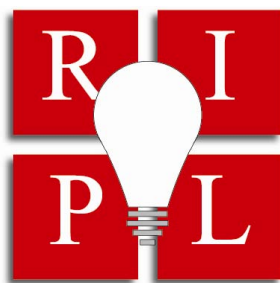


THE JOHN MARSHALL REVIEW OF INTELLECTUAL PROPERTY LAW



OVERCOMING ABSTRACT IDEA EXCEPTION OF PATENT SUBJECT MATTER ELIGIBILITY UNDER 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE

SANGIK BAE

ABSTRACT

This article discusses the judicial abstract idea exception of the current patent subject matter eligibility under 35 U.S.C. § 101. The current § 101 jurisprudence has been heavily criticized by lower courts and patent-stakeholders because it is hard to delineate the scope of the abstract idea exception within the current patent eligibility standard. In response, the United States Patent and Trademark Office (USPTO) issued the 2019 Revised Patent Subject Matter Eligibility Guidance (2019 PEG). This article addresses the issue of whether the 2019 PEG fills the gap in the ambiguity of the test by summarizing the 2019 PEG. Then, the article suggests practical ways to overcome the abstract idea exception under the 2019 PEG.

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I. INTRODUCTION

On January 7, 2019 the U.S. Patent and Trademark Office (USPTO) issued the 2019 Revised Patent Subject Matter Eligibility Guidance (2019 PEG).¹ In part, the 2019 PEG clarifies the *Alice/Mayo* test² because under the test it was nearly impossible to delineate the precise contours of the abstract idea exception.³ Patent stakeholders have expressed a concern that depending on how a patent is drafted, it may lead to conflicting patent eligibility results on the same subject matter under the *Alice/Mayo* test.⁴ The patentability of subject matter unfortunately depends on the drafting effort rather than the subject matter under this patentable subject matter jurisprudence.

To address this concern, 2019 PEG was issued to improve the clarity and consistency in patent subject matter eligibility evaluations. However, 2019 PEG may not remedy the inconsistencies in the *Alice/Mayo* test until 35 U.S.C. § 101 is elucidated by Congress. In response to the concern, Congress released a draft bill in May 2019 and held Senate Judiciary Subcommittee on Intellectual Property hearings in June 2019 to reform 35 U.S.C. § 101. The draft bill expands the scope of the patentable subject matter by abolishing the judicial exceptions.⁵ This article reviews

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¹ USPTO, 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50 (Jan. 7, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28282.pdf>. [hereinafter “2019 PEG”]. The director Iancu already denoted the direction of 2019 PEG at the Intellectual Property Owners Association (IPO) 46th Annual Meeting on September 24, 2018. See Andrei Iancu, *Remarks delivered at the Intellectual Property Owners Association 46th Annual Meeting* (2018), <https://www.uspto.gov/about-us/news-updates/remarks-director-iancu-intellectual-property-owners-46th-annual-meeting>.

² *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 217-18 (2014) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72, 79(2012)).

³ 2019 PEG, 50 n.2 (citing *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, 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*)).

⁴ See *Berkheimer*, 881 F.3d at 1370-71 (holding that claims 1-3 and 9 of the patent at issue are ineligible while vacating the district court’s decision that claims 4-7 are ineligible under § 101); *U.S. Chamber International IP Index*, at 35-36, The U.S. Chamber of Commerce’s Global Innovation Policy Center, (6th ed. February 2018) (indicating that the United States ranked 12th in the Patents, Related Rights, and Limitations category partially due to uncertainty over patentable standards).

⁵ The draft bill was introduced by U.S. Santors Thom Tillis (R-NC) and Chris Coons (D-DE), Chair and Ranking Member of the Senate Judiciary Subcommittee on Intellectual Property, and Representatives Doug Collins (R-GA-9), Ranking Member of the House Judiciary Committee, Hank Johnson (D-GA-4), Chairman of the House judiciary Subcommittee on Intellectual Property and the

the current patentable subject matter standards with respect to the abstract idea exception and suggests how to overcome the seemingly impalpable abstract idea exception under the current § 101 jurisprudence. In the first part, it will explain the changed test under 2019 PEG generally and then describe each step of the test in more detail. In the second part, ambiguities in regards to patent applications involving a potential abstract idea exception will be identified and potential solutions to those ambiguity issues will be offered.

II. PATENT ELIGIBLE? – USPTO PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE (ABSTRACT IDEA EXCEPTION)

Two requirements are necessary to meet the patent subject matter criteria. First, a patent subject must fit within the statutory categories (Step 1).⁶ Next, the applicant must pass the Alice/Mayo test (Step 2). The Alice/Mayo test is a two-step test involving, 1) whether the claims at issue are directed to a judicial exception (laws of nature, natural phenomena, and abstract ideas) (Step 2A), and if so, 2) whether an element or combination of elements amounts to significantly more than the judicial exception (Step 2B).⁷ 2019 PEG and USPTO Berkheimer Memorandum attempt to untangle Steps 2A and 2B of the Alice/Mayo test.⁸

A. Step 2A: Whether the Claimed Invention Is Directed to Abstract Ideas

Concerning Step 2A, whether the claims at issue are directed to a judicial exception, the scope of the phrase “directed to” was initially unclear.⁹ 2019 PEG breaks down the process of determining if an invention is directed to a judicial exception into a two-prong evaluation including, 1) if the claimed invention recites a judicial exception including abstract ideas, and 2) if the recited judicial exception is integrated into a practical application.¹⁰ As shown below in Table 1, all steps do not need to be examined in every scenario.

Step 2A Prong	Step 2A Prong	Step 2B	Eligibility
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Courts, and Steve Stivers (R-OH-15) on May 23, 2019. Available at <https://www.tillis.senate.gov/services/files/E8ED2188-DC15-4876-8F51-A03CF4A63E26>.

⁶ 35 U.S.C. § 101 (“process, machine, manufacture, or composition of matter”).

⁷ 2019 PEG at 50.

⁸ See, e.g., 2019 PEG; *Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (Berkheimer v. HP, Inc.)*, USPTO Memorandum (Apr. 19, 2018), <https://www.uspto.gov/sites/default/files/documents/memo-berkheimer-20180419.pdf> [hereinafter USPTO Berkheimer Memorandum].

