

**Testimony of Manny Schechter
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**Subcommittee on Intellectual Property
Senate Judiciary Committee
The State of Patent Eligibility in America: Part III
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Chairman Tillis, Ranking Member Coons, and Members of the Subcommittee, thank you for the opportunity to provide IBM's view on the proposed reforms to sections 101 and 112 of the Patent Act as contained in the draft bill text released by this subcommittee on May 22nd of this year. Patent eligibility and patent quality are among the most critical issues in U.S. patent law today, and IBM commends Congress for working on reform of section 101. We appreciate that you are taking a balanced approach that welcomes wide input and accounts for the variety of interests at stake.

My name is Manny Schechter, and I am the Chief Patent Counsel at IBM. In my ten years in this role and thirty or so years as an IBM attorney, improving patent quality has been and continues to be a key focus area. IBM has for over a century been at the forefront of technological innovation and has been a responsible steward of bringing those inventions to the marketplace to help our clients and the people they serve.

From this rich history and from our leadership in cutting edge research and development of the latest technologies from artificial intelligence to quantum computing, IBM strongly supports the draft bill. This draft bill text would, for the first time in decades, meaningfully address the various concerns that have brought us to this point.

IBM appreciates the opportunity to provide input and looks forward to helping move this needed reform forward to become legislation.

A. Summary

IBM is committed to ensuring that our patent system is robust and innovation is encouraged, features which have been and continue to be critical to the strength of the United States economy. IBM makes a significant investment in research and development of more than \$5 billion per year.¹ As one of the world's leading innovators with a history of advocating for improvements in the quality of patents, we believe IBM is well positioned to understand the

¹ IBM 2018 Annual Report, at 122.

important role of the patent system in the U.S. and how to promote a balanced patent system that will benefit patentees, implementers, and the public.

In my testimony today, I will discuss the current lack of clarity created by judicially imposed patent eligibility standards. The inherent ambiguity of these standards has made it more difficult to obtain and enforce patents, especially with respect to a key driver of our economy -- computer implemented inventions.

In IBM's experience, the current patent eligibility standards do not provide the certainty needed to enable modern business to operate effectively. As one Federal Circuit judge explained, this case law "renders it near impossible to know with any certainty whether the invention is or is not patent eligible."² Another Federal Circuit judge further noted that, "[d]espite the number of cases that have faced these questions and attempted to provide practical guidance, great uncertainty yet remains. And the danger of getting the answers to these questions wrong is greatest for some of today's most important inventions in computing, medical diagnostics, artificial intelligence, the Internet of Things, and robotics, among other things."³

IBM understands the current judicially imposed limits on patent eligibility mitigate concerns some have about infringement assertions based on poor quality patents. As patents are asserted against IBM's products and services on occasion, we share those concerns. However, the application of a vague and unpredictable eligibility standard is not the correct way to address this problem. Rather, patent quality is more appropriately addressed by the patent law's inventiveness and disclosure requirements, the latter of which is strengthened in this bill.

My testimony also comments on the language of the draft bill text released on May 22nd. The draft bill text accomplishes the key objectives of patent eligibility reform, including the primary goals of improving clarity and predictability in the law.

The draft bill text is a significant improvement over the current case law, and other proposed legislative solutions, because it:

- minimizes new language requiring further judicial interpretation;
- contains a sound way to address the problems caused by the current case law – expressly abrogating the judicially created exceptions to eligibility;
- clarifies that subject matter eligibility determinations should not be conflated with the novelty and non-obviousness concerns of sections 102 and 103;
- requires that claims be considered as a whole to ensure that courts properly evaluate the claims for determining what the inventor has invented; and

² *Interval Licensing v. AOL*, 896 F.3d 1335, 1348 (Fed. Cir. 2018) (Plager, J., concurring-in-part and dissenting-in-part).

³ *Smart Systems Innovations v. Chicago Transit Authority*, 873 F.3d 1364, 1450 (Fed. Cir. 2017).

- clarifies that the eligibility requirements in section 101 “should be construed in favor of eligibility”.

