SPARK US Innovation Opposes PERA without Amendment

EXECUTIVE SUMMARY

SPARK US Innovation (SPARK) opposes the Patent Eligibility Restoration Act of 2023 (PERA), introduced as S.1546 in the Senate and H.R.3152 in the House. As currently drafted, PERA fails to correct the fundamental flaws affecting the ability of Critical Emerging Technologies (CET) innovators to protect their inventions, leaving American innovation, investment, and national security at continued risk.

In 2007, the U.S. led in 60 of 64 critical technologies vital for economic and national security. Yet, by 2018, China overtook the U.S. in AI startup funding, capturing 48% globally compared to the U.S.'s 38%. By March 2023, China led in 37 critical technologies, and by August 2024, this number skyrocketed to 57. China has stolen its way to technological parity with the United States, but now it is out-innovating the U.S. To maintain that lead, China must continue to out-innovate us. This advantage can be traced to the strengthening of China's patent system, made even more consequential by America's self-inflicted weakening of its own. Judicial exceptions to patent eligibility under 35 U.S.C. § 101 rank among the most detrimental ways the U.S. government has hindered innovation particularly in CET.

The Supreme Court's decision in *Alice Corp. v. CLS Bank International* (Alice) introduced an undefined "abstract idea" exception to patent eligibility. Without clarifying what constitutes an abstract idea, the Court established a vague test that has rendered many CET inventions ineligible for patent protection. According to a 2017 report, in the two years post-Alice, federal courts invalidated 66.5% of patents challenged, with the Federal Circuit invalidating 91.9%. According to a Congressional Research Report, the USPTO also rejected 36,000 published patent applications under § 101, with 5,000 abandoned. Many of these rejected applications were granted patents in the EU and China, where the concept of an abstract idea does not exist.

As a result, nearly half of the 57 critical technologies in which China now leads the world risk being ineligible for patent protection in the U.S. These include Advanced Radiofrequency Communications (5G and 6G); Advanced Optical Communications; AI Algorithms and Hardware Accelerators; Photonic Sensors; Quantum Communications; Post-Quantum Cryptography; Electric Batteries; Hypersonics; Drones; Nuclear Energy; Photovoltaics; Quantum Sensors; High-Performance Computing; Gravitational Sensors; Advanced Integrated Circuit Design and Fabrication (Semiconductor Chip Making); Synthetic Biology; Robotics; Satellite Positioning and Navigation; Swarming and Collaborative Robots; Radar; Electric Vehicles (EVs); and Agricultural Machinery.

Alice's abstract idea exception handicaps U.S. innovation in ways no other country does. No public policy can justify this sort of damage to U.S. innovation. Advocates of PERA claim it fully abrogates Alice. However, it simply recreates a nearly identical test leaving American innovation handicapped in the same way.

SPARK US Innovation, LLC

SPARK is dedicated to advancing the future of critical emerging technology startups, entrepreneurs, and inventors through effective policy reform in the United States. We strive to create a policy environment where the conception, protection, and commercialization of technologies critical to American economic and national security prosper thereby enabling the United States to take back the global technological lead from China.

SPARK US Innovation Opposes PERA unless Amended

PERA eliminates all judicial exceptions, putting an end to the damaging limitations imposed on medical diagnostics, gene therapies, and CET inventions. However, it introduces a new exception that mirrors the harmful effects of the abstract idea exclusion established in Alice. As a result, American innovation, especially in the CET sector, will continue to face significant disadvantages compared to global competitors.

As currently written, PERA should not become law. However, it can be appropriately amended by removing Section 3(b)(1)(B), Section 3(2)(A), Section 4(b), and its supporting language in the Findings at Section 2(5)(D)(vi) and Section 2(5)(E)(i) and (ii). With these changes, PERA would effectively restore the strength of American innovation and enable the U.S. to compete on equal footing with other global leaders

Alice – the Abstract Idea Test

Under the Alice two-step test, in the first step, the court looks at the individual elements of a patent's claims to determine if any element is abstract. If one element is abstract, then the court proceeds to Step 2, which identifies the "*inventive concept."* This step evaluates whether the claim's elements, beyond the identified abstract element, transform the claim into something "*significantly more*" than an abstract idea. In considering whether something *significantly more* exists, the court effectively removes *conventional and routine activities* from the analysis.

In Alice, the patent claims involved a method for "mitigating settlement risk" using a computer system. In Step 1, the Court found that the claims were directed the abstract idea of "intermediated settlement." In Step 2, it determined that the use of a generic computer to perform the method did not provide an *inventive concept*. In making that determination, the Court emphasized that the computer functions (such as data processing, calculations, and record-keeping) were "well-understood, *routine, conventional activities* previously known to the industry."

