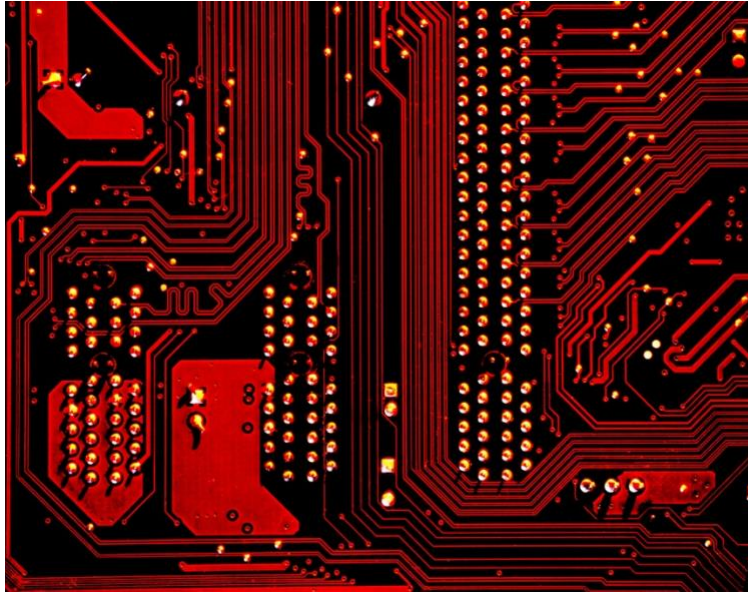


Intellectual Property as National Security: The Case of AI in the Indo-Pacific

By Margaret Kenney



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During the Second World War, the U.S. government filed 2,100 separate patent applications for the Manhattan Project, in what seemed to contradict the project's principle of secrecy. The government pursued this strategy in the hopes of achieving international control over nuclear weapons technology. In effect, "arriving at sound international relationships will be much less likely to be complicated by reason of private interest" if the U.S. government established control first.²⁵ This is an example of a government using the patent system for national security purposes, rather than traditional economic protection. Artificial intelligence (AI) technology calls this phenomenon to the fore once again. As the U.S. and China attempt to expand their influence in the Indo-Pacific region, intellectual property protection (IPP) is once again being used as a political tool to bolster state security.

Artificial Intelligence and IPP

AI is defined as "machines that respond to stimulation consistent with traditional responses from humans."²⁶

It is posited to have future effects on global value chains, digital platforms and trade negotiations. The private sector has allocated extensive resources to AI development, with \$40 billion invested in AI start-ups alone. While artificial intelligence has been a field of research for years, the technology became extremely popular around 2010 because of three developments: Big Data, machine learning and computing power. The majority of AI research is taking place in the private sector.

AI has broad military applications. Vladimir Putin, in his announcement of Russia's commitment to AI development, said that "whoever becomes the leader in this field will rule the world."²⁷

The U.S. and China have also indicated their engagement in developing and applying AI technologies in warfare to protect national security. Some military applications of AI include surveillance, lethal autonomous weapon systems (LAWS), cybersecurity and autonomous vehicles. These technologies can process large quantities of

information and make algorithmic decisions, adding enormous capacity to human capabilities. Because most AI research is occurring in the private sector, the U.S. National Security Strategy indicated “a need to establish strategic partnerships to align private sector R&D resources to priority national security applications.”²⁸ Specific attention is being paid to increasing the cybersecurity of American corporations who are developing AI to prevent their technologies from being stolen or pirated. In the case of AI, the numerous security benefits could allow a state’s military to have a relative advantage over an adversary, keep human beings out of conflict situations, and analyze intelligence and information more effectively. These implications are contingent on the maintenance of solid public-private partnerships so the state can gain from AI innovation.

