

Written Testimony of Rama G. Elluru

U.S. Senate Judiciary Subcommittee on Intellectual Property
“Artificial Intelligence and Intellectual Property –
Part I: Patents, Innovation, and Competition”

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Chairman Coons, Ranking Member Tillis, and Members of the Committee, thank you for the honor of being invited to provide testimony on this important topic.

I am here to discuss the implications of artificial intelligence (AI) on our intellectual property (IP) regime.

I am testifying in my capacity as Senior Director for Society and Intellectual Property at the [Special Competitive Studies Project](#) (SCSP), a nonpartisan, nonprofit organization dedicated to strengthening America’s long-term competitiveness as AI and other emerging technologies shape our national security, economy, and society. My views have been informed by my time as a patent attorney in the private practice, as an Administrative Patent Judge at the United States Patent and Trademark Office (USPTO), and as staff for the [National Security Commission on AI](#) (NSCAI), which issued its Final Report in March 2021 that included a chapter dedicated to Intellectual Property (IP) recommendations. I would like to share those recommendations with you today, and to emphasize that a robust IP ecosystem is critically important to ensure United States technology competitiveness..

To start, I want to set the context. **We are in a global technology competition.** The People’s Republic of China (PRC) is the United States’ chief ideological opponent. It is our largest economic competitor, technology peer, and the most capable military challenger for the foreseeable future. And AI and other emerging technologies are at the center of this competition. The Chinese Communist Party (CCP) leadership understands that the way to achieve their objective of global dominance is through technological supremacy in emerging technologies — with AI at the forefront. The CCP wants to dominate AI and the emerging technologies that are fueling the industries of the future. They have made this clear in their public messaging. The CCP seeks to apply emerging technologies to set the rules of the road in its vision — a vision that is very different from the rules-based International order we have become accustomed to since World War II.

AI and other emerging technologies are the epicenters of this technology competition. The PRC has taken the lead over the United States in several critical technology areas, including 5G network components, advanced batteries, financial technology, and commercial

drones. Global leadership in AI, semiconductors, advanced manufacturing, and next-generation networking remain highly contested fields.

The emerging AI revolution will lead to the most rapid transformation of humanity in our history. AI is a foundational technology, like electricity, upon which other technologies are built and accelerated. AI analyzes and makes assessments from vast amounts of data quickly. Like past technological leaps, AI will increase productivity and spur economic growth. These systems will result in widespread human progress, increased efficiency, profound improvements in human health, advances in basic science, advanced solutions to climate change, and better education. AI and other emerging technologies like faster semiconductors and biotechnology will only accelerate our discoveries.

Today, AI-enabled Large Language Models (LLMs) can generate language that is indistinguishable from that generated by humans. Tomorrow, we can only make informed guesses at what LLMs might be able to achieve. In a striking departure from millennia of human history, we are on the cusp of a world in which humans will await to see what LLMs have discovered for us instead of us telling AI what to discover. AI has been part of discovering new drug candidates and just recently was part of the process of [discovering a superbug-killing antibiotic](#). AI was also used to discover more precisely controlled nuclear fusion reactions, surpass human decision-making in intensive care units, and conduct up to 10,000 autonomous experiments daily for scientific microbiology discovery. AI has the potential to serve as personalized tutors for students and teachers. Machine learning models can improve CO₂ storage, which can help combat climate change.

We are in a race with China to develop the AI future. This innovation competition will shape the world's future. The nations that hold the market share in the combination of these emerging technologies will be able to reinforce their economies and societies and, importantly, assert geopolitical influence. Which nations and how those nations shape the development and adoption of these technologies will determine geopolitical order. We want these technologies to be developed according to our norms and ethics, which is the antithesis of how China uses this innovation on its citizens for undemocratic purposes, including surveillance and oppression of minority groups.

We cannot do it alone. The United States, along with our many close allies and partners, must maintain our technological lead over China. So how does the United States retain its global technology leadership? We leverage the strength that has allowed the United States to outpace and outmatch every technology challenger we have faced over the past century. That strength is American innovation.

We must harness our innovation power. Our capability to invent new technologies is fundamental to our economic and military power, allowing us to lead in global standards. Importantly, our technology leadership means we will be able to embed democratic values in technology design, development, and use.

The Importance of Protecting Intellectual Property

Intellectual property rights have historically been a critical lever in ensuring America's innovation power. America's traditional IP regime – patents, trademarks, copyrights, and trade secrets – has spurred American ingenuity since the 18th century with the 1790 Patent Act. The last major overhaul of the patent system was in the early 1950s, right before the field of AI emerged in 1956. The United States has long been the world leader in securing property rights in technological innovation, granting patents for the next wave of discoveries when the rest of the world hesitates. Patents are property rights that incentivize new ideas and inventions. They reward inventors for sharing valuable information with the public domain as our founding fathers envisioned. Patents are often the only currency a company has in transactions, especially for smaller entities that need to attract capital.