The confused state of the patent law’s eligibility requirement led two Federal Circuit judges to call for intervention by Congress to clarify the law.⁴ They are right. IBM urges this subcommittee to take up legislation that clarifies the patent law and erases doubts as to whether innovations are patentable subject matter.

B. IBM’s Commitment to Innovation Is Supported by the Patent System

IBM has a deep appreciation of, and commitment to, technology development and scientific pursuits. In 2018, IBM received patents for inventions including use of artificial intelligence to help people converse, protect the earth's lakes, and combat voice phishing.⁵ On eight occasions, more times than any other company or organization, IBM has been awarded the U.S. National Medal of Technology, the nation’s highest award for technological innovation. IBM’s employees have included six Nobel laureates and recipients of ten U.S. National Medals of Technology, five U.S. National Medals of Science, and six Turing Awards, nineteen inductees in the National Academy of Sciences, and twenty inductees into the U.S. National Inventors Hall of Fame.

IBM has been a leading innovator in information technology for a century and inventions are critical to our success. A smattering of examples of IBM’s developments include the first high level programming language (FORTRAN), relational databases, universal product codes, breakthroughs in nanotechnology, and pioneering work in speech recognition and artificial intelligence.⁶ IBM has introduced the world to technology that the global community takes for granted today, including the dynamic random access memory (DRAMs) found in nearly all modern computers and disk drives that store vast quantities of information. We have invented technologies that have served as the catalyst for entire industries.

Innovation today is characterized by global collaboration, multidisciplinary innovation, interconnected technologies, and complex products incorporating multiple inventions. This is true at IBM as well as other companies that rely on the patent system to protect their inventions. At IBM, we use our extensive patent portfolio in many ways, such as: (1) protecting the inventions of our scientists and engineers, especially in groundbreaking, emerging technologies such as quantum computing and artificial intelligence; (2) preserving our ability to

⁴ *Berkheimer v. HP Inc.*, 890 F.3d 1369, 1374 (Fed. Cir. 2018) (Lourie, J.) (concurring in denial of petition for rehearing en banc).

⁵ IBM News Room, “IBM Earns Record 9,100 Patents in 2018, Tops U.S. Patent List,” available at <https://newsroom.ibm.com/2019-01-08-IBM-Earns-Record-9-100-Patents-in-2018-Tops-U-S-Patent-List>.

⁶ For details on these and other IBM innovations, see <https://www.ibm.com/ibm/history/ibm100/us/en/icons/>

provide the innovative solutions that clients are asking us for; and (3) facilitating collaboration with other innovators and across industries. Protection of many of these groundbreaking innovations has become harder to achieve due to the state of patent eligibility in the United States today.

IBM has also taken significant steps to increase the quality of patents and stimulate innovation. For example, in 2006, in collaboration with the U.S. Patent and Trademark Office (“USPTO”) and other companies, IBM helped establish the Peer-to-Patent project. This project enabled experts to contribute evidence of prior inventions via a website, helping patent examiners better evaluate the patent-worthiness of an application. IBM strongly supported the America Invents Act, which contained patent quality enhancement provisions including authorizing submission of evidence of prior invention during examination and establishing the ability to challenge the validity of issued patents. Further, IBM has frequently filed amicus briefs with the courts advocating for decisions in patent matters that balance the interests of both inventors and implementers.

C. The “Abstract Ideas” Test is Inherently Ambiguous

As Justice Stevens noted, in “the area of patents, it is especially important that the law remain stable and clear.”⁷ But the current patent eligibility analysis that is based on *Alice Corp. v. CLS Bank*⁸ and related court decisions does not provide a meaningful standard for identifying patentable subject matter. *Alice* calls for a number of inquiries that give the appearance of reasoned analysis, but these inquiries are so amorphous that the outcome is inherently subjective. The problems with this approach cannot be fixed by the usual course of case-by-case development.

In *Alice*, the Supreme Court announced that a two-step test should be applied to determine if a computer related invention is the type of subject matter that is eligible to be patented. First, determine if the claim is directed to an “abstract idea” (step 1). If so, then the claim is not the type of invention that can be patented . . . unless it recites “something more” than the abstract idea (step 2). This test is fatally flawed for many reasons. Step 1 yields arbitrary results because there is no sufficient definition of “abstract idea” to which an invention is “directed”. The identification of an “abstract idea” is itself too abstract. Step 2, determining if the claim has “significantly more” than the abstract idea, simply compounds the degree of subjectivity and confusion. There is simply no standard for judging whether a limitation is significantly more than an abstract idea, which itself cannot be identified.