The Trade-Related Aspects of Intellectual Property Rights (TRIPS) created an international enforcement mechanism to resolve IPP disputes, requiring each member state to arbitrate IP cases under their domestic judicial system. Since these groundbreaking developments in harmonizing intellectual property regulations, new technology has created additional hurdles for international cooperation. IPP have traditionally been centered on the importance of the lone inventor’s right to garner profits from their innovation. However, these debates have presumed the humanity of the inventor, which cannot be guaranteed in the case of AI. In the U.S., *Feist Publications vs. Rural Telephone Service Company, Inc* (1991) has been used to justify why copyright right law does not apply to non-human creators. The case states that “copyright law only protects ‘the fruits of intellectual labor’ that ‘are founded in the creative powers of the mind.’”²⁹

While IPP is traditionally viewed an economic issue, the rise of dual-use technologies that require strong private-public partnerships raises questions about the policy’s effect on national security as well.

The Indo-Pacific

In 2004, Chinese Prime Minister Wen Jiabao said: “the future world competition will be for intellectual property rights.”³⁰ This was incredibly prescient, as distinct intellectual property rights have had significant economic and security implications, particularly in artificial intelligence. The most powerful actors in AI domestic patent filings are currently located in the Indo-Pacific region, including the U.S., China, South Korea and Japan. By protecting the intellectual property of their national corporations, each country attempts to gain the lead in AI technology within the private sector. In doing so, these private sector developments have the potential to be used for military applications in the future, depending on the extent of public-private partnership.

U.S. President Donald Trump issued an executive order in 2019, stating that “continued American leadership in AI is of paramount importance to maintaining the economic and national security of the U.S.”³¹ This executive order also addressed the international intellectual property environment by stating that the U.S. must work on “protecting our technological advantage in AI and protecting our critical AI technologies from acquisition by strategic competitors and adversarial nations.” In October 2020, the U.S. Patent and Trademark Office (USPTO) released a report on domestic public views of AI and IP. The consensus was that existing U.S. IP laws are sufficiently robust and flexible to address AI-related issues. However, commenters also stressed the need to revisit these issues and consider new IP rights in the future as AI continues to evolve, including when artificial general intelligence is achieved. Despite the stated emphasis on AI IPP, U.S. AI IPP has been weakened by several court cases. First, in *Google vs Oracle* (2021) the U.S. Supreme Court decided that reimplementing computer code to innovate was fair use.³² This decision has mixed effects – it increases a company’s ability to innovate, but it does not guarantee that creators have copyright over their written code. Second, in 2022, the USPTO stated unequivocally that without a human author you cannot

submit a piece for copyright, meaning works produced by AI do not qualify.³³ This decision was upheld in the Eastern District of Virginia in *Thaler v. Hirshfield*.

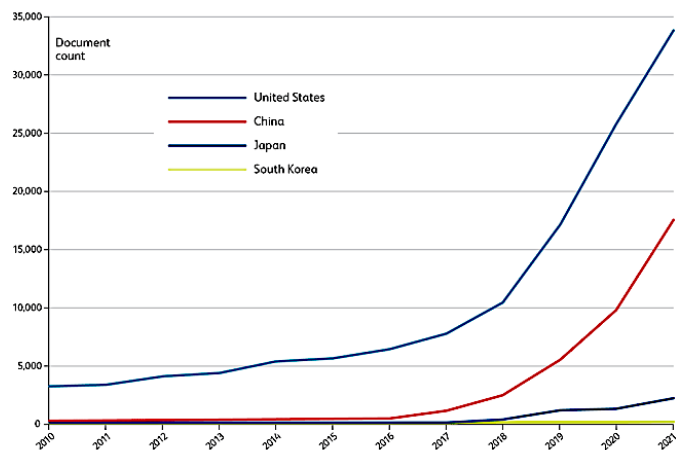
Both South Korea and Japan maintain similar policies to the U.S. regarding AI human creation and patent protection. In South Korea, the Patent Act defines an invention as “a highly advanced creation of a technical idea utilizing the laws of nature.”³⁴ Therefore, to be patent eligible, AI inventions must also satisfy this requirement.³⁵ “Korean patent laws and related precedents only recognize a natural person as an inventor, so companies, corporations and devices cannot be marked as inventors,” the Korean Intellectual Property Office (KIPO) said in a statement on June 3, 2021.³⁶ Similarly, Japan maintains that work made by AI without a human is not considered protected by either the Copyright Act or the Patent Act. Japan did amend its Copyright Act on Jan. 1, 2019, removing copyright barriers for AI. More recently, Japan has increased its focus on protecting patents in AI and the Internet of Things (IoT) as the number of patents filed in these areas has burgeoned. Japan’s focus on improving the AI intellectual property environment also reflects its concern for competing with China. However, these improvements have not extended to providing IPP to AI-created content.