⁹ 79 Fed. Reg. 74622 (Dec. 16, 2014) (“A claim is directed to a judicial exception when . . . an abstract idea is recited (i.e., set forth or described) in the claim. . . . To properly interpret the claim, it is important to understand what the applicant has invented and is seeking to patent [because] . . . claims that may recite a judicial exception, but are directed to inventions that clearly do not seek to tie up the judicial exception.”).

¹⁰ 2019 PEG at 54.

One Whether a claim recites a judicial exception	Two Whether a claim is integrated into a practical application	Whether a claim has an inventive concept	
No	No Examination	No Examination	Eligible
Yes	Yes	No Examination	Eligible
Yes	No	Yes	Eligible
Yes	No	No	Ineligible

For example, if a claimed invention does not recite an abstract idea including other judicial exceptions, the claimed invention is patent eligible without further examination (Step 2A Prong 1).¹¹ Even if the claimed invention recites an abstract idea, the claimed invention is also patent eligible without further examination provided that the recited abstract idea is integrated into a practical application (Step 2A Prong 2).¹² Despite reciting an abstract idea without integration into a practical application, the claimed invention is also eligible where the claimed invention has an inventive concept, meaning that the claimed invention amounts to significantly more than the recited abstract idea (Step 2B).¹³

1. Prong One: Whether the Claim Recites a Judicial Exception

Step 2A Prong One filters out a patent-eligible subject matter by evaluating whether a claim recites any judicial exception, including abstract ideas. Step 2A Prong One avoids using the ambiguous wording “directed to.” If a claim does not recite a judicial exception, then the claim is patent eligible and the eligibility analysis ends. For abstract ideas, examiners determine Prong One by:

- (a) identify[ing] the specific limitation(s) in the claim under examination (individually or in combination) that the examiner believes recites an abstract idea; and
- (b) determin[ing] whether the identified limitation(s) falls within the subject matter groupings of abstract ideas.¹⁴

Prior guidance had required examiners to decide whether a claim is directed to an abstract idea based on specific court decisions.¹⁵ Due to the ambiguous wording of “directed to,” each examiner may have a different result on which idea in the claimed invention the examiner conceptualizes, how much the examiner simplifies the idea, and how much the concepts between the claimed invention and case law precedent are similar to be an abstract idea. 2019 PEG seeks to clarify this process by filtering

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

¹⁴ 2019 PEG at 54.

¹⁵ USPTO, July 2015 update: subject matter eligibility, at *3 (Jul. 30, 2015) <https://www.uspto.gov/sites/default/files/documents/ieg-july-2015-update.pdf> (“Because the courts have declined to define abstract ideas, other than by example, the 2014 PEG instructs examiners to refer to the body of case law precedent in order to identify abstract ideas by way of comparison to concepts already found to be abstract”).

and grouping. 2019 PEG differentiates inventions deemed to be abstract by category and identifies common judicial themes by classifying inventions by category.

The subject matter groupings of abstract ideas include:

- (a) Mathematical concepts— mathematical relationships, mathematical formulas or equations, mathematical calculations;
- (b) Certain methods of organizing human activity—fundamental economic principles or practices (including hedging, insurance, mitigating risk); commercial or legal interactions (including agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions); and
- (c) Mental processes—concepts performed in the human mind (including an observation, evaluation, judgment, opinion).¹⁶

Examiners are not limited to considering these identified invention categories. They have discretion to consider any portion of a claim even if it is not included in the enumerated groupings (“tentative abstract idea”). Any rejection caused by a tentative abstract idea must be approved by the Technology Center Director and a justification for the treatment must be provided.¹⁷ If a claim is determined to recite a judicial exception, Step 2A Prong Two needs to then be considered.

2. Prong Two: Whether the Recited Judicial Exception Is Integrated into a Practical Application

Step 2A Prong Two is considered only when Step 2A Prong One determines that the claim recites a judicial exception. Step 2A Prong Two then determines whether the recited judicial exception is integrated into a practical application. If a recited judicial exception in a claim is integrated into a practical application, then the claim is patent eligible.

Integration into a practical application is yet to be judicially defined.¹⁸ 2019 PEG defines it as “apply[ing], rely[ing] on, or us[ing] 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 design to monopolize the judicial exception.”¹⁹ Examiners evaluate Step 2A Prong Two by,

¹⁶ *Id.* at 52.

¹⁷ *Id.* at 57. However, it is questionable how many examiners are willing to undergo this additional and burdensome procedure within their limited examining hours. Thus, practically, this prong is expected to weigh in favor of patent stakeholders.

¹⁸ In *Athena Diagnostics, Inc. v. Mayo Collaborative Serv., LLC*, the Court held that claims reciting the steps for practical application using well-known means are ineligible. 915 F.3d 743, 750, 751 (Fed. Cir. 2019). Without defining the integration into a practical application in a narrow way, Step 2A Prong Two might not be consistent with case law.

¹⁹ 2019 PEG at 53, 54. *Cf. Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015) (holding that limiting the breath of claims alone does not change save claims from being ineligible because “[w]hile preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.”).

- (a) identifying whether there are any additional elements recited in the claim beyond the judicial exception(s); and
- (b) evaluating those additional elements individually and in combination to determine whether they integrate the exception into a practical application, using one or more of the considerations laid out by the Supreme Court and the United States Court of Appeals for the Federal Circuit (Federal Circuit).²⁰

It is important to analyze the claim limitations individually and as a whole to determine whether a meaningful limitation is imposed on the recited exception.²¹ However, Step 2A Prong Two does not analyze if an additional element represents a well-understood, routine, conventional activity.²² This well-understood, routine, conventional activity evaluation is considered in Step 2B.²³

The following representative considerations may show integration into a practical application:²⁴

- an additional element reflects an improvement in the functioning of a computer, or an improvement to other technology or technical field;²⁵
- an additional element that applies or uses a judicial exception to effect a particular treatment or prophylaxis for a disease or medical condition;²⁶
- an additional element implements a judicial exception with, or uses a judicial exception in conjunction with, a particular machine or manufacture that is integral to the claim;²⁷
- an additional element effects a transformation or reduction of a particular article to a different state or thing;²⁸ and
- an additional element applies or uses the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment, such that the claim as a whole is more than a drafting effort designed to monopolize the exception.²⁹

Examples where the courts have found a failure of the integration into a practical application include:

²⁰ 2019 PEG at 54-55. In Step 2A Prong Two, the integration of a judicial exception into a practical application is not mere applying the invention in a practical way, but the integration of a judicial exception into a practical application should be limited as one or more of the considerations laid out by the Supreme Court and the Federal Circuit.