⁷ *Bilski v. Kappos*, 561 U.S. 593, 614 (2010) (Stevens, J., concurring).

⁸ *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014).

D. Lack of Strong and Predictable Patent Protection Undermines Innovation

Narrowing eligibility standards for inventions undermines the patent system's ability to foster collaboration and discourages public disclosure of inventions. Congress should override the judicially created requirements and take steps to ensure the test for patent eligibility is more clear and predictable. Without the changes made by the draft bill, the following problems created by the current confusion in the law of eligibility will continue.

1. The ability to protect inventions is reduced. As recognized by President Lincoln, who was an inventor, the patent system adds “the fuel of interest to the fire of genius.”⁹ When the government grants patents to inventors, it gives them the right to exclude others from practicing the patented inventions. By enabling inventors to exclude others from practicing their inventions, and allowing inventors to generate a return on their investment of sweat and treasure, the patent system incentivizes creativity and the generation of new inventions.

Patent protection facilitates attracting investment capital for R&D in all fields, including computer implemented inventions. Investors naturally want to see a return on their investment. In today's economy, where the main value created often takes the form of intellectual property (which very often regards software), companies need to show that the intellectual property they have created through R&D expenditures can be adequately protected. If not, other entities will be able to take advantage of their innovations without compensation to the innovator, in which case investors will direct less capital into this field. This is of particular importance in emerging technologies such as quantum computing, artificial intelligence, blockchain, and the internet of things.

As discussed above, the Supreme Court's case law has created uncertainty in the courts that has narrowed the ability to obtain and enforce patents, especially in cutting edge areas of innovation. In some cases, patent eligibility seems to swallow up all of patent law. In *ChargePoint v. SemaConnect*,¹⁰ for example, the issue was the eligibility of an invention relating to a distributed network of charging stations for electronic vehicles. The claims recited various hardware elements (such as electric supplies, electric vehicles, transceivers, servers, wide area networks, etc.). After evaluating the conventionality of claim elements, parsing the claims to their gist, and searching for inventive concepts, the Federal Circuit found these network claims

⁹ Abraham Lincoln, “Second Lecture on Discoveries and Inventions, February 11, 1859,” reprinted in *Collected Works of Abraham Lincoln*, Volume 3, at 363 (available at <http://quod.lib.umich.edu/l/lincoln/lincoln3/1:87?rgn=div1;view=fulltext>).

¹⁰ *ChargePoint, Inc. v. SemaConnect, Inc.*, App. No. 2018-1739, 2019 U.S. App. LEXIS 9191 (Fed. Cir. March 28, 2019).

ineligible. The patent owner was forced to spend time and money litigating (unsuccessfully) the eligibility of claims that most observers considered to be statutory subject matter.¹¹

Moreover, we are concerned about the ripple effect throughout the broader economy, as artificial intelligence and other advanced software innovations are increasingly infused across all industries, such as automotive, healthcare, and manufacturing. In his 2011 essay “Why Software is Eating the World,” technology entrepreneur Marc Andreessen explained how software enabled innovations had become the main value driver throughout our economy.¹² That is true more than ever today, and software is expected to play an even bigger role in the future. In other words, it is not just the traditional software industry or the “technology sector” that benefits from computer-related inventions. Rather, innovations in almost every economic sector generally involve and are embodied in computer technology (e.g., software). Even simple objects, such as a pencil, may be first specified using computer aided design tools or manufactured using the software tools underlying 3D printing.

This is why we believe it is vital for Congress to improve certainty in the law and to restore balance around the role of patent eligibility. IBM supported many of the reforms that the patent system has seen over the last decade, but the current lack of clarity undercuts the potential of the information technology industry.