Unlike the United States, the CCP has recognized the importance of IP policies as a critical tool within its national strategies for emerging technologies. China publishes five-year IP plans expressly stating its IP goals and objectives for that period. They have implemented IP policies to strengthen their national technology competitiveness. For example, the PRC has developed a leading-edge national system of IP tribunals and courts, not surprisingly, one that resembles ours. The CCP has also recently elevated the role of its patent and trademark office, the China National IP Administration (CNIPA), to a State Council-level agency. This is roughly equivalent to CNIPA becoming a cabinet-level agency in contrast to the U.S. fractured agency approach with USPTO within the Department of Commerce, the Office of the Intellectual Property Enforcement Coordinator within the Executive of the President, and the U.S. Copyright Office within the Library of Congress. The CCP has made significant revisions to its IP legislation to ensure that they support economic and national industry policy goals. IP is used in setting metrics and expectations in federal and local industrial policies. Also, China's patent office is implementing pilot projects across China's innovation hubs to explore the potential for data IP rights. Lastly, China has also generally favored more liberal granting of patent rights and more deterrent remedies over the last several years. We need an effective response to China's domestic and geopolitical strategies centered on its IP institutions.

This brings me to Chapter 12 of the NSCAI's Final Report. I have two core messages. First, the United States must recognize IP policy as a national security priority critical for strengthening and preserving America's innovation power. Second, our patent policies must be modernized

to further national security, economic, and technology competitiveness strategies for the emerging technology era. Given the transformative nature of AI and other technologies, we must reimagine our patent system to ensure it still serves the purpose our founding fathers envisioned – securing for a limited time to inventors the exclusive right to their discoveries.

Currently, the U.S. Government has no comprehensive IP strategies and policies, nor does it have an efficient mechanism for integrating critical IP strategies into national security, economic, and tech competitiveness strategies. Meanwhile, the CCP is both leveraging and exploiting IP policies as a tool within its national strategies for emerging technologies. To compete, the U.S. Government must address these vulnerabilities. Part of the challenge is that U.S. Government IP equities span all three branches with no single entity unifying these disparate equities. The result from this policy void is that the United States could lose its IP global leadership position, including its influence over other countries adopting its technologies. The domestic harm is that the United States lacks sufficient IP incentives for fueling innovation power. The international harm is that the U.S. loses its IP leadership position, allowing China to attract innovation to its borders.

America's IP laws and institutions must be considered critical components for safeguarding U.S. national security interests, including advancing economic prosperity and technology competitiveness. The United States must articulate and develop national IP reforms and policies to incentivize, expand, and protect AI and emerging technologies at home and abroad. Such policies should be developed and proposed via the Executive Branch with a process that integrates the disparate departments and agencies that promote U.S. innovation. These proposals must then be integrated into our broader national competitiveness strategies.

How can this be implemented in practical terms?

Recognize IP as a National Priority: The President should issue an executive order to recognize IP as a national priority and require developing a comprehensive plan to reform and create IP policies and regimes that further national security, economic interests, and technology competitiveness strategies.

Propose Executive and Legislative actions for reforming IP policies and regimes: We need an entity with IP expertise that can coordinate IP equities across our government to continuously develop and propose IP policies. At NSCAI, we recommended that the Secretary of Commerce, in coordination with the Under Secretary of Commerce for Intellectual Property and Director of the USPTO and other relevant Executive Branch agencies, should lead the development of proposals, for both Executive and Legislative Branch actions, to reform and establish new IP policies and regimes to incentivize, expand, and protect AI and emerging

technologies. Similarly, Chair Coons and Ranking Member Tillis, in an October 2002 letter to USPTO and the U.S. Copyright Office, called for the creation of a national AI commission to address IP reform. With either approach, these efforts should include: (1) establishing a committee of multidisciplinary experts, from inside and outside the U.S. Government, to provide technical and IP-related expertise and advice and (2) convening public deliberations to include, at a minimum, academia and industry, in executing these Executive Order responsibilities. The outcome of these deliberations should inform proposed IP policies and regimes.

The Secretary of Commerce and the USPTO Director need the requisite directives to carry out these efforts to develop and implement IP proposals.

