March 8, 2019

The Honorable Andrei Iancu
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Director of the United States Patent and Trademark Office
U.S. Patent and Trademark Office
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Attention: June E. Cohan, Senior Legal Advisor, Carolyn Kosowski, Senior Legal Advisor, Office of Patent Legal Administration

Department of Commerce
United States Patent and Trademark Office
2019 Revised Patent Subject Matter Eligibility Guidance
Federal Register Volume 84, Issue 4 (Jan. 7, 2019)

Dear Under Secretary Iancu:

TiVo appreciates the opportunity to comment on the 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019) ("PEG"). As a leading innovator in the media and entertainment industry, TiVo relies on the U.S. patent system to provide strong, reliable protection for its patented innovations.

Introduction

It is axiomatic that a properly working patent system requires an eligibility standard to inform the public of what can and cannot be patented. The Supreme Court's *Alice/Mayo* eligibility test[1] is not such a standard. Thus, in the U.S., no one can say with certainty which inventions can be patented.[2]

Implementation of the *Alice/Mayo* test, by both the courts and the USPTO ("the Office"), has damaged U.S. innovation and generated confusion among participants in the U.S. patent system.[3] It is widely accepted that the standard must be changed,[4] and while the Office lacks authority to alter the standard,

[1] *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 134 S. Ct. 2347 (2014); *Mayo Collaborative Servs. V, Prometheus Labs, Inc.,* 566 U.S. 66, 132 S. Ct. 1289 (2012).
[2] *See e.g.*, Gene Quinn, Iancu: People Have a Right to Know What is Patent Eligible, IP Watchdog (June 11, 2018), https://www.ipwatchdog.com/2018/06/11/iancu-right-know-patent-eligible/id=98326/ (reporting on Director Iancu's keynote address at IPBC).
[3] *See generally id.*; Mosoff et, al., *Turning Gold to Lead: How Patent Eligibility Doctrine is Undermining U.S. Leadership in Innovation*, 24 GEO. MASON L. REV. 939 (2017).
[4] *See, e.g.*, *Interval Licensing LLC v. AOL, Inc.,* 896 F.3d 1335, 1348 (Fed. Cir. 2018) (Plager, J. concurring in part and dissenting in part); *Smart Sys. Innovations, LLC. v. Chicago Transit Auth.*, 873 F.3d 1364, 1377 (Fed. Cir. 2017) (Linn

the 2019 Revised Patent Subject Matter Eligibility Guidance ("the PEG") adds an important degree of structure and predictability to the *Alice/Mayo* test by addressing two key questions left unanswered by the *Alice/Mayo* framework: What are the contours of the abstract idea exception?; and When is a claim "directed to" a judicial exception?

The PEG is, therefore, a needed and meaningful act of leadership on the part of the Office to address a fundamental problem with the U.S. patent system. We applaud Director Iancu and the Office for their leadership and hope that it serves to catalyze Congress to comprehensively repair U.S. patent eligibility.

Background – The State of U.S. Patent Eligibility and the Case for Legislative Reform

For over two centuries, American inventors have plied their ingenuity to create the innovations that shape our modern life and push the world to its highest civilization.[5] Our lives benefit from electric lighting, manned flight, the automobile, the assembly line, the transistor, the computer, the Internet, mobile communications and the list goes on. Over ten million U.S. patents stand testament to the impact of the greatest compact between inventors and the public the world has ever known. [6]

But we are now confronting the greatest challenge to American innovation leadership. Federal courts applying the *Alice/Mayo* test have declared broad areas, such as advertising technology, medical diagnostics, gene sequencing, computerized transactions, gaming, computer aided circuit design, etc., off limits from patenting.[7]

In the years since the 2014 *Alice* decision, the types of inventions that have been deemed ineligible for patenting in the U.S. are at once dizzying and deeply troubling to anyone who believes patenting promotes innovation. They include, for example, inventions that: (a) eliminate the need for amniocentesis when screening for genetic disorders such as Downs Syndrome,[8] (b) scan computer software for viruses,[9] (c) monitor electrical grids in real-time to detect vulnerabilities,[10] (d) enable manufacture of vibration reduced automobile drive axles,[11] (e) encrypt access to computer services to

J., dissenting in part and concurring in part); *Berkheimer v. HP, Inc*., 890 F.3d 1369, 1376 (Fed. Cir. 2018) (Lourie J., joined by Newman J., concurring in denial of rehearing *en banc*).

[5] *See* Under Secretary of Commerce for Intellectual Property and Director of the USPTO Andrei Iancu, Remarks at the Ceremonial Swearing-In (Feb. 23, 2018) (transcript *available at* https://www.uspto.gov/about-us/news-updates/remarks-director-andrei-iancu-ceremonial-swearing-ceremony).

[6] *See, e.g.,* USPTO, *10 Million Patents*, *at* https://10millionpatents.uspto.gov/.