2. The dissemination of knowledge is reduced. One of the important features of the patent system is that it requires inventors to disclose to the world their invention and how to make and use it. As it is uncertain whether a new invention constitutes eligible subject matter under the current vague test, inventors are more likely to keep an invention secret instead of filing a patent application, thus depriving the public from learning about the invention. Since Congress passed the Defend Trade Secrets Act of 2016, creating a general Federal law of trade secrets, there has been renewed focus on using a trade secret approach to protect a company’s innovations. While trade secret law has its place in an overall strategy, the lack of predictability in patent eligibility, especially for many computer implemented inventions, will steer some innovators away from patent filing and toward keeping their inventions from the public.

In addition, patent protection facilitates collaboration because partners typically rely on pre-existing patents to prevent the other party to a collaboration from taking the innovations disclosed. As today’s research initiatives are highly technical and complex and the costs too high for most organizations to go it alone, companies routinely enter into joint development agreements (JDAs) with research partners. Through these JDAs, partners typically cross-license each other’s patents, but only for the purposes of that research effort. If there are background patents on the underlying technology, the partners would likely need to grant a broader cross-license in order to commercialize the resulting technology. If it is difficult or impossible to

¹¹ See IP Watchdog, “The Federal Circuit Just ‘Swallowed All of Patent Law’ in *ChargePoint v. SemaConnect*,” April 2, 2019, available at <https://www.ipwatchdog.com/2019/04/02/federal-circuit-just-swallowed-patent-law-chargepoint-v-semaconnect/id=107917/>.

¹² Marc Andreessen, “Why Software Is Eating the World,” Wall Street Journal (Aug. 20, 2011).

enforce patents on a particular subject matter, such as computer implemented inventions, there is increased risk that disclosure of innovations to a research partner may result in that partner commercializing those innovations without just compensation. This holds back collaboration and retards the progress of technology.

3. Patent protection for cutting-edge computer related inventions is diminished. This nation's founders recognized that patents promote technological progress,¹³ and for more than two centuries a strong U.S. patent system has been a central part of the U.S. economic engine that has led the world in the creation of new technology. While there is always room for improvements in any system, no one can credibly suggest that we would be better off without patents. But the judicially created eligibility hurdles have made it more difficult to obtain and enforce patents for worthy inventions. Although a central feature of the patent system has historically been that it is technology neutral, the current law of statutory subject matter favors some technologies over others. The incentives for creating any software-implemented innovation should be the same as for any other type of innovation. As then-USPTO Director David Kappos noted, "patent protection is every bit as well-deserved for software-implemented innovation as for the innovations that enabled man to fly, and before that for the innovations that enabled man to light the dark with electricity, and before that for the innovations that enabled the industrial revolution."¹⁴ There is no reason that the patent system should disfavor software innovation.

The judicially imposed patent eligibility requirements prejudice computer related inventions because abstraction is one of the fundamental principles of software engineering. As a professor of computer science explained, "computing is all about constructing, manipulating, and reasoning about abstractions."¹⁵ Abstract concepts and mathematical principles are important to all fields of science and engineering, but they are more directly at the root of computer related innovation. For this reason, the current judicially created eligibility test has a more direct impact on computer related inventions than on other types of technologies except, perhaps, for the life sciences. Thus, the majority of the subject matter eligibility cases over the past few years have involved inventions that are implemented on a computer. (But note that, as discussed above, software is the medium of innovation for almost every industry today).

Like many other companies, IBM is dedicated to innovating in the field of information technology and we rely on the patent system to protect past inventions and help incentivize future innovation. Advances in information technology have literally changed the world during our lifetimes, but there are still many great frontiers on the horizon and we should not

¹³ U.S. Const., Article I, sec. 8, cl. 8; Patent Act of 1790, ch. 7, 1 Stat. 109 (Apr. 10, 1790).

¹⁴ David Kappos, Under Sec'y of Commerce for Intellectual Prop., "Keynote Address at the Center for American Progress: An Examination of Software Patents" (Nov. 20, 2012) (available at <https://www.uspto.gov/about-us/news-updates/examination-software-patents>).

