Senate Committee on the Judiciary Subcommittee on Intellectual Property
Hearing: "AI and IP - Part 1: Patents, Innovation, and Competition"
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Questions from Senator Tillis
for Ms. Rama Elluru

QUESTION #1

Under current U.S. patent law AI cannot be named as an inventor.

a. *What is the motivation and benefit of attempting to change patent law to allow an AI to be named as an inventor?*

ANSWER:
It is critical that AI-generated inventions are patentable. Patents incentivize new ideas and inventions. They reward inventors for sharing valuable information with the public domain and are often the only currency a company has in transactions, especially for smaller entities. AI technologies will lead to innovation that increases productivity and spurs 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. Inventions that result from AI capabilities should be incentivized. Thus, allowing AI to be named as an inventor on patent applications might be one way to recognize the patentability of AI-generated inventions. However, we must fully explore this approach's implications and also study alternative approaches.

b. *What impact, if any, would this have on innovation – in other words, do you foresee some detriment to innovation due to AI not being able to be named an inventor?*

ANSWER:
Not legally recognizing the patentability of AI-generated inventions would be detrimental to innovation. It is important to our national security, economy, and society to incentivize and protect these inventions.

Under current U.S. patent law, only a natural person can be recognized as an "inventor." The prevailing view is that AI systems are "tools" in the invention-creation process. However, the patentability implications of AI being a "tool" are unclear. For example, when the result of AI use results in an invention, does the AI need to be identified as a joint inventor when its contribution would have satisfied the requirement for joint inventorship if the contribution had been made by a natural person?

The uncertainty surrounding the patentability of AI-generated inventions is detrimental to our patent system. This uncertainty potentially leads to inventions being kept as proprietary information, thus, depriving the public domain of valuable information. Also, this uncertainty might lead to a lack of transparency about AI use in the invention-creation process, which is detrimental to the innovation system and the

integrity of the patent system. Uncertainty about patent protection makes innovators and companies more reluctant to seek it, which hurts innovation and impacts investment in AI and technologies critical to our national security, economy, and society.

As the use of AI in the invention-creation process becomes more common, and AI systems make greater contributions to the invention-creation process, the need for certainty becomes more immediate. Either currently, or certainly in the foreseeable future, AI capabilities will lead to inventions as an output of human-AI teaming, but potentially with a human distanced more and more from the output as AI evolves. Indeed, technologists are exploring artificial general intelligence (AGI), defined as an AI's ability to operate at the same level as human intelligence and perform any task a human being is capable of. If and when AGI becomes a reality, current U.S. patent law that does not recognize an AI system as an inventor will not be workable.

c. *If an AI alone cannot be named inventor, what are your thoughts regarding allowing an AI to be named as a co-inventor if named alongside that which we currently consider an inventor (i.e., a "natural person")?*

ANSWER:
The issues raised with respect to recognizing AI as a co-inventor are substantially similar, if not the same, as recognizing AI as the sole inventor.

QUESTION #2

The Intellectual Property Office of Singapore has promoted the patenting of AI-related inventions by offering accelerated examination.

Do you think that the USPTO should be doing more to encourage and support AI-related patent applications in the U.S.?

ANSWER:
AI-related patent applications have increased at the U.S. Patent and Trade Office (USPTO), and AI is increasingly reflected in more and more art units. Given this trajectory, USPTO resource needs should be monitored and supported. One area for potentially increasing resources is broadening AI training for examiners because AI is being integrated into more and more art units.

QUESTION #3

In February 2023 the USPTO issued a request for public comments (RFC) seeking stakeholder input on the current state of AI technologies and inventorship issues that may arise in view of the advancement of such technologies.

a. *What were your key takeaways from this RFC?*

ANSWER:

The prevailing view is that AI technologies are used as sophisticated "tools" in the invention-creation process, like other invention-creation tools, and that significant human interaction is required to employ AI tools. For example, some comments describe AI as facilitating the invention-creation process and generating conclusions from a data set. Most comments recommend that the USPTO should not advocate for a change in current patent laws allowing AI to be identified as inventors.

However, there is uncertainty as to whether identifying the natural person(s) who invent(s) is sufficient for patentability, regardless of additional inventive contribution from an AI system. The comments reflect that if the USPTO chooses to advance the approach that people should be the named inventors of inventions made using AI, the USPTO should issue guidance reflecting this understanding.

Another prevailing view is that the USPTO should not require applicants to provide an explanation of contributions of AI systems to inventions claimed in patent applications. The rationale is that such a requirement necessitates providing a concrete definition of AI, which is difficult. A similar view was that there is no benefit to requiring the identification of AI as an inventor in terms of incentivization because AI cannot be incentivized.

b. Was there anything that wasn't addressed that should have been?