[7] *See, e.g.,* Bitlaw, *Section 101 Court Cases*, at https://www.bitlaw.com/patent/section-101-cases.html. It is noteworthy that decisions affecting these areas have not uniformly found patents ineligible. As the PEG itself notes, "… similar subject matter has been described both as abstract and not abstract in different cases." 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 54 (Jan. 7, 2019). Perhaps more harmful than a uniformly applied exclusion, current *Alice/Mayo* case law poses a high-stakes game of Russian roulette for innovators.

[8] *See Ariosa Diagnostics Inc. v. Sequenom, Inc*., 788 F.3d 1371 (Fed. Cir. 2015).

[9] *See Glasswall Sols. Ltd. v. Clearswift Ltd.*, No. 2018-1407, 2018 WL 6720014 (Fed. Cir. Dec. 20, 2018).

[10] *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016).

[11] *See Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 309 F. Supp. 3d 218, 221 (D. Del. 2018).

foil hackers,[12] (f) identify a heretofore undiagnosed neurological disease,[13] and (g) prevent identity theft when using bank cards.[14]

Each of these, and many more inventions like them, have been deemed ineligible for patenting, free for others to copy despite their inventors' investment, without any considerations of novelty or obviousness because the analysis never gets that far.[15] Rather these patents are disqualified because they are the types of innovations the Court—based not on any express statutory language, but rather based entirely upon judicially contrived categorical exceptions to the statute—believes are not intended for patent consideration in the first place.

So egregious are these outcomes that lower courts have openly decried the decisions they hand down as bad for society and as discouraging the precise innovation the patent system seeks to encourage.[16] But, as these judges explain, the *Alice/Mayo* test binds courts to lamentable results.[17]

The idea that the same country that pioneered most modern innovations that shape our lives now holds, without public hearings or congressional act, broad swaths of the most technologically important disciplines exempt from even consideration for patent protection is astonishing. It is hard to imagine our country suffering a costlier self-inflicted wound.[18] If we fail to act, the next two centuries of innovation leadership will not belong to America.

So how did this happen?

For over 150 years, the U.S. Supreme Court has held that the discovery of a fundamental principle (now categorized as laws of nature, abstract ideas and natural phenomena)—standing alone—is not the

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[12] *See Kinglite Holdings Inc. v. Micro-Star Int'l Co.*, No. CV1403009JVSPJWX, 2016 WL 6762582 (C.D. Cal. July 6, 2016).
[13] *See Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC*, No. 2017-2508, 2019 WL 453489 (Fed. Cir. Feb. 6, 2019).
[14] *See Mantissa Corp. v. Ondot Sys., Inc.*, 267 F. Supp. 3d 918 (S.D. Tex. 2017).
[15] *See, e.g.,* Meredith Addy, Alice at Age Four: Time to Grow Up, IP Watchdog (Sept. 18, 2018), https://www.ipwatchdog.com/2018/09/18/alice-age-four-grow-up/id=101447/. *Alice at Age Four* notes that of 810 District Court 101 cases, 480 cases have found patents ineligible and 355 of those were decided at Rule 12 pleading stage. The article further notes that there have been only 122 appeals from these 480 holdings and of these 57 received an opinion and the rest were handed Rule 36 affirmances. Of the remaining 56 the CAFC has remanded or overturned only 9 times. "If those numbers don't confirm the benefits of efficient infringement, I'm not sure what does."
[16] *See, e.g., Ariosa*, 788 F.3d at 1380 (Linn, J. concurring "only because [the Judge was] bound by the sweeping language of the test set out in *Mayo*."). *Interval Licensing LLC v. AOL, Inc.*, 896 F.3d at 1355 (Fed. Cir. 2018) (Plager, J., concurring-in-part and dissenting-in-part) ("The problem is that [the abstract idea test] does not distinguish good from ill in any coherent sense, and thus does not serve well either patent law or the public.").
[17] *Id., see also Smart Sys. Innovations, LLC. v. Chicago Transit Auth.*, 873 F.3d at 1376 (Linn J., dissenting in part and concurring in part) ("I concur with that part of its decision, not because the inventions covered by the claims do not deserve patent protection but because I am bound by precedent to reach that conclusion.").
[18] *See, e.g.*, President Donald J Trump, Accelerating America's Leadership in Artificial Intelligence, The White House (2019), https://www.whitehouse.gov/articles/accelerating-americas-leadership-in-artificial-intelligence/ (*last visited* Feb 24, 2019) (warning against ceding American technological leadership in AI technology to other nations).

proper subject for patent protection.[19] Patent eligibility, the Court has held, requires an application of such discoveries. For the first century of this period, the Court, following the example set out in seminal UK cases known as the Hot Blast cases,[20] held that the application of the fundamental principle need not be novel or inventive. Instead, the application of a principle could be routine (*i.e.*, a "practical application") and still be eligible for patenting under § 101. In delivering the benefits of the discovery to mankind, the Court and commentators reasoned that the inventive aspect of the discovery, even if the practical application of it is mundane, would suffice to confer patent eligibility because it was simply the necessary means to deliver the benefits of the discovery to the public.[21]

But in 1948, in *Funk Bros. v Kalo Innoculant*,[22] acting without Congress changing the underlying statue, and without the Court admitting that it was doing so, the Court abandoned its century of precedent to declare that newly discovered fundamental principles were to effectively be considered as part of the prior art and would be conferred no inventive weight in the eligibility determination. Instead, the eligibility of the invention suddenly turned solely on the inventiveness of the application of these discoveries (*i.e.*, eligibility required an "inventive application" of a fundamental principle).