²¹ *Id.* at 55.

²² *Id.*

²³ *Id.*

²⁴ These considerations were in Step 2B in the previous USPTO patent eligible guide. *Preliminary Examination Instructions in view of the Supreme Court Decision in Alice Corporation Pty. Ltd. v. CLS Bank International, et al.*, USPTO Memorandum (Jun. 25, 2014), https://www.uspto.gov/patents/announce/alice_pec_25jun2014.pdf.

²⁵ *Id.* See also Manual of Patent Examining Procedure (MPEP), § 2106.05(a) (9th ed. Rev. 8, Jan. 2018).

²⁶ 2019 PEG at 55. See, e.g., *Classen Immunotherapies, Inc. v. Biogen Idec*, 659 F.3d 1057 (Fed. Cir. 2011); *Vanda Pharm. Inc. v. West-Ward Pharms. Int'l Ltd.*, 887 F.3d 1117 (Fed. Cir. 2018).

²⁷ 2019 PEG at 55. See also MPEP § 2106.05(b).

²⁸ 2019 PEG at 55. See also MPEP § 2106.05(c).

²⁹ 2019 PEG at 55. See also MPEP § 2106.05(e).

- an additional element merely recites the words “apply it” (or an equivalent) with the judicial exception, or merely includes instructions to implement an abstract idea on a computer, or merely uses a computer as a tool to perform an abstract idea;³⁰
- an additional element adds insignificant extra-solution activity to the judicial exception;³¹ and
- an additional element does no more than generally link the use of a judicial exception to a particular technological environment or field of use.³²

When a recited judicial exception in a claim is properly integrated into a practical application, then the claim is patent eligible. However, where a claim is found to recite a judicial exception and fails to integrate the recited judicial exception into a practical application, the claim is determined to be directed to a judicial exception. Step 2B is then the next step to be performed.

B. Step 2B: Whether the Claimed Invention Provides an Inventive Concept

Even if a claim meets the ineligible criteria of the judicial exceptions under the two Prongs of Step 2A of the *Alice/Mayo* test, the claim may still be patent eligible if it meets the eligible criteria under Step 2B of the test. Step 2B determines whether the additional elements in the claim amount to significantly more than the judicial exception or provide an inventive concept.³³ Again, in this analysis, it is important to evaluate the additional elements individually and in combination.³⁴

Examiners determine in Step 2B whether an additional element or combination of elements:

- Adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, which is indicative that an inventive concept may be present; or
- Simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception, which is indicative that an inventive concept may not be present.³⁵

Examiners must determine if the additional elements are well-understood, routine, and conventional activity in the field. *Berkheimer v. HP Inc.* was on point for this issue.³⁶ In *Berkheimer*, the court held that “[w]hether something is well-understood, routine, and conventional to a skilled artisan is a factual determination.”³⁷ An examiner’s conclusion regarding the additional element or combination of elements may be supported by,

³⁰ 2019 PEG at 55. *See also* MPEP § 2106.05(f).

³¹ 2019 PEG at 55. *See also* MPEP § 2106.05(g).

³² 2019 PEG at 55. *See also* MPEP § 2106.05(h).

³³ 2019 PEG at 56.

³⁴ *Id.*

³⁵ *Id.*

³⁶ *See* 890 F.3d 1369; USPTO Berkheimer Memorandum, *supra* note 8 at 2.

³⁷ *Berkheimer*, 881 F.3d at 1369; USPTO Berkheimer Memorandum at 2.

- “a citation to an express statement in the specification or to a statement made by an applicant during prosecution that demonstrate the well-understood, routine, or conventional nature of the additional element(s) . . .”;
- “a citation of [a] . . . court decision . . . noting the well-understood, routine, or conventional nature of the additional element(s)”;
- “a citation of a publication that demonstrates the well-understood, routine, or conventional nature of the additional element(s) . . . while U.S. patents or published applications . . . merely fining the additional element in a single patent or published application would not be sufficient . . .”;
- “a[n] . . . official notice of well-understood, routine, or conventional nature of the additional element(s)”³⁸

The considerations listed above may be used individually or in combination to determine if an invention provides an inventive concept. A claim directed to a judicial exception and not amounting to significantly more than the judicial exception may not be patent eligible. However, if the claim directed to a judicial exception meets the criteria for Step 2B of the test by providing an inventive concept, it may be patent eligible.

III. PATENT ELIGIBLE! – STRATEGIES TO OVERCOME PATENT ELIGIBILITY ISSUE (ABSTRACT IDEA EXCEPTION)

Although 2019 PEG provides a revised policy for the examiner to consistently interpret the patent eligibility of subject matter, 2019 PEG may have left an ambiguity in the current patent eligibility jurisprudence. Whether a claimed invention is patent eligible is largely subject to the drafting efforts made in its specification, claims, and response to an office action. This section provides specific suggestions on how to draft a specification, claims, and response to an office action under PEG 2019.

A. Specification

In many *abstract idea exception* related cases, often involving software patents, the main issue is whether an additional element or combination of elements in a claim reflects an improvement of an existing technology or well-understood, routine, or conventional activity in the field.³⁹ This issue is hardly determined only by claims

³⁸ USPTO Berkheimer Memorandum at 3-4.

