

EXPLORING ALICE’S WONDERLAND OF PATENTABLE SUBJECT MATTER

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I. INTRODUCTION

The U.S. Supreme Court’s decision in *Alice Corp. Pty. Ltd. v. CLS Bank International* substantially altered the landscape for computer system and software-related patents.¹ While the controversial 2014 decision intended to provide a framework for evaluating the patentable subject matter eligibility of computer system and software-related inventions, the Court ultimately provided too broad of a standard which has led to varying interpretations by U.S. District Courts, the U.S. Court of Appeals for the Federal Circuit, the U.S. Patent and Trademark Office (USPTO), and the USPTO Patent Trial and Appeal Board (PTAB).²

* J.D., University of Illinois College of Law, 2017; B.S., Electrical Engineering, University of Illinois at Urbana-Champaign, 2012. This Note is dedicated to my father, Mark, my mother, Susan, and my sister, Heather; all of whom have been tremendously influential and supportive of my various endeavors. Special thanks to Jay P. Kesan, Paul J. Heald, and the University of Illinois Journal of Law, Technology & Policy editors, members, and staff for their contributions towards editing this Note.

1. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2360 (2014).
2. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1248 (Fed. Cir. 2014) (reversing the District Court for the Northern District of Ohio’s decision); *see also Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1336 (Fed. Cir. 2015) (affirming the PTAB’s decision that the claims were directed to an

Prior to *Alice*, patentees of computer system and software-related technologies were predominantly concerned with demonstrating that their inventions were novel (pursuant to 35 U.S.C. § 102) and non-obvious (pursuant to 35 U.S.C. § 103).³ However, following the *Alice* decision, inventors seeking patent protection for a computer system or software-related invention suddenly faced the challenges of overcoming the ambiguous obstacles of an abstract idea defined under 35 U.S.C. § 101 and demonstrating that their invention contains “an inventive concept” sufficient to “transform” the claimed abstract idea into a patent-eligible application.⁴ Consequently, this heightened standard for attaining patent protection has made it increasingly difficult to procure computer system and software-related patents from the USPTO, and relatively easier to invalidate the claims of existing computer system and software-related patents through federal court litigation and PTAB post-grant proceedings.⁵

While the Supreme Court has yet to revisit the issue of patentable subject matter since *Alice*, it is apparent that a more specific and comprehensible standard is needed in order to reconcile the differences between the various federal district courts, the USPTO, and the PTAB. This Note argues that patent reviewing authorities—such as federal courts, the USPTO, and the PTAB—should apply the same standard and add additional steps to the “*Alice* test” when assessing the patent-eligible subject matter of a computer system or software-related technology. This will provide a universally congruent evaluation and preserve the principles of the U.S. patent system.

Part II of this Note will provide background on the basics of the U.S. patent system and an overview of relevant case law on patentable subject matter that preceded the *Alice* decision; it will also discuss the *Alice* case itself. Part III of this Note will examine and analyze the ways in which the *Alice* decision has been both beneficial and detrimental to the U.S. patent system. Part IV of this Note offers a recommendation on how to resolve the ambiguities and inconsistencies created by *Alice* through the use of a new test for evaluating a computer system or software-related invention as patent-eligible subject matter.

abstract idea and did not purport to do “something more,” and thus were not patentable); *Chamberlain Grp., Inc. v. Linear LLC*, 114 F. Supp. 3d 614, 632 (N.D. Ill. 2015) (upholding the challenged claims as patentable subject matter under 35 U.S.C. § 101 in view of *Alice*); *Intellectual Ventures II LLC v. JP Morgan Chase & Co.*, No. 13-cv-3777 (AKH), 2015 WL 1941331 (S.D.N.Y. Apr. 28, 2015) (holding that the challenged claims were not patentable subject matter under 35 U.S.C. § 101 in view of *Alice*); *Ex parte Wegman*, No. 2013-008168, 2015 WL 5578687 (P.T.A.B. Sept. 18, 2015) (holding that the challenged claims were sufficiently concrete as to set them outside the broad definition of abstract idea as set forth in *Alice*); *Am. Express Co. v. Harvey Lunenfeld*, No. 2014-00050, 2015 WL 3397147 (P.T.A.B. May 22, 2015) (holding that the challenged claims were patent ineligible under 35 U.S.C. § 101 in view of *Alice*).

3. *DDR Holdings, LLC*, 773 F.3d at 1256.

4. *Alice*, 134 S. Ct. at 2357.

5. *Where Do We Stand One Year After Alice?*, LAW360 (June 17, 2015, 8:27 PM), <https://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice>.

II. BACKGROUND

A. *The United States Patent System*

Intellectual property protection has always been regarded in the United States as a matter of substantial importance, so much so that it was explicitly enumerated in the Constitution. Article 1, Section 8, Clause 8 of the U.S. Constitution dictates that “Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”⁶ Thus, the government not only recognizes the significance of intellectual property but affirmatively encourages and incentivizes the public to create and explore advancements that will lead to society’s betterment by offering an exclusive right covering what is patented.⁷ This is considered an adequate incentive because the public perceives that possessing the exclusive right over an innovation translates to financial gain.⁸

A patent is granted to anyone who invents or discovers any new and useful “process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof.”⁹ Contrary to popular belief, a patent does not give the patentee the right to “make, use, offer for sale, sell or import” his or her patent.¹⁰ Rather, a patent only gives the patentee “the right to *exclude others* from making, using, offering for sale, selling or importing” the patentee’s invention for a term of twenty years from the effective filing date.¹¹

The USPTO is the governmental agency that reviews applications for, grants, and handles patents.¹² The USPTO also has the power to reexamine, revise, narrow, and/or completely invalidate (effectually revoking) the claims¹³ of a previously issued patent.¹⁴ Like other forms of property law, a patentee can assert his or her rights against an alleged infringer in federal court.¹⁵

6. U.S. CONST. art. I, § 8, cl. 8.

7. James Evans, *Remembering the Real Purpose of Patents*, AM. C.L. UNION (Apr. 10, 2013, 10:44 AM), <https://www.aclu.org/blog/remembering-real-purpose-patents>.

8. *Id.*

9. *General Information Concerning Patents*, U.S. PAT. & TRADEMARK OFF. (Oct. 2015) [hereinafter *General Information*], <http://www.uspto.gov/patents-getting-started/general-information-concerning-patents>.

10. *Id.*

11. *Id.* (emphasis added).

12. *Id.*

13. While a patent document comprises elements such as the background, detailed description, drawings, and other parts of the specification that detail how the invention works and possible embodiments of the invention, the patent’s claims govern the enforceability of the patent. Infringement can only occur if all of the elements of a claim are present in the accused infringing claim. Only the claims of a patent are subject to being invalidated. Thus, invalidating/cancelling a patent refers to invalidating the claims of a patent so as to make the patent unenforceable. Dennis Crouch, *What Are the Parts of a Patent Application?*, PATENTLY-O (Dec. 5, 2005), http://patentlyo.com/patent/2005/12/what_are_the_pa.html.

14. Reissue of defective patents, 35 U.S.C. § 251 (2012); Disclaimer, 35 U.S.C. § 253; Certificate of correction of Patent and Trademark Office mistake, 35 U.S.C. § 254; Certificate of correction of applicant’s mistake, 35 U.S.C. § 255; Supplemental examinations to consider, reconsider, or correct information, 35 U.S.C. § 257; *see also General Information*, *supra* note 9.

15. *General Information*, *supra* note 9.

Unlike other areas of law, appeals in patent law cases (regardless of the venue of the district court) are all tried before the Court of Appeals for the Federal Circuit instead of a regional circuit court of appeals.¹⁶ Additionally, as a result of the recent patent law reforms instituted under the American Invents Act (AIA), the USPTO established the PTAB to adjudicate adversarial challenges to a patent's validity, with the intent of offering a less expensive, faster, and more scientifically proficient alternative to federal district court litigation.¹⁷ A final decision from the PTAB cannot be relitigated in district court, but instead must be appealed directly to the Federal Circuit.¹⁸ Additionally, an appeal to the Federal Circuit cannot be filed until all involved parties' requests for a rehearing with the PTAB have been exhausted.¹⁹

To be granted a patent on an invention, an inventor must comply with the conditions of patentability codified under Title 35 of the United States Code, most notably Sections 101, 102, 103, and 112.²⁰ Section 101 covers "patentable subject matter" by stating, "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title."²¹ However, courts have interpreted and extended this provision to create judicial exceptions that "laws of nature, physical phenomena, and abstract ideas" are not patentable subject matter.²²

Section 102 specifies the intricate rules and exceptions for establishing that the invention is new and not previously known, commonly referred to as "novelty."²³ However, the novelty condition can be understood to simply mean that an inventor is eligible to attain a patent as long as his or her invention was not "patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention."²⁴ These statutory bars on novelty do not apply if any of the aforementioned behaviors were performed by the inventor themselves within one year of the effective filing date (i.e., the date the inventor filed its patent application or the filing date of the earliest application to which the invention claims priority).²⁵

16. Federal Courts Improvement Act of 1982, Pub. L. No. 97-164, 96 Stat. 25 (1982); *see also The U.S. Court of Appeals for the Federal Circuit: "An Act to Establish a United States Court of Appeals for the Federal Circuit, to Establish a United States Claims Court, and for Other Purpose"*, FED. JUD. CTR., http://www.fjc.gov/history/home.nsf/page/landmark_22.html (last visited Mar. 17, 2017) (providing an overview of the Act).