Almost immediately after *Funk* was decided, Congress passed the Patent Act of 1952, the most comprehensive overhaul of U.S. patent law in its history. The 1952 Act reiterated the principle of its statutory predecessors that both invention and discoveries are subject to patent protection. Moreover, the Act created the doctrine of non-obviousness,[23] which intended to remove the notion of "inventiveness" from what had become a threshold determinant of patentability.[24] In other words, the 1952 Act should have rolled back *Funk's* holding by specifically reiterating the patentability of discoveries and eliminating the notion of inventiveness of their applications as a predicate for patent eligibility.

However, notwithstanding these changes and their own departure from a century of precedent, the Court continued, and to this day still continues, to press its view, at least in some of its holdings,[25] that eligibility requires an inventive application of a law of nature, abstract idea, or natural phenomenon. And the Court accords no inventive weight to the act of discovering principles that fall within these excluded categories.

The result of this intransigent and inconsistent judicial activism has been an incoherent jumble of case law that has hopelessly hindered the fundamental purpose of the patent system and has ever broadened the domain of science that is off limits for patent protection.

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[19] *See, e.g., Alice*, 573 U.S. at 216 ("We have repeatedly emphasized this . . . concern that patent law not inhibit further discovery by improperly tying up the future use of these building blocks of human ingenuity." (internal quotations omitted)).

[20] *See, e.g.,* Lefstin, Inventive Application: A History, 67 FLA. L. REV. 565, 579-93 (2015) (cataloging a series of UK cases known as the "Hot Blast" cases).

[21] *See, e.g., id.* at 578 (noting that courts in the UK and U.S. in the early 19th century determined eligibility on the basis of "practical application" rather than "inventive application).

[22] *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 68 S. Ct. 440 (1948).

[23] 35 U.S.C. § 103.

[24] Giles S. Rich, Principles of Patentability, 28 GEO. WASH. L. REV. 393, 404 (1960).

[25] *Diehr*, 450 U.S. 175, 188-89 101 S. Ct. 1048, 1058 (1981) ("The 'novelty' of any element or steps in a process, or even of the process itself, is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.").

When the Court struggles to draw a line between one of its excluded categories of fundamental principles and a patent eligible invention, it often remarks on the need to fashion its exceptions narrowly to reflect a recognition that "all inventions at some level embody, use, reflect, rest upon, or apply"[26] fundamental principles. The Court professes an understanding that crafting its exclusions too broadly might "swallow all of patent law."[27] Ironically though, its own departure from a well-accepted, long adopted, and statutorily supported framework has systematically swallowed patent law.

Since *Funk*, the Court has repeatedly attempted and failed to draw a line between the so-called "basic tools of scientific and technological work"[28] and patent eligible inventions.

At each attempt, the Court has put forth new tests that: (1) have been (despite its own pronouncements to the contrary) internally inconsistent with its earlier tests,[29] (2) defy application by lower courts and the Office,[30] (3) fail to consider issues related to later developed technology,[31] and (4) ultimately harm innovation.[32] But all the while the Court never seems to consider that these repeated failures might suggest a failure of their inventive application premise. Moreover, while mandating each of these new tests at a high level, the Court consistently refuses to define critical elements of the tests, or otherwise provide meaningful guidance on how it wants the lower courts and the Office to apply the framework. As such, the lower courts have not developed a robust, comprehensible, and consistent test or body of case law. The result has, instead, been an unending series of new tests and chaos for U.S. innovators.

The Court's Eligibility Approach Poses A Substantial Threat to American Innovation

The Court's inventive application approach reflects its assumption that some subject matter is too close to the basic building blocks of science to permit patenting and its belief that no inventive weight is to be ascribed to the discovery of these fundamental principles. Paradoxically, this ensures that the Court's impact will be felt at the cutting edge of innovation, where the patent system's proper operation is most important. It is not a coincidence, for example, that current eligibility case law focuses on software and advanced medical technologies. Rather, it is the very fact that these technologies have advanced as far as they have that makes them the current targets.