³⁹ See *Core Wireless Licensing SARL v. LG Elec.*, 880 F.3d 1356 (Fed. Cir. 2018); *Finjan, Inc. v. Blue Coat Sys., Inc.*, 879 F.3d 1299 (Fed. Cir. 2018); *Thales Visionix Inc. v. United States*, 850 F.3d 1343 (Fed. Cir. 2017); *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253 (Fed. Cir. 2017); *Enfish, LLC, v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016); *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F. 3d 1299 (Fed. Cir. 2016); see also *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229 (Fed. Cir. 2016); *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016); *TLI Commc'ns LLC v. AV Auto., L.L.C.*, 823 F.3d 607 (Fed. Cir. 2016); *Content Extraction & Transmission LLC v. Wells Fargo Bank, National Ass'n*, 776 F.3d 1343 (Fed. Cir. 2014).

except in the case of Jepson claims.⁴⁰ The USPTO reads claims in patent applications “*in light of the specification* as it would be interpreted by a person having ordinary skill in the art.”⁴¹ Furthermore, the purpose of a claim in a peripheral claim environment is to define the bounds of the invention. Absent a statement regarding the nature of improvement, it is sometimes difficult to recite the improvement on claim limitations with the use of claims by themselves.⁴²

Thus, specification plays a particularly important role in the determination if an additional element or combination of elements are a well-understood, routine, or conventional activity in the field.⁴³ How can the specification effectively show the claimed invention’s improvement over an existing technology? One possible way to do this would be to describe a problem of prior or conventional art, how to solve the problem by the claimed invention, and its effects or results in the specification.⁴⁴

1. Description of Problem

An improvement to existing technology presupposes a problem or deficiency in the current technology. This problem or deficiency in the existing technology is generally described in the Background section of the specification.⁴⁵ This description should be specific enough to be identified so that the invention may solve the specific

⁴⁰ Jepson claims include the prior art work of another in the preamble. MPEP § 2129, citing *In re Fout*, 675 F.2d 297, 301, 213 USPQ 532, 534 (CCPA 1982). Thus, the Jepson format by itself reflects the nature of an improvement.

⁴¹ *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (emphasis added).

⁴² See e.g., *Enfish*, 822 F.3d at 1335 (applying step one involves considering the claims “in light of the specification”); *TLI Commc’ns*, 823 F.3d at 611-15 (examining the claims in light of the written description under steps one and two); *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1303 (Fed. Cir. 2016) (“An understanding of how this is accomplished is only possible through an examination of the claims in light of the written description”); *Id.* at 1306 (“While the components and functionality [in the claim] . . . may be generic at first blush, an examination of the claim in light of the written description reveals that many of these components and functionalities are in fact neither generic nor conventional individually or in ordered combination.”).

⁴³ See *Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1317 (Fed. Cir. 2016) (“The written description is particularly useful in determining what is well-known or conventional.”); see also *TLI Commc’ns*, 823 F.3d at 611 (“[w]hile the [asserted claim] requires concrete, tangible components such as ‘a telephone unit’ and a ‘server,’ the specification makes clear that the recited physical components merely provide a generic environment in which to carry out the abstract idea of classifying and storing digital images in an organized manner.”).

⁴⁴ See e.g., *Bascom Global Internet Serv. v. AT&T Mobility*, 827 F.3d 1341, 1351 (2016) (holding that the claimed invention is eligible because the “patent is instead claiming a technology-based solution . . . to filter content on the Internet that overcomes existing problems with other Internet filtering systems.”); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (holding the claimed invention is patent eligible because the “claimed solution [was] necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.”).

⁴⁵ MPEP §P608.01(c) (“The Background of the Invention may . . . include the following parts: (1) Field of the Invention . . . (2) Description of the related art . . . : A paragraph(s) describing to the extent practical the state of the prior art or other information disclosed known to the applicant, including references to specific prior art or other information where appropriate. Where applicable, the problems involved in the prior art or other information disclosed which are solved by the applicant’s invention should be indicated.”).

problem.⁴⁶ It may describe a specific reference or conventional technology. However, the drafter should be careful not to describe the problem or deficiency too much in detail. This can create two potential problems: 1) the described prior or conventional art in the Background section may be used against the applicant in anticipation or obviousness rejections and 2) in an infringement action there is a risk that the court may construe the claim too narrowly as covering only the solution to that particular problem. On the other hand, if there is too little on the description of the problem or deficiency, some legitimate questions about the basis of the improvement might be raised during prosecution or litigation.

There are additional concerns to be aware of where a problem in the current technology is described. For example, the Background section should avoid explicitly using the term “prior art” because the cited art may not in fact be “prior art” as defined under 35 U.S.C. § 102.⁴⁷ Also, any problem that may be solved using generic-computer functions such as inefficiency or inaccuracy by manually performed routine tasks should be avoided.⁴⁸

2. Description of Solution

The specification should describe the improvement in the existing technology to address the identified problem or deficiency.⁴⁹ To limit the solution, the specification should focus on “how” a result is achieved rather than focusing solely on the result. The U.S. Supreme Court created the judicial exception primarily to prevent patents from monopolizing “the basic tools of scientific and technological work.”⁵⁰ This preemption concern becomes relevant to an abstract idea judicial exception when a patent claims an abstract result but prevents all possible ways to achieve the result. Further, generally, merely limiting the invention to a technological environment is not considered to impose a meaningful limit on the scope of the patent to transform

⁴⁶ See, e.g., *SRI Int’l, Inc. v. Cisco Sys.*, No. 2017-2223, 2019 U.S. App. LEXIS 8249 (Fed. Cir. Mar. 20, 2019) (“[I]n order to solve a specific problem in the realm of computer networks . . . [t]he claims are directed to using a specific technique--using a plurality of network monitors that each analyze specific types of data on the network and integrating reports from the monitors. . . .”); *DDR Holdings*, 773 F.3d at 1257 (stating the claimed invention solves the problem in the existing technology “specifically arising in the realm of computer networks”); *Bascom*, 827 F.3d at 1351 (stating the claimed invention solves “existing problems with other Internet filtering systems”); *Amdocs*, 841 F.3d at 1301 (stating the claimed invention solves “a technological problem specific to computer networks”).

⁴⁷ MPEP §P2152.

⁴⁸ See *OIP Tech., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015) (“reducing the ‘extremely high testing costs’ of ‘[b]rute force live price testing’ . . . [or] relying on a computer to perform routine tasks more quickly or more accurately is insufficient to render a claim patent eligible”).

⁴⁹ See *Electric Power Group*, 830 F.3d at 1356 (stating that “there is a critical difference between patenting a particular concrete solution to a problem and attempting to patent the abstract idea of a solution to the problem in general. . . . [such that the difference is between] claiming ‘some specific way of enabling a computer to monitor data from multiple sources across an electric power grid,’ some ‘particular implementation,’ and ‘purport[ing] to monopolize every potential solution to the problem’”).