China has been working to further develop its domestic IPP, with particularly extensive changes to legislation in 2019 and 2020. On Feb. 1, 2020, the Chinese government revised its Patent Examination Guidelines, focusing particularly on emerging technologies such as AI and Big Data and providing more specific guidelines on how to get patent protection for AI-related inventions in China. China issued a plan in September 2021 to strengthen the buildup and protection of IPP, by accelerating legislation in Big Data, artificial intelligence (AI), algorithms and genetic technology. China will also formulate and revise laws and regulations on the protection of business secrets, improve the legal system for regulating the abuse of IPR, and improve legislation covering monopoly practices and unfair

competition related to IPR.³⁷ These changes have been borne out in Chinese case law, with two major decisions further cementing China’s unique attention to protecting the intellectual property of AI. First, in *Shenzhen Tencent Computer System Co., Ltd. v. Shanghai Yingmou Technology Co., Ltd.* (2019), the municipal court “held that an article that was created by an artificial intelligence program benefitted from copyright protection.”³⁸ Similarly, the Beijing Intellectual Property Court (2017), again decided in favor of AI innovators, holding that pictures of the earth’s surface taken by a human-programmed camera were subject to copyright law even though the human did not take the pictures.³⁹ The significant protections offered to AI programmers will encourage innovation within China.

Figure 1 illustrates this trend, with the U.S. and China engaging in aggressive patent filing over the past 10 years.⁴⁰ The U.S. far outpaces competitors with a large increase in patent filings after Trump’s executive order in 2019. At the same time, China’s AI patent filings have increased at an almost exponential rate. Taken together, powerful states have signaled publicly the importance of AI for their military capabilities and have chosen to protect private sector AI technologies through an increase in IPP at the domestic level.

FIGURE 1 ANNUAL PATENT FILINGS IN AI RESEARCH AND PRODUCTION BY COUNTRY, 2010-2021
Source: Online patent database www.lens.org



What’s next?

First, as AI innovators and corporations decide where to conduct their work, the distinct policies may motivate forum shopping, or relocation to gain access

to the most favorable policies. This could result in extreme distortions in foreign direct investment and multinational corporations' activities over time, especially as case law cements these standards. Companies may make decisions about where to conduct their activities by considering where their property will be best protected, among other factors. China will thus have a significant advantage in attracting private corporations and inventors. Private relocation will offer increased opportunities for public-private partnership, especially in China as the central government has significant leverage over companies operating domestically. The accumulation of AI technology in specific jurisdictions will have significant impacts on the extent to which the state is able to gain access to dual-use technologies. Furthermore, once companies have relocated, there will be significant sunk costs and path dependency. Technology firms also tend to concentrate in certain zones (for example, Silicon Valley). China's creation of an AI industrial park in Beijing could attract companies that wish to engage in this concentrated community of around 400 businesses.⁴¹

Governments can respond to the pressure of forum shopping via competition or cooperation. Cooperation in AI IPP standards will be difficult for two primary reasons. First, IPP has traditionally been in the domain of the World Trade Organization. The WTO has suffered from a lack of successful negotiations in recent years. It has also experienced strife such as the Trump administration's criticism of the WTO appellate body and refusal to approve WTO appellate judge reappointments. The Joe Biden administration has continued these policies. With the WTO unable to find agreement and enforce its policies, it is unlikely that the IPP of emerging technologies will be at the top of the organization's agenda. Next, because of AI's potential military use, states will undoubtedly bargain more fiercely over international regulations.

Therefore, competition seems more likely than cooperation in multilateral AI IPP.

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