ANSWER:
Two topics that resonate through the comments for further exploration by the USPTO are the obviousness analysis under section 103 and issues around section 112 (written description, enablement, functional claiming).

QUESTION #4

With regard to patent eligibility law, do you agree that the lack of certainty hampers innovation when it comes to the field of AI-related patent applications and patents?

ANSWER:
Yes. The subject matter that has been deemed patent ineligible has consistently expanded since 2010, with subject matter entitled to patent protection consistently narrowing. Court decisions broadly interpreting judicial exceptions to statutory patent eligibility have created immense uncertainty in what subject matter is eligible for patent protection, making it unpredictable whether an issued patent will survive in litigation. This uncertainty has weakened incentives to contribute to the innovation ecosystem by diminishing motivation either to invent in the first place or to encourage putting inventions in the public domain via the patent process.

Small and medium-sized entities, which often only have a patent as currency in transactions, including attracting capital and commercializing new discoveries, are particularly affected by patent eligibility uncertainty.

The ever-growing uncertainty and unpredictability of whether the subject matter is eligible for patent protection will not spare AI-related patent applications and patents. Policy frameworks that clear up this uncertainty and make patent protection predictable are needed. In addition, maintaining our leadership in AI technologies requires engaging with key allies and partners to align on critical aspects of IP, like patent eligibility for AI and associated technologies. Multinational companies should not face different eligibility barriers; this weakens the innovation ecosystem. Additionally, unpredictable eligibility laws make the United States a less welcoming place for inventors. This affects investments of capital as well as the creation of jobs. At a minimum, we should not contradict other jurisdictions with which we want to encourage collaborations and countries with which we want to partner.

QUESTION #5

Patent Examiners at the USPTO currently use an agency search tool called Patents End to End (PE2E) to perform prior art searches. This tool leverages AI and is being developed to further support AI search capabilities.

a. *What are your thoughts on this?*

ANSWER:

AI capabilities offer tremendous opportunities for the USPTO. Leveraging AI in the prior art search process helps compress examination time and further ensures resource efficiency in the process.

b. *How else should the USPTO leverage AI to help with prior art searches?*

ANSWER:

USPTO should continue creating prior art search tools that harness the latest benefits of AI evolution (e.g., generative AI) but keep humans in the loop. Further, the USPTO should explore leveraging AI to address cooperative patent classification dynamics so that patent offices globally can stay aligned in examination processes.

QUESTION #6

Do you agree that recognizing an AI as an inventor would require statutory changes to Section 103 to adapt the obviousness test to AI? If so, what would be the most appropriate and feasible way to assess whether a claimed invention would be obvious to an AI?

ANSWER:

AI use will continue to become common in the invention-creation process. Regardless of whether AI is recognized as an AI inventor or not, the "obviousness" analysis will have to adapt accordingly. This analysis requires an evidentiary-based determination of the relevant level of ordinary skill in the art, the scope and content of the prior art, and the differences between the claimed invention and the prior art. The "level of ordinary skill in

the art" will include AI skills and capabilities regardless of whether the inventor is an AI or a natural person using AI. Specifically, AI capabilities will be considered when determining what is "known" and what is "new" and "non-obvious," which will alter the obviousness analysis.

The evidence-based determination of the "level of ordinary skill in the art" will become increasingly complicated with the exponential pace of AI technology evolution. However, it is unclear whether any statutory changes to section 103 will be necessary.

QUESTION #7

There has been talk regarding whether advances in AI warrant a sui generis ("of its/their own kind") IP protection – a new form of IP protection separate from patent, copyright, trademark, and trade secret – for data rights.

What are your thoughts on this?

ANSWER:

As noted in SCSP's National Data Action Plan, U.S. data should be treated as a strategic asset. Data is a critical input into the innovation ecosystem. The United States has more data centers than any other country, is home to the world's largest technology companies, dominates the big data and business analytics market, and is the world's largest data producer. We have a wealth of data but are not maximizing its potential. Valuable data is currently siloed in different corporate data centers and academia. By combining this data with public government data, we can gain new insights to help us solve science, economics, and societal problems. For example, combining government and private sector data could help us assess the resilience of supply chains across different industries. Yet, the United States does not have a comprehensive national data strategy or policy in place.

As part of developing this national data strategy, the United States also should explore whether IP rights are needed to incentivize, protect, and democratize access to quality datasets. Developing large-quality data sets is resource intensive. It takes talent. It takes money. It takes time. And this is especially true for developing synthetic data sets.