⁵⁰ *Alice*, 134 S.Ct. at 2354 (quoting *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 589(2013)).

an abstract concept into concrete patent eligible subject matter.⁵¹ Thus, the specification should at least disclose specifically how to solve the problem by imposing a meaningful limit on the scope of the patent rather than solely relying on the result or merely limiting a technical environment of the invention.⁵²

The specification should not only discuss an improvement to a problem but also should be specific as to the improvement made.⁵³ The claims, specification, and prosecution history together should be specific enough to indicate the extent of the improvement with “reasonable certainty” to a person having ordinary skill in the art.⁵⁴ In other words, the improvement should be described with a reasonable degree of clarity and particularity with clear terms rather than ambiguous, vague, and indefinite terms.⁵⁵ This also means that the improvement should be expressed with consistent terminology.⁵⁶

For example, an improvement in the description of an algorithm used for performing an invented computer function should be disclosed in clear and definite terms with a sufficient explanation of the relationship with computer hardware rather than vague and merely functional terms.⁵⁷ Simply describing the functions of a claim’s elements, however, without describing how to achieve the desired result would not be sufficient to pass muster. The disclosed algorithm with a reasonable degree of clarity and particularity can transform a general purpose computer to a special purpose computer to perform an algorithm.⁵⁸ This transformation may play

⁵¹ *Berkheimer*, 881 F.3d at 1367 (citing *Intellectual Ventures I*, 850 F.3d at 1340) (stating “[l]imiting the invention to a technological environment does ‘not make an abstract concept any less abstract under step one.’”).

⁵² *Diamond v. Diehr*, 450 U.S. 175, 182 n.7 (1981) (stating that A patent may issue “for the means or method of producing a certain result, or effect, and not for the result or effect produced.”); *Finjan*, 879 F.3d at 1305 (“a result, even an innovative result, is not itself patentable.”); *Affinity Labs of Tex. v. Directv, LLC*, 838 F.3d 1253, 1258 (Fed. Cir. 2016) (holding that the claim is directed to an abstract idea without significantly more because “there is nothing in [the] claim [] that is directed to how to implement [the idea] . . . [but the claim] is drawn to the idea itself.”).

⁵³ *Research Corp. Techs. v. Microsoft Corp.*, 627 F.3d 859, 869 (Fed. Cir. 2010) (stating that “inventions with specific applications or improvements to technologies in the marketplace are not likely to be so abstract that they override the statutory language and framework of the Patent Act.”).

⁵⁴ *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 911 (2014) (stating that claims, viewed in light of the specification and prosecution history, must “inform those skilled in the art about the scope of the invention with reasonable certainty.”).

⁵⁵ MPEP §P2173.02 (citing *In re Packard*, 751 F.3d 1307, 1313 (Fed. Cir. 2014)).

⁵⁶ *Berkheimer*, 881 F.3d at 1363-64 (holding claims 10-19 indefinite because “[i]n light of the lack of objective boundary or specific examples of what constitutes ‘minimal’ in the claims, specification, and prosecution history, the district court properly considered and relied on extrinsic evidence” indicating lack of objective boundaries of the term).

⁵⁷ See *TLI Commc’ns*, 823 F.3d at 614-15 (“a ‘image analysis unit for determining quality of the digital images’ and a ‘control unit for controlling resolution of digital images’ . . . purport to add additional functionality to the server, [but] the specification limits its discussion of these components to abstract functional descriptions devoid of technical explanation as to how to implement the invention. . . . Such vague, functional descriptions of server components are insufficient to transform the abstract idea into a patent-eligible invention”); see also USPTO, Examining Computer-Implemented Functional Claim Limitations for Compliance With 35 U.S.C. 112, 84 Fed. Reg. 57, 59, 61 (Jan. 7, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-01-07/pdf/2018-28283.pdf>.

⁵⁸ See e.g., MPEP §P2181; *Aristocrat Techs. Austral. PTY Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1338 (Fed. Cir. 2008) (stating “the algorithm . . . transforms the general purpose microprocessor to a

an important role in determining if the invention is or is not a conventional general purpose computer in a Step 2B analysis. This reasonable certainty standard is a higher standard than the standard the actual patent eligibility test requires. However, the reasonable certainty standard prepares the invention to pass muster not only under the patent eligibility test but also under 35 U.S.C. § 112.⁵⁹

Another benefit to a specification drafted to be particular and specific is that it could support a broad scope of claims while avoiding issues with preemption. A broadly drafted claim will be followed by a mental process to disassemble elements of the invention, prune unnecessary elements, and distill the inventive concept. The resulting claim terms from this mental process would enjoy a broad scope of patent protection, but may also encounter the above-mentioned potential preemption problem. If the specification fully supports and explains the conceptualized terms in a way that the claimed invention solves a technological problem in a particular technological area in detail, this concern would be reduced.

For example, a claim in *Amdocs* included, a “computer code for using the accounting information with which the first network accounting record is correlated to enhance the first network accounting record.”⁶⁰ The Federal Circuit stated that “[w]hile the components and functionality necessarily involved in the 797 patent (e.g., ISMs, gatherers, network devices, collection, aggregation, and enhancement) may be generic at first blush, an examination of the claim in light of the written description reveals that many of these components and functionalities are in fact neither generic nor conventional individually or in ordered combination.”⁶¹ The Federal Circuit held that the claim was patent eligible because the term “enhance” in the claim was interpreted in light of the specification “as being dependent upon the invention’s distributed architecture . . . [which] was a critical advancement over the prior art.”⁶²

3. Description of Effect

A claim merely reciting the result or effect of an invention is not patent eligible. However, the result or effect should be clearly indicated in the specification. The result or effect can be shown by comparing the invention with specific prior art or generally well-known or conventional art. Sometimes, the result or effect can be described in a separate section, “Advantages of the Invention” after “Brief Summary of the Invention.” However, showing a mere difference from prior art may not be

‘special purpose computer programmed to perform the disclosed algorithm.’” (quoting *WMS Gaming, Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999)).

⁵⁹ *Research Corp. Technologies*, 627 F.3d at 869 (“a patent that presents a process sufficient to pass the coarse eligibility filter may nonetheless be invalid as indefinite because the invention would ‘not provide sufficient particularity and clarity to inform skilled artisans of the bounds of the claim.’” *Star Scientific, Inc. v. R.J. Reynolds Tobacco Co.*, 537 F.3d 1357, 1371 (Fed.Cir.2008). That same subject matter might also be so conceptual that the written description does not enable a person of ordinary skill in the art to replicate the process.”).