Executive Branch departments and agencies must also establish resources and support the Secretary of Commerce in executing these efforts, including providing metrics and trends to inform IP policy proposals. Due to the breadth of the IP considerations that must be assessed and the far-reaching impact of IP upon many segments of the U.S. economy and innovation ecosystem, many U.S. Government entities may already track relevant metrics or can expand their analyses to address the necessary prioritization of IP for AI and emerging technologies. For example, innovation and investment trends based on patent filings and, where possible, licensing data—in various technology sectors, including by foreign countries, mainly China—should be analyzed (e.g., to assess quality and research trends), with care not to rely solely on patent counting. Other potential metrics include but are not limited to, tracking of patents self-declared as standard essential in comparison to patents licensed; licensing to unrelated parties; the impact of prior art on the U.S. patent and trademark examination systems; international filings for IP protections on U.S.-funded research, particularly without U.S. funders' or inventors' awareness; the ratio of U.S. companies filing for IP protections, as well as pursuing IP-related litigation, in the United States versus abroad; and patent assignment data.

Integration into National Strategies: The United States must elevate and coordinate technology policy in the White House by empowering a single entity to implement a comprehensive technology strategy that integrates IP proposals.

A key recommendation of the [NSCAI](#) and [SCSP](#) is to create a Technology Competitiveness Council (TCC). The TCC would include Cabinet secretaries and leaders of other key White House offices and be chaired by the Vice President, with a newly appointed Assistant to the President for Technology Competitiveness as the day-to-day leader. To coordinate the Council's work, the Assistant to the President for Technology Competitiveness would ensure policies pertaining to emerging technologies receive sufficient Presidential-level attention.

The TCC would ensure that the gaps between NEC, OSTP, and NSC responsibilities are filled and linked to OMB. It would provide a forum for reconciling competing security, economic, and scientific priorities and elevate technology policy and concerns from a technical to a strategic level. This Office would be responsible for assessing IP proposals that should be integrated into broader national strategies.

Priority IP Considerations: The United States must prioritize the IP considerations that need addressing now and continuously. Many questions must be addressed to ensure our patent system is efficiently working to strengthen our innovation power. The **NSCAI proposed a non-exhaustive list of 10 “IP-considerations”** that should be assessed. The USPTO is grappling with some of these issues by establishing an AI and emerging technology partnership with stakeholders that include academia, independent inventors, small businesses, industry, other government agencies, nonprofits, and civil society and seeking the public’s views on various IP policy issues that uniquely affect the AI and emerging technology community.

The 10 National Security Commission on AI considerations include:

- 1. Patent eligibility:** Assess and articulate the impact of the current United States patent eligibility doctrine on innovation in AI and other emerging technology from an economic, trade, and national security policy perspective. While China is making acquiring patent rights to inventions easier, U.S. Courts have severely restricted patent protection for computer-implemented and biotech-related inventions.
- 2. Counter China’s narrative on “winning” the innovation competition:** China-connected entities have filed a massive number of patent applications domestically and internationally. China also ensures its presence in standard-setting organizations and aggressively asserts its patents as “standard essential.” Assess how the United States might best counter China’s efforts to shape the narrative that it is winning the innovation competition based partly on its patent filings.
- 3. Impact of China’s filings on USPTO resources and U.S. inventors:** Assess whether the USPTO requires additional resources to ensure high-quality patent examination, including assessing the effects of increased filings from China and AI-generated prior art.
- 4. Impediments to AI public-private partnerships and international collaboration:** Assess impediments to the IP contractual ecosystem and propose mechanisms to strengthen AI PPP and international collaboration.

5. **IP protections for data:** Assess the need for additional protections for data, including legislation, if IP-type protections are deemed necessary and ways to encourage sharing of datasets.
6. **Combat IP theft:** Assess additional Executive Branch efforts to counter IP theft threats, including actions in collaboration with allies and partners; articulate U.S. counter-IP theft strategy with criminal and civil economic dimensions.
7. **Inventorship by AI:** Assess the need for policies relating to AI-generated inventions.
8. **Global IP Alignment:** Work with allies and partners on global AI-related IP alignment, including disincentives for IP theft, alleviating inconsistencies in patent regimes, and assessing current forums for AI-related IP alignment.
9. **Democratize innovation and IP ecosystems:** Expand the innovation base and democratize access to innovation and the IP ecosystem through streamlining guidance for startups and small/medium-sized enterprises seeking IP protections.
10. **“Standard-essential” patents process:** Assess policies to protect the integrity of processes by which “standard essential” patents are claimed, asserted, and litigated, and ensure adequate US representation in such processes. Monitor legal decisions to ensure US sovereignty isn’t degraded.

Lastly, at SCSP, we are exploring several of these considerations in partnership with the Renewing American Innovation Project at the Center for Strategic and International Studies, headed by former Under Secretary of Commerce for IP and USPTO Director Andrei Iancu. This collaboration aims to provide assessments of the current state of the U.S. IP regime and considerations for the U.S. Executive & Legislative Branches to modernize the regime for AI and other emerging technologies.

Thank you again for this opportunity to appear before you, and I look forward to our discussion.