Software has eroded the barrier between man and machine to the point where the Supreme Court ascribes no patentable weight to computerizing any process that exists outside the realm of computers.[33] Biotechnology, for its part, has advanced to reveal the function of the human genome, but

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[26] *Mayo*, 566 U.S. at 71.
[27] *Alice*, 573 U.S. at 217.
[28] *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972).
[29] Lefstin, 67 FLA. L. REV. at 573 ("Unfortunately *Diehr*, beginning a pattern that would be repeated in *Mayo*, maintained the pretense that all of the Court's § 101 precedents were consistent with each other.").
[30] *See, e.g.,* 84 Fed. Reg. 50 and FN 2 (noting that "[m]any stakeholders, judges, inventors, and practitioners across the spectrum have argued that something needs to be done to increase clarity and consistency in how Section 101 is currently applied.").
[31] *See, e.g., Bilski v. Kappos*, 561 U.S. 593, 605, 130 S. Ct. 3218, 3227 (2010) (explaining that patents rules are difficult to create with yet to be invented technologies in mind).
[32] *See, e.g.,* Gene Quinn, The Supreme Court's Section 101 Jurisprudence: Dangers for the Innovation Economy, IP Watchdog (Dec. 1, 2016), https://www.ipwatchdog.com/2016/12/01/supreme-courts-section-101-jurisprudence-dangers-innovation-economy/id=75136/.
[33] So logically challenged is the law on software patent eligibility that the same function carried out using electrical circuitry or other means would be adjudged patent eligible whereas if an engineer chose software as her medium

it is our understanding of the operation of core human biological processes that causes the Court to draw eligibility lines at what it feels is too close to nature.

Thus, it is at the very edge of the man-machine and man-nature barriers that the Court aims it's § 101 jurisprudence, precisely where innovation and patent protection is most important. As software technology advances toward AI that will enable computers to augment human endeavors in previously unimaginable ways and as biotechnology enables genetic editing and other processes that promise to eradicate maladies that have plagued mankind for centuries, we can expect the Court again will admonish that we have gone too far, we are too close to the machine, too close to nature to warrant patenting. Is this the innovation policy we want for America?[34] Given the inherent risks and substantial costs involved in developing barrier-eroding breakthroughs, it is hard to overstate the danger of current jurisprudence.

The *Alice/Mayo* Test

The Court laid out the most recent incarnation of its eligibility test, the so-called *Alice/Mayo* test, in *Alice Corp. Pty. v. CLS Bank Int'l*.[35] The case involved a patent covering the use of a computer system as an intermediary between banks to permit only the transactions that are between parties that have adequate funds. Thus, the invention used a computer to mitigate settlement risk.

Finding the invention ineligible for patenting, the Court set forth its test for eligibility, which has been characterized by the Office and others as follows:

> Step 1 of the test involves confirming whether the claim is directed to a statutory category of patentable subject matter (*i.e.*, a process, machine, manufacture or composition of matter). Once confirmed, in Step 2A, the test requires determining whether the claim is "directed to" one of several judicial exceptions (*i.e.*, a law of nature, abstract idea, or natural phenomenon). If the claim is "directed to" a judicial exception, then the test continues at Step 2B and asks whether additional elements of the claim, beyond those reciting the exception, include "substantially more" than the exception itself so as to provide an "inventive concept" to the claim.

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of implementation, this mere design choice would potentially render the same function ineligible. (Brief for Int'l Bus. Machines Corp. as Amicus Curiae, p. 22, *Bilski v. Kappos*, 561 U.S. 593 (2010) (citing *Ex Parte Altman*, No. 2008-2386, 2009 WL 1709111, at *5 (BPAI May 29, 2009) and *Ex Parte Godwin*, No. 2008-0130, 2008 WL 4898213, at *2 (BPAI Nov. 13, 2008)).) This so-called functional equivalence dichotomy has never been addressed by the Court, but lays bare the illogic of the Court's eligibility jurisprudence in this area.

[34] *C.f.* Cade Metz, *Artificial Intelligence is Now a Pentagon Priority. Will Silicon Valley Help*, Ney York Times (Aug. 26, 2018) (reporting on a memorandum from Defense Secretary Jim Mattis to President Donald Trump raising concerns that the United States was not keeping pace with China in the artificial intelligence sector and raising national defense concerns); *see also* President Donald J Trump, Accelerating America's Leadership in Artificial Intelligence, The White House (2019), https://www.whitehouse.gov/articles/accelerating-americas-leadership-in-artificial-intelligence/ (last visited Feb 24, 2019) (noting that "American leadership in Artificial Intelligence is of paramount importance to maintaining the economic and national security of the United States.").

[35] 573 U.S. 208 (2014).

While the test is simply a straightforward iteration of the "inventive application" framework developed in *Funk*[36] and echoed in later decisions like *Flook*,[37] the Court heavily cites and claims to rely upon precedential opinions that directly contradict this inventive application approach. The Court, for example, relies on the Hot Blast cases and U.S. cases that were developed directly from those early English cases. These earlier cases all eschewed the inventive application approach[38] and instead apply the practical application approach.[39]

Applying the *Alice/Mayo* test, the Court explained that the use of a third-party intermediary to mitigate settlement risk was a building block of the modern economy (a "fundamental economic practice") which falls within a category of abstract idea articulated in its *Bilksi* decision.[40] The Court did not provide any definition, delineation, test or set of factors to measure whether a claim is abstract, but rather explicitly declined to provide any guidance on the boundaries of its abstract idea exception: "we need not labor to delimit the precise contours of the 'abstract ideas' category."[41]