17. Meaghan H. Kent & Steven J. Schwarz, *10 Reasons Every Defendant in Patent Litigation Should Consider Inter Partes Review*, VENABLE LLP (Apr. 23, 2014), <https://www.venable.com/10-reasons-every-defendant-in-patent-litigation-should-consider-inter-partes-review-04-23-2014/>.

18. Action following decision, 37 C.F.R. § 41.81 (2016).

19. *Id.*

20. *General Information*, *supra* note 9.

21. Inventions patentable, 35 U.S.C. § 101 (2012).

22. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

23. Conditions for patentability; novelty, 35 U.S.C. § 102.

24. Conditions for patentability; novelty; prior art, 35 U.S.C. § 102(a)(1).

25. Conditions for patentability; novelty, exceptions, 35 U.S.C. § 102(b); *American Invents Act (AIA) Frequently Asked Questions*, U.S. PAT. & TRADEMARK OFF., <http://www.uspto.gov/patent/laws-and->

Section 103 covers non-obviousness and provides:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.²⁶

Section 112 covers the specification.²⁷ While Section 112 includes several requirements, the most significant provision is the written description requirement of Section 112(a), which dictates:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.²⁸

In pursuing a patent, an inventor will have a back-and-forth negotiation with a USPTO patent examiner in order to demonstrate that the invention satisfies the aforementioned patentability conditions and is thus deserving of a patent.²⁹ This process, known as “patent prosecution,” typically transpires over several years before a patent on the invention is granted.³⁰

Courts have limited patent-eligible subject matter, pursuant to 35 U.S.C. § 101, because “laws of nature, natural phenomena, and abstract ideas” are the “basic tools of scientific and technological” advancement.³¹ If a patent were granted over such subject matter, it would impede and deter progress, and undermine the exact reasons for which the patent system was established.³² The court system has “repeatedly emphasized [the] . . . concern that patent law not inhibit further discovery by improperly tying up the future use of laws of

regulations/america-invents-act-aia/america-invents-act-aia-frequently-asked (last visited Mar. 17, 2017).

26. Conditions for patentability; non-obvious subject matter, 35 U.S.C. § 103.

27. Specification, 35 U.S.C. § 112(a).

28. *Id.*

29. *General Information*, *supra* note 9.

30. Eric Waltmire, *How Long Does It Take to Get a Patent?*, ERICKSON L. GRP., PC, <http://www.ericksonlawgroup.com/law/patents/patentfaq/how-long-does-it-take-to-get-a-patent/> (last visited Mar. 17, 2017).

31. OFF. OF PAT. LEGAL ADMIN., U.S. PAT. & TRADEMARK OFF., EVALUATING SUBJECT MATTER ELIGIBILITY UNDER 35 USC § 101: AUGUST 2012 UPDATE 8, 20 (2012), http://www.uspto.gov/sites/default/files/patents/law/exam/101_training_aug2012.pdf; *see also, e.g.*, *Bilski v. Kappos*, 561 U.S. 593 (2010) (holding that the “machine or transformation” test provides an important clue in determining whether an invention is eligible to be patented under 35 U.S.C. § 101); *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) (holding that a process claim directed to an algorithm is not patentable because it would preempt the use of the algorithm and in effect allow a patent on the algorithm itself); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012) (holding that applying an invention to “routine” or “conventional” practices of field does not “transform” the invention into patentable eligible subject matter under 35 U.S.C § 101).

32. OFF. OF PAT. LEGAL ADMIN., *supra* note 31, at 20; *Bilski*, 561 U.S. at 593; *Benson*, 409 U.S. at 67; *Mayo Collaborative Servs.*, 566 U.S. at 66.

nature.”³³ “[A] new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that $E=mc^2$; nor could Newton have patented the law of gravity.”³⁴ At some level, all inventions “embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas.”³⁵ The patent system was not established to grant an individual a monopoly over basic knowledge and certainties that are essential to life. However, an invention is not necessarily ineligible for patent protection just because it involves an abstract concept.³⁶ Rather, the invention can still be patent eligible as long as the abstract concept is applied “to a new and useful end.”³⁷

B. Case Law Preceding Alice

The extent and limits of patentable subject matter within the realm of computers and software has been a continuous focus of many Supreme Court cases as science and technology have advanced.³⁸ In 1972, the Court held in *Gottschalk v. Benson* that a novel and useful mathematical formula or algorithm was patent ineligible.³⁹

After *Benson*, in 1978, the Court in *Parker v. Flook* ruled that a patentee cannot circumvent the patentable subject matter obstacle by merely using a computer system configured to implement an otherwise patent-ineligible algorithm or mathematical formula, because doing so “would make the determination of patentable subject matter depend simply on the draftsman’s art and would ill serve the principles underlying the prohibition against patents for ‘ideas’ or phenomena of nature.”⁴⁰ The patent at issue in *Flook*—a method for computing a catalytic process alarm limit based on calculations using certain variables—only provided a formula for computing an updated alarm limit.⁴¹ The patent did not explain how these variables were determined or disclose the chemical processes at work, the monitoring of process variables, or the means of triggering or adjusting the alarm system.⁴² The Court added that limiting the abstract idea to one field of use or adding token post-solution components would not make the concept patentable.⁴³

The Supreme Court’s decisions in both *Benson* and *Flook* seemingly rendered computer programs as patent ineligible.⁴⁴ However, in 1981, the Court made its first judgment enabling computer programs to be patentable

33. *Mayo Collaborative Servs.*, 566 U.S. at 70 (citing *O’Reilly v. Morse*, 56 U.S. 62, 113 (1853)).

34. *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (citing *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948)).

35. *Mayo Collaborative Servs.*, 566 U.S. at 70.

36. *Diamond v. Diehr*, 450 U.S. 175, 187 (1981).

37. *Benson*, 409 U.S. at 67.

38. *Parker v. Flook*, 437 U.S. 584 (1978); *Benson*, 409 U.S. at 63; *Diehr*, 450 U.S. at 175; *Bilski v. Kappos*, 561 U.S. 593 (2010); *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014).

39. *Benson*, 409 U.S. at 63.

40. *Flook*, 437 U.S. at 593.

41. *Id.*

42. *Id.* at 586.

43. *Id.* at 584.

44. *Id.*; *Benson*, 409 U.S. at 63.

subject matter in *Diamond v. Diehr*.⁴⁵ In ruling that an invention that used a mathematical formula as part of its industrial process claims was in fact patentable, the Court reasoned that “implement[ing] or appl[y]ing” a mathematical formula in a structure or process to “transform[] or reduc[e] an article to a different state or thing” satisfies the requirement of Section 101.⁴⁶

Diehr, unlike the patentees in *Benson* and *Flook*, sought to patent a process that contained the application of a mathematical formula on a computer to improve the efficiency of the process, but did not seek to patent the mathematical formula itself.⁴⁷ In conducting its patent subject matter inquiry, the Court further guided that the patent claims must be considered as a whole because it is “inappropriate to dissect the claims into old and new elements and then to ignore the presence of the old elements in the analysis.”⁴⁸ Further, the Court differentiated the case by stating, “The ‘novelty’ of any element or steps in a process . . . is of no relevance in determining whether the subject matter of a claim falls within the § 101 categories of possibly patentable subject matter.”⁴⁹

After *Diehr*, inventors, lower courts, and the USPTO were left trying to determine when an invention was merely a mathematical algorithm and when it was in fact a patentable invention that simply contained a mathematical algorithm.⁵⁰ But by the 1990s, the Federal Circuit had permitted almost all computer software to be patentable.⁵¹

In 1994, in the case *In re Lowry*, the Federal Circuit held that memory containing a data structure was patent eligible.⁵² The court reasoned:

Contrary to the PTO’s assertion, Lowry does not claim merely the information content of a memory. . . . While the information content affects the exact sequence of bits stored in accordance with Lowry’s data structures, the claims require specific electronic structural elements which impart a physical organization on the information stored in memory.

. . . .

More than mere abstraction, the data structures are specific electrical or magnetic structural elements in a memory. According to Lowry, the data structures provide tangible benefits: data stored in accordance with the claimed data structures are more easily accessed, stored, and erased. . . . In short, Lowry’s data structures are physical entities that provide increased efficiency in computer operation.⁵³

45. *Diamond v. Diehr*, 450 U.S. 175, 175 (1981).

46. *Id.* at 191–92.

47. *Id.* at 187.

48. *Id.* at 188.

49. *Id.* at 188–89.

50. *The History of Software Patents: From Benson, Flook, and Diehr to Bilski and Mayo v. Prometheus: 1980s*, BITLAW, <http://www.bitlaw.com/software-patent/history.html#1980s> (last visited Mar. 12, 2017).