⁶⁰ *Amdocs*, 841 F.3d at 1300.

⁶¹ *Id.* at 1306.

⁶² *Id.* at 1300.

enough if the difference over prior art is not an improvement on the computer or other technology.⁶³ Model cases showing the improved result or effect include:

- the claimed self-referential model allows for “faster searching of data than would be possible with the relational model,” “more effective storage of data other than structured text,” and “more flexibility in configuring the database;”⁶⁴
- the claimed invention “improves the efficiency of using the electronic device by bringing together ‘a limited list of common functions and commonly accessed stored data,’ which can be accessed directly from the main menu;”⁶⁵
- the claimed invention “expressly state that this improved memory system is achieved by configuring a programmable operational characteristic of a cache memory based on the type of processor connected to the memory system;”⁶⁶
- the claimed invention “specify[ing] how interactions with the Internet are manipulated to yield a desired result—a result that overrides the routine and conventional sequence of events ordinarily triggered by the click of a hyperlink;”⁶⁷
- the claimed invention “employs a new kind of file that enables a computer security system to do things it could not do before [by] . . . allow[ing] access to be tailored for different users and ensures that threats are identified before a file reaches a user’s computer;”⁶⁸ and
- the claimed invention “result[s] in a system that reduces errors in a inertial system that tracts an object on a moving platform;”⁶⁹

B. Claims

In the Step 2A Prong One analysis, claims may be drafted so as not to recite an abstract idea where the claims are tied to a particular machine.⁷⁰ For these types of

⁶³ *Trading Tech. Int’l. Inc. v. IBG LLC*, No. 2017-2323, at *9, 10 (Fed. Cir. Apr. 30, 2019) (holding that although the claimed invention displaying profit and loss values along an axis might not be disclosed in prior art, the claimed invention “providing information to traders in away that helps them process information more quickly . . . not on improving computers or technology” is not patent eligible because “arranging information along an axis does not improve the functioning of the computer, make it operate more efficiently, or solve any technological problem” and displaying profit and loss values which one of ordinary skill in the art would know how to calculate does not render the invention into a patent eligible application).

⁶⁴ *Enfish*, 822 F.3d at 1335.

⁶⁵ *Core Wireless Licensing*, 880 F.3d at 1363.

⁶⁶ *Visual Memory*, 867 F.3d at 1261.

⁶⁷ *DDR Holdings*, 773 F.3d at 1258; *see also SRI Int’l*, No. 2017-2223 at *9 (“The specification explains that the claimed invention is directed to solving these weaknesses in conventional networks and provides ‘a framework for the recognition of more global threats to interdomain connectivity. . . .’”) (citation omitted).

⁶⁸ *Finjan*, 879 F.3d at 1305.

⁶⁹ *Thales Visionix*, 850 F.3d at 1348.

⁷⁰ *See Amdocs*, 841 F.3d at 1301 (stating that claim 1 is patent eligible partly because “claim 1 of the ‘065 patent is tied to a specific structure of various components (network devices, gatherers, ISMs, a central event manager, a central database, a user interface server, and terminals or

claims, the machine tied to the claim should play such an important role that a claimed invention could not work without the machine.⁷¹ On the other hand, if the machine using its standard functions merely achieves a solution more quickly without explaining how to achieve it, the claim including a machine nonetheless is directed to an abstract idea.⁷²

Subject Matter Eligibility Examples: Abstract Idea, which was issued with 2019 PEG, provided an example of a claim which recited “determining, by a processor, the amount of use of each icon over a predetermined period of time.”⁷³ This example recites an abstract idea exception because the claimed step can be performed manually without a processor.⁷⁴ However, another claim in the example which recited “determining the amount of use of each icon using a processor that tracks how much memory has been allocated to each application associated with each icon over a predetermined period of time” did not recite an abstract idea.⁷⁵ The 2019 PEG Example explains that the claimed step could not be performed in the mind because “it requires a processor accessing computer memory indicative of application usage.”⁷⁶

In Step 2A Prong Two of 2019 PEG, the primary focus is if an additional element in a claim imposes a meaningful limit on the recited abstract idea. This meaningful limit on the abstract idea may be imposed when claims are directed to how to implement the abstract idea in a specific and discrete way.⁷⁷ Sometimes, claim limitations can recite the solution to the identified problem.⁷⁸ For example, the

clients.”); *See also* 2019 PEG at 20 (although 2019 PEG classifies “an additional element implement[ing] a judicial exception with . . . a particular machine or manufacture that is integrated to the claim” as Step 2A Prong Two, this consideration could be used in Step 2A Prong One as well).

⁷¹ *See* *SiRF Tech., Inc. v. ITC*, 601 F.3d 1319, 1333 (Fed. Cir. 2010) (“In order for the addition of a machine to impose a meaningful limit on the scope of a claim, it must play a significant part in permitting the claimed method to be performed, rather than function solely as an obvious mechanism for permitting a solution to be achieved more quickly, i.e., through the utilization of a computer for performing calculation.”).

⁷² *See e.g., Id.; TLI Commc’ns*, 823 F.3d at 614-15 (stating that “a[n] ‘image analysis unit for determining quality of the digital images’ and a ‘control unit for controlling resolution of digital images’ . . . purport to add additional functionality to the server, [but] the specification limits its discussion of these components to abstract functional descriptions devoid of technical explanation as to how to implement the invention. . . . Such vague, functional descriptions of server components are insufficient to transform the abstract idea into a patent-eligible invention”).

⁷³ USPTO, Subject Matter Eligibility Examples: Abstract Idea at page 1-3 (Jan. 7, 2019), https://www.uspto.gov/sites/default/files/documents/101_examples_37to42_20190107.pdf.

[hereinafter “2019 PEG Examples”]. However, 2019 PEG and 2019 PEG Examples do not bind Federal Circuit. *Cleveland Clinic Found. v. True Health Diagnostics LLC*, No. 2018-1218 at *13-14 (Fed. Cir. April 1, 2019) (stating that Example 29-claim 1 which is held eligible in PTO guidance is ineligible: “While we greatly respect the PTO’s expertise on all matters relating to patentability, including patent eligibility, we are not bound by its guidance”).