This stunningly dismissive passage comes mere paragraphs after the Court's now-obligatory recitation of its cautious application of these exceptions "lest it swallow all of patent law."[42] In other words, the Court acknowledged that, unless narrowly tailored, its judicial patent eligibility exceptions are potential landmines that can eviscerate patent law but, having established that point, felt no obligation to provide the public with a map to help avoid them. Adding to this ambiguity, the Court failed to explain how to determine whether a claim is "directed to" an abstract idea in step 2A.[43]

To be fair, as in each prior eligibility case, the Court was confronted with a single patented invention, and it likely reasonably assumed that the more generalized boundaries of the abstract idea exception would be borne out by lower courts and the Office applying the test in subsequent matters.[44] In fact, the decision arguably reads as an invitation by the Court to have lower courts and the Office to fill out the undefined contours. An invitation now answered by the Office via the PEG.

Alice/Mayo has drawn broad criticism from the bench and industry.[45] The significant problem with the test is, once again, the Court's inventive application approach, which injects considerations of inventiveness, specifically expressly separate statutory rules of novelty and obviousness, when analyzing eligibility under § 101.

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[36] *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 68 S. Ct. 440 (1948).
[37] *Parker v. Flook*, 437 U.S. 584, 98 S. Ct. 2522 (1978).
[38] *See, e.g., Alice*, 573 U.S. at 216 (citing *O'Reilly v. Morse*, 15 How. 62, 112-30 (1854); *Le Roy v. Tatham*, 14 How. 156, 174-75 (1853)).
[39] Lefstin, Inventive Application: A History, 67 FLA. L. REV. 565, 579-93 (2015); *O'Reilly v. Morse*, 15 How. 62, 112-30 (1854); *Le Roy v. Tatham*, 14 How. 156, 174-75 (1853).
[40] *Alice*, 573 U.S. at 208 (citing *Bilski v. Kappos*, 561 U.S. 593, 130 S. Ct. 3218 (2010)).
[41] *Alice*, 573 U.S. at 221.
[42] *Id.* at 217 (citing *Mayo,* 556 U.S. at 70).
[43] *See, e.g., id.* at 217-21.
[44] However, given the fractured *en banc* decision of the Federal Circuit (*see generally CLS Bank Int'l v. Alice Corp. Pty.*, 717 F.3d 1269, 1274 (Fed. Cir. 2013), aff'd, 573 U.S. 208, 134 S. Ct. 2347, 189 L. Ed. 2d 296 (2014)) one might have also reasonably expected "significantly more" from the Court then a single dismissive sentence on the scope of abstract ideas.
[45] Michael Borella, Section 101 and the Growing Alice Backlash, Patent Docs (Mar. 15, 2016), https://www.patentdocs.org/2016/05/section-101-and-the-growing-alice-backlash.html.

In Step 2B, the *Alice/Mayo* test asks whether the additional claim elements beyond those that recite the judicial exception add "significantly more" to the claim than the exception itself such that those additional elements provide an "inventive concept" to the claim.

When considering whether there is "significantly more," the Court considers whether the additional claim elements are "well-understood, routine and conventional."[46] In other words, if the claim recites a judicial exception, the additional elements (*i.e.*, those elements that "apply" the judicial exception) are analyzed to determine if they add an inventive concept to the claim and that analysis is done using the notions currently addressed in the statutory sections related to novelty and obviousness (§§ 102 and 103). By performing this analysis under § 101 versus the proper statutory sections, it is conducted without the additional rigor that § 102 and § 103 provide, such as analyzing the claims in light of how a person of ordinary skill in the art would understand the claim terms, the prior art, and the state of technology at the time of the invention.[47]

Thus, the inventive application framework birthed some seventy years ago in *Funk* is alive and well in *Alice/Mayo*. By ignoring the inventive character of the discovery of an invention that is deemed within a judicially excepted category, and by using an undefined inventiveness metric applied to the application of that discovery—one that conflates eligibility with the other statutorily defined determinations—this ill-formed analytical crutch persists as the fundamental flaw in eligibility jurisprudence today.

The PEG must comport with the Court's *Alice/Mayo* framework and the warren of conflicting lower court opinions that lay in its wake. And it does so by attempting, admirably, to fill in gaps left by the Court. Specifically, the PEG attempts to answer threshold eligibility inquiries: what are the contours of the abstract idea exception and when are claims "directed to" a judicial exception such as an abstract idea?

The PEG

Step 1 of the *Alice/Mayo* test is unchanged. After establishing that a claim recites a statutory category (process, machine, manufacture or composition of matter) the test moves to Step 2.

Step 2A Prong 1 – What Are the Contours of An Abstract Idea?