51. *Id.*

52. *In re Lowry*, 32 F.3d 1579 (Fed. Cir. 1994).

53. *Id.* at 1583–84.

Then in 1998, the Federal Circuit in *State Street Bank & Trust Co. v. Signature Financial Group, Inc.* held:

[T]he transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces “a useful, concrete and tangible result”—a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.”⁵⁴

However, the Federal Circuit added, “Given the complexity of the calculations, a computer or equivalent device is a virtual necessity to perform the task.”⁵⁵

While the 1990s seemed to drastically broaden what constituted patentable subject matter, the 2007 Federal Circuit case *In re Comiskey* stated, “The routine addition of modern electronics to an otherwise unpatentable invention typically creates a prima facie case of obviousness.”⁵⁶ The *Comiskey* decision seemingly pushed the standard for patent eligibility back towards *Flook* and *Benson*.⁵⁷ After almost thirty years since it last ruled on patentable subject matter pertaining to computers, the Supreme Court revisited the issue in 2010 with *Bilski v. Kappos*.⁵⁸

In *Bilski*, the Court rejected the Federal Circuit’s “Machine or Transformation” test—which asserted that an invention is only a process under 35 U.S.C. § 101 if “(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing”—because it inadequately assessed business method patents and risked obscuring the market for securing patents.⁵⁹ While the Court felt the test was a “useful and important clue, an investigative tool, for determining whether some claimed inventions are processes under § 101,” the Court found that it was “not the sole test for deciding whether an invention is a patent-eligible ‘process.’”⁶⁰ The Court noted that the subject matter of the patent, risk hedging, is an abstract idea reduced to a mathematical formula.⁶¹ Therefore, allowing the petitioner to patent it, even if just for use in commodities or energy markets, would preempt use of the approach in all fields.⁶² Further, the Court declared, “[N]othing in today’s opinion should be read as endorsing interpretations of § 101 that the Court of Appeals for the Federal Circuit has used in the past.”⁶³ The Court

54. *State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (quoting *In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)).

55. *Id.* at 1371.

56. *In re Comiskey*, 499 F.3d 1365, 1380 (Fed. Cir. 2007).

57. *Id.*

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

59. *Id.* at 612.

60. *Id.* at 604.

61. *Id.*

62. *Id.* at 612.

63. *Id.* (citing *State St. Bank & Tr. Co. v. Signature Fin. Grp., Inc.*, 149 F.3d 1368 (Fed. Cir. 1998); *AT & T Corp. v. Excel Commc’ns, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999)).

was clearly indicating its disapproval of the Federal Circuit broadening the scope of patentable subject matter.⁶⁴

However, in the 2012 case *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, the Supreme Court laid the framework for a modern patentable subject matter inquiry.⁶⁵ This inquiry involves a two-prong test that first determines whether the invention relates to a “law of nature, natural phenomena, or abstract idea,” and if so, then determines “whether the claimed [invention] ha[s] transformed these unpatentable [law of nature, natural phenomena, or abstract idea] into patent-eligible applications of those laws.”⁶⁶ Further, the Court insisted that the claims “that focus[] upon the use of a natural law also contain other elements or a combination of elements, sometimes referred to as an ‘inventive concept,’ sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the natural law itself.”⁶⁷

While the underlying technology in *Mayo* pertained to biotechnology, the Court would soon get the opportunity to apply its new patentable subject matter test to the computer software and business method field.⁶⁸

C. Alice Corp. Pty. Ltd. v. CLS Bank International

In the 2014 Supreme Court case of *Alice Corp. Pty. Ltd. v. CLS Bank International*, the patents at issue disclosed a computer-implemented process for mitigating “settlement risk” (the risk that only one side of financial transaction will pay its end of the deal) through the use of a third-party intermediary.⁶⁹ Alice Corporation, the assignee of the patents, accused CLS Bank, the operator of a global network that facilitates currency transactions, of infringing its patents.⁷⁰ In response, CLS Bank filed a declaratory judgment⁷¹ action against Alice Corp.’s patents, alleging that the claims of Alice’s patents were invalid and therefore unenforceable.⁷² In response, Alice countersued CLS Bank for patent infringement.⁷³ The patents in the suit claimed “(1) the foregoing method for exchanging obligations (the method claims), (2) a computer system configured to carry out the method for exchanging obligations (the system claims), and (3) a computer-readable medium

64. *Id.*

65. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012).

66. *Id.* at 72.

67. *Id.*

68. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2347 (2014).

69. *Id.*

70. *Id.*

71. In patent law, a declaratory judgment is sought when a party, in anticipation of being sued for patent infringement, preemptively sues a patent owner in pursuit of having the claims of the underlying asserted patent declared invalid. If the claims of the patent are found to be invalid, the patent is unenforceable and the party cannot be sued for infringement because there is not a valid patent to be infringed. John C. Paul & D. Brian Kacedon, *Declaratory Judgment Challenging Patent Validity and Infringement Was Dismissed Despite a Patent Owner’s Statement that the Plaintiff’s Product May Infringe Certain Patents*, FINNEGAN (May 16, 2011), <http://www.finnegan.com/resources/articles/articlesdetail.aspx?news=0a979e4b-5d0a-4099-b17b-d86922dc993d>.

72. *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 768 F. Supp. 2d 221 (D.C. Cir. 2011).

73. *Alice*, 134 S. Ct. at 2352.

containing program code for performing the method of exchanging obligations (the media claims),” and that all of the claims are implemented using a computer.⁷⁴

Prior to reaching the Supreme Court, the validity of Alice’s patents was fiercely litigated in the lower courts.⁷⁵ In 2011, the District Court for the District of Columbia held that all of the claims of Alice Corp.’s patent were not patent eligible because the claims were directed to the “abstract idea of ‘employing a neutral intermediary to facilitate simultaneous exchange of obligations in order to minimize risk.’”⁷⁶ On appeal in 2012, a divided panel of the Federal Circuit reversed the district court’s decision, holding that Alice’s claims were not directed to an abstract idea.⁷⁷ However, the district court’s decision was reinstated after the Federal Circuit reheard the case en banc and concluded that the idea of reducing settlement risk by effecting trades through a third-party intermediary was an abstract idea, and using a computer to maintain, adjust, and reconcile the accounts (created as part of the process) failed to add any substance to the abstract idea.⁷⁸

In the Supreme Court’s review of the case, delivered in an opinion by Justice Thomas, it applied the two-part *Mayo* test in assessing the patentability of the claims.⁷⁹ The Court first determined that Alice’s claims at issue were directed to a patent-ineligible concept because intermediate settlement, like the subject matter of risk hedging in *Bilski*, is an abstract idea in that it is “a fundamental economic practice long prevalent in our system of commerce”⁸⁰ and a “building block of the modern economy.”⁸¹ The Court declined to explore the precise boundaries of an “abstract idea,” reasoning that it was meaningless given the lack of distinctiveness between the concepts of Alice Corp.’s intermediate settlement and *Bilski*’s risk hedging, both of which fall within the realm of how the Court had previously used the term.⁸²

The Court next moved its analysis to the second step of the *Mayo* test and concluded that Alice Corp.’s method claims, which “merely require generic computer implementation, fail[ed] to transform that abstract idea into a patent-eligible invention.”⁸³ The Court—citing *Benson*, *Flook*, and *Diehr*—reiterated that simply implementing a principle or idea using a computer does not suddenly make it patentable,⁸⁴ and allowing such practice would undermine the principles of the patent system because a patent applicant would be able to claim any physical or social science just by configuring it to a computer

74. *Id.*

75. See generally *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 685 F.3d 1341 (Fed. Cir. 2012); *CLS Bank Int’l v. Alice Corp. Pty. Ltd.*, 768 F. Supp. 2d 221 (D.C. Cir. 2011).

76. *Alice*, 134 S. Ct. at 2353 (quoting *CLS Bank Int’l*, 768 F. Supp. 2d at 252).

77. *Id.* (citing *CLS Bank Int’l*, 685 F.3d at 1356).

78. *Id.*

79. *Id.* at 2355.

80. *Id.* at 2356 (quoting *Bilski v. Kappos*, 561 U.S. 593, 611 (2010)).

81. *Alice*, 134 S. Ct. at 2356 (citing *Yesha Yadav, The Problematic Case of Clearinghouses in Complex Markets*, 101 GEO. L. J. 387, 406–412 (2013)).

82. *Id.* at 2357.