⁷⁴ 2019 PEG Examples at 2.

⁷⁵ *Id.* at 3.

⁷⁶ *Id.* at 3.

⁷⁷ *See e.g., Ameranth*, 842 F.3d at 1241; *Thales Visionix*, 850 F.3d at 1347; *Bascom*, 827 F.3d at 1350.

⁷⁸ *Intellectual Ventures I*, 838 F.3d at 1316 (holding that the claim at issue is not patent eligible because “the asserted claims do not contain any limitations that address the protection gap or volume problem, e.g., by requiring automatic updates to the antivirus or antispyware software or the ability to deal with a large volume of such software.”).

meaningful limit would be made as 2019 PEG indicates by reciting an improvement in the functioning of a computer or an improvement to other technology or a technical field;⁷⁹ a particular machine or manufacture process that is integral to the claim;⁸⁰ or a transformation or reduction of a particular article to a different state or thing.⁸¹

Step 2B of 2019 PEG concerns if the additional element or combination of elements provide an inventive concept or simply adds well-understood, routine, conventional activities.⁸² This particular inquiry is a question of fact.⁸³ To determine a question of fact, intrinsic evidence including claims, specification, and prosecution history, which will play more of an important role in determining this inquiry than extrinsic evidence such as dictionaries and expert testimony.⁸⁴ Since claims do not generally recite that some elements are well-understood, routine, or conventional activities and during prosecution, the specification should be particularly useful in Step 2B.⁸⁵

C. Prosecution History

1. Procedure Inappropriateness

In an office action including § 101 rejections, applicants sometimes should point out procedural inappropriateness, amend claims, or argue against the rejections. Prior to 2019 PEG, there was a risk of examiners classifying more elements into the enumerated abstract idea groupings and failing to consider all limitations in a claim. Where there are more additional elements, examiners have a higher burden to prove the lack of an inventive concept. This was a problem prior to 2019 PEG because the old guidance gave examiners broad discretion to interpret the “directed to” language. However, the reciting requirement in Step 2A Prong Two of 2019 PEG may mitigate this issue.

Some examiners may still oversimplify a claimed invention and try to classify more elements of the claimed invention in the enumerated abstract idea groupings (mathematical concepts, certain methods organizing human activity, or mental processes). In that case, applicants should request the examiners to consider every

⁷⁹ 2019 PEG at 55. *See also* MPEP §M2106.05(a); *see also* *SRI Int’l*, No. 2017-2223 at *9 (“[t]he ‘focus of the claims is on the specific asserted improvement in computer capabilities’—that is, providing a network defense system that monitors network traffic in real-time to automatically detect large-scale attacks”) (citation omitted).

⁸⁰ 2019 PEG at 55. *See also* MPEP §P2106.05(b).

⁸¹ 2019 PEG at 55. *See also* MPEP §P2106.05(c).

⁸² 2019 PEG at 56.

⁸³ *Berkheimer*, 881 F.3d at 1368.

⁸⁴ *See* *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005).

⁸⁵ *See e.g.*, *Intellectual Ventures I*, 838 F.3d at 1317 (stating “[t]he written description is particularly useful in determining what is well-known or conventional.”); *Berkheimer*, 881 F.3d at 1370 (stating that “Claims 4-7, in contrast, contain limitations directed to the arguably unconventional inventive concept described in the specification. Claim 4 recites ‘storing a reconciled object structure in the archive without substantial redundancy.’ The specification states that storing object structures in the archive without substantial redundancy improves system operating efficiency and reduces storage costs.”).

limitation of the claims. Examiners “must be careful to avoid oversimplifying the claims by looking at them generally and failing to account for the specific requirements of the claims”⁸⁶ because the exception “if carried to its extreme, make[s] all inventions unpatentable because all inventions can be reduced to underlying principles of nature which, once known, make their implementation obvious.”⁸⁷

There is also a risk that examiners may make an abstract idea exception without properly considering judicial precedents and their underlying facts. Step 2A Prong One in 2019 PEG does not require comparing examining claims with earlier decisions with similar or parallel descriptive nature. Thus, it would be possible for an examiner to conclude that examining claims are directed to an abstract idea absent any precedent. In that case, applicants should request the examiners to provide precedents and reasoning behind the conclusion using the precedents. The support for the request is that “[i]nstead of a definition [of an abstract idea], then, the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen — what prior cases were about, and which way they were decided.”⁸⁸ In cases where examiners cite precedents, applicants may point out that the analogy is inappropriate due to materially different facts.⁸⁹

When it comes to a software patent application, an examiner may reject such claims under § 101 because they involve no transformation or particular physical feature. However, the machine-or-transformation test cannot be the only factor to determine a patent eligibility because “[m]uch of the advancement made in computer technology consists of improvements to software that, by their very nature, may not be defined by particular physical features but rather by logical structures and processes.”⁹⁰ For such cases, applicants should request that examiners provide other grounds for the rejection because the machine-or-transformative test is not determinative to a patent-eligible process assessment.⁹¹

In Step 2B, examiners bear a heavy burden to factually prove the additional elements are well-understood, routine, or conventional unless the additional elements are generally known such as general computer and network elements. Sometimes, an examiner may conclude an additional element is well-understood, routine, and conventional because of a cited document including a patent. In that case, applicants should request the examiners to provide factual evidence to show that the additional element is “widely prevalent or in common use in the relevant field.”⁹² As the USPTO Berkheimer Memorandum indicated, a single document which is prior art might not prove the additional element is well-understood, routine, and conventional.⁹³ The correct standard evaluates if the additional element is

⁸⁶ *TLI Commc'ns*, 823 F.3d at 611.

⁸⁷ *Diehr*, 450 U.S. at 189 n.12. (1981).

⁸⁸ *Amdocs, Inc.*, 841 F.3d at 1294.

⁸⁹ *Classen*, 659 F.3d at 1068 (stating that “[o]n the materially different facts in Prometheus and in the Classes specifications, the analogy is inapt, for the claims in Prometheus are for a method of controlling individualized dosages of a specific drug by measuring its metabolic products in the blood of individual patients, while the Classen patents operate on published information to determine general immunization schedules.”).