Addressing the first question, the PEG looks to the now considerable body of post-*Alice* eligibility jurisprudence to arrive at a categorization of the types of innovations that may constitute an abstract idea.[48] Specifically, the PEG categorizes the inventions found to be patent ineligible abstract ideas into three categories: (1) mathematical concepts, (2) certain methods of organizing human activity, and (3) mental processes.[49]

Under the PEG, an examiner is required to determine, in prong 1 of Step 2A of the *Alice/Mayo* test, whether the claim recites a judicial exception.[50] If the examiner so finds and if the judicial exception

[46] *See Alice*, 573 U.S. at 225 (quoting *Mayo*, 556 U.S. at 73).
[47] *Mayo,* 556 U.S. 90 ("We recognize that, in evaluating the significance of additional steps, the § 101 patent-eligibility inquiry and, say, the § 102 novelty inquiry might sometimes overlap.").
[48] PEG, 84 Fed. Reg. 52-53, nn. 11-15.
[49] *Id.*
[50] *Id.* at 54.

recited is an abstract idea, the examiner is further required to identify the claim elements that recite the abstract idea and determine into which of the enumerated categories the abstract idea falls.[51]

If an examiner finds that the claim fails to recite a judicial exception under prong 1, the claim is eligible and the test ends. But if it is determined that the claims recite one of the judicial exceptions, including one of the categorized abstract ideas, then the test proceeds to prong 2 of Step 2A of the *Alice/Mayo* test in which the second question (whether the claim is "directed to" the abstract idea) is considered.

The categorization of the abstract idea exception adds a degree of needed precision to the determination of whether a claim recites an abstract idea. But the categories themselves reflect the difficulty of reconciling the irreconcilable post-*Alice* case law. These categories, without diligent application, are broad enough themselves to encompass nearly any conceivable invention and "swallow all of patent law."

The PEG does, however, provide specific examples of abstract ideas falling into each category. For example, the category entitled "certain methods of organizing human activity" includes "fundamental economic principles." As noted above, however, case law has not thoroughly defined this concept or what makes a given economic activity fundamental and, therefore, ineligible for patenting. Likewise, this category includes advertising, marketing, or sales activities but courts have found some of these activities patent eligible.[52] The PEG itself acknowledges that cases on seemingly similar subject matter have resulted in divergent eligibility outcomes.[53]

Bound as it is by case law, the Office is not free to unravel the conflicting eligibility decisions of the courts. Thus, while categorization will help add needed rigor, and even some structure, to the process of identifying an abstract idea, the "precise contours" of the abstract idea will remain elusive. Undoubtedly, it is for this reason that the Office includes prong 2 in Step 2A of the PEG.

Step 2A Prong 2 – When is a Claim "Directed To" a Judicial Exception?

Addressing the second question in prong 2 of Step 2A of the *Alice/Mayo* test, the PEG instructs the examiner to evaluate the claim as a whole to determine whether it integrates the judicial exception into a "practical application" of the exception.[54] Step 2A applies to all judicial exceptions and not just abstract ideas.[55] The PEG further notes that:

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[51] *Id.* ("To determine whether a claim recites an abstract idea in Prong One, examiners are now to: (a) Identify the specific limitation(s) in the claim under examination (individually or in combination) that the examiner believes recites an abstract idea…").

[52] *See, e.g., DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (". . .the claims address a business challenge (retaining website visitors) . . .").

[53] In fact, among the most significant challenges with eligibility case law is that courts have used the *Alice/Mayo* standard as cudgel to quickly dispense with patent infringement cases, declaring broad areas of invention abstract and thus ineligible in proceedings that often lack fully developed evidentiary and claim construction records or the proper technological experts needed to explain the significance of the invention to lay judges. No level of categorization or compartmentalization will suffice to provide predictability to outcomes arrived at in this manner. *See, e.g.,* PEG, 84 Fed. Reg. 52 (noting that under *Alice/Mayo* "similar subject matter has been described both as abstract and not abstract in different cases").

[54] PEG, 84 Fed. Reg. 54-55.

[55] *Id.* at 54.

> A claim that integrates a judicial exception into a practical application will apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception.[56]

If the claim integrates the judicial exception into a practical application, the claim is deemed not "directed to" the judicial exception and is patent eligible. If the claim does not integrate the exception into a practical application, then the analysis of the claim continues to Step 2B of the *Alice/Mayo* test where the examiner determines whether the additional claim elements add "significantly more" such that the claim includes an "inventive concept" that renders the claim patent eligible.[57]

The PEG explains that under prong 2 of Step 2A, examiners must identify the additional claim elements beyond those reciting the judicial exception and determine whether individually, or in combination, they integrate the exception into a practical application.[58] Thus, prong 2 overlaps with the traditional analysis for Step 2B of the *Alice/Mayo* test. Significantly however, in prong 2, the PEG instructs examiners to consider the additional elements without regard to whether they are well-understood, routine or conventional activity as is done in Step 2B.[59] Thus, prong 2 of Step 2A looks at the same additional elements examined in Step 2B of *Alice/Mayo* but removes the considerations of non-obviousness and novelty found in Step 2B.