The courts have interpreted this to mean that if a patent claim uses a computer to perform *conventional or routine activities* (also known as *insignificant extra solution activity)*, these activities do not contribute to an *inventive concept*. The claim must go beyond using a computer as a tool to automate what was previously done manually or in a well-known manner.

The fundamental problem with the Alice test is that it identifies the inventive concept after it removes *conventional and routine activities* from the patent's claims. Courts have interpreted sending, receiving, record-keeping, storing data, processing data, calculating, executing basic algorithms, etc. to be *conventional and routine computer activities.* However, these activities tie most CET inventions to the real world. So, removing them uncouples most CET inventions from their real-world ties, leaving only *mathematical formula or logic*, which can be performed on pencil and paper, or in one's mind.

Under Alice's circular logic, courts determine an invention is an abstract idea because it is no longer tied to the real world and invalidate the patent.

PERA's New Exception

While PERA abolishes all judicial exceptions, including the Alice two-step test, it introduces a closely analogous two-step test that is likely to produce outcomes substantially similar to those of the Alice two-step test.

> *"(b) Eligibility exclusions.—*
>
> > *(1) IN GENERAL.—Subject to paragraph (2), a person may not obtain a patent for any of the following, if claimed as such:*
> >
> > > *(A) A mathematical formula that is not part of a claimed invention in a category described in subsection (a)."*

Clause (b)(1)(A) broadly excludes inventions incorporating mathematical formulas, including most artificial intelligence and other software related inventions.

> > > *"(B) A process that is substantially economic, financial, business, social, cultural, or artistic, even though at least 1 step in the process refers to a machine or manufacture.."*

The initial segment of clause (b)(1)(B) *("a process that is substantially economic, financial, business, social, cultural, or artistic…")* broadly excludes most inventions. Nearly any invention could arguably fit within one or more of these expansive categories, resulting in far too many inventions being deemed patent-ineligible from the outset.

The latter segment of clause (b)(1)(B) *("…even though not less than 1 step in the process refers to a machine or manufacture")* explicitly excludes claim steps involving a machine (in PERA, a computer qualifies as a machine), effectively mirroring the Alice abstract idea test's dismissal of *conventional and routine computer activities*.

PERA provides a second step to restore patent eligibility for an invention. However, this step also closely replicates Alice's exclusion of *conventional and routine computer activities*.

> *"(b) Eligibility exclusions.—*
>
> > *(2) CONDITIONS.—For the purposes of (A) subparagraphs (A) and (B) of paragraph (1), the claimed invention shall not be excluded from eligibility for a patent if the invention cannot practically be performed without the use of a machine or manufacture;"*

The second step of PERA reinstates patent eligibility for an invention *"if the process cannot practically be performed without a machine or manufacture*." First, this clause employs a double negative, requiring an impractical or impossible evaluation of all possible instances. Second, the term "practically" lacks a clear legal definition, likely leading to years of litigation to establish its meaning.

The most practical way to evaluate this requirement is to assess whether the invention can be performed without a machine. To do so, one must strip away *conventional and routine computer activities* from the patent claims. Like the Alice test for abstract ideas, this leaves only *mathematical formulas or logic*, which can be executed on paper or mentally. Since performing the invention on paper or in one's mind constitutes a method that does not require a computer, the invention cannot be restored to patent eligibility.

PERA goes further, explicitly codifying Alice's *insignificant extra-solution activity*, commonly understood as *conventional and routine computer activ*ities.

SEC. 4. RULES OF CONSTRUCTION.

> *(b) INSIGNIFICANT EXTRA-SOLUTION ACTIVITY. — With respect to the exclusions to patent eligibility described in subparagraphs (A) and (B) of section 101(b)(1) of title 35, United States Code, as added by section 3 of this Act, the inclusion of pre- or post-solution activity by a computer (or other machine or manufacture) in claim language shall not be sufficient to confer patent eligibility on the claim if that computer (or other machine or manufacture) is not necessary to practically perform the invention.*

PERA's new exception will yield similar results as Alice leaving American innovation handicapped in critical emerging technologies.

Congress Will Not Reopen the Eligibility Problem for Years

Alice's vague abstract idea test contributed to China's dominance in nearly half of the 57 critical technologies by slowing American innovation in these sectors. PERA perilously enshrines this problem under different terminology. Congress is unlikely to revisit patent eligibility law for at least a decade as courts grapple with interpreting PERA. By then, the U.S. may fall irretrievably behind in CET innovation.

PERA should not become law without an amendment removing of Section 3(b)(1)(B), Section 3(2)(A), Section 4(b), and its supporting language in the Findings at Section 2(5)(D)(vi) and Section 2(5)(E)(i) and (ii).