The United States should explore a number of questions: Would IP or IP-type rights in data incentivize data-related inventions? Would such rights incentivize data-driven products and services that are great for the public? It is estimated that the data economy in the U.S. in a few years will be over a trillion dollars. Will IP rights in data help ensure this growth continues leading to job growth and a stronger U.S. economy? Would IP rights in data help democratize access datasets or hinder innovation by making it more difficult for new companies to enter the market? Would such rights give certain companies and entities an unfair advantage by concentrating access? The U.S. also needs to explore the scope of such rights – should such rights be broad or narrow or for only particular purposes – and the duration of the rights?

QUESTION #8

Given where AI now stands in practice – it's a powerful tool that speeds the innovation process, but it does not itself innovate – what specific regulatory and/or legislative action should be and should not be taken this Congress?

ANSWER:

AI is continuing to become ubiquitous in the innovation process. Discoveries and inventions from AI use that benefit society should be incentivized. To ensure that our IP regime is incentivizing and protecting such AI-generated inventions, the United States should: (1) recognize IP as a national priority and require the development of a comprehensive plan to reform and create IP policies and regimes that further national security, economic interests, and technology competitiveness strategies; (2) direct the Secretary of Commerce – in coordination with the Under Secretary of Commerce for Intellectual Property and the Director of the USPTO – to develop proposals to reform and establish new IP policies and regimes, as needed, to incentivize, expand, and protect AI and emerging technologies; and (3) ensure that such proposal includes executive and legislative actions for IP policy changes to achieve these objectives and should be accompanied by an assessment of a non-exhaustive list of "IP considerations."

QUESTION #9

With jurisdictions appearing to require disclosure of AI operation, including source code, for software-based innovations is trade secret a viable option for the protection of AI code? And if not, are there steps that regulators and governments can take to help make AI code subject to trade secret protection?

ANSWER:

Protecting U.S. IP is a critical component of American innovation. As we enter this new age of AI-enabled technologies, protecting proprietary source code – the inner workings of the algorithms that make AI tick – will be even more important. That said, the U.S. government must find a way to protect source code from IP theft while ensuring that algorithms are not unfairly or deliberately manipulated in ways that could be detrimental to society or national security. While all software-based innovations deserve some level of scrutiny to evaluate for trustworthiness and security, digital applications that have the potential to threaten national security interests require closer scrutiny.

As more and more software-based innovations enter the U.S. market from overseas, the U.S. government should find ways to ensure that untrusted vendors do not exploit trade secret protections as ways to block regulatory oversight. Technology firms have developed different measures to address these risks and protections, including establishing third-party governing boards to assist in these judgments.

QUESTION #10

In your testimony you note that the U.S. is in a global technology competition, where AI is at the center.

Based on your work and assessments at the National Security Commission on AI and the Special Competitive Studies Project, who is currently winning the AI race and why – the U.S. or China?

ANSWER:
AI is likely to remain a contested space across the stack, but recent U.S. innovations in generative AI, including ChatGPT, demonstrate some key U.S. advantages. The United States remains at the forefront of novel algorithms and architectures, including the transformer architectures underpinning today's generative AI models. The United States also leads in the design of cutting-edge AI chips, despite Beijing's efforts to foster an indigenous AI hardware ecosystem. However, the PRC has advantages in certain types of data, a core ingredient to AI, for example, in computer vision datastreams. The People's Republic of China also leads in the volume of patent citations. However, the United States retains the world's top talent and maintains an edge in patent quality. Looking holistically, Beijing's ability to align its entire innovation ecosystem with its national strategic needs has and is likely to continue to enable it to make significant inroads across the AI stack and integrate AI tools into strategic and national security application areas.

QUESTION #11

In your testimony you note that the U.S. does not have a comprehensive IP strategy, nor does it effectively incorporate IP considerations into national security or economic strategies.

How can IP be more strongly factored into our national framework?

ANSWER:
The United States must address several issues to maintain leadership in emerging technologies. One of these issues is IP. The United States has an advantage in a number of technologies that are critical to national security and U.S. leadership in global technology competitiveness. The United States is attempting to ensure sufficient research and development (R&D) and uptake of these technologies across the Department of Defense (DoD) and other departments. These investments must be supported by reliable IP incentives and protections to help inventors maximize R&D expenditures. Thus, IP policy must also be elevated to a national security priority to leverage IP to support innovation in these technologies.

If the United States wants to fuel innovation in a specific sector, it must increase R&D and assess its IP implications. It is also essential to consider whether tech-agnostic IP laws should be changed to reflect priorities and differences in technology development and commercialization timelines.