodies, and when the relevant standards employ patented technologies, the owners of the patents may be required to commit to licensing the technology on fair, reasonable and nondiscriminatory terms. Requires negotiation between licensor and prospective licensees, which negotiations do not always succeed. Patent owner may sue for patent infringement. And/or, the party using the technical standard may sue the patent owner to block enforcement of the patent locally and in foreign jurisdictions pending resolution of FRAND licensing dispute.
- A number of cases involved Chinese firms suing in Chinese courts to resolve FRAND licensing disputes, requesting the Chinese courts to determine an appropriate global licensing rate. As part, the Chinese firms request local court to issue an injunction during the pendency of the lawsuit to prevent the patent owner from proceeding with infringement suits in other jurisdictions. Chinese courts have granted so-called anti-suit injunctions, such as to prevent owner of a German patent from enforcement in Germany, otherwise being subject to substantial ongoing penalty from the Chinese court.

EU-China WTO Dispute

- Antisuit injunctions have been issued by US and British courts, among others. However, EU initiated WTO dispute against China on grounds that the anti-suit injunctions effectively prevent private patent holders in Europe from enforcing their patent rights, thereby depriving them of the benefits of the TRIPS Agreement and being inconsistent with the principle of independence of patents prescribed by the Paris Convention.
- EU suggested that because Chinese courts were following a consistent set of rules regarding their decisions, that the courts were not acting “independently”, but rather under the control of a higher government authority.
- WTO panel of “first instance” rejected the EU complaint (although it made an adverse finding regarding transparency), on grounds that TRIPS Agreement did not specifically address the type of practice engaged in by the Chinese courts. The EU has filed notice of appeal to arbitration.
- The arbitrators may take a somewhat more nuanced view of case than the panel. Panel may have undervalued the role of independence of patents in the international legal system, and the right of each country to determine the enforceability of patents within its own jurisdiction. However, it may be that the EU complaint pushes too far in the direction of a non-violation nullification or impairment complaint, rather than a violation complaint, and the lack of resolution of the nonviolation question may be an impediment to the result the EU seeks. We do not have last word on this.

Alternative to FRAND

- Broader question is how should technical standards licensing and patents be reconciled.
- Logically when standard-setting organization adopts standard it should determine standard royalty rate, or set of royalty rates that could vary depending on the characteristics of the licensee, rather than leaving this to a case-by-case negotiation. The technical standards organization is effectively enhancing the dominant position of the patent owner, putting licensees in a difficult situation. What is needed is a better approach to technical standards licensing and patents.
- Another question: will we see increased willingness by courts to assert extraterritorial jurisdiction with respect to patent and other technology-related disputes.

The Road Ahead

- At the moment, there is not much in the way of international initiative for agreements on intellectual property standards. The field is largely in hands of lawyers and clients seeking to protect their investments in IP through registration of patents, through protection of trade secrets and through use of copyright law.
- One reason why largest enterprises continue to succeed, and smaller enterprises face difficulties, is that the large enterprises can afford to litigate, and can actively pursue enforcement of judgments. This is much more problematic for small and medium-sized enterprises.