To assist examiners in implementing prong 2, the PEG provides examples of instances where claims may be seen to incorporate the judicial exception into a practical application of the exception.[60] For example, where the additional element implement a judicial exception with or uses it in conjunction with a machine or manufacture that is integral to a claim.[61] And where the additional element uses the judicial exception to effect a treatment or prophylaxis for a medical condition.[62] Also where additional elements reflect an improvement in the function of a computer or an improvement to another technology or technical field.[63]

The PEG also includes examples where the exception is not incorporated into a practical application. For example, the additional element merely recites the words "apply it" or merely includes instructions to implement an abstract idea on a computer or use a computer as a tool to perform an abstract idea.[64] And where the additional element adds insignificant extra solution activity to the judicial exception or does no more than generally link the use of the exception to a particular technological field.[65]

These examples illustrate the challenges inherent in crafting guidelines that adhere to current eligibility jurisprudence. For example, prong 2 of Step 2A of the PEG instructs examiners not to consider whether the additional elements that implement the exception in a practical application are well understood,

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[56] *Id.* at 53.
[57] *Id.* at 54-55.
[58] *Id.*
[59] *Id.* at 55 ("revised Step 2A specifically excludes consideration of whether the additional elements represent well-understood, routine, conventional activity").
[60] *Id.*
[61] *Id.*
[62] *Id.*
[63] *Id.*
[64] *Id.*
[65] *Id.*

routine or conventional activity. At the same time, the PEG indicates that where the additional elements "merely include instructions to implement an abstract idea on a computer" or add an "insignificant extra solution activity," they would fail to make out a case for practical application.[66]

Case law makes clear that the reason that "mere implementation on a generic computer" fails Step 2B of the *Alice/Mayo* test is precisely because generic computers are well understood, routine and commonplace implementations (*i.e.*, they lack inventiveness or novelty and/or are obvious).[67] This is confusing. This is the very test that *should not* consider novelty and non-obviousness and yet the example of where additional claim elements would not implement a practical application is when additional elements are well understood, routine and commonplace.

However, this confusion arises from the PEG's adherence to case law as opposed to an intrinsic conflict in the PEG itself. Despite the Court's attempt to reconcile its own jurisprudence, the litany of the Court's decisions are anything but consistent. On one hand, *Mayo* claims to be consistent with cases—namely *Morse*, *Diehr*, and the Hot Blast cases—that stand for the notion that a claim that recites a judicial exception may nonetheless be deserving of a patent if it recites an application of that judicial exception.[68] These cases require a **practical** application of a fundamental principle but do not require that the application satisfy an inventiveness test.[69] On the other hand, *Mayo* claims to be consistent with *Funk* and *Flook*, which do require **inventive** application.

Thus, any confusion with prong 2 of Step 2A arises from the fact that the test adheres to *Alice/Mayo*, which in turn draws from the Court's own confusion of case law. It is therefore appropriate that the Office ground prong 2 of Step 2A, the test for whether a claim is "directed to" the judicial exception, on whether the claim recites a practical application of that exception. Then, only if the claim is not so directed, look to whether the claim includes an inventive concept in Step 2B.

The Office provides a helpful set of examples to further clarify this issue.[70] Specifically, Example 37 provides guidance on how additional elements relating to computer implementation may be analyzed to find that (in Claim 1) they integrate the judicial exception (mental processes) into a practical application or (in Claim 3) are insufficient to integrate the judicial exception into a practical application.[71]

A comparison of these two exemplary claims illustrates that it is the specificity rather than the uniqueness of the additional elements that determines the eligibility outcome under prong 2. And this result is consistent with determining whether the claims are "directed to" the judicial exception as opposed to whether they include significantly more than the exception (as addressed in Step 2B).

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[66] *Id.*
[67] *Alice,* 573 U.S. 223-24.
[68] *See, e.g., Mayo*, 566 U.S. at 83-87 (where the Court claims to rely on its prior cases, including *Morse* and *Diehr*, as well as the Hot Blast cases, in its eligibility analysis).
[69] *Mayo*, 566 U.S. at 83-87; *see also Diehr*, 450 U.S. at 188-89 ("The 'novelty' of any element or step in a process, or even the process itself, is of no relevance in determining whether the subject matter falls within the § 101 categories of possibly patentable subject matter") and 191, 193 n. 15 (noting that whether aspects of the claimed process were novel or "inventive" were concerns of novelty under § 102 or non-obviousness under § 103 and not a concern of subject matter under § 101).
[70] USPTO, Subject Matter Eligibility Examples: Abstract Ideas ("Supplemental Examples"), Jan. 7, 2019, https://www.uspto.gov/sites/default/files/documents/101_examples_37to42_20190107.pdf.
[71] *Id.* at pp. 1-5.

For example, in Example 37, the additional elements from Claim 1 (receiving via a GUI, determining via a processor, and automatically moving icons) make it clear that the process must be implemented on a computer and thus integrates the exception into a practical application. In contrast, Claim 3 (which adds only that the previously recited processor ranks icons after determining amount of use) fails to provide the needed specificity to avoid the recitation of a generic computer. It, therefore, fails to integrate the exception into a practical application and must proceed to Step 2B.[72]

The PEG and Supplemental Examples add clarity where courts have thus far failed to adopt a rigorous method of identifying claim elements that recite an abstract idea. And the PEG adds structure where the courts have failed to provide guidance as to how to determine whether a claim is "directed to" a judicial exception. The PEG does this by drawing upon the approach the Court itself has used in a long line of precedential cases cited with approval by *Alice/Mayo*.