¹⁵ Jeff Kramer, "Is abstraction the key to computing?," Comm. of the ACM. 50 (4) 36 (April 2007) (quoting K. Devlin, "Why universities require computer science students to take math," Comm. of ACM 46 (9) 37 (Sept. 2003)).

withdraw benefits of the patent system from this space by imposing vague and overly restrictive subject matter eligibility requirements. The patent system should not abandon the technology neutral principles that have fueled the U.S. economy for more than two centuries – any bias against computer implemented innovations should be eliminated.

E. Congress Has a Vital Role to Play

Congress, not the courts, should set eligibility requirements. Defining the metes and bounds of the patent system is fundamental to our country’s innovation policies, and major changes to patent eligibility like those created by the courts are the province of Congress to make – or correct – by hearing from stakeholders and weighing the effect on our economy. As the Supreme Court put it in *Microsoft v. i4i Ltd.*, the courts are “in no position to judge the comparative force of these policy arguments.”¹⁶ Further, “[i]ndividual cases, whether heard by [the Federal Circuit] or the Supreme Court, are imperfect vehicles for enunciating broad principles because they are limited to the facts presented.”¹⁷

This is borne out by the past forty years of failed attempts by the courts to devise a test for patent eligibility of computer implemented inventions.¹⁸ The Federal Circuit recently noted in *Amdocs v. Openet* that there is no “single, universal definition of ‘abstract idea.’”¹⁹ As the *Amdocs* panel acknowledged, the failure to develop a definition that is at least usable or workable “is not for want of trying; to the extent the efforts so far have been unsuccessful it is because they often end up using alternative but equally abstract terms or are overly narrow.”²⁰ Congress should act rather than wait for the courts to try to sort this out.

The USPTO has improved the application of the eligibility test during patent examination, particularly by issuing the 2019 revised guidance, but the USPTO is not empowered to define

¹⁶ *Microsoft Corp. v. i4i Ltd. P’ship*, 564 U.S. 91, 113 (2011).

¹⁷ *Berkheimer*, 890 F.3d at 1374 (Fed. Cir. 2018) (Lourie, J.) (concurring in denial of petition for rehearing en banc).

¹⁸ *Flook* was decided forty-one years ago, and *Diehr* was decided thirty-eight years ago. See *Parker v. Flook*, 437 U.S. 584 (1978); *Diamond v. Diehr*, 450 U.S. 175 (1981). The litany of different tests since then is very long. For example, one test for subject matter eligibility in use during the 1980s and 1990s was the *Freeman-Walter-Abele* test, which itself went through years of evolution. See *In re Freeman*, 573 F.2d 1237 (C.C.P.A. 1978); *In re Walter*, 618 F.2d 758 (C.C.P.A. 1980); *In re Abele*, 684 F.2d 902 (C.C.P.A. 1982). This test was largely replaced by the “practical application” and then “useful, concrete and tangible results” tests in the mid-1990s. See *In re Alappat*, 33 F.3d 1526 (Fed. Cir. 1994); *State Street Bank v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998). A third test was the “machine or transformation test,” which the Supreme Court has suggested is still a “useful clue,” *Bilski v. Kappos*, 561 U.S. 593, 603 (2010), though it is not clear how exactly it should be used today.

¹⁹ *Amdocs Ltd. v. Openet Telecom*, 120 U.S.P.Q.2D 1527, 1531 (Fed. Cir. 2016).

²⁰ *Id.* at 1531-32.

the law of patent eligibility. It is still an open question as to how the evolving and inconsistent analysis among the courts will comport with the USPTO's 2019 revised guidance, but the Federal Circuit recently made clear that it does not feel bound by the USPTO positions on this issue.²¹ If courts view the eligibility analysis differently from the USPTO, the revised guidance could unfortunately lead not to more certain patent rights, but rather to a great expenditure of applicant and agency resources resulting in patents that the courts consider ineligible. This has happened before. In 1996, the USPTO issued guidance under which a claim was considered to represent patentable subject matter if "it is limited by the language in the claim to a practical application in the technological arts," which has some similarity with the 2019 revised guidelines.²² After *CLS Bank v. Alice* and subsequent court decisions, thousands of patents that were examined under the USPTO's 1996 guidance were held or assumed to be ineligible under section 101. While IBM welcomed the USPTO's 2019 revised guidance as a better tool for patent examiners, the guidance still contains ambiguity. For example, the "practical application" test at the heart of the 2019 revised guidance left unclear how applications transition from being "impractical" to being "practical."