83. *Id.*

84. *Id.* at 2358.

system.⁸⁵ Alice Corp. argued that the claimed methods “require[] the use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions.”⁸⁶ But the Court countered that “all of these computer functions are ‘well-understood, routine, conventional activit[ies]’ previously known to the industry. . . . [E]ach step does no more than require a generic computer to perform generic computer functions.”⁸⁷ Further, the Court noted that the method claims lacked express language defining the computer’s participation, did not purport to improve the functioning of the computer itself, and did not affect an improvement in any other technology or technological field.⁸⁸ Alice’s media claims (claims intending to cover the computer-readable medium created as a result of executing a process on a computer) were struck down for nearly the identical reasons that its method claims were rejected.⁸⁹

Alice asserted its claims included “specific hardware” configured to perform “specific computerized functions,” but the Court noted that a “‘data processing system’ with a ‘communications controller’ and ‘data storage unit’ . . . [were] purely functional and generic.”⁹⁰

The Court affirmed the en banc Federal Circuit’s judgment and held that the claims of Alice’s patents were patent ineligible under Section 101.⁹¹ Justice Sotomayor, joined by Justice Ginsburg and Justice Breyer, included a short concurrence that reiterated the principles of *Bilski*.⁹²

III. ANALYSIS

The Supreme Court’s decisions in *Alice*, and the consequent effects, have had both a positive and negative effect on the U.S. patent system. While some effects were experienced immediately, others were latent in materializing.⁹³ Additionally, it is possible that some effects from *Alice* have still yet to be realized.

A. *Post-Alice Proceedings*

The Supreme Court’s decision in *Alice* seemed to confuse, more than clarify, what constitutes patentable subject matter. *Alice* presents an overwhelming challenge to attain a patent for any product or process requiring a computer to make it functional, most notably computer systems and software.⁹⁴ While the Supreme Court’s intention with *Alice* was to impose

85. *Id.* at 2359.

86. *Id.*

87. *Id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012)).

88. *Id.*

89. *Id.* at 2360.

90. *Id.*

91. *Id.* at 2360–61.

92. *Id.* at 2347.

93. Robert R. Sachs, *Two Years After Alice: A Survey of the Impact of a “Minor Case” (Part 1)*, BILSKI BLOG (June 16, 2016), <http://www.bilskiblog.com/blog/2016/06/two-years-after-alice-a-survey-of-the-impact-of-a-minor-case.html>.

94. *Down the Rabbit Hole: Trends in Software Patent Court Decisions Post-Alice*, MANATT, PHELPS & PHILLIPS, LLP.: INTELL. PROP. L. (Dec. 22, 2015) [hereinafter *Down the Rabbit Hole*], <https://www.manatt>.

limits on only business method patents, the effect has been widespread, extending to unrelated industries—such as shipping, gaming, and insurance—that employ software in their operations.⁹⁵ As of March 2017, just thirty-two months after *Alice* was decided, *Alice* has been cited in over 500 federal court cases and over 835 PTAB decisions.⁹⁶ Thus far, of the fifty-four Federal Circuit cases that cite *Alice*, only two cases distinguished themselves from *Alice* in holding that an invention was patent-eligible subject matter (with the other fifty-two decisions either affirming the finding of invalidity of patent-ineligible subject matter in view of *Alice*, or the issue not being on review).⁹⁷

In the first case in which the Federal Circuit found in favor of the patentee, *DDR Holdings, LLC v. Hotels.com, L.P.*, the invention dealt with a system that prevents an online third-party merchant from luring a website's visitor traffic away after the visitor clicked on the third-party website's advertisement on a host website.⁹⁸ In upholding the validity of the patent's claims, the court noted:

com/insights/newsletters/intellectual-property-law/down-the-rabbit-hole-trends-in-software-patent-co.

95. Sheri Qualters, *It's a "Scary" Post-"Alice" World for Software Patents*, NAT'L L.J. (June 23, 2015), <http://www.nationallawjournal.com/id=1202730283930>.

96. *Citing References from Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, WESTLAW, <https://next.westlaw.com> (access "*Alice Corp. Pty. Ltd. v. CLS Bank Int'l*" and click on "citing references") (last visited Mar. 21, 2017).

97. *Digitech Image Tech., LLC v. Elec. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014) (affirming the District Court for the Eastern District of New York's decision in view of *Alice*); *IP Engine, Inc. v. AOL Inc.*, 576 Fed. App'x 982 (Fed. Cir. 2014) (citing *Alice* in Judge Mayer's concurring opinion, but not examining *Alice* because patentable subject matter was not on review); *Planet Bingo, LLC v. VKGS LLC*, 576 Fed. App'x 1005 (Fed. Cir. 2014) (affirming the District Court for the Central District of California's decision in view of *Alice*); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350 (Fed. Cir. 2014) (affirming the District Court for the District of Delaware's decision); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709 (Fed. Cir. 2014) (affirming the District Court for the Northern District of Texas' decision); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) (reversing the District Court for the Northern District of Ohio's decision); *In re BRCA1- & BRCA2-Based Hereditary Cancer Test*, 774 F.3d 755 (Fed. Cir. 2014) (affirming the District Court for the District of Utah's decision); *Content Extraction and Transmission LLC v. Wells Fargo*, 776 F.3d 1343 (Fed. Cir. 2014) (affirming the District Court for the District of New Jersey's decision); *In re Chuang*, 603 Fed. App'x 941 (Fed. Cir. 2015) (affirming the PTAB's decision); *EON Corp. IP Holdings LLC v. AT & T Mobility LLC*, 785 F.3d 616 (Fed. Cir. 2015) (affirming the District Court for the Northern District of California's decision); *Classen Immunotherapies, Inc. v. Elan Pharma., Inc.*, 786 F.3d 892 (Fed. Cir. 2015) (affirming the District Court for the District of Maryland's decision, but not examining the *Alice* decision because patentable subject matter was not on review); *Allvoice Devs. US, LLC v. Microsoft Corp.*, 612 Fed. App'x 1009 (Fed. Cir. 2015) (affirming the District Court for the Western District of Washington's decision); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359 (Fed. Cir. 2015) (affirming the District Court for the Northern District of California's decision); *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371 (Fed. Cir. 2015) (affirming the District Court for the Northern District of California's decision); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343 (Fed. Cir. 2015) (affirming the District Court for the Northern District of California's decision); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363 (Fed. Cir. 2015) (affirming the District Court for the Eastern District of Virginia's decision); *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306 (Fed. Cir. 2015) (affirming the PTAB's decision); *Smartflash LLC v. Apple Inc.*, 621 Fed. App'x 995 (Fed. Cir. 2015) (affirming the District Court for the Eastern District of Texas decision, but not examining the *Alice* decision because patentable subject matter was not on review); *Carnegie Mellon Univ. v. Marvell Tech. Grp., Ltd.*, 807 F.3d 1283 (Fed. Cir. 2015) (mentioning *Alice* only in a note, but not examining the *Alice* decision because patentable subject matter was not on review); *Mortg. Grader, Inc. v. First Choice Loan Servs.*, 811 F.3d 1314 (Fed. Cir. 2016) (affirming the District Court for the Central District of California's decision); *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331 (Fed. Cir. 2016) (mentioning *Alice* in a note, but not examining the *Alice* decision because patentable subject matter was not on review); *In re Smith*, 815 F.3d 816 (Fed. Cir. 2016) (affirming the PTAB's decision).

98. *DDR Holdings, LLC*, 773 F.3d at 1245.

[The invention solved a] problem that does not arise in the ‘brick and mortar’ context. . . . There is . . . no possibility that . . . [a] customer will be suddenly and completely transported outside . . . [a] store and relocated to a separate physical venue associated with the third-party

. . . .

[T]he claims recite an invention that is not merely the routine or conventional use of the internet.⁹⁹

The court distinguished that the claimed solution was an inventive concept that resolved a particular Internet-centric problem, thereby rendering the claims patent eligible.¹⁰⁰ The court further explained that the invention was patent eligible because the claims do not “recite a commonplace business method aimed at processing business information, applying a known business process to the particular technological environment of the Internet, or creating or altering contractual relations using generic computer functions and conventional network operations, such as the claims in *Alice*, *Ulramercial*, *buySAFE*, *Accenture*, and *Bancorp*.”¹⁰¹

However, there has been an inconsistent interpretation and application of the *Alice* test amongst district courts.¹⁰² To date, over twenty-five district court cases have ruled that an invention was patent eligible within the *Alice* framework.¹⁰³ The Western District of Texas, Eastern District of Texas, Northern District of Texas, Southern District of Texas, Northern District of California, Middle District of Florida, Northern District of Illinois, District of Maryland, Northern District of Ohio, and District of Delaware have all found that an invention was patent eligible because it was not directed at an abstract idea.¹⁰⁴ Meanwhile, the District of Massachusetts, District of Nebraska, Eastern District of Texas, Northern District of Texas, Southern District of Texas, Western District of Texas, Central District of California, Northern District of California, District of Delaware, Northern District of Ohio, and Northern District of Illinois have ruled in cases that the invention’s claims included “something more” to transform the invention into patentable subject matter.¹⁰⁵

In the Western District of Texas case *Versata Software Inc. v. Zoho Corp.*, the court upheld the patentee’s claims covering an invention relating to a mobile device system that uses alterable symbols on a display to represent changes in external information.¹⁰⁶ The court noted that the second step of the *Alice* test is better suited as an inquiry “addressing the novelty [35 U.S.C.

99. *Id.* at 1258–59.

100. *Id.* at 1259.