Step 2B

If, in prong 2 of Step 2A, an examiner does not find that the claims implement the judicial exception in a practical application, the PEG instructs examiners to continue the test and apply Step 2B of *Alice/Mayo*. At Step 2B, the examiner must assess the additional claim elements to determine if they add "significantly more" to the claim than the judicial exception itself.[73] Here, drawing from the inventive application line of case law which grounds the *Alice/Mayo* test, the PEG explains that, in determining whether an "inventive concept" is present, examiners are to consider whether additional elements are well-understood, routine, conventional activities that are unlikely to impart significantly more to the judicial exception.[74] Thus, as in *Alice/Mayo*, Step 2B requires considerations of inventiveness such as novelty and non-obviousness.

The PEG provides an example of where a claim might fail to recite a practical application of a judicial exception under prong 2 of Step 2A, but still provides substantially more than the exception itself and thus be patent eligible under Step 2B.[75]

In the illustrative example, the PEG suggests a claim reciting a mathematical equation followed by additional claim elements reciting data gathering steps needed to collect input for the equation would be patentable under § 101.[76] It posits that an examiner may find these additional steps to be insignificant extra solution activity, which fail to integrate the judicial exception into a practical application of the exception under prong 2 of Step 2A, but the examiner may deem these additional

[72] Additionally, while the PEG instructs that additional elements that effect a medical treatment make out a practical application, it leaves unstated whether additional elements effecting medical diagnostics will suffice as a practical application. (*See generally,* PEG 84 Fed. Reg. 50.) Current case law seems to hold it does not (*see, e.g., Ariosa Diagnostics, Inc. v. Sequenom, Inc.,* 788 F.3d 1371 (Fed. Cir. 2015)*; Athena Diagnostics, Inc. v. Mayo Collaborative Servs., LLC,* No. 2017-2508, 2019 WL 453489 (Fed. Cir. Feb. 6, 2019)) and thus the PEG should provide clarity on this important point.
[73] PEG 84 Fed. Reg. at 56.
[74] *Id.*
[75] *Id.*
[76] *Id.*

elements (for example if the data gathering were done in an unconventional manner) to include an inventive concept such that the claim would be eligible under Step 2B.[77]

In considering how a claim whose additional elements are at once found to constitute insignificant extra solution activity are thereafter found to recite significantly more than the judicial exception, we recall the distinction of specificity versus uniqueness that informed prong 2 analysis.[78]

In the Step 2B example, the PEG illustrates that it is possible for these additional elements, already deemed insignificant under prong 2, to be unconventional enough to warrant being an inventive concept. If specificity, as opposed to conventionality, drives the consideration of whether additional elements integrate the exception into a practical application in prong 2, it is possible for additional elements that lack the requisite specificity to nonetheless be sufficiently unique under Step 2B.

None of the Supplemental Examples address this situation. Given the complex interplay between prong 2 of Step 2A and Step 2B of the PEG, TiVo recommends that the Office provide several examples of claims that fail to recite a practical application under prong 2 but are found to be eligible by providing an inventive concept under Step 2B.

PEG Summary

In seeking to impart greater predictability to the *Alice/Mayo* test, the Office had to provide guidance that addressed the fundamental questions left open by the Court: What are the precise contours of the abstract idea exception, and when is a claim "directed to" a judicial exception such as an abstract idea? Bound to adhere to a litany of inconsistent case law, the PEG nonetheless manages to weave elements of the precedential antecedents cited with authority in *Alice/Mayo* into a test which adds a degree of structure and rigor to the *Alice/Mayo* analytical framework. The PEG will result in more focused discussions between examiner and applicant and more certainty in the application of the *Alice/Mayo* standard.

TiVo commends the Office on the PEG. Its framework will improve eligibility analysis and it stands as an important act of leadership by the Office in a singularly important part of the patent system that has for too long been permitted to languish in disarray.

Conclusion

TiVo appreciates the opportunity to provide comments on the PEG.

The U.S. patent system lacks a meaningful eligibility standard and thus it fails to serve its singular purpose of promoting the progress of science and useful arts.

During nearly a century of activism, the Supreme Court has sought to engraft exclusions onto a patent statute that still to this day provides for none. What has followed has been a series of failed, ambiguous, inconsistent eligibility tests, a growing domain of cutting-edge technologies excluded at the threshold from consideration for patenting, and an erosion of the predictability that is the foundation of the greatest engine of innovation mankind has ever known.

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[77] *Id.*

[78] *See* the discussion of prong 2 of Step 2A above at pp. 9-12.

The PEG is important, therefore, in two ways. First, the PEG itself is a meaningful interim playbook for carrying out our current failed eligibility standard; a playbook that artfully weaves the bramble of case law which the Court claims it followed in *Alice/Mayo*; and second it is an act of leadership that should inspire Congress to once and for all take on the challenge of what is patent eligible in the U.S.

Respectfully Submitted,

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