Congress has an important role to play to restore predictability to the law of patent eligibility. The draft bill text is a great advance toward achieving those objectives.

F. Patent Quality is Best Addressed by Improvements to the Disclosure Requirements

Some have supported the current judicially imposed limits on patent eligibility as a remedy for concerns they have about attempts to enforce poor quality patents. We understand and share those concerns. The risk from poor quality patents has been greatly reduced by judicial decisions on obviousness, patent remedies, and fee shifting. Even more helpful have been the USPTO post-issuance validity review processes provided for in the America Invents Act, which IBM strongly supported.

Sections 102, 103 and 112 can be used to weed out attempts to patent inventions that are too broad. The broader the claim is to an invention, the more likely that claim will not be new or will be obvious. The scope of the prior art is wide, and modern information technology has made it easier and cheaper to find identical or close prior art. The obviousness requirement is robust, particularly with the availability of the pre-issuance and post-issuance procedures of the America Invents Act. And the section 112 requirements are a significant tool for limiting overbreadth. The draft bill text further addresses poor quality patents through improvements to section 112.

²¹ *Cleveland Clinic v. True Health*, App. No. 2018-1218, 760 Fed. Appx. 1013, **16 (Fed. Cir., Apr. 1, 2019) (non-precedential) ("While we greatly respect the PTO's expertise on all matters relating to patentability, including patent eligibility, we are not bound by its guidance.").

²² See U.S. Patent & Trademark Office, "Examination Guidelines for Computer-Related Inventions," 61 Fed. Reg. 7478, 7484 (Feb. 28, 1996).

G. IBM Strongly Supports the Draft Bill Text

If enacted, the draft bill text would reduce uncertainty of patent rights, diminish collateral damage to high quality patents, and improve the integrity of the patent system. The draft bill text clarifies the law by returning to the simple statutory requirements Congress enacted in the Patent Act.

1. We support the bill's approach of starting anew. A prime achievement of the draft bill text is the express abrogation of the judicially created subject matter eligibility doctrines such as the current "abstract ideas" exception, as previously discussed, as well as other past vague and difficult to apply tests.²³
2. We support eliminating subjectiveness and improving clarity. IBM supports the new section 101(b) and the additional legislative provisions of the draft bill text, which clarify eligibility requirements and prohibit parsing and comingling.

Parsing is improper because Applicants take great care to draft claims, as section 112(b) requires, "particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention."²⁴ Inventors have to abide by their claims when it comes to determining if another party is infringing those claims. Accordingly, the patentability of inventions should be evaluated based on the claimed invention as defined by the inventor.

The section 102, 103 and 112 requirements play an important role in the patent system, but these separate and independent requirements should not be comingled with eligibility analysis. It is important that new legislation require eligibility analysis to consider the invention as a whole and prohibit considerations during that analysis of the novelty, non-obviousness, claim scope, or disclosure support. In addition, IBM supports the removal of the word "new" from section 101 because it clarifies that section 101 should not be conflated with the novelty and non-obviousness concerns of sections 102 and 103.

3. The draft bill text takes a balanced approach. The addition of new section 100(k) is also part of a balanced approach that addresses the concerns some have with poor quality patents by making clear that not all inventions are patent eligible under section 101. We recommend that an indication of the scope of the intended limitations on eligibility in section 100 be added to lend clarity and help avoid misguided judicial interpretation.

Similarly, IBM views the amendment of section 112(f) in the draft bill text as part of a balanced approach to achieving subject matter reform. As part of the other amendments contained in

²³ See fn 18, above, for a partial list of some of the various tests that have been used over the years.

²⁴ 35 U.S.C. § 112(b) (2019).

the draft bill text, the changes to section 112(f) represent a reasonable compromise by addressing concerns some have that patent owners have enforced vague, functional limitations in an improper manner.

H. Conclusion

IBM believes that the draft bill text takes a balanced approach, enabling the patent system to better promote innovation, and serves the best interest of the American public. We would be pleased to work with you to advance the draft bill text through to enactment.