101. *Id.*

102. *See Down the Rabbit Hole*, *supra* note 94 (discussing the various court cases that cited *Alice* after its decision).

103. *Alice Tracker*, FISH & RICHARDSON, <http://www.fr.com/alice-tracker/> (last visited Mar. 17, 2017).

104. *Id.*

105. *Id.*

106. *Versata Software, Inc. v. Zoho Corp.*, No. A-13-CA-00371-SS, 2015 WL 6506368, at *3 (W.D. Tex. Oct. 26, 2015).

§ 102] and non-obviousness [35 U.S.C. § 103],” rather than patentable subject matter under 35 U.S.C. § 101.¹⁰⁷ In the Eastern District of Texas case *Smartflash LLC v. Apple, Inc.*, the court upheld a patent relating to data storage and access for downloading digital multimedia, reasoning that the asserted claims “recite[d] specific ways of using distinct memories, data types, and use rules that amount to significantly more than the underlying abstract idea.”¹⁰⁸ The court noted that the claims contained “significant limitations on the scope of the inventions” even though some of the claim language was generic.¹⁰⁹ Further, “the claims solve problems faced by digital content providers in the Internet Era and ‘improve the functioning of the computer itself’ by providing protection for proprietary digital content.”¹¹⁰

The court in the Northern District of Illinois case of *Chamberlain Group, Inc. v. Linear LLC* upheld a patent for a system directed toward moving a physical barrier, and explained:

This is not a claimed method or apparatus that can be performed or function without its machine components. . . . The ‘977 Patent claims also satisfy the transformation prong of the [*Alice*] test, as the controller responds to the status change request by moving the barrier . . . thereby transforming the state of the moveable barrier.

. . . .

Furthermore, this implementation of the idea of opening and closing a door—limited to the additional use of a movable barrier operator and a controller—does not preempt every technique for opening and closing a door. . . .

. . . .

. . . This vital connection [of the system] to the mechanical and electrical elements of the claim renders the claims at issue patent-eligible.¹¹¹

Thus, it is clear that *Alice* has been interpreted and applied differently amongst lower courts.

In May 2016, the Federal Circuit provided additional guidance in *Enfish v. Microsoft*, upholding the claims of a patent directed to database software as patent eligible because the invention possessed improvements over conventional databases in the way the computer operates such as increased flexibility, faster search times, and smaller memory requirements.¹¹² The court noted, “Software can make non-abstract improvements to computer technology just as hardware improvements can Therefore, we find it relevant to ask whether the claims are directed to an improvement in computer functionality versus being directed to an abstract idea, even at the first step of the *Alice*

107. *Id.* at *3 n.1.

108. *Smartflash LLC v. Apple, Inc.*, No. 6:13-CV-447-JRG-KNM, 2015 WL 11090901, at *8 (E.D. Tex. Jan. 21, 2015).

109. *Id.*

110. *Id.* at *9 (quoting *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2359 (2014)).

111. *Chamberlain Grp., Inc. v. Linear LLC*, 114 F. Supp. 3d 614, 628–30 (N.D. Ill. 2015).

112. *See generally Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016).

analysis.”¹¹³ The court also warned against “oversimplifying” computer-related inventions to such a high level of abstraction like the district court had done.¹¹⁴ The court then noted, “Much 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.”¹¹⁵

B. *The State of the U.S. Patent System Following the Alice Decision*

As a result of the continued fallout from *Alice*, there has been a decrease in patent litigation for the first time in years.¹¹⁶ In 2015, patent litigation was reported to be down 13%.¹¹⁷ In just one year following the *Alice* decision, about 73.5% of claims involving computer system and software-related patents challenged in district court on Section 101 grounds were invalidated.¹¹⁸ The landscape looks equally bleak on the patent acquisition side.¹¹⁹ A study on USPTO rejections from 2012 through May 2015 revealed that the USPTO issued Section 101 rejections on 42% of electronic-commerce patent applications prior to *Alice*, and after *Alice* that number ballooned to roughly 93%.¹²⁰ The drastic change in patentability standards may not intimidate large companies with large patent budgets, but smaller companies may be deterred from pursuing technological advancements out of fear that it is not worth taking the risk without the prospect of receiving patent protection.¹²¹ Additionally, the PTAB, in reviewing the patent-eligible subject matter of already issued patents, has ruled in favor of patent eligibility for just a handful of cases pertaining to computer system and software-related inventions.¹²² Nonetheless, even amongst the limited available data, it is clear that the PTAB’s interpretation of patentable subject matter, post-*Alice*, is heavily unfavorable to patent owners and applicants.¹²³

113. *Id.* at 1335.

114. *Id.* at 1337.

115. *Id.* at 1338.

116. Mary Juetten, *Go Ask Alice: Looking Back at Patents for Entrepreneurs*, FORBES (Jan. 5, 2016, 9:00 AM), <http://www.forbes.com/sites/maryjuetten/2016/01/05/go-ask-alice-looking-back-at-patents-for-entrepreneurs>.

117. *Id.*

118. Robert Sachs, *A Survey of Patent Invalidations Since Alice*, LAW360 (Jan. 13, 2015, 10:25 AM), <http://www.law360.com/articles/604235/a-survey-of-patent-invalidations-since-alice>.

119. Qualters, *supra* note 95.

120. Robert R. Sachs, *The One Year Anniversary: The Aftermath of #AliceStorm*, BILSKI BLOG (June 20, 2015), <http://www.bilskiblog.com/blog/2015/06/the-one-year-anniversary-the-aftermath-of-alicestorm.html>.

121. *Id.*

122. *Alice Tracker*, *supra* note 103; *Ex parte* Wegman, No. 2013-008168, 2015 WL 5578687 (P.T.A.B. Sept. 18, 2015); *T. Rowe Price Inv. Servs., Inc. v. Secure Axxess, LLC* No. CBM2015-00027, 2015 WL 3920036 (P.T.A.B. June 22, 2015); *Ex parte* Steiner, No. 2012-0012381, 2015 WL 1871422 (P.T.A.B. Apr. 21, 2015); *Ex parte* Urban, No. 2012-005678, 2015 WL 1537875 (P.T.A.B. Apr. 1, 2015); *Ex parte* Scott, No. 2012-009834, 2015 WL 1093453 (P.T.A.B. Mar. 10, 2015); *Ex parte* Palmer, No. 2012-003262, 2015 WL 933401 (P.T.A.B. Feb. 26, 2015); *Ex parte* Bush, No. 2013-001110, 2015 WL 996303 (P.T.A.B. Feb. 27, 2015); *JP Morgan Chase & Co. v. Maxim Integrated Prods., Inc.*, No. CBM2014-00179, 2015 WL 780869 (P.T.A.B. Feb. 20, 2015); *Google, Inc. v. Simpleair, Inc.*, No. CBM2014-00170, 2015 WL 331089 (P.T.A.B. Jan. 22, 2015).

123. Eli Mazour & James Bennin, *PTAB Wonderland: Statistics Show Alice PTAB Interpretation Not*

C. *The Benefits of the Alice Decision*

While the *Alice* decision did not provide any real advancements or delineations on patentable subject matter, it did somewhat resolve inconsistencies created by the Federal Circuit regarding how to evaluate an invention's patentability.¹²⁴ In turn, this provided more universal, albeit vague, guidance to inventors, attorneys, federal judges, USPTO examiners, and PTAB administrative patent judges on how to determine patentable subject matter. The decision reinforced the underlying principles of the patent system to only award a pseudo-monopoly to those inventions that truly advance science and technology because the "something more" that "transform[s] th[e] abstract idea into a patent-eligible invention" needs to go beyond just applying the concept to "routine" and "generic" processes and products.¹²⁵

Further, the *Alice* decision may eventually help curtail the behavior of non-practicing entities that abuse the patent system. One type of non-practicing entity, or "patent trolls" as they are more commonly known, is an individual or company that attains a patent or portfolio of patents for the sole purpose of asserting the patent(s) against alleged infringers for financial gain.¹²⁶ Oftentimes, the patents asserted by a non-practicing entity are vague and can be interpreted to cover a broad spectrum of technologies.¹²⁷ Non-practicing entity patent owners then allege infringement of these vague patents as a method to force the accused infringer to pay for a license for the patent or else be sued for patent infringement.¹²⁸ Accused infringer defendants usually pay the licensing fee in order to avoid the far more expensive and lengthy patent infringement lawsuit,¹²⁹ thereby allowing these non-practicing entities to partake in a legal type of extortion.¹³⁰ However, as a result of the newly heightened standards created by *Alice* associated with attaining a patent, defending a patent's validity, and showing that an invention does "something more" may create problems for patentees with vague computer system or software-related patents.¹³¹ Further, *Alice* now gives accused infringers an incentive to litigate against a vague computer system or software-related patent, rather than to just pay smaller licensing fees and succumb to the threat of infringement.

Favorable to Patent Applicants, IPWATCHDOG (Sept. 27, 2015), <http://www.ipwatchdog.com/2015/09/27/ptab-wonderland-statistics-alice-ptab-interpretation>.