⁹⁰ *Enfish*, 822 F.3d at 1339.

⁹¹ *Bilski v. Kappos*, 561 U.S. 593, 604 (2010).

⁹² USPTO Berkheimer Memorandum at 4.

⁹³ *Id.*

“widely prevalent or in common use in the relevant field, comparable to the types of activity or elements that are so well-known that they do not need to be described in detail in a patent application to satisfy 35 U.S.C. § 112(a).”⁹⁴

In Step 2B, examiners may also take official notice of the well-understood, routine, conventional nature of the additional element(s). However, official notice without documented evidence should only be taken where the facts are “capable of instant and unquestionable demonstration” as being well-known.⁹⁵ This is a high bar for preventing arbitrary abuse of official notice. Thus, applicants should request explicit reasoning to support the official notice if no reasoning is provided for the official notice.⁹⁶ Where an official notice is used as a basis for a rejection absent a judicial decision that the element was well-understood, routine, conventional elements, applicants should traverse the official notice and request that examiners “provide documentary evidence in the next Office action if the rejection is to be maintained.”⁹⁷

2. Substantive Response

Where an applicants’ only objection is to procedural inappropriateness in a § 101 rejection, it would be difficult to overcome the patentability issue without an opportunity to provide a substantive response. The substantive response may comprise two parts: arguments and claim amendments.

To argue against the examiners’ § 101 position, applicants may dispute that the claimed invention was not directed to an abstract idea. Applicants may argue in Step 2A Prong One that the claimed invention does not recite an abstract idea by showing a tie to a machine or a manufacture process. It would be effective to indicate specific paragraphs in the specification to show the integration to a machine or a manufacture process. Sometimes, the preamble of a claim may have patentable weight in a § 101 analysis.⁹⁸

In Step 2A Prong Two, applicants may show how the claimed invention imposes a meaningful limit on the abstract idea exception. Using the specification, applicants may state the problem in the existing technology, how the claimed invention while

⁹⁴ *Id.* (citing *Exergen Corp. v. Kaz USA, Inc.*, 725 F. App’x 959, 966 (Fed. Cir. 2018) (non-precedential) (stating that the single copy of a thesis written in German and located in a German university library considered to be a “printed publication” in *Hall* “would not suffice to establish that something is ‘well-understood, routine, and conventional activity previously engaged in by scientists who work in the field’”).

⁹⁵ MPEP §P2144.03(A) (citing *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970)).

⁹⁶ MPEP §E2144.03 (B) (stating “[i]f such notice is taken, the basis for such reasoning must be set forth explicitly”) (citing *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963) and *In re Chevenard*, 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943)).

⁹⁷ MPEP §P2144.03(C) (stating that “[i]f applicant adequately traverses the examiner’s assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained.”) (citing 37 C.F.R. 1.104(c)(2); *In re Zurko*, 258 F.3d 1379, 1386, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001)).

⁹⁸ *SiRF Tech., Inc. v. ITC*, 601 F.3d 1319, 1332 (Fed. Cir. 2010) (“A GPS receiver is a machine and is integral to each of the claims at issue. Claim 1 of the ‘801 patent is expressly directed in its preamble to “calculating an absolute position of a GPS receiver.”).

highlighting limitations solves the problem or makes an improvement over the problem, and its effects by the claimed invention. Applicants may also use any other document showing the problem or deficiency in the existing technology at the time of filing the patent application to show the improvement over the problem or deficiency. In addition, the way applicants argue against § 101 rejections and use documents should be consistent with the specification and claims.⁹⁹

In a computer-implemented invention, examiners often consider a processor in a claim as a general purpose computer and ignore the limitation. However, if an algorithm to be performed by the processor is sufficiently described in the claim and specification, applicants may argue that the processor is not a general purpose computer to perform computer's standard functions but a special purpose computer to perform the algorithm.¹⁰⁰ In that case, the examiners may consider the processor in the claim as a special purpose computer tied in the claim rather than a generic computer.

In Step 2B, although the claimed invention may be directed to an abstract idea, applicants can still argue that the claimed invention has an inventive concept. Applicants may argue with specific paragraphs in the specification that the claimed invention:

- improves to the functioning of a computer;
 - improves any other technology or technical field;
 - uses a particular machine arranged in a particular way;
 - transforms or reduces a particular article to a different state or things;
- or
- uses a non-conventional and non-generic arrangement of components.¹⁰¹

Similarly, applicants may use any other document showing the problem at the time of filing the patent application in a consistent way. Sometimes, claim amendments may also be effective by amending claims tied to particular machine or manufacture¹⁰² or adding the inventive concept in a specific and discrete way in claims as discussed above.¹⁰³

⁹⁹ *Berkheimer*, 881 F.3d at 1364 (holding claims 10-19 indefinite because “[i]n light of the lack of objective boundary or specific examples of what constitutes ‘minimal’ in the claims, specification, and prosecution history”).

¹⁰⁰ See e.g., MPEP §P2181; *Aristocrat Techs.*, 521 F.3d at 1338 (stating “the algorithm . . . transforms the general purpose microprocessor to a ‘special purpose computer programmed to perform the disclosed algorithm.’” (quoting *WMS Gaming, Inc.*, 184 F.3d at 1349).

¹⁰¹ MPEP §P2106.05.

¹⁰² *Amdocs*, 841 F.3d at 1301 (stating that claim 1 is patent eligible partly because “claim 1 of the ‘065 patent is tied to a specific structure of various components (network devices, gatherers, ISMs, a central event manager, a central database, a user interface server, and terminals or clients).”).

¹⁰³ *Berkheimer*, 881 F.3d at 1370 (holding claims 4-6 are directed to the arguably inventive concept because of limitations “without substantial redundancy” which improves system operating efficiency and reduces storage costs.).

IV. CONCLUSION

2019 PEG refines Step 2A of the *Mayo/Alice* test by requiring two prongs (Prong One: whether the claim recites a judicial exception and Prong Two: whether the recited judicial exception is integrated into a practical application). However, inconsistencies in the current patentable subject matter jurisprudence remain. Thus, individual drafting efforts such as avoiding to recite an abstract idea and showing clear improvements over prior and conventional art increase the chances of a patent application's survival under a 2019 PEG analysis.