124. Interview with David W. Long, Partner at Kelley Drye & Warren LLP, *Patent System Benefits from Supreme Court Guidance in Alice v. CLS Bank*, METROPOLITAN CORP. COUNS. (Oct. 17, 2014, 12:05 AM), <http://www.metrocorp.counsel.com/articles/30504/patent-system-benefits-supreme-court-guidance-alice-v-cls-bank>.

125. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014).

126. *Patent Troll*, BUS. DICTIONARY, <http://www.businessdictionary.com/definition/patent-troll.html> (last visited Mar. 17, 2017).

127. *Frequently Asked Questions*, TROLLING EFFECTS, <https://trollingeffects.org/faq> (last visited Mar. 17, 2017).

128. *Patent Trolls*, ELEC. FRONTIER FOUND., <https://www EFF.ORG/issues/resources-patent-troll-victims> (last visited Mar. 12, 2017).

129. TROLLING EFFECTS, *supra* note 127.

130. Christopher A. Cotropia et al., *Unpacking Patent Assertion Entities (PAEs)*, 99 MINN. L. REV. 649, 649 (2014).

131. *Patent Trolls*, *supra* note 128.

If nothing else, the *Alice* decision effectually raised the bar on what computer system and software-related inventions are eligible for patent protection. Thus, it is a reasonable prediction that going forward, only higher-quality computer system and software-related patents will be granted and upheld as valid.¹³²

D. *The Adverse Effects of the Alice Decision*

Despite the perceived benefits it produced, the *Alice* decision has been incredibly detrimental to the patent system.¹³³ While *Alice* did provide a common standard to be used by all courts and the USPTO, the two-prong test is so broad that it gives the examining authority too much discretion to interpret an “abstract idea” and/or what classifies as “something more.”¹³⁴ The Supreme Court has merely redirected the patentable subject matter inquiry, but has not necessarily reconciled it. This has led to tremendous inconsistencies in how federal courts and the USPTO have interpreted the test and rule. While the USPTO has provided the most comprehensive guidelines and interpretations of *Alice*,¹³⁵ these USPTO standards are not required to be given deference in federal court since the USPTO lacks substantive rule-making authority.¹³⁶

Patentable subject matter is defined by 35 U.S.C. § 101, and thus is examined as a matter of law, when in actuality the underlying claims and functionality of an invention are very fact-specific inquiries.¹³⁷ Almost all USPTO examiners and PTAB administrative patent judges possess technical backgrounds that enable them to understand the underlying technology that they evaluate,¹³⁸ whereas only a very small number of district court judges and some Federal Circuit judges possess technical backgrounds.¹³⁹ Thus, there exist extreme varying degrees of technical expertise amongst reviewing authorities, and in turn this can impact how a computer system or software-related patent’s claims are interpreted and/or examined under the *Alice* test. This makes it even more difficult to accurately and effectively provide a universal standard for determining patent-eligible subject matter.

132. John C. Jarosz, *Where Do We Stand One Year After Alice?*, LAW360 (June 17, 2015, 8:27 PM), <http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice>.

133. Gene Quinn, *The Ramifications of Alice: A Conversation with Mark Lemley*, IPWATCHDOG (Sept. 4, 2014), <http://www.ipwatchdog.com/2014/09/04/the-ramifications-of-alice-a-conversation-with-mark-lemley>.

134. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014).

135. U.S. PAT. & TRADEMARK OFF., EXAMINATION GUIDANCE AND TRAINING MATERIALS, SUBJECT MATTER ELIGIBILITY EXAMPLES: ABSTRACT IDEAS (2015), https://www.uspto.gov/patents/law/exam/abstract_idea_examples.pdf.

136. Melissa Wasserman, *Chevron Deference for the U.S. Patent and Trademark Office*, PENN PROGRAM ON REG.: REG BLOG (Apr. 14, 2014), <http://www.regblog.org/2014/04/14/14-wasserman-chevron-ptol/>.

137. 35 U.S.C. § 101 (2012).

138. Jennifer R. Bush, *Administrative Patent Judges: Not Your Typical Federal Judge*, FENWICK & WEST LLP (July 10, 2014), <https://www.fenwick.com/publications/pages/administrative-patent-judges-not-your-typical-federal-judge.aspx>.

139. *Id.*

Further, there is an apparent divergence amongst district courts as to how *Alice* is applied. Some district courts have stringently interpreted the test applied in *Alice* and invalidated the claims of all computer system and software-related patents that seem to remotely fall within *Alice*'s framework.¹⁴⁰ Meanwhile, other district courts have had more moderate interpretations of *Alice* and have even created exceptions within the framework to uphold the validity of computer system and software-related patents.¹⁴¹ Then, to make matters even more confusing and inconsistent, there are district courts like the Eastern District of Texas and Northern District of California that have both invalidated and upheld computer system and software-related patents in view of *Alice*.¹⁴² These inconsistencies amongst district court decisions will likely, if they have not already begun to, lead to forum shopping.¹⁴³

Arguably, *Alice* has completely undermined the principles it sought to protect.¹⁴⁴ While a byproduct of the *Alice* decision may be the issuance of only higher-quality patents, *Alice* could conceivably lead to fewer patents and less innovation as a whole.¹⁴⁵ With a lower likelihood of receiving patent protection for a computer system or software-related invention,¹⁴⁶ inventors and investors are unlikely to expend valuable resources or efforts on developing new technology.¹⁴⁷ Without the proprietary right to exclude others, afforded by a patent, to serve as a barrier to entry, there is nothing to prevent competitors from copying, making, using, selling, or importing the invention,¹⁴⁸ thus siphoning away profits from the original inventor.¹⁴⁹ Therefore, the continued fallout from *Alice* could have a chilling effect on innovation by impeding the exploration and advancements of computer system and software-related technology.¹⁵⁰

In addition to being used as a shield to protect against patenting the “building blocks” of ingenuity and advancement, the *Alice* decision has also been used as a sword of gamesmanship to yield financial benefit.¹⁵¹ While the recent Supreme Court case *Commil USA, LLC v. Cisco Systems, Inc.* reinforced that infringement and invalidity are different concepts that entail separate

140. See, e.g., Susan Dierenfeldt-Troy, *The Enfish Decision: Some Light at the End of the Tunnel for Software Patents Since Alice?*, IPWATCHDOG (June 9, 2016), <http://www.ipwatchdog.com/2016/06/09/enfish-decision-light-end-tunnel-software-patents-since-alice>.

141. *Id.*

142. Scott M. Alter & Richard M. Marsh, *One Year After Alice: Was It the Right Medicine?*, LAW360 (June 18, 2015, 5:31 PM), <http://www.law360.com/articles/654471/one-year-after-alice-was-it-the-right-medicine>.

143. *Id.*

144. *Id.*

145. Jarosz, *supra* note 132.

146. Roy Schestowitz, *Many Software Firms No Longer Bother with Software Patents, Especially After Alice*, TECHRIGHTS (Jan. 28, 2016, 2:09 PM), <http://techrights.org/2016/01/28/alice-impact-2016/>.

147. Juetten, *supra* note 116.

148. James Yang, *Benefits of Patent Protection*, OC PAT. LAWYER, <http://ocpatentlawyer.com/benefits-of-patent-protection/> (last visited Mar. 17, 2017).

149. *Id.*

150. Andrew W. Carter, *Where Do We Stand One Year After Alice?*, LAW360 (June 17, 2015, 8:27 PM), <http://www.law360.com/articles/668773/where-do-we-stand-one-year-after-alice>.

151. Interview with David W. Long, *supra* note 124.

analysis, the two are invariably intertwined in the realm of patent litigation.¹⁵² Parties engaged in patent litigation can circumvent issues of infringement, novelty, and non-obviousness just by showing that the patent in question should be invalid because it fails either of the two broad steps of the *Alice* test.¹⁵³ While the *Alice* decision may deter some detrimental behavior of non-practicing entities, it has also created the unintended consequence of providing non-practicing entities with a dangerous means for threatening existing patent holders.¹⁵⁴ In addition to alleging infringement, non-practicing entities can now threaten to challenge the validity of a patent through federal court litigation or the faster and less expensive PTAB post-grant proceedings such as a “post-grant review” or a “covered business method” patent review.¹⁵⁵ Nevertheless, the owner of a computer system or software-related patent is likely to play it safe by “paying the troll” rather than face the high risk that its patent, if even remotely directed at an abstract idea, would be invalidated.¹⁵⁶

E. Flaws with the Alice Test

In addition to the previously discussed detrimental effects of the *Alice* decision, there exists the continuing underlying problem that the *Alice* two-prong test is not an adequate measure for evaluating an invention as patentable subject matter. The first prong asks if the invention is directed to an “abstract idea.”¹⁵⁷ However, the Court did not enumerate a comprehensive list or explanation of what constitutes an abstract idea, nor did the Court provide guidance on how to identify, characterize, or articulate an abstract idea embodied in claims.¹⁵⁸ While the USPTO’s guidance on *Alice* lists four categories of abstract ideas,¹⁵⁹ federal courts are under no obligation to follow this guideline because the USPTO is not awarded *Chevron* deference.¹⁶⁰ Thus,

152. *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1928 (2015).

153. Jim Singer, *Patent-Eligibility After Alice: A Summary of Decisions that Found Software Inventions Eligible for Patenting*, IP SPOTLIGHT (Nov. 25, 2014), <https://ipspotlight.com/2014/11/25/patent-eligibility-after-alice-a-summary-of-decisions-that-found-software-inventions-eligible-for-patenting/> (showing cases where patent eligibility has been denied due to failure to meet the two prongs).

154. Interview with David W. Long, *supra* note 124.

155. See generally Charles R. Macedo & Jung S. Hahn, *Understanding PTAB Trials: Key Milestones in IPR, PGR and CBM Proceedings*, PRACTICAL L. (2014), https://www.arelaw.com/images/article/link_pdf-1-1415047685-ARElaw_Understanding_PTAB_Trials101414.pdf (explaining the PTAB procedures).

156. Interview with David W. Long, *supra* note 124.

157. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2355–57 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 73 (2012)).

158. James J. Elacqua, et al., *US Supreme Court Reiterates Two-Part Test for Patentability of Computer-Based Methods*, SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP (June 19, 2014), <https://www.skadden.com/insights/us-supreme-court-reiterates-two-part-testfor-patentability-computer-based-methods>.

159. U.S. PAT. & TRADEMARK OFF., EXAMINATION GUIDANCE AND TRAINING MATERIALS, JULY 2015 UPDATE: SUBJECT MATTER ELIGIBILITY 4–5 (July 2015), <http://www.uspto.gov/sites/default/files/documents/iieg-july-2015-update.pdf>.

160. *Chevron U.S.A., Inc. v. Nat. Res. Def. Council, Inc.*, 467 U.S. 837 (1984). The Supreme Court held in *Chevron* that courts should defer to agency interpretations of statutes unless such interpretations are unreasonable. However, the PTO “has not historically possessed the authority to engage in formal adjudication or rule making,” and thus, it is not entitled to *Chevron* deference. See Melissa F. Wasserman, *The Changing Guard of Patent Law: Chevron Deference for the PTO*, 54 WM. & MARY L. REV. 1959, 1973 (2013) (enumerating the current dynamic between patent law and administrative law in the wake of the American Invents Act).

there is no universal standard of what constitutes an abstract idea, and the interpretation is solely within the reviewing party's discretion.

The second prong of the test asks if the invention's claims contain an "inventive step" that transforms the nature of the claims into a patent-eligible application that does "something more" than just applying the concept to "routine" and "generic" processes/products.¹⁶¹ As is the case with the first prong, the Court did not provide sufficient guidance on what constitutes "something more," "routine process," or generic processes/products.¹⁶² Therefore, this provides too much discretion to reviewing parties to decide the meaning and extent of these terms on their own. It is almost impossible to classify how a patentee can achieve "something more."¹⁶³ Further, investigating whether a computer system or software-related invention does "something more" than a routine process using a general computer is not an inquiry on patentable subject matter, but rather an analysis of the invention's novelty and/or obviousness.¹⁶⁴ If an invention does something more than what is considered to be routine, then such an invention is likely novel and not obvious, and is therefore better served under the constructs of 35 U.S.C. §§ 102 and 103.¹⁶⁵ Moreover, examining claims for precise limitations that "transform" the abstract idea into a patent-eligible invention¹⁶⁶ does not seem like an issue of subject matter, but rather a Section 112 enablement and/or definiteness concern in that the claims must be "clear, concise, and exact" so as to enable a person of ordinary skill in the art to practice the invention and recognize its boundaries.¹⁶⁷ Understandably, the criterion for patentability under 35 U.S.C §§ 101, 102, 103, and 112 are heavily intertwined. However, like the distinction established in *Commil* between infringement and invalidity,¹⁶⁸ a subject matter inquiry should not incorporate elements of novelty, non-obviousness, or enablement.

IV. RECOMMENDATION

Based on these circumstances, it is clear that the *Alice* test for determining patentable eligible subject matter must be refined. A broad two-prong test gives too much discretion to the party reviewing the invention's patentability. The purpose of a Section 101 patentable subject matter eligibility test for a computer system and software-related invention should be to ensure that the invention is not trying to patent the broad "building blocks of

161. *Alice*, 134 S. Ct. at 2355–57 (citing *Mayo*, 566 U.S. at 73).

162. See generally *id.* (failing to explain what constitutes "something more").

163. Eric Guttag, *The Broken Patent-Eligibility Test of Alice and Mayo: Why We Urgently Need to Return to Principles of Diehr and Chakrabarty*, IPWATCHDOG (Sept. 25, 2014), <http://www.ipwatchdog.com/2014/09/25/broken-patent-eligibility-test-of-alice-and-mayo>.

164. *Id.*

165. Conditions for patentability; novelty 35 U.S.C § 102 (2012); Conditions for patentability; non-obvious subject matter 35 U.S.C § 103.

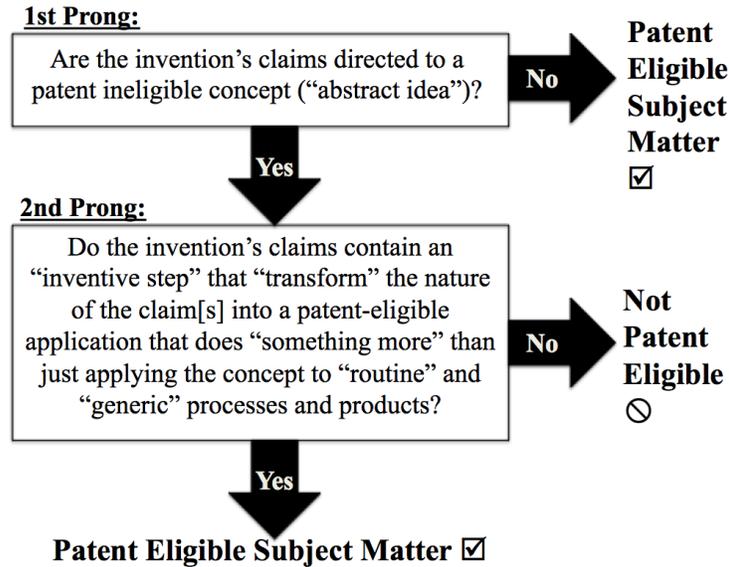
166. *Smartflash LLC v. Apple, Inc.*, No. 6:13-CV-447-JRG-KNM, 2015 WL 11090901 (E.D. Tex. Jan. 21, 2015).

167. Specification, 35 U.S.C. § 112 (2012).

168. *Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1928 (2015).

human ingenuity” and/or patent a fictitious concept that yields no tangible results.¹⁶⁹ Thus, the test must be refined, and additional, more specific steps need to be added. Figure 1 below diagrams the current test under *Alice*¹⁷⁰:

Figure 1. Current Patentable Subject Matter Test Under *Alice*¹⁷¹



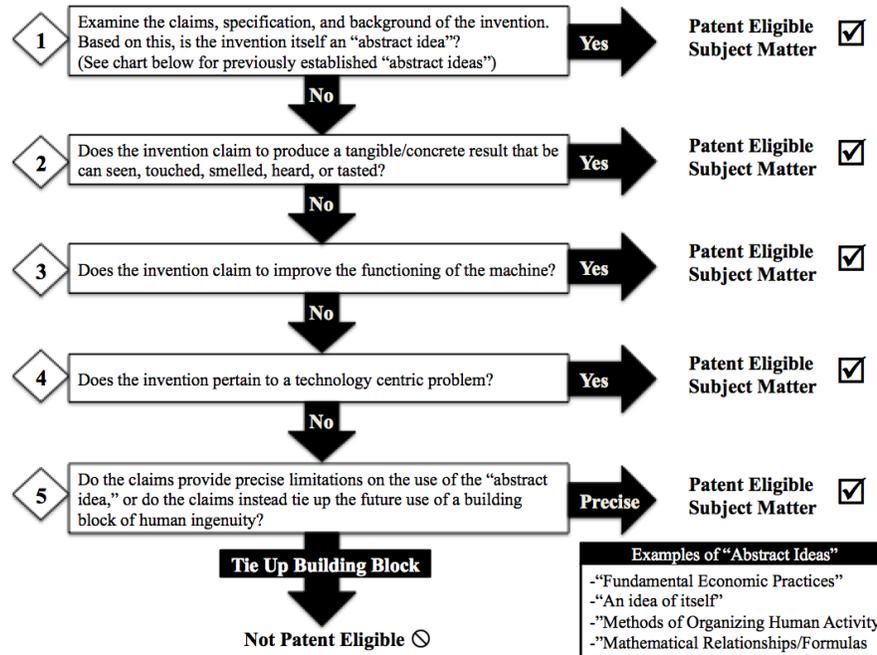
169. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 85 (2012)).

170. This diagram summarizes the language applied by the courts in *Mayo*, *Alice*, and subsequent patentable subject matter district court cases. *See generally id.*

171. The author of this Note created this diagram based on the holding of *Alice*.

A diagram implementing the new test courts should apply in determining patent eligibility is shown below¹⁷²:

Figure 2. Proposed New Patentable Subject Matter Test¹⁷³



This proposed new test is aimed at handling an invention like an excavated piece of rock, chipping away at the sediment until the “diamond” of the real subject matter is unearthed. It is imperative that courts first examine the invention at the appropriate level of scrutiny based on the claims.¹⁷⁴ Because all inventions can be simplified to a level of generalization that reduces the invention to an abstract idea, it is imperative that claims are carefully examined in order to establish a baseline for what the invention intends to achieve.¹⁷⁵ Thus, understanding the characterization and purpose the claims serve against the backdrop of the patent’s background and specification is essential to a patentable subject matter inquiry because it provides the context of what role the “abstract idea(s)” plays in the overall invention.¹⁷⁶

172. This new test and diagram incorporate the exceptions that courts and the PTO have made following *Alice*.

173. The author of this Note created this diagram.

174. *TimePlay, Inc. v. Audience Entm’t LLC*, CV 15-05202 SJO (JCx), 2015 WL 9695321, at *3–4 (C.D. Cal. Nov. 10, 2015).

175. *Id.* at 10.

176. *Id.* at 17.

After this has been established, the first inquiry should be to determine if the invention itself is claiming an abstract idea. To accomplish this, all reviewing authorities should give *Chevron* deference to the PTO and apply the guidelines and examples enumerated by the PTO.¹⁷⁷ The PTO currently recognizes four types of abstract ideas:

- (1) “Fundamental Economic Practices,” or “concepts relating to the economy and commerce,” such as hedging or mitigating settlement risk;
- (2) An “Idea ‘of Itself,” or an idea standing on its own or a mental process that “can be performed in the human mind, or by a human using a pen and paper,” such as collecting and comparing data;
- (3) “Certain Methods of Organizing Human Activity,” concepts relating to assessing and/or managing interpersonal/intrapersonal traits and behaviors, for example a career aptitude test; and
- (4) “Mathematical Relationships/Formulas,” or mathematical algorithms, relationships, formulas, and calculations, for instance a formula that predicts the return on investment based on a variety of parameters.¹⁷⁸

If the invention does not fall under any of these four well-established canons, then the invention should be patentable because the invention is likely not an abstract idea.¹⁷⁹ However, if the invention appears to be an abstract idea, then further analysis is required to determine whether the invention does “something more” that would make it patent eligible.¹⁸⁰ Should this be the case, the reviewing authority should proceed to the second question.

The second question courts should ask is whether the invention produces a tangible or concrete result that can be seen, touched, smelled, heard, or tasted. If the answer to this question is “yes,” then the invention should be patent eligible pursuant to *Chamberlain*.¹⁸¹ Any invention that yields a tangible result that is capable of being experienced by at least one of the five senses is obviously not an abstract idea.¹⁸² Conversely, an invention that yields a tangible result is undeniably a sufficient “transformation” into “something more,” and thus should be patent eligible.¹⁸³

However, if the invention does not yield a tangible result, then the next question the reviewing authority should ask is whether the invention claims to improve the functioning of the machine. If the answer to this question is “yes,” then the invention should be patentable based on *Smartflash LLC, Enfish*, and the PTO’s guidelines.¹⁸⁴ This third prong is complementary to the

177. U.S. PAT. & TRADEMARK OFF., *supra* note 159.

178. *Id.* at 3–5 (internal citations omitted).

179. *Id.*

180. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2354, 2347 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71–73 (2012)).

181. *Chamberlain Group, Inc. v. Linear LLC*, 114 F. Supp. 3d 614, 624–25 (N.D. Ill. 2015).

182. *Alice*, 134 S. Ct. at 2354 (citing *Mayo*, 566 U.S. at 71–73).

183. *Id.*

184. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327 (Fed. Cir. 2016); *Smartflash LLC v. Apple, Inc.*, No. 6:13-CV-447-JRG-KNM, 2015 WL 11090901 (E.D. Tex. Jan. 21, 2015); U.S. PAT. & TRADEMARK OFF., *supra* note 135.

second prong because not all results or improvements can be observed, especially within the realm of computers. For instance, using less memory, removing a malicious computer virus, or performing a function faster/more efficiently cannot be tangibly perceived, yet nonetheless does “something more,” and should be eligible for patent protection.¹⁸⁵ As is the case with many computer system and software-related inventions, the novelty of the invention lies within how the invention improves accomplishing a task and not just what task the invention accomplishes.

However, if the invention does not improve the functioning of a machine, then the fourth question the reviewing authority should ask is whether the invention pertains to a technology-centric problem. Inventions that can pass this prong should be patentable according to *DDR Holdings*.¹⁸⁶ This prong incorporates the holding from that case by recognizing that if an invention is effectively directed towards a specific industry (and a problem that arises within that industry), then the invention does not claim the “‘buildin[g] block[s]’ of human ingenuity” and does not “‘disproportionately [tie] up the use of’ [an] underlying abstract idea.”¹⁸⁷ It is important for reviewing authorities to consider that computers, and the functions they accomplish, are themselves somewhat of an abstract idea.¹⁸⁸ There will always exist problems that are unique to computers and that do not necessarily have a real-world (non-computer) equivalent. Thus, inventions that solve computer-created problems should be patentable. Additionally, the rationale of including this fourth prong is consistent with *Diehr* because an invention that passes this prong only seeks to cover the use of the concept within a specific area rather than trying to entirely preempt the use of the abstract idea across all industries.¹⁸⁹ Therefore, this inquiry will rely heavily on what is included in the specification to define the true extent of the invention.

The fifth question the reviewing authority should ask, before declaring an invention as patent ineligible, is whether the claims provide precise limitations on the use of the “abstract idea,” or instead tie up the future use of a building block of human ingenuity. If the claims provide precise limitations on the use of the abstract idea, then invention should be patentable pursuant to *Diehr* and *Smartflash LLC*.¹⁹⁰ If on the other hand the invention appears to be claiming a “building block” of ingenuity beyond a specific application or industry, the invention should not be patent eligible because it will unfairly grant a monopoly and thus tie up future use.¹⁹¹ Like the fourth prong, this inquiry will rely heavily on the specification in order to ascertain the true scope of the claims.

185. *Id.*

186. *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1258–59 (Fed. Cir. 2014); *DataTern, Inc. v. MicroStrategy, Inc.*, No. 11-11970-FDS, 2015 WL 5190715 (D. Mass. Sept. 4, 2015).

187. *TimePlay, Inc. v. Audience Entm’t LLC*, CV 15-05202 SJO (JCx), 2015 WL 9695321, at *7 (C.D. Cal. Nov. 10, 2015) (quoting *Alice*, 134 S. Ct. at 2354–55).

188. U.S. PAT. & TRADEMARK OFF., *supra* note 159.

189. *Id.* at 22–23 (quoting *Diamond v. Diehr*, 450 U.S. 175, 187 (1981)).

190. *Diehr*, 450 U.S. at 175; *Smartflash LLC v. Apple, Inc.*, No. 6:13-CV-447-JRG-KNM, 2015 WL 11090901 (E.D. Tex. Jan. 21, 2015).

191. *TimePlay, Inc.*, 2015 WL 9695321, at *8 (quoting *Diehr*, 450 U.S. at 187).

While a progression of five different specific questions is proposed as an alternative to the two-prong *Alice* test, it is not necessary for a reviewing authority to apply this new test to examine each of the five questions or even ask them in the order proposed. For instance, an invention that passes the second or third prong need not be subject to any additional inquiries. Conversely, it may be abundantly clear just by reading the claims that the invention does not provide remotely sufficient limitations or is claiming a building block of innovation, and thus the invention is not directed to patent-eligible subject matter. It is expected that as technology advances, additional steps would be added to the new patentable subject matter test. Nonetheless, it is suggested that a reviewing authority still ask each of the proposed questions in order to effectively ascertain the invention's true subject matter and eligibility to be patented.

V. CONCLUSION

The 2014 Supreme Court decision in *Alice* requires further interpretation and less stringent standards for evaluating whether a computer system or software-related invention is patent-eligible subject matter.¹⁹² The current "abstract idea test" needs to be refined because it provides too vague a framework for examination and provides the reviewing party too much discretion. In turn, this has caused an inconsistent application of the test within federal courts, the USPTO, and the PTAB. Consequently, the United States patent system has already begun to experience substantial detrimental effects as a result of the *Alice* decision and the unpredictability of its patentable subject matter test.¹⁹³ Therefore, a more specific and in-depth patent-eligible subject matter test needs to be adopted in order to harmonize the standard for reviewing patent-eligible subject matter and to uphold the principles and values of the United States patent system.

192. *Alice*, 134 S. Ct. at 2347.

193. See *Where Do We Stand One Year After Alice?*, *supra* note 5 (noting the detrimental effects of the *Alice* decision observed by several current practicing patent attorneys).